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Contractual arrangements and their implications for the provision of an Australian HSR system

Tania von der Heide, Patrick Gillett, Michael B. Charles and Neal Ryan

Abstract— There has been much debate over the past few decades regarding the desirability of implementing an Australian high-speed rail (HSR) system along the nation's eastern seaboard. The cost of building such infrastructure has meant that governments have been reluctant to pursue its development. Changing contextual circumstances, such as the imminent introduction of an Australian emissions trading scheme, concerns about peak oil, restrictions on airport capacity and the desirability of enhancing Australia's transport infrastructure, have added impetus to the call for an Australian HSR system. The magnitude of the investment required to implement HSR in Australia implies that a wide range of public-private relationships would be necessary for the construction and management of the network.

This paper draws on international experiences relating to the arrangements between government funders of HSR projects and service providers contracted to provide services in relation to these major public assets. This review is applied to previous proposals for the development of an HSR network in Australia, as a means of analysing the contractual issue which need to be addressed in any future infrastructure development with respect to rail. In particular, the paper will examine the extent to which international contractual arrangements are able to provide an insight into relationship between funding the construction of these assets and their management in an Australian context.

I. INTRODUCTION

Despite a great deal of rhetoric over the years, Australia still does not have a HSR system capable of 250 km/h plus speeds that can compete with air transport and private automobiles. Such an undertaking has the potential to provide

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an important transport network between capital cities on the eastern seaboard of the continent (e.g., Melbourne-Canberra-Sydney-Newcastle-Brisbane, or sections thereof initially). According to HSR proponents, changing contextual factors, including more stringent environmental policy, transport policy aiming at increasing sustainability, airport capacity issues, transport demand and transport service factors make the opportunity for HSR more attractive than has previously been the case [1], particularly as an alternative to carbon-intensive air transport. With increased emphasis on finding more environmentally friendly and less carbon-intensive ways to transport people over long distances, together with creating jobs in a period of widespread economic uncertainty, rail infrastructure is firmly back on the political agenda.

The current federal government of Australia under Prime Minister Rudd is pursuing an ambitious program to overhaul national infrastructure policy. In early 2008, the federal government established Infrastructure Australia¹ as a means to drive the development of a long-term, coordinated national approach to infrastructure planning and investment. Private investors are increasingly prepared to help bankroll the Commonwealth's ambitious AUD200 billion infrastructure agenda [2], which covers water, energy, communications, health, education, housing and transport. A modest AUD1 to 2.4 billion has been earmarked for national and interstate rail projects [3, 4].

Although an Australian HSR system represents a compelling opportunity for world-class transport infrastructure, work remains to be done on ascertaining its economic, social and environmental feasibility, both now and into the future. Existing Australian HSR project evaluations are now somewhat dated, especially given that they were conceived in a political and social context that placed less emphasis on sustainability. This paper focuses on the particular issue of procuring HSR investment through contracting strategies, notably a public-private-partnership (PPP) approach. The paper is set out as follows: first, it distinguishes different infrastructure outsourcing arrangements; second, it introduces the Australian context for infrastructure outsourcing in general and for rail transport, in particular; third, the history of HSR in Australia is briefly

¹ A statutory advisory council with 12 members drawn from industry, government and local government.

recapped, before the paper draws key lessons from international HSR experiences that have adopted a PPP arrangement for the provision of rail infrastructure and services. Finally, conclusions for the funding of new HSR infrastructure in Australia are provided.

II. INFRASTRUCTURE OUTSOURCING ARRANGEMENTS AND PUBLIC PRIVATE PARTNERSHIPS

Governments have used private contractors to provide a variety of public services over a long period of time [5]. More recently, partnerships between governments and private contractors have become a feature of the ‘new public management’ (NPM) reform movement that has radically altered public administration processes across countries in the OECD [6]. Economy, efficiency and effectiveness or value for money (VFM)² in service provision have been major drivers of NPM reform [7]. New infrastructure-based outsourcing arrangements characterizing NPM exist along a spectrum of public to private investment responsibility, as shown in Table 1.

TABLE 1 OVERVIEW OF INFRASTRUCTURE OUTSOURCING ARRANGEMENTS				
Outsourcing	Public-Private Partnerships			Privatisation
Traditional public sector contracting	Concessions		State- owned enterprises and special purpose vehicles	Divestiture
Design-build; DB-Maintain	Design- Build- Operate; DBO-Maintain	Build- Own- Operate- Transfer		
Public funds or passive private investment (government bonds)	Government defines project	Private party develops project	Corporatization Joint ventures Alliances Other hybrid PPPs	Passive public investment (equity, debt guarantees, grants) or private funds
Public Provider	← Investment responsibility →			Private Enabler
	← Government role →			

Source: Adapted from [8, 9]

Common to all PPPs is an arrangement whereby a private consortium contracts with a public sector agency to finance, design and construct a facility under a time and cost-specific contract. Following construction, which is undertaken and financed by the consortium, services are provided under a long-term contract. A revenue stream is used to repay debt, fund operations, deliver contracted services, and provide a return to investors. Payments are not made until the asset is commissioned and becomes fully operational [8-10].

In addition to the conventional forms (e.g., DBO/M and BOO/T), a variety of new and innovative PPP infrastructure delivery models have been developed in recent years to address various challenges posed to PPPs in specific situations and sectors. These new hybrid forms are special purpose vehicles (SPV) or institutional PPPs, a term used to distinguish it more clearly from the ‘concessional’ or ‘contractual’ PPP. Hybrid forms include joint ventures³ and

² VFM is generally defined as getting the ‘best possible outcome at the lowest possible price’ (NSW Treasury, Submission to the Inquiry into Public Private Partnerships, 15 November 2005, 13).

³ In this case, a joint venture company is set up, but the majority is owned by the private sector partner. This strategic partner is selected through a

alliances.⁴ Overall, these arrangements are particularly suited to complex, innovative and uncertain projects that cannot be easily defined beforehand, and in which the parameters are relatively dynamic and subject to ongoing negotiation between the stakeholders involved [9]. In sum, these infrastructure delivery options are based on the premise that private provision offers superior savings to consumers, governments and the taxpayer by extension. Therefore, before a PPP scheme can be approved, it must be demonstrated (using the Public Sector Comparator [PSC] construct⁵) that the deal will save money when compared to the publicly financed alternative.

III. PPPS IN AUSTRALIA

According to Deloitte, a global advisor on PPP services, Australia ranks just behind the world’s PPP leader, the United Kingdom (UK), based on the characteristics of PPP sophistication and activity [8]. Australian PPPs have been used for the delivery of projects across a broad range of public service functions including hospitals, prisons, schools, utilities, and transport. In the period 1980 to 2005, 127 PPPs worth AUD35 billion dollars have been used for the delivery of infrastructure projects in Australia [7].

More recently, plans for a National Broadband Network – one of Infrastructure Australia’s seven national infrastructure priorities – have been announced by the Australian federal government [11]. While initial stages of the eight-year AUD43 billion project will be financed and coordinated by the federal government, subsequent stages are dependent on private sector involvement, thus making this project Australia’s largest PPP to date.

The state of Victoria has a reputation for wanting to implement new management ideas. As a result, this state has led PPP activity in Australia since the 1990s [6]. The establishment of Partnerships Victoria within the Victorian Department of Treasury and Finance in 2000 marked a watershed in PPP implementation and development in Australia [7]. Victoria began developing a suite of comprehensive PPP-specific steering mechanisms based on the UK’s private finance initiative (PFI) model. The PFI model established a set of procedures to govern the pre-contractual decision-making stage, which leads to the signing of a PPP contract and establishes the monitoring and oversight mechanisms employed in the construction and operation stages of the project. PPP policies in other

competitive process that includes a bid to carry out the first phase of work (Deloitte, 2009, p. 15).

⁴ Under the alliance model, the public and private sector agree to design, develop and finance the project jointly. In some cases, they also work together to build, maintain and operate the facility (Deloitte, 2009, p. 15).

⁵ A whole-of-life net present cost model that reflects government retaining ownership and responsibility for construction/redevelopment and ongoing management of the project (Australian Government – Infrastructure Australia, 2008)

Australian jurisdictions have been largely based on the established Victorian policies. In 2005, the federal and all state governments formally agreed to harmonize their approach to PPP development and implementation.

Two distinct PPP models are recognized in Australia, both of which are characterized by different payment scenarios based on demand for services [7, 10]. The first PPP model has been in use since 2000 and closely resembles the UK's PFI model. According to these arrangements (also known as 'social' PPPs), the government assumes demand risk, guarantees a minimum revenue stream, and pays directly for service provision. Under the second PPP model (known as 'economic' PPPs), revenue risk is transferred to the consortium. It typically involves a 'user-pays' structure for the use by the public of facilities, such as roads, bridges, airports, trains, etc. Governments may effectively underwrite an agreed real rate of return on investment through terms and undertakings so as to minimize existing and future competitive options, thereby ensuring that revenues cover the cost of the asset [7].

In Australia, a variety of hybrid models are used to capture different demand and risk scenarios and project types [7, 10]. The need for independent inquiry (performance audits) into PPP arrangements is recognized [12]. Noteworthy, too, is that the post-2000 focus on VFM outcomes in the context of steering mechanisms (as opposed to the procurement of off-balance sheet assets) appears to indicate that most Australian PPP assets may be recognized on government balance sheets [7].

Though it is difficult to draw conclusions about observed PPP project allocations, it has been speculated that PPPs are more likely to flourish in circumstances that are i) not highly politically charged, ii) where risk can most easily be transferred to the private sector, and iii) where private consortiums are provided with relative certainty of achieving desired returns [7]. In addition, governments need to be convinced that the political risks of a PPP can be managed. This is seen as more important than trying to win over the community, which will accept the PPP model and the user-pays principle if the project is seen to deliver [2].

From a historical perspective, rail PPPs have not been widely used in Australia. Of the infrastructure PPPs brought to realization in Australia between 1980 and 2005, 18% of projects and 51% of funding was in the transport sector. Despite this, road projects (mostly toll roads) were worth twice as much (34%) as rail projects (17%), while rail projects were mostly related to maintenance and upgrades of infrastructure [7]. These differences arose mainly from the fact that new railway infrastructure, in terms of its technology, is a far more complex entity than, say, a toll way [13].

However, the private sector's appetite for road or rail PPPs is limited. The uptake of PPPs will depend on whether the global financial crisis has eased sufficiently for the private sector to absorb risk. Private investors might also require some temporary measures (e.g., government guarantees) before they confidently enter the market [2]. Furthermore, the lack of nationally consistent PPP strategies and policies has frustrated many private sector participants [14, 15] in the past, and has resulted in poor infrastructure outcomes [16].

The broader implication for rail transport is that PPP models are certainly an appropriate model of funding HSR projects, and the new Australian national PPP policy and guidelines go some way toward addressing this task [10]. Yet, it is unlikely that a contractual arrangement will address the complicated arrangements required of a complex public infrastructure negotiation such as an HSR system. PPPs require a balancing of both contractual and relationship issues (e.g. trust) to approach projects in a spirit of partnership [17].

IV. RAIL TRANSPORT IN AUSTRALIA

In the last 50 years, city building and transportation in Australia has revolved around private automobiles. Australian cities, along with those of the United States, are widely regarded as the poorest achievers in the world with regard to public transport [18]. This is largely a consequence of the high costs of infrastructure associated with urban sprawl. Cities with poor public transport systems, especially passenger rail systems, have higher total costs of transport as a proportion of city wealth; for instance, 13.8% in Australia compared with 8.1% in Europe [18].

Rail has played a dominant role in moving bulk primary commodities (e.g., coal, iron ore, bauxite, wheat) to Australia's ports and processing centres, as well as moving intercity freight. That said, a number of deficiencies are also identified with rail freight in Australia, including lack of long-term vision, poor rail line-haul performance, inadequate capital investment and an inability of supply chain participants to coordinate in a consistent manner so as to optimize efficiency [19]. Despite some efficiency gains over the last decade, rail continues to struggle to maintain its share of freight tasks in key corridors.

On the whole, different approaches by the Commonwealth to determine funding and charging regimes for rail versus road transport have resulted in a lack of competitive neutrality and rail deficits, particularly in urban passenger services in NSW and Victoria. The continuing high deficits in public rail mean that much of government expenditure is diverted from necessary capital works to offsetting ongoing financial losses and retirement of debt [20].

To date, the Commonwealth has not supported a

'centrally-planned' approach since this position is viewed as 'dictating national transport development'⁶ [21]. Rather, the view is that target performance levels needed to be agreed to by all jurisdictions⁷ so as to provide certainty for planning by industry. However, many in the rail industry are deeply frustrated at the lack of effective Commonwealth and state cooperation with regard to rail reform [20]. Given the relatively small proportion of Commonwealth Government funding made available for rail investments, the Commonwealth is interested in encouraging and utilizing private sector investment in rail infrastructure investments in lieu of public funding. Paradoxically, the current lack of consistency in management and government regulation of the rail system is seen as a major impediment to private investment in the rail industry [21].

It is clear that reform and investment go hand in hand. Some progress has been made in reforming Australia's rail industry (e.g., improved access arrangements and harmonization of accreditation), yet more far-reaching reforms are necessary if rail is to reach its full potential, as has been the subject of numerous papers [for instance 19-21, 22]. The Infrastructure Australia reform initiative offers further hope for rail, with three of the seven national infrastructure priorities relating to rail transport [23]:

- Competitive international gateways by developing more effective ports and associated land transport systems.
- A national rail freight network.
- Increasing public transport capacity in cities and making better use of existing transport infrastructure.

The notable absence of new intercity rail transport from the current Government's priorities for infrastructure reform, suggests that the impetus, funding and responsibility for such an initiative needs to be found primarily in the private sector. In view of this, government-funded PPPs may need to give way to private-based PPPs. Superannuation funds looking for a safe investment may be asked to invest in PPPs of this nature [2, 16].

V. HSR IN AUSTRALIA

A. Background

The first fully-fledged proposal for an advanced passenger railway operation between Melbourne-Canberra-Sydney emerged in 1990 from a private HSR joint venture consortium comprising BHP, TNT, Elders IXL and Japan's Kumagai

⁶ As a result of the Australian federal structure and other factors including nineteenth-century inter-colonial rivalry, the nation has three main rail gauges in use: narrow 1067mm, standard 1436 mm and broad 1600 mm. It was not until 1995 that the five mainland state capitals were linked by a uniform width track.

⁷ Australia's federal system of government comprises six states (New South Wales, Queensland, Victoria, South Australia, Western Australia and Tasmania) and two territories (Australian Capital Territory and the Northern Territory).

Gumi [24]. The HSR partners promoted the scheme as a private sector venture, subject to special taxation arrangements that recognized the long pay-back periods associated with major infrastructure projects. In August 1991, Federal Cabinet rejected the consortium's taxation concession proposals. As a result, this ambitious venture folded [25].

In 1993, plans for a new Sydney-Canberra line re-emerged from the Speedrail Pty Ltd Joint Venture, which comprised an engineering consultancy, project managers and Anglo-French company GEC-Alstom. Some particular terms of the Government's brief were that governments be protected from financial and operational risk and that 'there be no net cost to taxpayers' [13]. By end of 2000, this project also faltered on account of various reasons. In particular, Speedrail claimed that its requirements for clear and unchanging approval processes, straightforward regulations and endorsed standards for the construction and operation of high speed railways in Australia did not exist. The government claimed that the proposal did not meet the test of 'at no net cost to the taxpayer', which has been the prevailing mantra with respect to potential government in high-speed rail in Australia. This is contrary to international experience, where government has been heavily involved in the provision and indeed operation of HSR infrastructure [26]. Furthermore, the policy position taken by all governments concerned was that no direct public funding should be expected for the project [25]. It is unclear whether the various jurisdictions involved would have yielded to Speedrail's request to provide financial input for the resumption of private land required for the right of way and for the construction of two platforms.

Finally, the most recent (2001) scoping study for an east-coast Australian high-speed train – a substantial, 435-page document [13] – has also been shelved, though an AUD59 billion fast-track HSR project to link Melbourne-Canberra-Sydney has been mooted in the media [27]. Rather, the Government appears to favour an east-coast inland rail freight corridor, which is presently under investigation [3, 28]. All in all, while HSR in Australia has been heavily studied and promoted at considerable expense by the private sector, its implementation remain little more than a pipe dream.

Clearly, a wide range of important issues bear on high-speed rail proposals, including matters of land acquisition and compensation for land-owners, infrastructure requirements, land use and access, economic and employment impacts, community amenity and social impacts, in addition to a range of environmental issues [25]. As a result, none of the proposals under consideration over the past fifteen years could have proved commercially viable without significant public sector funding contribution, or other forms of financial concession [13]. The costs and risks would be of such magnitude and its construction and operation of such a scale that it could only be achieved through the leadership of

Australia's Commonwealth and state governments working closely together. Government funding contributions to an Australian VFT have been estimated at between 60% to 100% [13], depending on required rates of return on private sector equity, costs, demand and perceived risks. Under strong government leadership, there would be many opportunities for private-public cooperation and partnerships to deliver and, possibly, operate elements of the project [13].

Given Infrastructure Australia's freshly articulated priorities, it is unlikely that the position adopted by Australian governments' will change significantly in the near future. In this policy environment, it is uncertain as to whether an innovative PPP arrangement can be constructed so as to deliver a successful HSR system. Meanwhile, the best known recent case of new rail infrastructure is the Gold Coast Rapid Transit – a mass transit light rail public transport system in the state of Queensland [29], which is fully funded by Commonwealth, state and local governments [30].

B. Future

Although PPP arrangements have become more prevalent in Australia over the past decade, their application and subsequent management continues to provide significant challenges. In particular, the limited quantity of empirical research that has focused on PPP initiatives [9] ensures that the many contractual issues arising during the course of a project have yet to be fully realized. In the context of the possibility of an Australian HSR system, these challenges are further stressed by the addition of unique project complexities. Examples of such complexities include the lengthy project time-frame, the application of advanced technologies, and the large number of stakeholder interests.

Without the benefit of empirical research, further understanding of the various contractual issues associated with PPP arrangements for HSR projects may be possible through secondary assessment of the literature. In view of this, the following section represents an initial effort to identify and examine several key contractual issues that apply to the Australian HSR context.

VI. LESSONS FROM INTERNATIONAL HSR PROJECTS

A number of issues directly influence the success or failure of PPP arrangements [6-8]. Four key issues pertinent to the introduction of a HSR system in Australia emerge from a review of the following four international HSR projects, these being: i) late involvement of private parties; ii) lengthy procurement processes; iii) political interference and renegotiating of contracts; and iv) dealing with representative bodies and stakeholders.

A. Netherlands

HSL-Zuid – a 125-km-long high-speed line between the Netherlands and Belgium – is the largest PPP so far

undertaken in the Netherlands. The project concessionaire, a consortium called Infrasppeed, is responsible for the design, building, operation, finance and maintenance of all track equipment for a period of 25 years until 2030 [31]. This PPP provides an extreme example of splitting the various production components into individual contracts [31].

Problems associated with late involvement of private parties to this project centre on the conflict that arose between contractors responsible for civil engineering projects and Infrasppeed [32]. This conflict stemmed from the unequal entry of both parties to the project, and the subsequent separation of closely-linked infrastructure components. More specifically, Infrasppeed based its project bid on civil engineering designs that had been contracted up to two years earlier. However, during the course of Infrasppeed's bid assessment, those civil engineering plans were subsequently refined, thereby prompting various design anomalies between both parties. Although pro-active management of the contractual interfaces overcame many of the design problems [33], the need to integrate each of the separate construction components along the route was identified as a key learning outcome for the project managers [32].

Complete resolution of this timing issue may be impracticable given the nature of PPP arrangements. In particular, it is recognized that governments generally set the project conditions up front, something which ultimately restricts the involvement of private parties in early stages of the project [9].

B. Sweden

When government knowledge of HSR systems and technologies is limited, long delays in the procurement process may occur. This was demonstrated in the case of Sweden's HSR, the X2000, which was constructed in the mid-1980s. Although the green light for this project was initially given in the late 1960s, actual development took almost two decades [34]. Reasons for this lengthy time frame were attributed to the procurement phase. More specifically, significant delays occurred while members of the government-led project team sought to acquire the necessary level of competency that would allow them to negotiate credibly with foreign bidders [34].

Although Australia has a notable history of HSR assessment and discussion, as highlighted earlier in this paper, no project to date has progressed beyond the preliminary proposal stages. As the Swedish HSR example admirably illustrates, gaining an appropriate level of expert knowledge in all areas of product procurement will be a feature of any future Australian HSR initiative. Even more importantly, perhaps, the decision to move from a project proposal stage to official commissioning may be dependent on this key criterion.

C. Eurotunnel

Eurotunnel provides the opportunity to analyse issues of contract disputes and renegotiations. The problem of significant underestimations by Eurotunnel contractors and the general inadequacy of contractual cost controls has been highlighted in the academic literature [35]. Issues such as these have contributed greatly to the substantial budgetary overruns and scheduling delays that have plagued the project.

Additional expense claims by the contract consortium, TransManche Link (TML), points to the desperate consequence of contractual disputes for projects of this nature. In 1992, TML made a claim for additional construction costs amounting to GBP1.5. Such a claim was unable to be dealt with effectively by the particular disputes panel that had been specifically set up for such issues. As a result, the matter was ultimately heard by a higher arbitration tribunal. In the meantime, however, delays to the project schedule negatively affected Eurotunnel's ability to raise much needed equity for future production and service costs [35].

Although the unfavourable budgetary outcomes have been attributed to the underestimations of project tasks undertaken by TML, government interjection on the project has also been well documented. This behaviour has been classified as a type of manifest political risk [9]. In the case of Eurotunnel, this suggests the readiness of French and UK governments to impose additional safety requirements during construction. A similar scenario has occurred in the case of HSL-Zuid, whereby additional safety measures were considered necessary following several European tunnel disasters [32]. Any HSR proponent must be cautioned against uncoordinated government interference in the development and operation of PPPs [9] and the possible risk of jurification (regulatory inflation) when it comes to enforcing long-term contracts [36].

D. France

In terms of managing multiple representative bodies associated with a HSR project, the case study of the French TGV High-Speed Méditerranée [37] highlights the potential for project delay arising from conflict among elected government officials. This is especially noteworthy given that large-scale infrastructure projects, especially those associated with HSR, are always highly politicized. Such conflict is to be expected given the mandate to protect and pursue the interests of their respective constituents. For this reason, dialogue between stakeholders in the early stages of project development is advised, together with the establishment of a third-party disputes panel to resolve protracted disputes [37]. As the case of Eurotunnel demonstrates, such mediation is nevertheless no guarantee that the affected parties will not take their case to arbitration, a course of action which almost inevitably results in significant project delays.

VII. CONCLUSION

With a track record in PPPs in non-rail sectors, new national guidelines for PPPs, Australian federal government funding for national infrastructure and growing pressure for modern, environmentally friendly interstate transport systems, the time for a HSR PPP initiative may be approaching. Before any HSR project – whether it be privately and/or publicly funded, proposed by government, or unsolicited – can proceed, at least two further conditions identified by a rail transport inquiry ten years ago [20] still need to met: i) the need for a stronger recognition by the federal and state governments of their responsibility to provide public use rail infrastructure of an adequate standard; and ii) the development of a national, strategic and integrated approach to transport planning.

There is ample international evidence to show that, contrary to previous expectations on the part of Australian governments, there is a need for the taxpayer to bear at least part of the cost of any HSR project. Public funding has proved a key element in the success of HSR projects, beginning with Japan's Shinkansen and perhaps best exemplified by the French government's TGV. In the Australian context, however, an HSR system almost certainly cannot be a fully private-funded exercise, at least in the foreseeable future. In view of these conditions, a PPP arrangement would seem the best means to ensure an equitable spread of risk between public and private interests. The revival of rail in various countries throughout the world, as well as the discussion of innovative PPP arrangements, may help to spur Australia into establishing world-class rail infrastructure for the 21st century and beyond.

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