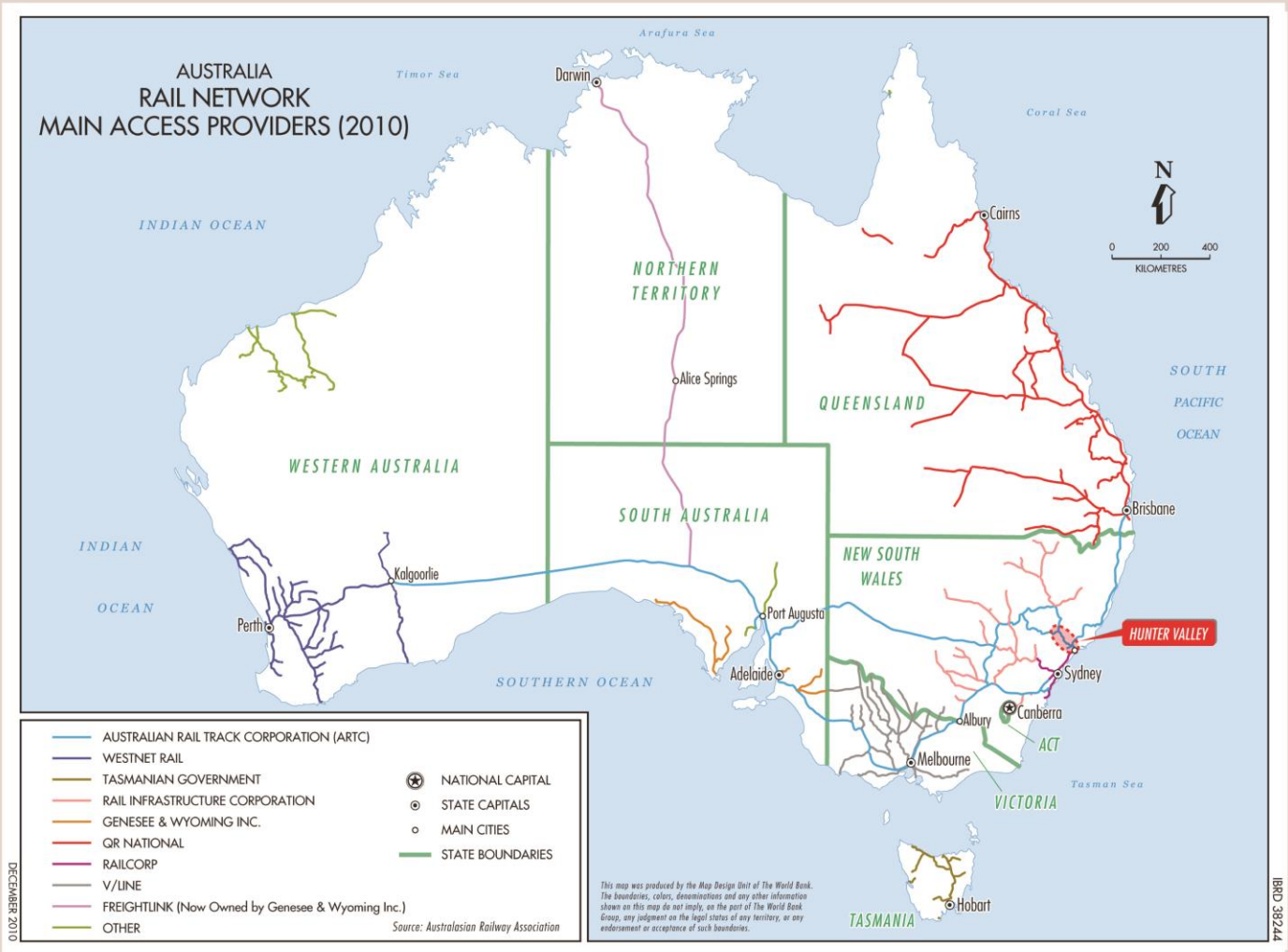
Case Study

Australian Rail Track Corporation

1 The Creation of ARTC

Originally, each of the six states in Australia constructed and operated their own public railways, with the federal government also operating two major trans-continental lines. In the 1990s, the federal and state governments undertook extensive

Figure 1 Australian Rail Network Showing Main Access Providers



(ARTC Australian Rail Track Corporation, QR Queensland Railways, BBI Babcock and Brown Infrastructure)

reform of the Australian railway industry. As part of this, they established open access to the rail network and created the Australian Rail Track Corporation (ARTC), which began operations on 1 July 1998 and represented one of the most significant steps taken during these reforms.[163] It initially managed the interstate network of the federal railway but, over time, its responsibilities have expanded to include managing much of the interstate rail network in five states, plus the Hunter Valley export coal lines (Figure 1).

Box 1 ARTC Network Growth

- July 1998, commences operations with ex-AN main lines and Victorian interstate lines
- In 2000, Tarcoola to Alice Springs line transferred on a long lease to the private company constructing Alice Springs– Darwin line
- In 2004, NSW main lines and the Hunter Valley coal network taken over, through long-term lease
- From 2004, assumed responsibility to maintain and operate NSW rural network, owned by NSW state-owned Rail Infrastructure Corporation, which collected access revenue and negotiated access.
- In 2010, took over the Queensland main line, between New South Wales border and Acacia Ridge in Brisbane, through a long-term lease.

Until 2004, the key ARTC activity was maintaining and operating the interstate main lines in Victoria, South Australia, and West Australia (as far as Kalgoorlie). In 2004, ARTC assumed control of a large part of the New South Wales (NSW) network and became responsible for major Federal Government investment in the network and maintaining, under contract, the NSW rural network. Two other adjustments occurred to the ARTC network during the last decade (see Box 1) and ARTC is now responsible for the interstate track from Kalgoorlie in the west via Melbourne and Sydney to Brisbane in Queensland, together with the Hunter Valley coal lines in New South Wales (NSW). The net result is that the original network of 4,443 route-km managed by the Australian National (AN) access unit has now increased to 7,112 route-km, of which 8 percent is multiple-track. The ARTC also maintains the regional branchline network in NSW of 2,828 route-km of operational track and a similar volume of non-operational lines.[164]

2 Corporate Objectives and Management

The corporate mission of ARTC is, *'In collaboration with our customers, through innovative and creative strategies, expand the industry, provide efficient access, and enhance the national transport logistics network'* with its vision being to *'Ensure rail is an integral, sustainable element of the nation's transport logistics network'*.

More concretely, it has four principal functions (see Box 2). First, it is the 'one-stop-shop' for track access, which was achieved rapidly in Victoria (lease) and Western Australia (through a wholesale arrangement) but not in NSW and

[163] Appendix A describes the Australian rail sector and summarizes developments that led to creating ARTC.

[164] This includes partially constructed line as well as closed lines which still require maintenance of bridges, culverts, etc.

Queensland. There was steady progress in the second function and the fourth. Unfortunately, the third function, investment, was slow to materialize. The ARTC inherited ex-Australian National (AN) infrastructure, which had received considerable investment in the preceding twenty years and was in reasonably good condition. However, much of the Victorian network was in poor condition and many of the NSW lines, especially from Sydney to Brisbane, had not been constructed to main line standards and were suffering from many years of deferred maintenance. At the same time, the NSW Hunter Valley coal lines were close to capacity and needed to be expanded. ARTC has always operated at a profit, but this has been sufficient only for minor capital works, and it could not finance the major reconstruction required to make the network competitive, particularly in NSW.

Box 2 Key ARTC Functions

- Provide access to the interstate rail network through access agreements with track owners, including those in other states—the 'one-stop-shop';
- Manage track maintenance and construction, train pathing, scheduling, timetabling and train control on track owned or controlled by the company;
- Improve the interstate rail infrastructure through better asset management, and by managing (in consultation with rail operators and track owners) a program of commercial and publicly funded investment for the interstate rail network; and
- Promote operational efficiency, by working with other track owners, and promoting uniformity of operating, technical and safety standards and practices on the interstate rail network.

Following the transfer of the NSW network, funds have been provided, primarily by the federal government, through a series of grants and equity injections. Thus, the ARTC has evolved from a track authority that primarily maintained and managed a compact network, to an entity with responsibility for managing major investment projects on its own network, and performing contract maintenance on a major rural network.

Box 3 Corporate Governance in ARTC

- Clear roles and responsibilities for Board and management defined through formal delegations
- Independent and experienced Board; there are currently five non-executive directors, all from the private sector.
- A formal Code of Conduct
- Internal and external audit supervised by the Board Audit and Compliance Committee
- Complies with governance requirements for Government Business Enterprises, including an annual Corporate Plan and Statement of Corporate Intent, and formal quarterly shareholder meetings.
- Subject to the Commonwealth Authorities and Companies legislation, and Corporations Act.
- A specific General Manager for risk and compliance
- A Board remuneration committee

Until 2004, ARTC was a slim organization with less than 100 staff. All maintenance was outsourced and the only employees were train controllers, supervising engineers, and management. When ARTC took over the NSW lines, much of the NSW maintenance workforce was seconded to ARTC; some of these have now transferred to ARTC. The total staff increased to around 1,100, but now stands at 1,000. In its early years, ARTC had a relatively simple structure but this has developed as its activities expanded. Under the Managing Director there are a Chief Financial Officer and a Chief Operating Officer. There are seven general managers, each responsible for an operational and functional area—three main operational areas (East-West, North-South and Hunter Valley); the NSW maintenance contract; commercial issues; communications and control systems; and risk and compliance.

ARTC subscribes to the same principles of corporate governance, as other major commercial companies in Australia (see Box 3 for key elements).

3 Access Pricing and Management

On the interstate network, ARTC operates under access undertakings, which are subject to approval by the national Australian competition authority (ACCC). The undertakings include provisions relating to non-discriminatory access, price-setting under the 'negotiate-arbitrate' model generally used in Australia, pricing principles adopted for deriving indicative charges, and the proposed charging structures. ARTC has developed separate undertakings for the interstate network and the Hunter Valley coal network, reflecting the very different commercial and operational characteristics of the two networks, although both follow the general principles summarized above. ARTC's access undertaking for the Hunter Valley coal network is expected to be approved by the ACCC in early 2011.

Under the 'negotiate-arbitrate' model, the access provider and access seeker aim to reach a commercially negotiated agreement on price and the non-price terms of access. If they cannot agree, a provision exists for arbitrated outcomes.

The pricing principles establish the floor and ceiling limits for negotiating and arbitrating access charges and revenue, which aims to prevent access providers from generating monopoly profits, and to ensure that users pay the cost of using the network. Generally, the ceiling price is defined as the full economic cost of service provision; the floor price equals the marginal or incremental cost, although ceiling and floor definitions vary among access providers.

The ARTC defines the floor revenue as the incremental cost of providing the service including an allocation of overheads, but excluding return on investment and return of capital. It sets the ceiling revenue at the full economic cost of providing the service including an allocation of overheads, depreciation, and a return on assets. The asset value is based on depreciated optimized replacement cost (DORC)[165] and the return on assets based on the weighted average cost of capital (WACC). However, there are few if any national network lines that recover full economic costs from access prices, except for the Hunter Valley and Queensland coal lines, and part of the West Australian network. Therefore, most prices are not based on cost-recovery. Instead they are market-based—taking account of what train operators can pay and remain competitive with road transport—and ARTC uses reference prices that reflect this on the sections of the network used primarily by general freight.

In Australia, most access charges are not related to the availability of spare capacity. Instead, passenger trains have priority path allocation; although they may incur somewhat higher charges per path and/or gross ton-km, this is not intended to ration capacity but to reflect the higher level of service they receive. Similarly, real-time path charging is not used to manage capacity or operator performance.

ARTC's access charge revenues cover recurrent expenses and allow some surplus for renewals and other works, but Government funds most major investments and upgrades. The price charged by competing road transport is the single biggest factor in setting access charges on most of ARTC routes; Government funding of major investment therefore implicitly encourages ARTC to set access charges that enable rail to compete with road transport.

The 'negotiate-arbitrate' model applies to all traffic. However, the price structure and starting point for negotiations differ between interstate lines and Hunter Valley coal.

3.1 Interstate Network Pricing

For the interstate network, ARTC publishes a schedule of reference tariffs to apply to all contracted above-rail operators (see example in Appendix B of this Case Study). This simple two-part tariff comprises a flagfall charge per train-km, plus a variable charge per gross ton-km, including freight, wagons, and locomotive weight. This formula results in a higher charge per ton-km for smaller trains, on the basis that small trains consume the same network capacity as longer heavier trains.

[165] Depreciated optimized replacement cost (DORC) valuation is a process to establish the current value of an asset based on the cost to replicate the asset in the most efficient way, from an engineering perspective, given the service capability or requirement, and existing asset age.

There are pricing categories for express passenger trains, and up to three types of regular freight services—super, express, and regular—depending on the network section. These differences reflect train operating speed and, just as importantly, are the basis for establishing train priority when crossing conflicts occur.

The flagfall charge varies by type of freight train; generally, the price is based on maximum speed and axle-load, and is charged on timetabled paths rather than actual trains, with a small allowance for cancelled trains —essentially levied on a take-or-pay basis. A fourth category, 'standard freight', provides for ad hoc operations but most long-distance traffic requires the certainty of contracted, committed train paths. The gross ton-km charges are payable on the actual ton-km operated and, on most line sectors, are common to all trains.

Both the flagfall and usage charges vary among network sectors, in an attempt to reflect cost differentials and market ability to pay to the extent that line sections correspond to markets. The interstate network price levels are constrained by the need for rail transport to remain competitive with road and, to some extent, sea transport. Essentially, current price levels are the estimated difference between what train operators can charge customers and train operators' costs, including an allowance for return on investment. The original price levels were set when vertical separation was implemented, and for many years, there was little movement in track access prices in real terms. However, ARTC has recently increased east-west access prices by about 10 percent and granted a short-term rebate on north-south prices. The changes acknowledge rail's competitive position on cost and service quality compared with road in the respective market corridors, and helps maintain rail competitiveness with road on the struggling north-south corridors. Of course, the north-south rebate will affect the market only if the cost saving is passed on in the train operators' prices.

ARTC does not apply time-of-day or day-of-week pricing on the interstate corridors even though market demands cause major peaking issues at specific times; attempts to do so have been refused by the regulator. ARTC has also been reluctant to use Ramsey pricing for individual traffics beyond the broad categories described above.

3.2 Hunter Valley Coal Network Pricing

Track access charges for the Hunter Valley coal train operators have traditionally been levied on a straight price per net ton and are mine-specific. ARTC aims to maintain equitable treatment among mines by considering their relative distance from the port, but does not apply a fixed formula to price setting. As the charges are levied for tons moved there is no 'take-or-pay' underwriting for ARTC as yet.

The current per ton tariff structure is under review as part of a broader change to contracting arrangements for track access in the Hunter Valley, as contemplated in ARTC's Hunter Valley Access Undertaking currently under review by the AC CC. ARTC is now beginning to contract directly with coal producers for path capacity rather than timetabled train paths per se. Pricing will comprise a two-part structure that commits coal producers to significant levels of fixed payments based on a take-or–pay arrangement.

4 Train Management

Much of the ARTC network is single-track. Since multiple operators compete in the same end market, train management is important in avoiding any complaints about bias or favoritism. ARTC has thus introduced formal network-management principles to establish which train will be granted priority when conflicts arise. The principles consider train categories by type and whether they are 'healthy' or 'unhealthy.'[166] So-called 'healthy' trains should normally get priority over 'unhealthy;' ones; if both trains are healthy, priority is determined by train type, which tends to reflect the size of the flagfall charges.

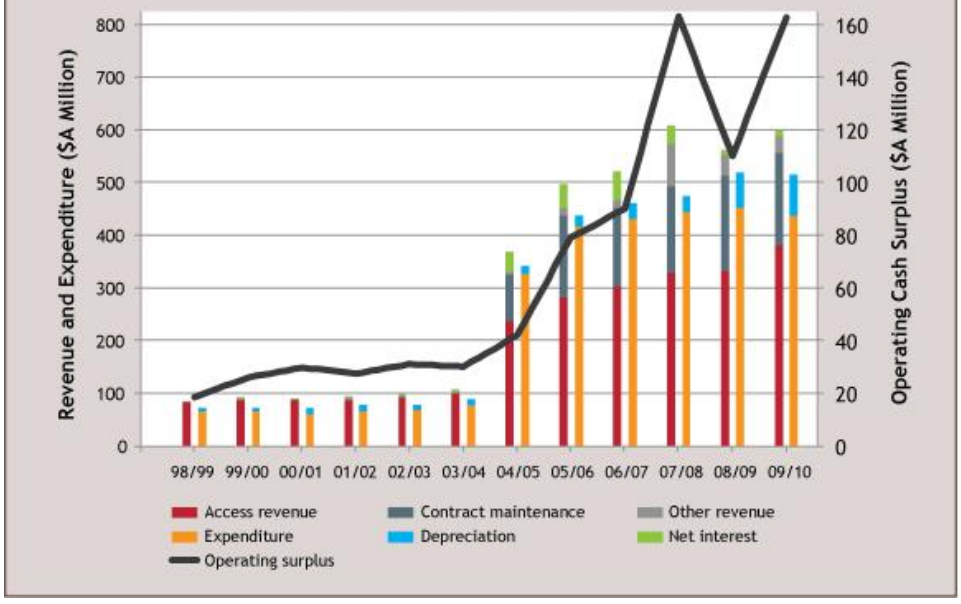
5 Accident Claims

Accidents are investigated to determine their causes, and costs are apportioned to the party at fault. However, minor accidents causing damage less than A$50,000 are not claimable by either ARTC or the train operator unless the annual aggregate of such claims between the two parties exceeds A$250,000.

6 Financial Performance

Figure 2 shows revenue, expenditure and annual cash operating surpluses since ARTC was established.[167] Until 2003-04, most of the A$100 million in annual revenue was from access charges, and cash surpluses (excluding depreciation) were A$30 million.

Figure 2 ARTC Revenue, Expenditure and Cash Operating Surplus 1998/99 – 2009/10 ($A Million)

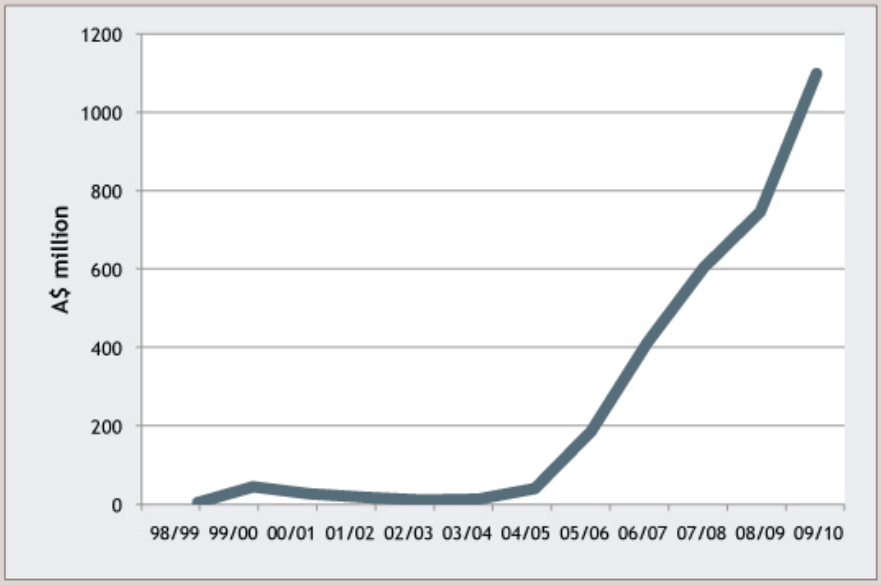


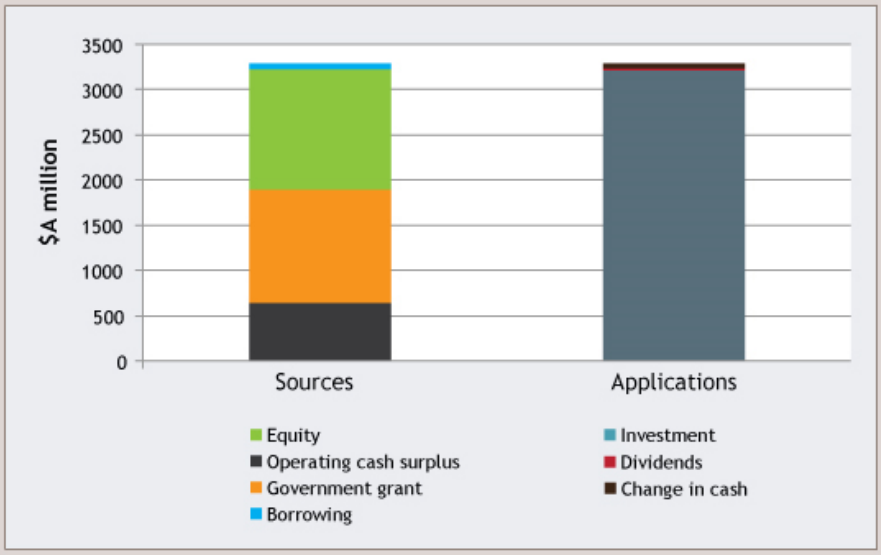
[166] Healthy trains are those that have entered the network on time and do not subsequently get delayed for reasons under the control of the operator; all others are 'unhealthy'.

[167] Some figures differ from those recorded in Annual Reports; published accounts treat much of government grant funding as revenue, and include several asset write-downs as costs. This presentation excludes those.

Since 2004, after taking over the NSW network, annual revenue has increased to around A$600 million, including access revenue of about A$380million and maintenance contract earnings of about A$180 million. During 2007-10, the cash surplus averaged over A$140 million, helped by the Hunter coal traffic.

Figure 3 Investment Levels and Sources and Applications of Funds 1998/99 – 2009/10





The investment picture is similar (Figure 3). Since 1998-99, ARTC has invested A$3.2 billion in its network. Government supplied about 80 percent, in roughly equal proportions of grants and equity.[168] The ARTC operations generated around A$600 million, thus covering 'normal' renewal investments reflected in depreciation charges during the period (around A$300 million) and generating about the

[168] Grant funds have been taxable but also have earned interest before they were spent; these related revenues and costs have been treated as 'grants' for the purposes of this case study.

same amount towards infrastructure upgrades, sufficient to address the backlog and the initial development of an advanced train control system.

7 Operational Performance

Unlike an integrated railway, a track authority has only a few direct customers—train operators who use the infrastructure. Many freight owners have no idea whether their goods are being transported by road or rail and most care little as long as their freight is delivered on time in good condition. The ARTC operates under an access undertaking that requires regular publication of two groups of Key Performance Indicators. One group measures service quality—network reliability, transit times, and track quality index; the second group measures ARTC's operational efficiency, albeit very broadly, through periodic reports of ARTC summary unit costs.[169] Network reliability is evaluated by the proportion of 'healthy' trains that leave the network on time, and 'unhealthy' trains that enter and leave the system without further deterioration. The ARTC keeps detailed records to report on this because network reliability depends not only on the quality of infrastructure, but also on matters outside ARTC control, such as locomotive failures. Track quality is measured through standard indicators such as number and length of temporary speed restrictions (TSRs) but also through a track quality index derived from track recording cars.[170]

When ARTC began operations, the ex-AN network was in reasonable condition, but the Victorian and New South Wales networks were in poor condition when handed over. ARTC immediately addressed maintenance backlogs on both networks and dramatically reduced the number of temporary TSRs, lowered transit times, and improved reliability. During 1998-99, 4 percent of the ex-AN track, and 26 percent of the ex-Victorian track were subject to speed restrictions; by 2001-02, this had been reduced to under 1 percent and has since remained below 2 percent. Again, in 2004-05, ARTC achieved 60 percent reductions in time lost to TSRs between Sydney and Brisbane; and reduced transit time by 15 percent, almost two hours, between Melbourne and Adelaide. Transit times in the north-south corridor are expected to decline by over 20 percent after ongoing capital works are complete. Service reliability during 2002-09 is summarized in Figure 4.

[169] These are infrastructure maintenance costs based on a $/train-km and $/00 gtkm, train control costs (as $/train-km) and operations costs (as $/train-km).

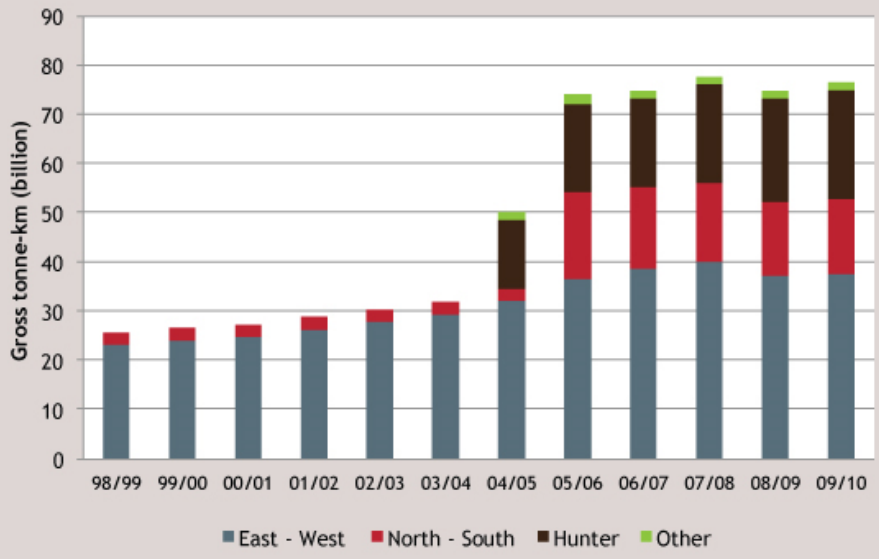
[170] The ARTC has more detailed physical condition reporting requirements for its NSW lease, but this is essentially a contractual issue rather than a regulatory requirement.

Figure 4 Service Reliability in ARTC Corridors 2002-09

Corridor/year	North-South		East-West		
	2006	2010	2002	2006	2010
% trains with on-time entry	69	86	71	70	62
% trains with on-time exit	69	74	69	50	71
% 'healthy' trains with on-time exit	92	99	97	96	99
Minutes of delay/train					
Caused by ARTC	10	17	4	17	13
Caused by operator	49	32	30	147	105
Caused by third parties	7	28	-	36	30

The average journey time over which these delays are incurred is around 30 hours for the north-south corridor and 45 hours for the east-west corridor. Thus, ARTC-caused delays are not a significant factor in current rail reliability. Some 64 percent of ARTC-related delay is due to track condition; around 25 percent is caused by signal failures and the remainder by communications breakdowns and train management.

Figure 5 ARTC Traffic By Corridor (Gross Tonne-km Billion)



Over the last decade, east-west corridor traffic has grown steadily, and so has Hunter Valley coal traffic since ARTC assumed management (Figure 5). However, north-south corridor traffic has been stable, at best, in part due to successive poor summers that reduced grain exports, an important traffic on sections of this corridor. Also, rail has clearly lost general freight market share to improved roads and more widespread use of larger vehicles. It remains to be seen how much of the north-south interstate transport market can be retrieved when network upgrading is complete.

Over the last decade, the changing rail market shares in the ARTC-controlled corridors plus the improved collective performance of infrastructure and train operators is an indication of the overall effectiveness of the vertically-separated rail model (Figure 6).[171]

Figure 6 2009 Rail Market Share By Corridor

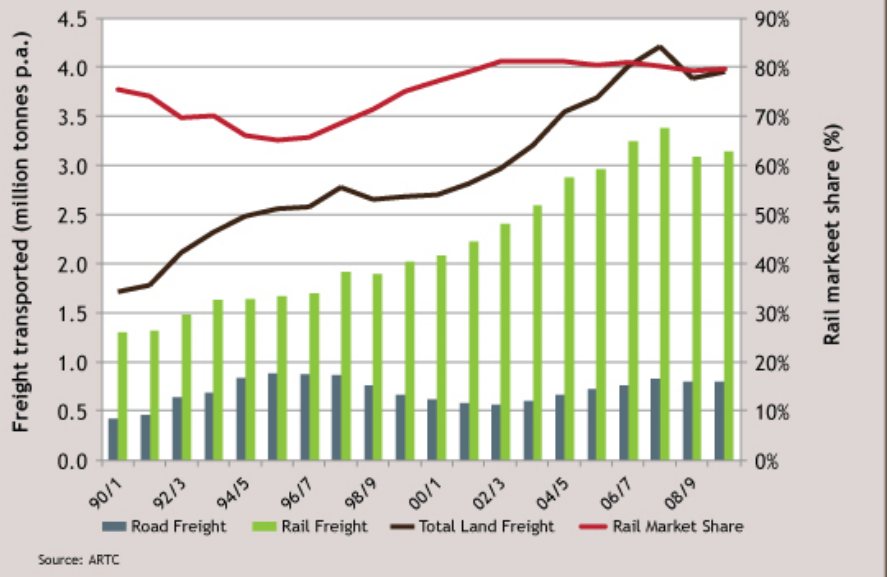
Corridor	Share % 1997	2000	2009
North South			
Melbourne-Sydney	12	11	9
Sydney-Brisbane	18	19	6
Melbourne-Brisbane	19	21	26
East West			
Melbourne-Adelaide	18	20	6
Melbourne-Perth	66	70	71
Sydney-Perth	55	65	68
Sydney-Adelaide	n.a.	n.a.	13
Brisbane-Perth	n.a.	n.a.	40
Brisbane-Adelaide	n.a.	n.a.	46
Adelaide-Perth	n.a.	n.a.	82

Source: Booz Allen Hamilton 2001, Galbraith 2009

Rail has reinforced its dominant position on long-haul east-west routes, but has performed poorly on the three shorter corridors, albeit each is around 1,000 kilometers. During 1997-00, the initial response suggests that the creation of ARTC increased market share by about 10 percent on most routes but, over the longer-term, improved road competitiveness combined with rail investment delays have dragged down shorter-distance market shares. The ARTC performance is an important enabling factor, not the critical factor.

[171] This begs many questions. What would have happened to infrastructure funding without ARTC? What has been the relative impact of open access, changes in relative fuel costs and so on? Nevertheless, it is a useful summary guide. Detailed analysis of market shares should be approached with great caution; rail volumes in these corridors are known exactly, but for most corridors, road volumes must be estimated from a range of indirect sources, so quoted market shares are indicative.

Figure 7 Rail Share of Land Freight to West Australia 1995-2010



The combined impact of open access, ARTC and before it, the AN access unit, is shown in Figure 7, which gives the market share of dominant direction westbound freight over the last decade.[172] In 1995-96, the rail share was 65 percent, by 1999 it was 72 percent, and it continued to rise to about 80 percent in 2003, where it has remained ever since. Now, most general freight on this corridor goes by rail; road carries express freight, some perishables, and out-of-gauge traffic.

8 Summary

The ARTC was probably the first stand-alone track authority in the world to deal predominantly with private-sector freight operators. As a result, ARTC had to innovate to establish commercially acceptable operating procedures and charging practices. The ARTC has enjoyed considerable success on the east-west corridor and the Hunter Valley coal network. However, although it has overseen large investments on the north-south corridor, the benefits will only begin to flow through into sustainable timetable improvements during 2011. The business has operated on a commercial basis and generated sufficient surpluses to contribute to its capital program. The strength of the underlying business model is an important element of success, although the long hauls and a strong coal market have helped. Today, little doubt exists that interstate rail freight would be in a worse state if ARTC had not been created.

In the longer-term, ARTC's capital structure and funding sources will be an emerging issue. To date, Government has supplied almost all external investment funding in the form of equity or grants. As a result, as of June 2010, ARTC had A$2.5 billion of equity, no long-term debt, but had paid no dividends since 2005. ARTC is now starting to take on debt for 'commercial' investments in the Hunter Valley and this will increase substantially over the next few years (and a bond issue for up

[172] In this case, road volumes are known exactly because West Australia maintains a road checkpoint.

to A$200 million has also been recently advertised). But the questions remain as to what is the appropriate debt:equity ratio, how much of ARTC's future investment could be debt-funded and would funders be public or private, and what dividend policy should it adopt?

Appendix A: Background

Most of the 34,000 km Australian railway network is either federal- or state- government-owned and oriented towards freight, except in the main urban areas.[173] However, all freight train operators are independent private companies, except for the main operators in Queensland. The genesis of most of the national network was the state-owned and regionally oriented networks, radiating from the state capitals and major ports to support exports and regional development. In the early 1900s, these state-based mainland rail systems were linked, albeit with three different gauges but it was not until 1995 that a single standard-gauge network linking Brisbane to Perth via Sydney, Melbourne and Adelaide was achieved.

Until the 1970s, the Australian rail industry resembled that of most countries outside North America. Six state government-owned organizations and one federally-owned railway—the 'Commonwealth Railway,' which primarily carried long-distance traffic across the Nullarbor and to Alice Springs—were responsible for operating passenger and freight services as vertically-integrated operations. Like state-owned railways elsewhere in the world, Australian railways had a large workforce and relatively low productivity; freight traffic involved various regulated monopolies—haulers could not carry traffics that competed with road services—and government-controlled tariffs.

Pressure for deregulating competing road transport was growing, and protection was steadily relaxed or withdrawn. By 1975, the two weakest state railways (South Australia and Tasmania) were handed over by state governments to the central government and absorbed into the Commonwealth Railway, which became the Australian National Railway (AN). By mid-1980s, in all states except Queensland, most passenger services had been split from freight services at least internally within the railway and in some cases services moved into a separate organization.

In 1995, the competition policy adopted by the Australian federal and state government triggered the next major change by introducing vertical separation into infrastructure in general, including railways. This opened the railway network to third parties, who could operate their own trains; railways were split internally into infrastructure providers and train operators. At the same time, state and federal governments, again except in Queensland, began to privatize their freight rail operations and the infrastructure business units became track authorities.

There are currently around half a dozen significant private freight train operators and ten major infrastructure providers, most of which are publicly owned, with little or no common ownership. Government exerts no control on rates charged by operators because on-rail competition and strong competition from the road industry are thought to be sufficient. However, access charges levied by infrastructure providers are subject to approval by state and federal competition regulators that deal with railways and other infrastructure sectors.

[173] Australia has several industrial railways, such as iron lines in the Pilbara, and cane railways in Queensland, but these carry only owners' traffic. Significant commuter rail passenger services are in state capitals: Sydney, Melbourne, Brisbane, Perth, and Adelaide, but non-urban passenger services are very limited. Most rail corridors are paralleled by high-standard highways, either partly or fully upgraded; trucks can expect to average 80 km/hr or more; most interstate road vehicles are B-doubles or larger.

Rail freight in Australia comprises two main movement groups: bulk freight, principally iron ore, coal, grain, generally moving 50-500 km from the interior to ports; and long-haul intermodal/general freight moving 1,000-4,000 km between state capitals such as Melbourne to Perth. Other than grain, export bulk traffics are confined to a relatively small and well-defined set of financially viable lines. Grain networks are relatively dense, similar to those in Canada and Argentina, but increasingly vulnerable to road competition. Almost all grain networks have lost their passenger services and most networks transport little general freight, but they remain politically significant despite their marginal financial circumstances.

Long-haul general freight includes movement of general products and manufactured goods, primarily on inter-capital hauls. Historically, rail operators have been wholesalers in this market; freight forwarding companies maintain the end-customer relationship and provide value-added services such as shipping containers, pickup/delivery, and warehousing. This sector is best considered as two markets: the east-west corridors of Brisbane/ Melbourne/ Sydney-Adelaide-Perth, in which rail is very competitive with around 70-80 percent of the market, and the north south corridors servicing Brisbane-Sydney-Melbourne, in which it is much less so.

Box 4 Road User Charges

The financial viability of interstate general freight is influenced by the level of road user charges for heavy vehicles. In Australia these are set by a national body with the overall aim of recovering the marginal costs imposed on the system by freight vehicles, in the form of an annual fixed registration charge per vehicle and a variable levy included in the diesel fuel price paid on a per liter basis. The marginal costs are based on the historic and budgeted operating costs associated with road provision, repairs and maintenance costs and land acquisition costs. Traffic control and enforcement costs are excluded, as are the cost of historically provided assets and financing costs. There is considerable debate as to whether these represent a fair contribution to road construction and maintenance costs, both in the aggregate and on specific routes, such as the long-distance arterial roads that compete directly with the main rail network.

Most rail freight moves between terminals, serving very few private sidings. Road access and egress costs to and from terminals are substantial and service availability and reliability are important factors in mode choice.[174] In eastern Australia, most interstate freight transport is overnight delivery, so cut-off times for loading and on-time arrival are critical considerations. Typically, for such time-sensitive traffics, road transport can charge a premium over rail to reflect its superior service quality.

As a result, long-distance general freight traffic was loss-making on most corridors in the 1980s and the level of service was poor. Although most state governments

[174] For example, it is commonly accepted that access and egress costs represent one-third to one-half of total door-to-door cost by rail for the 1,000 km journey between Sydney and Melbourne.

were more concerned with politically sensitive shorter-haul traffic within their own states, the federal government wanted to create a more efficient industry for long-distance general freight traffic and in 1991 established the National Rail Corporation (NRC) as a train operating company responsible for all interstate services and it began operations in April 1993. State railways were paid track usage charges.[175] Long-distance general freight traffic was a minor share of most state railway operations, but represented about 80 percent of Australian National (AN) traffic.[176] When NRC began, AN train operations therefore shrank considerably although AN was still responsible for infrastructure maintenance and train control on their network. AN responded by reorganizing internally and establishing a dedicated track access unit, the first of its kind in Australia, which developed a set of access charges for the rail operators mentioned above.

At around the same time, a major policy development, known as the Competition Policy, affected the overall framework for managing infrastructure in general. The policy emerged from the finding of the 1993 Hilmer Report, and the 1995 Competition Principles Agreement (CPA) between the federal and state governments. The agreement covered electricity, water, gas, transport, and telecommunications and laid the foundation for competition reform in these sectors. In the rail industry reform had two main phases.

- Several vertically integrated government-owned railways were separated into their 'natural monopoly' below-rail components and 'potentially competitive' above-rail components.
- Provision was made to facilitate third-party access to any below-rail facilities that were deemed nationally significant.

Next, Government decided to sell AN residual above-rail operations, which comprised passenger services and freight operations in Tasmania and rural South Australia, raising the question of what to do with track owned by AN and managed by the AN track access unit. This was part of a broader problem facing the interstate network, which now had to comply with competition policy. Five options were considered, of which the following two were the most important.

- Transfer the interstate network to NRC, which would become an integrated operator for most of its operations, but allow other operators track access.
- Create an independent authority to manage and control the interstate rail network.

The two options were compared in terms of the following broad criteria.

- Net economic benefit, which took the following into account.

[175] Initially, state railways were paid for rolling stock operation and maintenance, but most of these activities were transferred to NRC within a year or so.

[176] A further 15 percent was a stand-alone coal movement to a power station; local general freight made up the remaining 5.0 percent.

  - allocative efficiency ('doing the right thing') in encouraging market-based pricing and investment and optimizing the traffic split between road and rail
  - productive efficiency—combining technical efficiency and productivity; and optimizing maintenance and renewal policies
  - dynamic efficiency—encouraging competition through competitive neutrality, thus stimulating innovation and above-rail productivity
  - administrative efficiency—minimizing transaction costs, administrative complexity, and the need for external regulatory oversight
- Operational robustness, with operational interfaces as simple and few as possible
- Supporting a financially sustainable interstate rail freight sector, which would inevitably mean facilitating external funding

Government selected the option of an independent track authority, established as a Government-owned corporation. In November 1997, AN was sold to three separate private investors—South Australia, Tasmania, and passenger services. At the same time, the Australian Transport Council agreed to establish an Australian Rail Track Corporation (ARTC) to manage access and infrastructure development on the interstate rail network, and provide access to operators through a single organization. Subsequently, in February 1998, the AN access unit was corporatized as ARTC and became a public company, with shares wholly owned by the Australian government. The AN main line interstate track was transferred to the ARTC, which commenced operations on 1 July 1998.

Appendix B: ARTC Interstate Reference Prices

ARTC PRICING SCHEDULE
Applicable Rates - Effective from 1 July 2009

TRACK ACCESS PRICES	EAST - WEST									NORTH - SOUTH					HUNTER VALLEY & INLAND			
	PARKES JCT - BROKEN HILL	BROKEN HILL - CRYSTAL BROOK	ADELAIDE - PARKESTON	TARCOOLA - ALICE SPRINGS #	PT AUGUSTA - WHYALLA	ADELAIDE - PELICAN PT	ADELAIDE - MELBOURNE	APPLETON DOCK JCT - FOOTSCRAYED	FOOTSCRAYED - APPLETON DOCK / SWINSTON DOCK	BORDER LOOP - SLINGTON	TOTTENHAM - ALBURY	ALBURY - MILDURA/BUR	COOTAMUNDRA - PARKES JCT	MOSS VALE - UNANDERRA	MAITLAND - MUSWELLBROOK	MUSWELLBROOK - MERRYGOEN	MUSWELLBROOK - WEBBS CREEK	PARKES - WEBBS CREEK
All Freight	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
VARIABLE PRICE PER '000 GTK	3.626	3.626	2.703	5.064	4.568	3.881	3.024			3.161	2.477	2.477	3.469	3.968	3.357	2.991	3.357	2.206
FLAGFALL PRICE per TRAIN KM																		
Passenger	1.514	1.514	3.706	4.549			2.282											
Express Freight	1.021	1.021	3.508				1.834				1.044	1.044	1.044					
Regular Freight	1.054	1.054	3.495		2.351		2.129	42.840	18.350	1.716	1.053	1.053	1.374	1.014	4.098	4.806	4.094	0.534
Super Freight	0.973	0.973	3.485	4.223	2.351	2.502	1.876	42.840	18.350	0.913	0.986	0.986	0.940		0.427	0.462	0.427	0.096
Standard Freight	0.497	0.497	2.486		1.698	2.083	1.784	42.840	18.350	0.808	0.610	0.610	0.415	0.510	0.427	0.416	0.427	0.082
Heavy Freight																		
VARIABLE PRICE PER '000 GTK											4.806	4.806		6.408				
FLAGFALL PRICE per TRAIN KM																		
Heavy Freight											1.053	1.053		1.014				
Express Passenger																		
VARIABLE PRICE PER '000 GTK	3.449									3.084		2.426		3.898	3.285		3.286	2.158
FLAGFALL PRICE per TRAIN KM																		
Express Passenger	1.744									1.841	1.983	1.957		1.775	1.739		1.754	1.757

FLAGFALL APPLICATION

FLAGFALL	TRAIN TYPE AND DESCRIPTION	TRAINS
Express Passenger	Max train speed above 115kph /Max Axle Loading up to 19T	XPT, Intra Urban Passenger, Intra State Passenger
Passenger	Max train speed 115kph /Max Axle Loading up to 19T	Long Distance Passenger
Express Freight	Max train speed 115kph /Max Axle Loading up to 20T	Bi Model
Regular Freight	Max train speed 80kph / Max Axle Loading up to 23T / Length to corridor standard max	Scheduled Services including Steel, Ore, Cement, Concentrates
Heavy Freight	Max train speed 80kph / Max Axle Loading up to 25T / Length to corridor standard max	Limestone
Super Freight	Max train speed 110kph / Max Axle Loading up to 21T / Length up to corridor standard max	Intermodal, Land Bridging
Standard Freight	Max train speed 80kph / Max Axle Loading up to 23T / Length to corridor standard max	Non Scheduled services including Grain, Minerals

APT Interface

** *Rates apply to ARTC business customers only*

** *10% GST will be added to the total invoice charged based on above charges*

** *Some rounding may occur on the final invoice*

Appendix C: Key Sources

Apelbaum Consulting Group, Australian Rail Transport Facts, 2008

ARA, The Future for Freight, 2005

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Department of Transport and Regional Services (DOTRS), Rail Infrastructure pricing: Principles and Practice

NERA Economic Consulting, Comparative Assessment of Road and Rail Infrastructure Charging Regimes in Australia, for ARA, May 2006

National Transport Commission, Freight Rail Productivity Review Final Position Paper. August 2009