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An investigation of institutional arrangements for design and delivery of multimodal public transport in Melbourne

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Abstract

Intermodal service coordination designed to achieve a 'seamless network' is a common feature of high-quality public transport systems. This paper explores the intention and the reality of the institutional arrangements that govern the coordination of bus, tram and train services in Melbourne under the franchise agreements.

State Government policies and contractual obligations set out the intended lines of responsibility for the planning of transport networks in relation to design and delivery of coordinated multimodal services. Interviews, designed to examine the practical application of these policies and obligations, were conducted during 2009 with staff from the Department of Transport, the private operators, the Bus Association and from Metlink – the company established to improve communication and coordination of public transport services.

The results of this investigation highlight the significant differences between actual practices and the stated intentions of both government policies and existing contracts with private sector organisations.

The lack of effective designation of responsibilities, ineffective communication at many levels across numerous institutions, and an absence of skilled staff will continue to impede the development of a cohesive transport network in Melbourne. These problems were not addressed in the design of the new franchise agreements that began in December 2009.

Biography of presenting author

Kathren Lazanas completed her Masters of Urban Planning at the University of Melbourne in 2009. She worked with JCDecaux as City Relations Manager for seven years, managing the roll-out of advertising infrastructure for the tram and train franchise operators.

1. Introduction

Privatisation of Melbourne's tram and train services, introduced in 1999, has undergone several changes to the structure and content of the franchise agreements between the state government and private operators, most notably in 2004 when single operators were appointed to run each mode and in 2009 when the franchises were re-tendered. At each iteration, promises were made regarding expected improvements to efficiency and coordination of services across the different modes of transport.

This paper reports on research that contrasts the Victorian government's official policies and procedures for achieving intermodal connectivity in the operation of the public transport system in metropolitan Melbourne with the actual practice. This practice was revealed through interviews with key individuals from the Department of Transport's Public Transport Division, the tram and train franchisees (Transdev/Transfield and Connex), the bus association and Metlink. These interviews were conducted between March and July 2009, before the signing of new franchise contracts, which saw new operators installed for both tram and train[1].

The paper starts with a very brief review of recent literature on the importance of connectivity in creating successful public transport systems. This literature is notable for the rare agreement it reveals between researchers as diverse as Paul Mees and David Hensher.

The paper continues with a description of policies of the Victorian ALP government that have been published since its election in 1999. Many of these documents set out clear targets and objectives and include specific organisational responsibilities and timelines for achieving intermodal connectivity. However, there is clear evidence that outcomes are not as positive as many supporters of the franchise approach might have been hoped

Three key institutional mechanisms for delivering these policy objectivies are identified and assessed: strategic development frameworks; Metlink; and the more recent 'network development partnerships' that have been formalised in the new franchise agreements.

2. The importance of intermodality and connectivity

Public transport is increasingly called on to serve diverse objectives – ranging from providing mobility to the disadvantaged through to alleviating traffic congestion – while making efficient use of financial resources. The challenge for public transport seems daunting. It must cater for travellers with very different needs, ranging from peak-period access to the CBD to all-day access to local shops and community centres. It also needs to provide attractive service, frequencies and operating hours for multiple destinations, while maintaining high occupancy rates. Some observers have argued that these trade-offs present an insoluble problem (Roth and Wynne 1982), but there is evidence to counter this assertion.

The essence of public transport, reflected in its name, is carrying people with different origins and destinations in the same vehicle. These travellers can then be transported with lower

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[1] Full details can be found in the Appendix. Interviewees were given a draft of this paper and asked if the quotes selected by the authors accurately represented their views. No interviewee took issue with the way quotes were used, although some offered further information to clarify the context or the tone. The final text reflects this.

economic and environmental cost than if they travelled separately. This is public transport's strength, but also a weakness, as trips do not all have the same origins or destinations.

One approach to diverse travel patterns is to provide separate services for different markets: express buses and trains for peak commuters; regular buses for local trips along busy corridors; paratransit for low-demand corridors and times. The problem with this approach is that the more public transport becomes tailor-made, the more it surrenders its environmental and economic advantages. A public transport system offering a direct service between every origin and destination would have low frequencies, low occupancies, high costs and high greenhouse emissions per passenger.

The alternative is networks (Hensher 2009; Mees 2010; Nielsen and Lange 2005). This approach enables 'anywhere-to-anywhere' travel while keeping occupancy rates high, by carrying different kinds of travellers on the same services. The key to planning a network is to knit together all available modes of public transport resources. Operational issues associated with a particular mode are seen as secondary to those of network structure.

To begin the introduction of 'networked' service planning, decisions must be made about the location of key suburban interchanges. These decisions largely follow from regional land-use plans and from the location of fixed-rail infrastructure, although it is necessary to take an iterative approach, which recognises that decisions about the location of high-quality public transport routes and interchanges will drive locational choices made by property developers. Once decisions are made about the basic structure for the network, the details of the operations of each component line must be considered in a way that allows stable and reliable performance, and which maximises connectivity at key points in the system.

Transfers are integral to a public transport system that offers access to a large number of potential destinations at an affordable cost to the operator. Traditional public transport planning (in the English-speaking world, at least) has treated transfers as an inconvenience to be avoided (Balcombe et al. 2005; DfT 2006), but the network approach makes transfers the building blocks of a multidestinational system (Thompson and Matoff 2003, p. 298).

3. Victorian Government plans recognise the need for intermodality and connectivity

Since its election in 1999, the Victorian ALP government has put forward a long series of transport plans and policy documents in which intermodal connectivity figures strongly. Many of these documents set out clear targets and objectives and include specific organisational responsibilities and timelines. Key policies and action statements are listed in Table 1.

In the 2002 plan, *Melbourne 2030*, the Department of Infrastructure (DoI) devised a Principal Public Transport Network (PPTN) as a key mechanism for achieving the government's target of increasing public transport modal share to 20 per cent by 2020 (DoI 2002). Then, *Meeting Our Transport Challenges* (MOTC) set a bold target of "synchronising of train, tram and bus timetables by the end of 2006" (DoI 2006, p. 59).

The mechanisms for achieving these policy objectives are led by the government. The Director of Public Transport "manages all … contracts. [These] specify the levels of service that the operators are required to provide" (DoI 2005b, p. 5). There is a formal requirement in the franchise agreements for trains and trams for timetables to be reviewed every six months.

There is no regular review of bus timetables. A series of regional bus service reviews across the metropolitan area has been in progress for a number of years but any changes resulting from these reviews are implemented slowly and irregularly.

Policy/Document Title	Initiative/Priority/ Direction	Objectives & Actions
Growing Victoria Together (Victoria 2001, p. 16)	2. Growing and linking all of Victoria	Build faster, better, more accessible transport and communication links
Melbourne 2030: Planning for sustainable growth (DoI 2002, p. 145)	8. Better transport links	8.2 Improve the operation of the existing …network with faster, more reliable and efficient on-road and rail public transport 8.4 Coordinate development of all transport modes to provide a comprehensive transport system
Linking Melbourne – Metropolitan Transport Plan (DoI 2004, pp.33-34)	2.3 Improve service coordination and customer interface	Priority actions: Integrating services under the Metlink banner: - Progressively improve timetable coordination across modes; for example, by encouraging train and tram operators to appoint full-time managers to oversee liaison between operators - Support and develop the role of Metlink as the integrated face of public transport in Melbourne… Agency responsible for delivery: DoI
Linking Melbourne – Metropolitan Transport Plan – *continued* (DoI 2004, p.45)	4.Increase public transport in middle and outer suburbs	Smart Bus: - Better connections with train and tram services - Intelligent passenger information signs to provide real time information … at key stops, and information on bus, tram or train services at key interchanges
Meeting Our Transport Challenges: connecting Victorian communities (DoI 2006, p.59)	9. Create accessible, connected communities	- Improving metropolitan interchanges: the synchronising of train, tram and bus timetables by the end of 2006 will also significant improve transfers between different modes of transport - Modal interchange program will commence in 2007
Towards an Integrated and Sustainable Transport Future: A new legislative framework for transport in Victoria (DoI 2007, p.18)	Transport system objectives	An integrated and coordinated system. An effective transport system requires excellent integration and coordination between all agencies involved in transport policy and planning… Integration and coordination is also desirable between all land transport modes and among the different service providers. This ensures transport networks and services operate effectively and maximise the value of our investment in transport infrastructure.
Victorian Transport Plan (DoT 2008c, p.61 & 68)	3. Creating a Metro System	Continued integration of bus timetables with train services - To make our trams, trains and buses more accessible and connected to one another…
DoT Corporate Plan (DoT 2009, p. 34)	Improve the accessibility and service quality of the transport system and address transport disadvantage	Encourage improved usability and service quality through the new contractual arrangements for the operation of the metropolitan train and tram franchises including: - Better integration between modes Responsibility: DoT; Commercial Timeline: 2009

Table 1: Victorian Government policies and processes for intermodal connectivity

In 2004, when the franchise agreements were re-negotiated and single operators for both trams and trains were put in place, the government established a framework for translating its long-term strategic plans into projects that can be implemented through its 'partnerships' with the franchisees. This framework is described in Figure 1

Figure 1: Strategic Planning Framework. (DoI 2005a, p. 83)
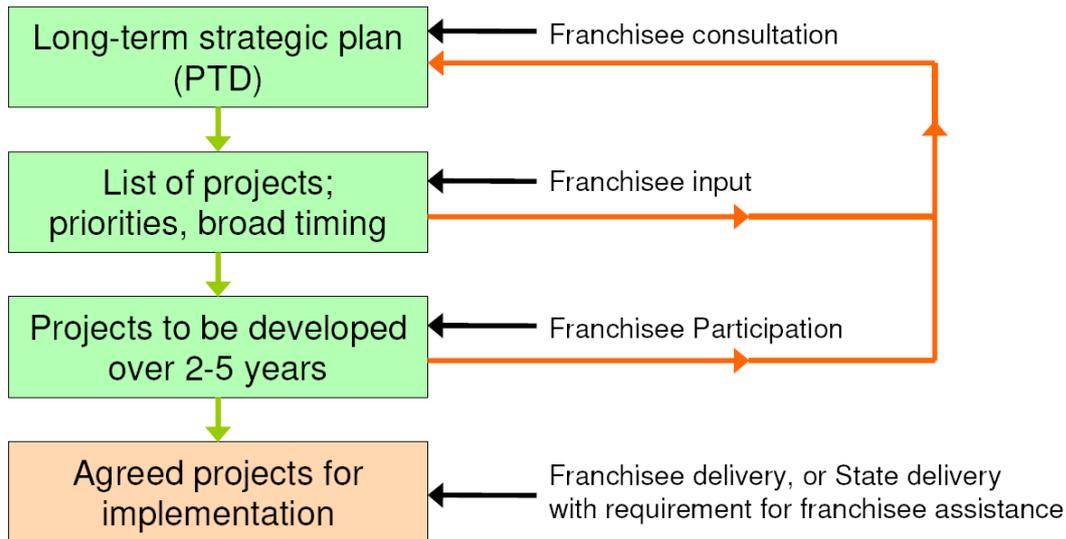
At this time, new arrangements were established to manage relationships between the government and the private operators through changes in the role of Metlink.

Metlink began as a private company – set up during the first franchise period as a clearing-house for the distribution of revenues collected through the multimodal ticketing system. However, during the reviews leading to 2004 re-franchising, the Victorian Auditor General identified a "lack of coordination between franchisees" (DoI 2005a, p. 19). DoT officials acknowledge that an intermodal approach was:

> effectively left out left out in the first round of franchises…there was no central body to facilitate the clashes between franchisees or public transport service operators over issues such intermodality (Alexander, research interview).

In order to rectify this failure, the role of Metlink was upgraded. Its primary responsibility became securing:

> substantial and sustainable increases in public transport use and farebox revenue in Melbourne through improvements in key aspects of the network-wide product and marketing mix over which it has control (DoI 2005a, p.41).

According to Alexander:

> Metlink is the coordinating body [that enables] discussions to take place between tram, train and bus on how they are going to deliver intermodal services. (research interview)

Metlink's central position in the intended lines of communication between the department and the operators is shown in Figure 2.

Figure 2: Metlink's intended coordinating role (DoI 2005a, p.42)
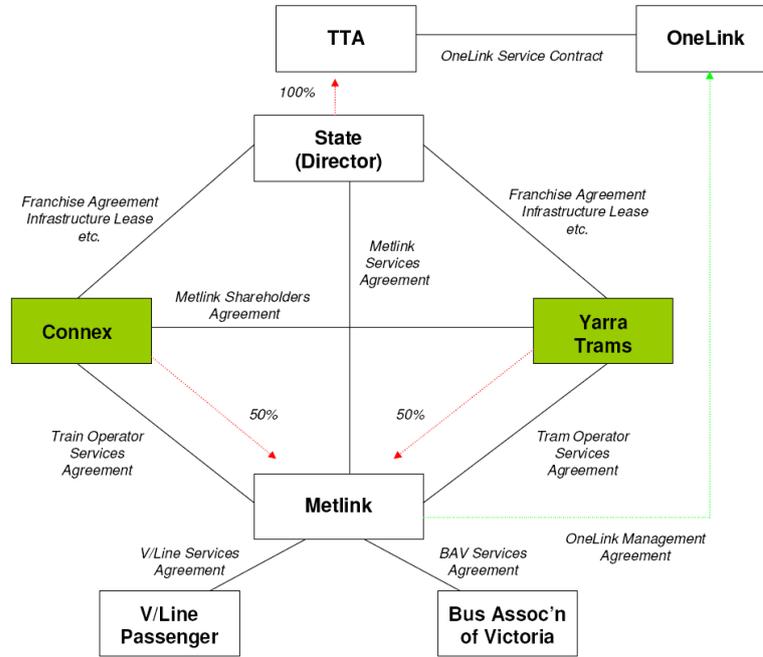
A further coordination mechanism between the department and the operators has been formalised in the 2009 franchise agreements, the Network Development Partnerships (NDP):

> will be the primary strategic forum for the State and the Franchisee to discuss and consider issues associated with the Franchise including strategic issues affecting infrastructure capacity, rolling stock capacity, operational performance, timetabling and passenger demand. (DoT 2008a, p. 49; 2008b, p. 49)

4. Have these institutional arrangement delivered?

Despite the clear government policies and targets for improved intermodal connectivity, the arrangements established through 'strategic planning frameworks' and Metlink have failed to deliver. Service coordination is still poor. The Secretary of DoT, Jim Betts, admits that "generally speaking … interchange is not as high as it might be" (Betts 2009). A study by the Public Transport Users Association (PTUA) in early 2010 found that just 37.5 percent of train arrivals have bus connections at stations and, of those, 42.5 percent require passengers to wait more than 10 minutes (PTUA 2010).

DoT staff commonly make the argument that is impossible to deliver good connections at all transfer points when bus routes typically cross many rail lines (seven, in the case of the new orbital SmartBus route #903). However, this begs the question of the lack of rigour in the design of the basic network structure. And, even using the current route layout, poor timetable coordination is not confined to obscure corners of the system. A sample of points at which high demand for interchange should be expected (including the connection between train and bus at

Huntingdale station for travel from the inner city to Monash University) also shows poor timetable coordination (Lazanas 2009).

4.1. What actually happens?

The actual operation of each of the three key mechanism set up to deliver coordinated services is described below.

4.1.1. Strategic planning framework

To illustrate the strategic planning framework in action, Chris White (Connex General Manager, Network Development) described the introduction of the cross-city SmartBus route from Altona to Mordialloc (which commenced operations in April 2009). SmartBus is a key project in the implementation of the PPTN.

SmartBus services are designed to operate at regular 15-minute headways and, in 2008, the Government asked Connex to match this during off-peak periods on the Werribee line by reducing the headway from 20 minutes to 15 minutes (White, research interview). However, Connex had already been planning independently to meet its own needs for greater capacity on the Werribee line by moving to a 10-minute headway. It argued that:

> the rail system does not cope with 15-minute frequencies particularly well due to the design of the extremities of the network, the single tracks do not allow for a 15-minute frequency (research interview).

Although the SmartBus and the new Werribee rail services represent improvements to public transport, they were developed independently and opportunities for better connectivity were missed.

4.1.2. Metlink

Although, as described above, it may have been the DoT's intention for Metlink to be the central coordinating body for issues including improved intermodal connectivity, this is not reflected in Metlink's formal agreements with the government.

Under Metlink's service agreement with the DoT (Allens Arthur Robinson 2009), its key objectives are stated as follows:

- Metlink's primary objective is to act as a comprehensive customer service provider, becoming a front-of-mind and coordinating resource for customers across all of the Victorian Public Transport Network.

- Metlink will develop a superior understanding of customers and apply this knowledge to provide customers and potential customers with continuously improving products and services. Metlink will contribute to public transport fulfilling its potential as a key component in Victoria's overall transport system by aiming to increase awareness of public transport services in such a way that any increased usage of those services is sustainable (p.25).

Bernie Carolan (former Metlink CEO) pointed to this service agreement to demonstrate that Metlink was not responsible for managing the coordination of the timetables. He also emphasised the point that the organisation did not have the resources or professional capabilities to undertake this task (research interview).

It is, therefore, not surprising that Metlink does not play a role in delivering a coordinated timetable across the various modes of transport.

Dennis Cliche (then CEO of Yarra Trams) observed that::

> Metlink doesn't do anything in that regard, nothing at all. Each operator does look at their own modes and we probably do lack a mechanism or a forum by which we could get altogether and run [public transport] to maximise intermodal connections (research interview).

Cliche went on to explain that as part of his bid to retain the franchise for a third term:

> we got all the bus timetables, all the train timetables and the all tram timetables and we worked out how we could increase the opportunity for greater connectivity…we found significant opportunity to increase connectivity. What this showed is that in the current model there is something lacking to do that, whether or not you need a separate organisation or the auspices of a more powerful Metlink…or a more focused Government Department.

At Connex, White described the timetabling process in these terms:

> we will make timetable changes every six months, and these are dictated by [Connex] projects and this is where it starts to get difficult because everyone thinks that they are the most important in the world. To get a timetable out every six months is a lot of hard work…The harsh reality in train timetabling, is the fact that there are many things that limit [what we can do], we certainly don't timetable to meet bus 'x'. Generally, we are dependent on [a bus operator] modifying its own behaviour…" (research interview).

White went on to explain that once the timetables are internally signed off, they are then provisionally sent to the train section of the public transport division (PTD) in DoT for review and approval. When DoT signs off, the timetables are then submitted to Metlink for publication. At the same time, Connex also supply the relevant bus operators with a copy of the new timetable. However, bus operators have limited time and resources to amend their own timetables to reflect new train timetables, and there is no accountability to ensure that this takes place.

Tram and bus timetabling happens in a similar manner, with each operator reporting to a different section of the PTD.

Chris Loader (Transport Planning & Policy Manager, Bus Association of Victoria) discussed his personal views on the intermodality of public transport services in Melbourne. He believes that there are significant inefficiencies in the current system. He stated:

> we have lots of meetings with a range of stakeholders however there is a serious disconnect between transport planners in DoT and Metlink marketers. The operators do talk to Metlink but Metlink is responsible for printing timetable information that they are provided by the operators. Metlink have made an effort to understand operations but

they are another step removed from what is happening on the ground (research interview).

Loader believes that a single centralised transport authority, similar to Translink in Vancouver, could deliver effective intermodal transport connections for Melbourne:

> if you had an agency that was doing the planning and also managing the tactical layer…you would have all the right people in one organisation… you wouldn't have to try and do [intermodal planning] across organisational boundaries.

These comments confirm that no-one has responsibility for timetable coordination across the modes. It certainly does not occur through the mechanism shown in Figure 2. In fact, timetable changes are developed independently by each operator and approved by the relevant section of the PTD responsible for that mode of transport: timetabling of services is conducted in silos, both at the PTD level and at the operational level.

A more accurate picture of the arrangements for timetable development is shown in Figure 3.

Figure 3: Actual arrangements for timetable delivery – no active intermodal coordination
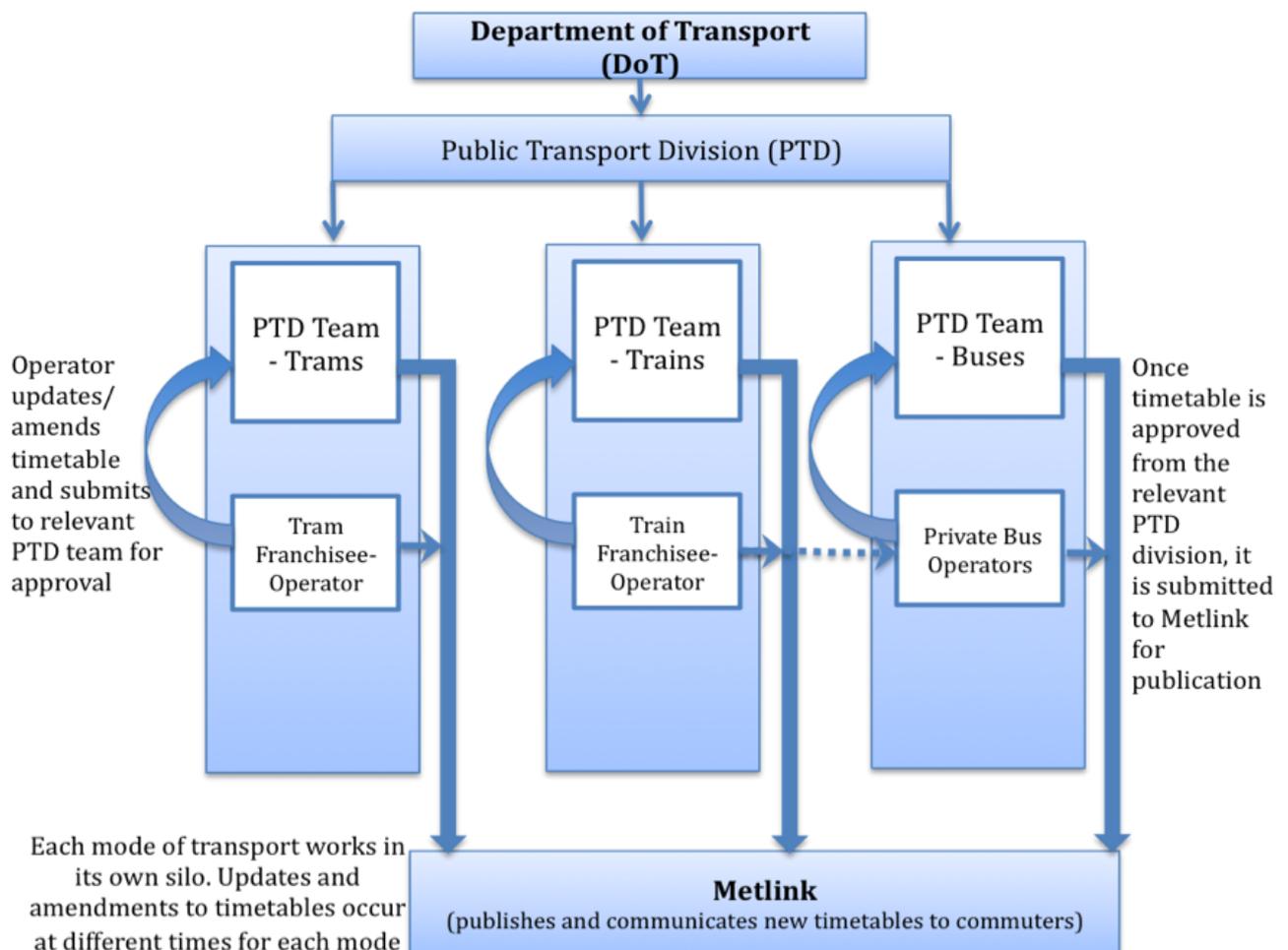
4.1.3. Network Development Partnerships

The new Network Development Partnerships (NDP), as established under the new franchises for both tram and train, codify a process that already exists between Connex and the DoT. It is now also part of the new tram franchise.

The DoT sees the NDP as:

> a joint working group between the Government and operator to address common issues... it has been expanded to [look at] how are we going to develop the network in the short to medium term [and] how are we going to get together to deliver better services through rolling stock, infrastructure as well as service change (Alexander, research interview).

As a participant in the NDP between Connex and the PTD, White confirmed that it operates on a single modal basis, he confirmed that in the new franchise term the NDP will enable metropolitan train issues to be discussed at the same time as regional train issues:

> there isn't really an equivalent forum … that gets tram and bus together. I think it would be worthwhile because DoT is not a very homogenous organisation, it is highly political, so even getting metropolitan rail, and V/Line together is a big step forward.

Why have these institutional mechanisms failed?

The principal reasons for the failure of current arrangements to deliver improved intermodal connectivity centre on the continued expectations of the intervention of market forces and as the evidence demonstrates, the absence of skilled transport planners, who have direct experience of the modern network planning practices described earlier.

5.1. Still waiting for the market

There is still an assumption that the financial incentives in place under the franchise agreements for train and tram and private contracts for bus operators should result in improved intermodal connections. Interestingly, this expectation is more strongly held by officials in the DoT than by the private operators themselves:

> because everybody is tied into the one revenue pool, the economic theory is that everyone is motivated to grow the pie, so the way you actually increase your revenue is not just about the services you produce, it is also about the services that other parties produce (Alexander, research interview).

However, experience is against ideology on this question.

The underlying problem of the government relying on economic market forces to increase services in the hope of making intermodal connections is that there is no incentive (financial or other) for the operators to invest the time and resources to undertake this activity at their own expense. It took Transdev ten years of operating the existing tram system before it began to explore the potential for better intermodal connectivity, as there was simply no incentive to do

this at its own cost. With the franchise now having gone to Keolis, it will be interesting to see if it will try to drive any positive changes to intermodal connections from the bottom up.

5.2. More transport planning professionals where it counts

As part of the research interviews, each individual was asked whether their relevant organisation employed transport planners with knowledge of the theory and practice of intermodal connectivity.

At DoT transport planners are employed across the different sections of the Public Transport Division. However, there is little sign that, if they are providing internal advice based on international best-practice, this is being used to create good mechanisms for better timetable coordination or bus-route design. Nor do they seem to play a role in major operational decisions. Alexander noted that no transport planning professionals were on the panel that assessed the most recent round of franchise agreements awarded in November 2009 (research interview). The assessors, therefore, lacked the capacity to evaluate the significance of the efforts taken by Transdev to identify intermodal connections that could be made across the network.

Interestingly, Cliche admitted that during his tenure at Yarra Trams he had not employed a transport planner but, had he retained the franchise, he was "looking to hire one" (research interview).

At Connex, White questioned the benefits that intermodal transport planners would bring to the organisation as his company already employed numerous timetable analysts who understand the intricate operational safe systems within the rail network (research interview).

Loader from the BAV, who demonstrated sound knowledge of intermodal planning theory and practice, acknowledged that there is a large disparity in the level of timetabling sophistication between different bus operators.

Finally, Carolan confirmed that there were no transport planning professionals employed within Metlink (research interview).

We are faced with a system where there is severe disconnect between written policy and practical application. Each organisation has their own idea of what intermodal connectivity means, but without skilled transport planning professionals with the power to guide and drive best practice, no organisation is actively concerned with delivering coordinated services. Currently, coordinating timetables across the modes is, at best, a reactive process by interested individuals, as opposed to a planned, strategic proactive process.

5. Conclusion

The research has demonstrated that, although Government policies have been written and rewritten over many years using the same transport planning rhetoric of coordination, timetables across the different modes are not coordinated.

It is clear from the interviews that, despite government policies, few of those in a position to act on these policies see intermodal coordination as a priority. Benefits of coordination are recognised in principle, but in day-to-day activity, problems within the operations of each mode take precedence. This is unsurprising given the existing structures in which public transport planning takes place and the professional experience of most managers.

So, what structures or incentives might be put in place to ensure that coordination is given the priority that reflects both the content of government policy and the essential role of intermodality in the creation of effective public transport networks?

The DoT still appears to rely on the existence of financial incentives: as Ross Alexander put it "everyone is motivated to grow the pie". However, there is little indication that this incentive was motivating behaviour during the first decade of franchising. In the early years, the role of sfinancial incentive was obscured by a serious dispute between the operating companies over the distribution of revenues. This was partly resolved through the departure of National Express and the 2004 contract renegotiations that established train and tram operations under single franchises. However, as described in a separate paper at this conference, operators have over the past decade been able to increase their revenues by obtaining larger government subsidies rather than by increasing the revenue "pie" through better coordination (Stone 2010).

It was only in the most recent bidding process that any operator showed interest in intermodal coordination. However, even if this was a sign that financial or regulatory aspects of the franchise contracts were beginning to drive change, it was not seen by decision-makers in government or the DoT as a significant enough offering to enable the Transdev consortium to win its bid for contract renewal. This must be seen as a further sign of the lack of priority given to intermodal coordination and the weakness of financial incentive as a motivator for change.

However, even if the government did strongly re-assert its policy commitments and make coordination a high priority for senior officials in the Department of Transport, is it likely that the current convoluted and highly bureaucratic environments could deliver significant outcomes?.

Under current institutional arrangements, there continues to be a gap of communication between and within the many organisations responsible for timetabling activities. No single organisation is responsible for this task. There appears to be a growing recognition, among the private-sector operators, if not in the government or the DoT, that new mechanisms must be created if Melbourne is to ever experience the benefits of a comprehensive and connected public transport network.

What mechanisms are appropriate for Melbourne? Lessons can learned from the mechanisms for coordination that that are used in cities that have made significant steps towards the development of 'networked' public transport: cities in which, in large part, patronage growth is driven by good intermodal coordination.

In cities with good intermodal coordination, planning for public transport networks is done through a single public agency with the power to plan and share resources across the urban region. This approach has achieved positive results in London and Copenhagen and in Swiss, German and Swedish cities and towns (Mees 2010). It is also being introduced to improve integration of buses and trains in Singapore (Land Transport Authority of Singapore 2008, pp. 38-39). In Australia, these institutional arrangements are in place in Perth, where public transport patronage has grown steadily since the early 1990s (Stone 2009), and in Brisbane, Translink was established for this purpose in 2008. This direction is also gaining ground in Australian national policymaking through the findings of an all-party Senate committee (Senate Rural and Regional Affairs and Transport Committee 2009) and support from Infrastructure Australia (IA 2009).

So, Melbourne would be aligning itself with national and international trends if it were to move to establish a public authority to plan coordinated multimodal public transport network. To do this, government would need to abandon the current bipartisan support for the franchise model. However, this could be done without financial penalty and, given the degree of dissatisfaction with current public transport operations, would arguably be popular with voters.

To succeed in Melbourne, such an agency would need to be given clear guidance from government that intermodal coordination was a key priority and it would need to employ skilled professionals who would guide strategy and policymaking as well as oversee implementation with achievable targets and commensurate incentives. . It remains to be seen whether the Victorian Government will rise to the challenge.

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Appendix

Name	Title	Organisation	Interview Date
Chris Loader	Transport Planning & Policy Manager	Bus Association Victoria	6 March 2009
Ross Alexander	Deputy Director Public Transport	Department of Transport	9 April 2009
Chris White	General Manager, Network Development	Connex	12 June 2009
John Stanley[2]	Adjunct Professor, Bus Industry Confederation, Senior Fellow in Sustainable Land Transport	Institute of Transport and Logistics Studies (ITLS)	23 July 2009
Dennis Cliche	Chief Executive Officer	Yarra Trams	27 July 2009
Bernie Carolan	Chief Executive Officer	Metlink	31 July 2009

Table 2: Practitioners interviewed for this research (notes and recordings in possession of the author)

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[2] John Stanley was a former Executive Director of the Bus Association of Victoria