
6 Structural reform

In an effort to encourage better performance, many governments are re-examining the structure of their railways. In general, differences in the characteristics of networks, transport markets, and impediments to performance confronting the industry mean that different structures are appropriate for interstate, regional and urban passenger rail networks.

A number of governments have examined the scope for using structural reforms to address the diverse problems confronting railways and impeding their performance. In essence, structural reform involves breaking-up established railways into separate trading entities, with separation occurring on a geographic, functional (track, rollingstock and maintenance) or product (passengers and freight) basis. Although there are numerous ways in which railways can be (and have been) restructured, there are some important threshold issues.

A critical question for governments to consider is the type of structural separation which would deliver the greatest gains to the community. Answers to this question depend upon the characteristics of the railway network, the markets in which railways operate and the nature of the problems confronting the industry.

Structural separation is not a panacea for the problems facing railways. Indeed structural reform is likely to be only part of the solution to improving the performance of rail and the efficiency of transport more generally. It is more appropriate to view structural separation as part of a broader package of reforms, such as changes in ownership arrangements (chapter 7) or the application of the purchaser-provider framework to fund non-commercial services (chapter 11).

In line with the terms of reference, this chapter examines:

- how structural reform may help address the problems facing railways;
- options for restructuring; and
- the appropriate structure of different rail networks.

Section 6.1 defines structural separation and describes the major structural models applied to rail in Australia and internationally. Section 6.2 then describes how structural separation may be used to improve performance. Section 6.3 discusses the costs of introducing structural separation. Drawing on the networks outlined in

chapter 2, section 6.4 identifies the preferred structure for urban passenger, interstate and regional rail networks. Section 6.5 concludes the chapter.

6.1 Structure of rail authorities

Historically, Australia's government-owned railways were integrated both vertically and horizontally. This meant a single government agency controlled activities such as train operations, track provision, maintenance, signalling and train timetabling. During the 1990s, several railways in Australia and other countries were structurally separated (box 6.1). Chapter 3 and appendix D discuss these reforms in more detail.

Box 6.1 Definitions relating to structural separation

Structural separation: businesses are separated into discrete legal entities.

Horizontal separation: occurs either by product (freight and passenger services) or by geographic area (interstate, regional and urban railways).

Vertical separation: functional levels are separated (track infrastructure and train operations).

Above track or train operations: the provision of rail freight and passenger transport services involving locomotives and other rollingstock.

Below track or track infrastructure: physically fixed rail facilities such as track, sleepers, signals, terminals and yards.

Australian experience

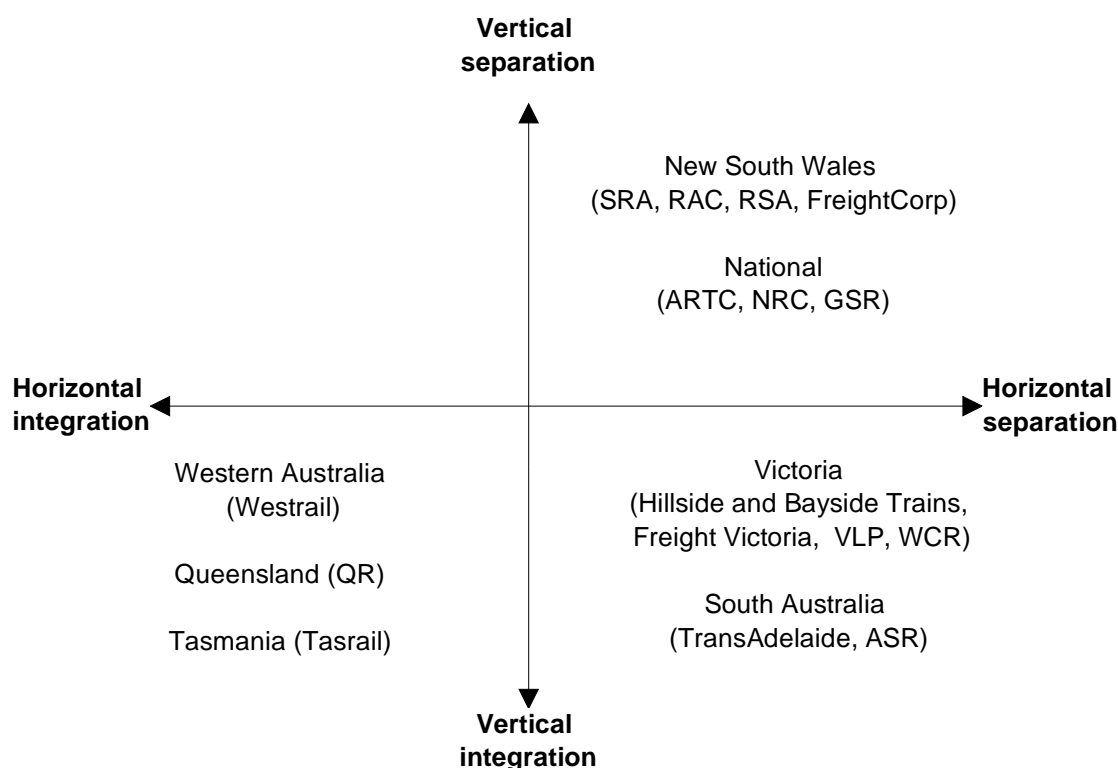
Currently, Australia's railways are structured in one of three broad ways (figure 6.1). The Commonwealth and NSW Governments are positioned at one end of the structural spectrum. The Commonwealth has created a separate track infrastructure provider, the Australian Rail Track Corporation (ARTC) to own and manage key elements of the interstate network. A separate body, the National Rail Corporation (NRC), provides interstate and intrastate freight services and is jointly owned by the Commonwealth, NSW and Victorian Governments.

New South Wales has separated the former State Rail Authority (SRA) into four businesses:

- Rail Access Corporation (RAC) — track infrastructure provider;
- FreightCorp — primarily an intrastate freight train operator;
- Rail Services Australia (RSA) — the maintenance business; and
- State Rail Authority (SRA) — urban and country passenger train operator.

At the other end of the spectrum, Queensland Rail (QR), Westrail and Tasrail are horizontally and vertically integrated businesses. Western Australia plans to horizontally separate Westrail into freight and urban passenger businesses by the end of 1999, with the freight business to be sold as a vertically integrated railway.

Figure 6.1 The structure of rail authorities in Australia^{a, b} July 1999



^a States have been classified as vertically integrated if one of the train operators on a network also has control of the network, through ownership or leasing. ^b Private railways are included where they are the result of government railways being restructured and privatised.

Victoria and South Australia have applied an intermediate approach whereby the intrastate railways have been horizontally separated but remain vertically integrated. In South Australia, separate entities provide urban passenger transport (TransAdelaide) and the intrastate freight services (Australia Southern Railroad (ASR)). In Victoria, freight services (Freight Victoria) and urban passenger services (Bayside and Hillside Trains) are operated by separate vertically integrated organisations.¹ Non-urban rail passenger services are provided by V/Line Passenger (VLP) and West Coast Railway (WCR).

¹ The franchises for Bayside Trains and V/Line Passenger were awarded to National Express in June 1999. The franchise for Hillside Trains was awarded to Melbourne Transport Enterprises in July 1999.

International experience

A variety of structural configurations also exist in other countries. For instance, some European railways (Netherlands, Sweden and Britain) have been separated horizontally and vertically. Also, directives from the European Commission (EC Directives 91/440/EEC, 95/18/EC and 95/19/EC) require member countries at least to undertake separation of accounts for all rail enterprises. Germany has applied this approach. Railways in the United States, Canada and New Zealand operate as vertically integrated businesses. A mixed model, combining horizontal separation (by geography and function) and vertical integration has been applied in Japan and Argentina (appendix E).

6.2 Why consider structural separation?

Structural separation may contribute to improving the performance of railways by:

- promoting competition:
 - ‘in’ the market; or
 - ‘for’ the market;
- facilitating the regulation of the natural monopoly elements of railways; and
- implementing appropriate policies in different markets.

Promoting competition

Structural separation has been used by governments to promote competition. Under National Competition Policy, governments have agreed to review structural arrangements where they are considering introducing competition (chapter 3, box 3.2). The Victorian Government argued that the:

... introduction of competition wherever possible will secure the largest gains in terms of efficiency. (sub. DR118, p. 3)

However, the notion of competition is more complex than the widely accepted view that it relates to competition between train operators within a certain market. It may also involve operators competing to get access to the market as a monopoly provider or operators competing with other modes of transport.

Promoting competition 'in' the transport market

Competition in the transport market may contribute to the improved performance of railways. Structural separation may be used to facilitate greater competition:

- between train operators and other modes;
- between train operators for the same customers; and
- between train operators for train schedules.

Between train operators and other modes

The transport sector provides a diverse set of services, reflecting different customer requirements in terms of time sensitivity, technology and the logistics of production and distribution. Vertical separation may promote greater differentiation of services by train operators than might occur from introducing open access alone. The ARTC commented that:

In essence, the separation of above and below rail activities combined with the introduction of an open and robust access pricing regime has encouraged competition on the East West corridor; the consequence of this has been some segmentation of the market, a fall in prices and an increase in quality of service. The evidence would therefore suggest that the reforms introduced to date have been successful in altering the fundamental dynamics of the industry. (sub. 74, p. 5)

There is evidence that market segmentation and product differentiation have occurred in the interstate market following structural separation. Such segmentation may facilitate opportunities for competition between rail and other transport modes such as road and sea (NCC 1998a, subs. 3, 25 and 80). For instance, NRC Trailerrail bimodal service competes with road on the East-West corridor. Rail 2000 argued that the:

... greatest benefit (from competition policy) is from competition between modes. Competition within rail (vertical separation) will lead to efficiency but not grow the business. (Rail 2000 Newsletter, No. 51, May 1999, p. 5)

However, Patrick provides an example of how rail can also integrate into the transport chain and complement other transport modes. Patrick is using rail services between Adelaide and Melbourne to provide its Adelaide clients with seamless service through the Port of Melbourne. The Local Government and Shires Associations of New South Wales supported the complementary nature of road and rail transport:

The two modes should not be viewed as separate and competing forms of transport but complementary in delivering transport services for industry and regional communities. (sub. 71, p. 2)

Between train operators for the same customers

Vertical separation of train operations from track infrastructure may facilitate competition between train operators for the same customers.

Although a vertically integrated railway may provide some access, vertical separation may be considered necessary to remove the favourable position of the operator who has control of the infrastructure (chapter 8). This concern was echoed by several participants (ARTC, Shell, Queensland Mining Council, National Competition Council, Rio Tinto, Tourism Council of Australia and the Commonwealth Department of Agriculture, Forestry and Fisheries). For instance, the Tourism Council of Australia noted:

Some argue that access regulation and vertical separation increase effectiveness by removing the conflict of interest an integrated railway has over allowing competitors access to its track ... (sub. DR121, p. 3)

There is evidence that vertical separation of rail authorities into train operations and track infrastructure may promote competition in some markets. However, this is not always the most appropriate strategy (box 6.2).

Between train operators for train schedules

In order for competition between operators to be effective in terms of the range of services operating over the network, there also should be competition between train operators for train schedules. There may be greater competition for train schedules with vertical separation than under vertical integration and open access alone. Some suggested methods of introducing competition for the allocation of train schedules are outlined in chapter 8.

Promoting competition 'for' the market

Allowing competition for the market may be possible in situations where the nature of the market is such that sustainable competition between train operators is unlikely. Competition for the market occurs where the provision of rail services is subject to a competitive process, such as competitive tendering and contracting or franchising (chapter 7). Demsetz described the competitive effects of franchising as follows:

Even though but one firm would survive this competition in a given market, competition for the field [market] should dissipate monopoly rent through price cutting, yielding a competitive outcome for the one-firm industry that emerges. (Demsetz 1989, p. 87)

Box 6.2 **When to introduce vertical separation to promote competition**

The economic efficiency of railways is enhanced by introducing competition through vertical separation when:

- rail networks possess natural monopoly characteristics such as economies of scale and have effective market power (the network can earn monopoly profit);
- train operators are able to compete on a commercially sustainable basis; and
- track infrastructure and train operations are relatively independent so that the costs of separation are small in relation to the gains from competition and efficient economic regulation.

Effective market power is determined by the ability of the rail operator to receive revenues significantly greater than the total (stand alone) cost. In relation to access charges, the OECD observed:

The incumbent should not be able to charge less than the incremental cost of providing the access service and should not be allowed to charge more than the stand alone cost of providing that service. (p. 156)

Market power is unlikely to eventuate when there is intermodal competition or competition in the downstream markets. The OECD argued:

If it is true that rail faces significant intermodal competition, the opportunities for profitable competitive entry will be relatively limited. Viewed in this light, the policy option of vertical separation is a relatively significant regulatory intervention for relatively little gain. (pp. 157-158)

Vertical separation may complicate the application of efficient Ramsey pricing and cause a network to be commercially unsustainable.² The OECD stated:

... in most instances, the recovery of the roadbed costs will require price discrimination, ie it will require some type of Ramsey efficient pricing. The separation of track from services will make the application of the Ramsey efficient pricing very difficult, if not actually impossible. (p. 176)

Consequently, there may be a trade-off between commercial sustainability and competition. The OECD noted:

The challenge then, is to make sure that there is sufficient competition in the market to ensure that there is efficiency without there being wasteful competition. Open access is not likely to be appropriate where there is an unsustainable natural monopoly, that is, one that is vulnerable to cream-skimming. (p. 183)

Source: OECD 1999.

² Ramsey pricing involves setting prices above marginal cost inversely proportional to the price elasticity of demand of different buyers. This would enable full cost recovery.

A competitive tendering process may be used to promote competition by awarding contracts for the right to supply rail services. Tenders may be awarded on the basis of selection criteria that may differ depending on whether the railway is commercial or non-commercial.

- For commercial railways, the criteria may include the lowest total cost of service provision over a relevant period at an acceptable level of risk. This approach was adopted by Flinders Power in South Australia in awarding a coal haulage contract to FreightCorp.
- For non-commercial railways, the criteria may include the lowest subsidy required. This approach was applied by the Victorian Government when franchising urban passenger services.

Promoting competition for the market may deliver added benefits through, for instance, facilitating yardstick competition.³ The Victorian Government intends to compare the performance of Bayside Trains, Hillside Trains and trams and buses in Melbourne (sub. 82). Such comparisons put pressure on the individual franchisees to improve their performance.

Regulating natural monopoly elements

Structural separation may assist governments in regulating the natural monopoly elements of railways. Rail track has been considered a natural monopoly as customers are served at least cost by one firm providing the service (IC 1991b).

Regulation of some form is likely to be required where the rail businesses possess significant market power which they are able to use to extract monopoly rents (excess profits). For instance, if intermodal competition is limited and there is limited competition in downstream markets, the train operators and/or track infrastructure providers may have the potential to charge excessive prices resulting in revenue exceeding stand alone cost. RAC argued:

Under a vertically integrated model, an incumbent owner-operator could have stifled such access by unfairly leveraging its infrastructure ownership as a barrier to entry. Access charges could be set at an oppressive rate for competitors and restrictions on conditions of access could be set; any or all of these factors would effectively stifle competition in market segments. (sub. DR102, p. 3)

³ Yardstick competition involves comparing the performance of organisations with similar objectives operating in separate markets.

Structural separation may reduce the regulatory burden by isolating (via horizontal separation) the monopoly network from the rest of the network, or through vertically separating the (natural monopoly) track, from the rest of the system.

Implementing different policies in different markets

The rail industry encompasses a number of businesses that may be separate in terms of geography, function and type of service. Governments may choose to apply different packages of reforms to different parts of the rail network. For instance, they may introduce a purchaser-provider framework and competition for the market for urban passenger services, while promoting competition in the market for the interstate network.

The horizontal separation of the interstate, regional and urban passenger rail networks may improve the monitoring of performance and increase the transparency of outcomes in each market. The vertical separation of track infrastructure and train operations may improve the administration of subsidies, while promoting competition between train operators. For instance, vertical separation allows subsidies to be directed to track infrastructure (Sweden) or train operations (Great Britain).

6.3 The costs of structural separation

Even when structural separation is well designed and implemented, it may still involve costs. Participants (such as Australian Transport Network, CRT Group and Rio Tinto) argued that structural separation imposes large costs. Australian Transport Network submitted that:

... heavy transaction costs of separation, both in setting up an infrastructure company, organising and formalising its myriad interactions with operating companies, and in its everyday running, also penalises rail in relation to its main competitors. The heavy cost of setting up Railtrack in the United Kingdom, for example, is effectively borne (where there are not subsidies) by the railway operators and their customers. (sub. 25, p. 4)

The potential costs of structural separation in the rail sector have been discussed widely. It has been suggested that costs may arise from:

- a lack of coordination between separated rail entities, both in terms of above and below track businesses and between geographically separated entities. This may result in inappropriate investment decisions;
- ‘interface issues’, such as difficulties associated with a train operator traversing different networks with multiple owners and managers;

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- complications associated with timetabling, train schedule allocation and capacity management;
 - the loss of some economies of size, scope and density;
 - added complexities in the administration of prices and services, such as ticketing;
 - the high initial cost of separation;
 - high transaction costs of acquiring full information necessary for train operators and track providers to undertake long term investment planning;
 - the loss of the ability to price discriminate (to use Ramsey pricing) and therefore recover the cost of track infrastructure; and
 - greater regulatory intervention.⁴

Before any structural reform is considered there needs to be systematic analysis of the ‘problem’ and whether structural separation should be part of the solution. The Rail Bus and Tram Union cited the International Labour Organisation which noted:

It has become increasingly clear that most railways cannot continue to operate successfully under the legal, administrative and financial regimes of the past. But it is equally true that, at the national level, the arguments in favour of restructuring are often not based on systematic analysis of the problems. (sub. DR114, p. 6)

Systematic analysis of structural reform options would involve assessing the relevance and likely magnitude of the costs of structural separation and comparing them with the benefits, including potential gains from facilitating competition and improved regulation and monitoring.

The benefits and costs of structural separation are likely to differ between networks and depend upon the characteristics of the transport market.

6.4 Which structures are appropriate?

This section considers structural issues relating to the urban passenger, interstate and regional rail networks, drawing on the principles set out in the previous sections and the characteristics of the rail networks defined in chapter 2.

⁴ For further information see Kessides and Willig (1995), Brooks and Button (1995), Thompson (1997), King (1997), OECD (1998), van de Velde and van Reeve (1998) and OECD (1999).

Urban passenger transport

Governments generally support urban rail passenger services as an important component of the transport system in cities. They may also use urban transport to address environmental and social policy goals, such as reducing congestion and pollution.

Urban passenger transport systems are non-commercial and would not exist in their present form and at current levels of service without government subsidy (PC 1998c). An increase in commercial focus would result in more efficient services and minimise losses. However, even with a commercial focus, it is anticipated that urban passenger services would remain non-commercial and require continued government support.

There is scope to improve the performance of these services by improving:

- transport planning by governments (such as the choice and mix of urban passenger systems including rail) (chapters 10 and 11); and
- the efficiency with which rail services are provided as part of the urban transport system.

Improvements in performance are best achieved by separating urban passenger networks from other railway businesses as vertically integrated businesses in order to improve the application of the purchaser-provider framework (chapter 11).

The case for horizontal separation

The horizontal separation of urban passenger networks from other rail networks (such as regional and interstate networks) should improve the focus of governments on the choice and mix of transport services purchased in Australia's major cities and the efficiency with which they are provided. It should also encourage greater transparency.

Many participants raised concerns regarding the practicality of horizontally separating urban passenger networks (including RAC, Commonwealth Department of Transport and Regional Services (DTRS) and NSW Minerals Council). Their main concern related to interface issues whereby other trains traverse over urban networks (chapter 2). The significance of these issues depends on the physical complexity of the network and the degree of congestion.

Westrail commented that while Western Australia does not have urban interface problems, there are problems in other jurisdictions:

We don't have an urban interface with our interstate business but it certainly causes us major headaches because the entry and exit times for the trains out of Sydney and Melbourne ... control how you manage across the network. (trans., p. 757)

RAC also noted that interface issues are a significant concern in Sydney:

In the case of Sydney (and to a lesser extent some other major cities), there is considerable overlap of markets that make horizontal separation impractical. (sub. DR102, p. 14)

However, some of these problems can be overcome through contractual arrangements. Under horizontal separation the provider of urban passenger services would control the urban network. Freight and non-urban passenger trains could then negotiate contracts for access to the urban network. In most Australian cities the simple network configuration and low degree of congestion would make this possible. ARTC noted:

... I wonder if it's worth just looking at other industries for a second and reflecting on those interfaces ... local ... state ... and you have federal government investment in a whole range of roads. For some unknown reason they actually do interconnect, and for some unknown reason they actually are all run smoothly even though you've got five or six different participants playing on them ...

But let's look at one other example in Australia, the electricity industry. The electricity industry is really made up of a whole set of grids and transmission lines with a whole range of input providers of electrons from a whole range of generating frameworks.

Those grids are under a range of different people's controls and they range from high voltage, medium, through to low voltage. They seem to be able to interconnect, they seem to be able to get the interfaces right and they do seem to be able to get their billing and structures right around it. (trans., p. 808)

There are many examples of contractual arrangements overcoming interface problems in Australia and internationally. In Victoria, contractual arrangements between Bayside Trains and interstate and regional operators in Melbourne permit non-urban passenger and freight trains to traverse the urban network. Similar arrangements (such as trackage rights) exist in the United States (appendix E, box E.4).

In some urban networks congestion may be a problem, particularly at peak periods. In these circumstances governments may consider:

- augmenting capacity by investing in a freight bypass or other infrastructure projects (chapter 10); and/or

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- managing demand by adopting appropriate pricing strategies such as auctioning train paths (chapter 8).

While there are difficulties associated with horizontal separation of urban transport networks, there are practical solutions to these problems. Moreover, these problems and costs are considered small in relation to the efficiency improvements achieved through the use of competitive tendering and franchising processes to award the right to provide services (chapter 7) and from focusing governments on purchasing and planning of urban transport systems. The benefits from horizontal separation far outweigh the costs associated with interface issues.

There are demonstrated and practical solutions to interface issues arising from horizontal separation of urban passenger networks.

The case for vertical integration

Urban passenger services require that trains run frequently and to a complex timetable. Coordination of services to meet the timetable is likely to be more effectively undertaken by a single operator.

Most urban rail networks in Australia are vertically integrated (with the exception of those in New South Wales). There is no competition between urban passenger train operators for the same customers, but there may be some competition between urban passenger, non-urban passenger and freight train operators for train schedules. Train scheduling is undertaken by the vertically integrated urban passenger operator(s) in all states except New South Wales. In Melbourne, Bayside and Hillside Trains undertake train scheduling for their own networks, which are independent of each other.

The relatively small size of many urban passenger markets in Australia is likely to limit the scope for competition between train operators for customers. In these circumstances, implementing competition for the market through contracting or franchising of vertically integrated businesses is more likely to generate improvements in efficiency of the urban passenger railway than the promotion of competition between operators through vertical separation.

RAC opposed the vertical integration of urban rail networks arguing that:

If the Sydney network were reintegrated vertically, access requirements of freight operators would mean that SRA would need to either create an access unit and thereby introduce further jurisdictional boundaries for operators, or it would need to establish a retailing arrangement with RAC and/or other access providers. (sub. DR102, p. 14)

DTRS also opposed the vertical integration of urban networks, arguing that the greatest benefits would be generated from competition between urban train operators:

We also think that the vertical separation model remains the best approach for urban systems where competition must be encouraged if urban transport is to fulfil its potential role in our cities in the future. (sub. DR125, p. ii)

However, while vertical separation has been successfully implemented for urban railways in Great Britain, there are still interface issues associated with congested networks. When the British Government decided to transfer part of the (vertically integrated) London Transport (LT) network to Railtrack, concerns were raised that congestion on some LT rail lines made separation inappropriate:

LT has studied the proposal to run through trains on the northern section of the Circle Line between Paddington and Aldgate in detail. The scheme doesn't work because this section of the underground is used so intensively — as anyone who travels on it will recognise — that there are no spare 'slots', and re-engineering the line would be enormously disruptive. (Ford, P. 18/6/99 in The London Evening Standard)

In these circumstances alternative solutions may be appropriate. The access conditions for non-urban passenger and freight trains could be built into the contracting or franchising arrangements for the urban transport system, as they are in the Victorian approach. Franchise agreements could have terms and conditions that give the franchisees incentives to deliver the urban services more effectively and provide paths for other operators.

RECOMMENDATION 6.1

Urban rail networks should be vertically integrated and horizontally separated from other rail networks.

To achieve the full benefit of horizontal separation, it should be combined with competitive tendering and contracting using the purchaser-provider framework (chapters 7 and 11).

Interstate network

The interstate network is already horizontally separated in terms of operations.⁵ Currently four authorities are responsible for the administration of access, five authorities have a role in allocating train schedules and five authorities undertake investment in the network (chapters 3, 7 and 8). In Western Australia, the network is

⁵ The interstate network includes the standard gauge track from Brisbane to Perth and Tarcoola to Alice Springs, and other track used by interstate trains (chapter 2).

owned by a train operator (Westrail); while elsewhere, the track infrastructure is separated from train operations.

Multiple sub-network managers impose costs on the interstate network. Train operators have faced significant financial and time costs in negotiating access charges and train schedules with numerous owners. ARTC was established to overcome these problems by providing rail operators with a one stop shop.

The competitiveness of the interstate network may be best improved through vertically separating the interstate network and having a single network manager.

The case for horizontal integration of network management

The management of the interstate rail network is currently separated on a jurisdictional basis. In the Draft Report the Commission proposed horizontal integration of network management for the interstate network. The interstate rail network manager would not own the interstate network. Rather, its primary role would be to *manage* the network on behalf of the train operators and track owners according to a set of rules.

Many participants commented on the draft proposal. Once again some were concerned with the interfaces between the interstate and regional networks. DTRS submitted:

... the primary concern of States and State track owners is that the costs to the intrastate rail sector of vertical separation and horizontal integration of the interstate network under a single network manager, may outweigh the benefits they would realise from improved access arrangements to the interstate rail market. (sub. DR125, p. 2)

Westrail argued regardless of the structural model adopted interface issues would always exist:

Whilst there is continued discussion with respect to the interstate network whatever structural model is introduced will require extensive interfaces and this will create issues for operators. (sub. DR107, p. 5)

NRC concurred:

The problem comes with that interface where you've got a train path which crosses that interface and you've got two organisations who have to coordinate those train paths, but that problem is going to exist in New South Wales wherever you go until there is a freight network that goes either through or around the city on its own exclusive track. (trans., p. 1029).

As noted earlier, ARTC has used the experience of other industries relying on networks, such as roads, airports and the electricity industry, to explore interface issues and concluded that there were ways to overcome them (trans., p. 808).

A single network manager could assist in overcoming interface issues if it had full control. NRC noted:

The manager concept will work only if on any given part of the network there is one organisation which is undoubtedly fully in charge, is able to contract the service and guarantee a level of performance, without having to go another layer, if you like, of the contractual arrangements to require that performance from somewhere else. It's got to be a one-to-one total control management situation, otherwise we're dealing with — once again we're dealing with a middleman who has no ability to affect the quality of the service that we get. (trans., p. 1029)

A network manager for the interstate rail network could play a similar role to that of the National Electricity Market Management Company (NEMMCO) in the national electricity market (box 6.3) or VENCORP in the Victorian electricity and gas market. A similar approach is adopted in the Netherlands by Rijnland and NS Verkeersleiding — the rail network and signalling and systems control managers respectively (appendix E).⁶ This model can be distinguished from current arrangements under which ARTC operates (appendix F). ARTC owns and manages the former Australian National track. In the model proposed by the Commission the network manager would not own track infrastructure.

The horizontal integration of rail network management would allow coordinated management of the interstate network. In particular, the network manager could be responsible for determining and administering access and allocating train schedules (chapter 8). The network manager would also be able to facilitate the appropriate level of investment and maintenance to benefit all users of the interstate rail network (chapter 10). A code of conduct would need to be developed setting out the role and functions of the network manager (chapter 8).

Network manager models, such as the National Electricity Market Management Company Limited (NEMMCO), provide a useful basis for examining the potential for the horizontal integration of rail network management and determining the role and functions of a single interstate network manager.

⁶ Similarly in Europe, Trans European Rail Freight Freeways network manager allocates train paths to train operators wishing to traverse the network (Mercer Management Consulting 1997).

Box 6.3 National Electricity Market Management Company Limited (NEMMCO)

The National Electricity Market (NEM) is a wholesale market for the supply and purchase of electricity, combined with an open access regime for use of the transmission and distribution networks in the participating jurisdictions of the Australian Capital Territory, New South Wales, Queensland, South Australia and Victoria.

The NEM arrangements are defined in the National Electricity Code (NEC). The NEC includes the rules and procedures for the wholesale electricity market and access regime for the electricity networks. NEMMCO manages and facilitates the wholesale electricity market while the National Electricity Code Administrator (NECA) supervises, administers and enforces the Code. The access regime for electricity networks is regulated by the Australian Competition and Consumer Commission and jurisdictional regulators.

The objectives of NEMMCO are to:

- conduct the wholesale electricity market efficiently on a self funding/break even basis;
- promote the ongoing development of, and changes to, the wholesale electricity market with the objective of improving its efficiency; and
- undertake responsibility for coordination of power system planning for the wholesale electricity market as defined by the Code.

Source: NEMMCO 1998.

The case for vertical separation

On the interstate network there has been vertical separation into track infrastructure and train operations, except in Western Australia where the track from Perth to Kalgoorlie remains with Westrail.

Vertical separation of the interstate network has facilitated some intermodal competition through market segmentation and product differentiation. Specialized Container Transport now offers a regular service for transporting beverages and foodstuffs between Sydney and Perth, and Melbourne and Perth. Previously many of these items were transported by road.

While vertical separation could promote new entry into other market segments of the interstate track, its extent may be limited. For instance, if train operations in niche markets are characterised by economies of scale, only one train operator may ultimately provide that service. Nevertheless, where product differentiation and market segmentation occur on a sufficiently large scale, the volume of goods transported on the interstate network may increase. Increased capacity utilisation

may then reduce unit costs for operators on the network. There is some evidence of competition between train operators for the same customers, for instance between Toll and NRC in the freight forwarding market between Melbourne and Perth.

Another way vertical separation of the interstate track can deliver benefits is through promoting competition between train operators for train schedules. The efficient allocation of track infrastructure requires that train schedules should be developed and allocated in a manner that closely reflects their value to train operators (chapter 8). For instance, FreightCorp suggested that:

The structure of a vertically separated rail network means that operators wishing to enhance the network need to be willing to pay. (sub. 55, attach. 2, p. 17)

However, an appropriate coordinating mechanism is required to create an efficient system for allocating train schedules in conjunction with access charges over the entire interstate network. This mechanism is particularly important for the pricing of peak loads and reducing congestion. Currently, the owners and users of the interstate network may place different values on the same train schedules and a mechanism for revealing whether the allocation of train schedules adequately reflects the highest valuations does not exist. (This is discussed in detail in chapter 8, section 8.3.)

Vertical separation has resulted in greater competition on the interstate network and also encouraged niche players to integrate into the transport logistics chain.

It would be desirable for the remainder of the interstate network in Western Australia to become vertically separated.⁷ This implies that the sale of Westrail would exclude the interstate track from Perth to Kalgoorlie.

RECOMMENDATION 6.2

Train operations should be vertically separated from track infrastructure on the entire interstate network. The infrastructure should be managed by a single network manager.

A process involving the Commonwealth and affected States should be established to determine the roles and functions of the network manager and develop a code of conduct.

⁷ Vertical separation would help remove any incentives or opportunities for Westrail to exert market power on the Perth to Kalgoorlie section of the interstate network.

Regional rail networks

Regional rail networks are defined as all railways in Australia excluding the interstate and urban rail networks. As described in chapter 2, there are two types of regional networks:

- those without market power, such as ASR, Freight Victoria and Tasrail, as well as small branch lines; and
- those with market power, such as the main coal lines centred around the Hunter Valley in New South Wales, and Goonyella and Blackwater in Queensland.⁸

*Regional rail networks **without** market power*

Regional rail networks without market power are usually subject to strong intermodal competition. Impediments to improving their performance have included a lack of commercial focus, inadequate investment in track infrastructure and a lack of autonomy.

Consequently, there is a need to address these impediments in order to improve the performance of these networks and allow them to compete more effectively with road transport. They also need to be able to price discriminate in order to cover fixed costs and therefore become commercially sustainable.

Improving the performance and competitiveness of regional rail networks is best achieved by separating them from other rail networks and allowing them to operate as vertically integrated businesses.

The case for horizontal separation

Many regional networks without market power are particularly suited to horizontal separation because they are regionally based and largely radial. There is evidence that regional rail networks which have been horizontally separated (and privatised) are being transformed from loss making businesses requiring government subsidies into commercially independent businesses (for example, Freight Victoria, ASR and Tasrail) (chapter 7).

⁸ Although not dealt with in this chapter, the private iron ore railways exhibit characteristics similar to those of the main coal lines.

However, like urban rail networks, there may be some interface issues associated with horizontal separation of regional networks. RAC observed that:

Standard gauge lines in Victoria, South Australia and Western Australia, which either have been or are about to be privatised as vertically integrated entities, are integral parts of the standard gauge network ... The NSW, Queensland and narrow gauge Western Australian systems all enjoy a healthy mix of traffics from high volume bulk movements to low volume tasks. In each case there is considerable movement of traffics between high and low volume lines. (sub. DR102, p. 15)

Interface issues occur at the point where regional networks join the interstate network or urban networks. Many regional trains need to traverse the interstate network. In these cases, regional trains would be treated like any other train operating on the interstate network. As noted earlier, there are demonstrated and practical solutions to the interface problems of regional trains traversing urban networks.

The case for vertical integration

The nature of the problems facing regional rail networks without market power needs to be considered in assessing the case for vertical separation. Vertical separation is unlikely to deliver any further competitive gains for these networks because they already face strong intermodal competition and strong competition in downstream markets. Maddock concluded:

If rail faces strong competition from road, so strong that it does not earn a commercial return, then we should not be treating rail as a natural monopoly. It may involve the technology of natural monopoly but there is no scope for this to provide for monopoly exploitation because of the intermodal competition. The correct policy position at the first level would thus seem to be to remove regulation, and to remove third party access requirements, since these will not produce efficiency gains. (sub. 40, pp. 3-4)

King and Maddock argued further:

In terms of pro-competitive reforms then, there is probably not a lot that needs to be done. Rail suffers from an excess of competition.

The principal manifestation of the competitive pressure on rail is the large accumulated and ongoing deficits of the sector and of its failure to provide an adequate return on investment. Pro-competitive reform is designed to [prevent] monopolists setting prices too high in search of excess profits. This is clearly not the problem with rail. (King and Maddock 1999, p. 13)

QR commented:

Vertical separation as a means of competition overlooks the importance of intermodal competition as a market-based mechanism for providing efficiency incentives. (sub. 59, attach. 1, p. 2)

The WA Government concurred:

In the case where density is light and intermodal competition is high such as the Westrail grain lines, vertical integration enables the railway to maximise efficiency. This may be of advantage in being able to compete effectively with other modes. (sub. 60, p. 4)

Kessides argued against vertical separation where markets are thin:

... in many countries, many markets are thin and separation might not actually lead to actual and potential competition in rail services. The primary benefits might not be obtained because the size of the market is small. (OECD 1999, p. 176)

In these circumstances the commercial sustainability of regional rail networks could be compromised. Instead of improving the performance of these networks, vertical separation may actually impair it. Hearsch concurred:

In these situations, the total available business can barely support one rail operator and the notion of any form of ‘on rail’ competition has nothing to commend it. (sub. DR120, p. 23)

Further, the introduction of competition between trains could reduce the ability to price efficiently, increasing the likelihood that the provision of track infrastructure would depend on government subsidies (box 6.2).⁹

Some participants suggested that the commercial sustainability of regional rail networks is driven by the ‘control’ of train operations and track infrastructure. Australian Transport Network argued:

In an integrated railway we can readily identify the problem, take responsibility for it, and deal with it. In a separated model, either there is an artificial division of primary responsibility, and later debate and settlement; or the prospect of litigation and significant costs. (sub. 25, p. 4)

A ‘loss of control’ could have implications for future investment in both rollingstock and track infrastructure (CRT Group, sub. 20). A single operator is likely to have better access to capital because the overall risks would be lower. Loss of control is minimised when regional rail networks are vertically integrated.

⁹ It is unlikely that a track owner can practically implement an efficient two-part tariff for each train operator to recover fixed costs. In this case, vertical separation reduces the efficiency of Ramsey pricing because the individual train operators do not internalise the fixed cost of the track correctly, causing a distortion in their marginal cost.

The strength of intermodal competition combined with the need to control train operations and track infrastructure suggests that it is most efficient for one operator to meet the needs of markets served by these regional rail networks.

RECOMMENDATION 6.3

Regional rail networks without market power should be horizontally separated from other networks and vertically integrated.

*Regional rail networks **with** market power*

A small number of regional rail networks possess market power because of the monopoly provision of track infrastructure and the lack of intermodal competition. They include those rail networks centred around the Hunter Valley, Goonyella and Blackwater regions (the main coal lines).

Historically, the lack of competition in these railways has enabled the NSW and Queensland Governments to extract monopoly rents by setting high coal freight rates (PC 1998a, subs. 36, 39, 50, 58, 59 and 77). For instance, Rio Tinto commented:

... that the authorities or their owning governments exploited their monopoly power, a power often buttressed directly or indirectly by legislation, to levy charges incorporating a sizeable monopoly rent component. It was widely acknowledged that rail charges incorporated a 'royalty' component. (sub. 58, p. 6)

The lack of competition has allowed inefficiencies in the transportation of freight to develop (chapter 4). In a submission to the Commission's (1998a) report, *The Australian Black Coal Industry*, Exxon argued:

The high cost of transport of black coal in New South Wales is well known and documented as being significantly out of step with world's best practice. (Exxon submission to *The Australian Black Coal Industry* inquiry, sub. 3, p. 10)

Eliminating any ongoing monopoly rent and improving the efficiency of the main coal lines may be best achieved by horizontally separating them, leaving track and train operation vertically integrated and promoting competition for the market through franchising.

The case for horizontal separation

In the Draft Report the Commission argued that high volume regional (coal) rail networks should be horizontally separated from other rail networks because of their market power. The Queensland Mining Council supported this approach:

Profitable heavy-haul railways are very different in nature to loss-making passenger and light freight services. It makes sense to separate them — preferably physically, but at

the very least organisationally — so that they are managed separately and have separate accounts. (sub. DR127, p. 1)

As with other rail networks, some participants commented that horizontal separation may prove difficult because of interface issues. In commenting on high volume regional networks, the NSW Minerals Council submitted:

... we believe it does not seem a good idea for the Hunter. It has features such as, first, it's a network that at the hub includes urban passenger, interstate freight, high-volume regional and low-volume regional traffic. Second, the bulk of its traffic is obliged to use rail, so there is no intermodal competition for that traffic. Third, it would be desirable for non-coal traffic that has its origin or destination outside the Hunter network to be able to deal with a single infrastructure owner. Creation of regional networks would require a body equivalent to the ARTC to provide a one stop shop for intrastate traffic, as well as increasing complications for interstate traffic.

There would undoubtedly be benefits, in particular greater transparency, but this would appear to be attacking the symptoms of the problem rather than the problem itself. (trans., p. 692)

By confining these regional rail networks to the main coal lines, any interface issues would be minimised. As with other rail networks, there are demonstrated and practical solutions to overcoming any remaining issues.

The horizontal separation of the main coal lines is fundamental to reducing market power, facilitating improvements in transparency and independence. As Shell Coal submitted:

Where there is no transparency and the owner of railway infrastructure has a natural monopoly, the customer (eg coal producer) cannot know whether the monopolist is using market power to recover inefficient operating costs and excessive overheads, or to hide poor investment decisions. There is no way to calibrate cost efficiency against world best practice without transparency. (sub. 36, p. 3)

Horizontal separation would generate further benefits through the facilitation of competition for the market — through franchising or competitive tendering and contracting. Such benefits are likely to outweigh the costs associated with interface issues.

RECOMMENDATION 6.4

Regional rail networks with market power (the main coal lines) should be horizontally separated from other networks.

The case for and against vertical integration

Consideration of vertical restructuring of the main coal lines depends on the best way to eliminate monopoly rent and increase service levels. McKillop noted:

Eliminating monopoly rent and improving the efficiency of these railways are the key issues to be addressed. (sub. DR90, p. 6)

In the Draft Report the Commission sought participants' views on the appropriateness of vertical separation for the main coal lines. In response, some participants argued in favour of vertical separation, primarily because they believed that regulation of track access charges and competition between operators was the best way to eliminate monopoly rents. For instance, RAC noted:

As volumes and the number of customers increases, the importance of competition also grows and the presumption in favour of competition should also grow. (DR102, p. 16)

NRC argued that:

Vertical separation of high volume regional railways is essential to achieving the benefits of competition for customers using these railways. (sub. DR117, p. 12)

The NSW Minerals Council also argued in favour of vertical separation, noting that vertical separation was particularly important where track infrastructure is not owned by the coal industry:

If it is assumed that the rail infrastructure is not owned by the coal industry, then for the Hunter rail network vertical separation has advantages that outweigh the disadvantages. (sub. DR104, p. 4)

Similarly, Queensland Mining Council preferred vertical separation for the main coal lines:

These considerations lead our Council to prefer a structure for QR that reflects: separation of coal and minerals from the rest of the network, to provide managerial autonomy and transparency; [and] vertical separation of coal and minerals into above and below track services to facilitate competition and monopoly price and incentive regulation. (sub. DR127, p. 2)

Vertical separation and the promotion of competition between train operators can result in lower freight rates. However, the lower costs of train operations may not necessarily be accompanied by lower fees for track access. For instance, in New South Wales vertical separation initially resulted in lower freight rates and the transfer of monopoly rent from train operations to track infrastructure (PC 1998a).

Although there are benefits from vertical separation, there is still the potential to extract monopoly rents because track infrastructure is provided by a monopolist. Appropriate access regulation is particularly important in addressing this problem (chapter 8).

On the other hand, Westrail argued in favour of vertical integration:

Clearly, Westrail believes that the appropriate model for high volume regional railroads is a vertically integrated railway with an effective access regime to prevent monopoly rents and provide competition in above rail services. (sub. DR107, p. 5)

One important advantage of vertical integration is the increased ability to focus on the logistics and optimisation of the entire production and transport process. Rio Tinto argued that for its Hamersley iron ore operation:

Hamersley has moved from operating each mine as a stand alone operation to an integrated production system with substantial benefits to capital and manpower activity. Integral to this is the ability to schedule rail movements freely to achieve the correct quality of blend. Optimisation of the total system rather than the mine or rail system alone requires meticulous planning and rigid adherence to mining sequence and delivery schedules. Carriage of third party traffic on a single track system would put this in jeopardy. Because of this close integration, the rail system plays the same role in the production process as a shovel, a drill or a reclaimer. (sub. 58, pp. 10-11)

Moreover, ARTC argued that:

It is accepted that in a few limited circumstances the railway line may be so entwined in the overall production process of a single company that the introduction of a third party train operator on the line may be severely detrimental to the competitiveness of the track owner. In many cases, the owner is operating in international markets in which strong competition already constrains pricing and necessitates efficiency. (sub. DR97, p. 7)

However, Queensland Mining Council argued that Queensland's situation with a 'government-owned multi-user monopoly' differed from the Hamersley example (sub. DR127, p. 2). While not denying the importance of the interdependencies between the different elements of the transport chain it gave greater weight to the need for competition (in the market) and transparent access regulation.

One strategy to retain the benefits of vertical integration while ensuring the elimination of monopoly rents and improvements in efficiency would be to promote competition for the market by franchising the network and its operations (chapter 7).¹⁰ Greater transparency can promote efficiency. As noted by the OECD:

Franchising also removes the power of the monopoly of information. Under traditional forms of regulation firms have the information, regulators do not. Under a franchising scheme that monopoly information is removed. (OECD 1999, p. 182)

Monopoly rents can be reduced in the bidding process by awarding the franchise on the basis of the lowest freight rate. Periodic retendering of the franchises will also assist in reducing monopoly rents:

Competitive pressure can also be introduced into a monopoly or near monopoly activity

¹⁰ Franchising is preferred to selling the network to avoid simply transferring monopoly rent from a government to private owner.

through periodic tenders for the franchise. (Viehof and Jones 1995, p. 1)

Franchising can also promote greater fairness. For instance:

... bidding schemes can make the rules of the game between incumbents and entrants fairer, as an efficient new entrant can take on the whole market immediately, rather than try to win market share gradually in a battle with the incumbent operator. (OECD 1999, p. 182)

The bidding process may be designed so that it includes transferring assets (such as rollingstock), thereby removing a substantial barrier to entry and making the market more contestable. The OECD stated:

... franchise bidding is going to make a market much more contestable than it would otherwise be, by separating out, from the competition, at least some of the sunk costs, thus lessening the entrant's need for a prior commitment, pushing the market thereby closer to perfect contestability. (OECD 1999, p. 182)

Further competitive pressure can be applied by franchising individual networks to different operators (for instance, the main coal lines around Goonyella and Blackwater), thus encouraging yardstick and interregional competition. Growing pressure from downstream markets would enhance competition between regions.¹¹

The preferred approach for enhancing efficiency and addressing market power in the main coal lines is through vertical integration and the application of competition for the market using franchising.

6.5 Conclusion

The appropriate structures in interstate, regional and urban passenger rail networks will differ. Each railway has different characteristics, depending on the strength of intermodal competition, the degree of market power, the degree of competition in downstream markets and traffic density. The gains from structural reform therefore will vary between the different rail networks. Its effectiveness in promoting competition will also depend on ownership arrangements, especially ownership of rollingstock. Structural separation should only be implemented when the gains from removing impediments to performance exceed the costs. There may be other ways of capturing some of the potential gains from structural reform without incurring the costs associated with restructuring (chapters 7, 8 and 10).

¹¹ Competition in downstream markets refers to the competition Australian coal exporters experience on the world market from other international suppliers. Such competition reduces the market power of railways as any increase in freight rates may lead to a decrease in export revenues.