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## Workshop 4 report: Developing inter-modal transport systems

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## ABSTRACT

Workshop 4 explored the development of inter-modal transport systems in developed and developing economies worldwide, focusing on their characteristics, approach, design, performance, relative merits, challenges faced and their evaluation. The workshop examined the social, political, institutional, regulatory, and operational challenges in providing inter-modal transport. The workshop was based on thematic areas covering the key questions of: What is meant by inter-modal transport systems? What are the challenges to creating an inter-modal transport system? What is the role of active transport? How do we address the challenges and what are the recommendations for discussion at Thredbo 15?

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## 1. Introduction

This paper reports on Workshop 4 of the 14th Thredbo Conference, held in Santiago 30th August to 3rd September 2015. The Workshop examined issues related to developing inter-modal transport systems. The workshop comprised the presentation of nine pre-submitted papers (see reference section below), based on the experience of six countries. There were 34 participants from 12 countries and 5 continents, with a mix of bus operators, government, students, researchers, academics and consultants. The pre-workshop details were as follows:

“This workshop aims to explore the development of inter-modal transport systems in developed and developing economies worldwide, focusing on their characteristics, approach, design, performance, relative merits, challenges faced and their evaluation. The workshop will examine the social, political, institutional, regulatory, and operational challenges in providing inter-modal transport”.

Developing an inter-modal transport system is all important given the challenges faced by developed and developing economies worldwide not least in terms of climate change, energy consumption, air quality, sustainability, traffic congestion and road safety (Ambrosino, Nelson, & Boero, 2015). In addition the culture of automobility and the lack of public transport provision, both in terms of quantity and quality, have forced citizens to use the private vehicle for even short distance trips in urban areas (Ambrosino et al., 2015). This together with austerity and slower economic growth has made developing inter-modal transport systems even more imperative.

This report covers the main themes discussed in the workshop, namely defining inter-modal transport, the challenges encountered in developing an inter-modal transport system, context specific challenges, the role of active transport, how the challenges should be addressed and the conclusions for policy. In addition, recommendations for discussion at the next Thredbo will be detailed.

## 2. Defining inter-modal transport and the challenges of inter-modality

The term “inter-modal” has been mostly applied to cargo with freight being transported by multiple modes, with a primary focus

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on economic (energy) and environmental (emissions) aspects (Sagaris & Arora, 2015). GAO (2006) view intermodal-transportation as a system connecting the various transport modes which refers to mass transit systems, road, aviation, maritime, and railroads. The GAO presents an example of an airport as in Fig. 1 below where efficient intermodal airport provision would furnish passengers with a “seamless transfer between modes; the ability to connect to an extended transportation network; and high frequency of service among the different modes” (GAO 2006). Active travel (walking and/or cycling) is missing from the figure, and this will take place, even if only for a short distance.

In terms of this report it can be viewed as the seamless integration of diverse motorised and non-motorised transport systems that are socially, environmentally and economically sustainable - as a response to human diversity and needs. As stated by Sagaris and Arora (2015), this suggests a focus on how well walking, cycling, buses, underground, trams and trains interact to “create better overall transport experiences”.

Non-motorised modes are often excluded from consideration in studying the potential of shifts among modes and other factors in generating a more inter-modal transport system. Conditions in many developing countries, where walking accounts for a high percentage of trips, and cycling-based two- and three-wheelers, particularly cycle rickshaws or taxis, suggest that these elements are under-represented in thinking about sustainable transport. Despite widespread recognition of the importance of land use/transport synchronicity, the relevance of social institutions such as street fairs, ubiquitous throughout Latin America, which bring destinations within walking and cycling distance, is not considered. In Santiago, for example, the population obtains 70% of its fresh fruit and produce from weekly street fairs that set up regularly in each neighbourhood, as well as income for many who swap clothes, appliances and other elements.

Incorporating non-motorised modes makes it possible to establish targets for modal shift, reducing the use of motorised vehicles and especially cars for short trips. Thus, planners could prioritize investment and road design to ensure that a high percentage of short trips (0–2 km) are covered by walking and cycling (1–5 km), with longer trips in high density areas served by public transport, mostly buses in the case of developing cities for which underground and other train systems are prohibitively expensive. Cars, then, would be most encouraged for specific trip purposes (carrying loads or several passengers, longer distances, low density areas).

There are clearly challenges in terms of achieving intermodality. The GAO (2006) view the challenges as being financial,

planning and a lack of specific national goals. In terms of funding, a silo mentality in terms of specific modes of transport and the lack of hypothecated, ring-fenced funding emerge as specific issues. In addition, land resource constraints and authority co-ordination decisions constitute important challenges.

Establishing targets for modal shift (Sagaris & Arora, 2015) and applying strategies such as complete streets (Litman, 2015) or cycle parking and other facilities in new BRT systems (Lindau, Facchini, Oppermann, Medeiros, Petzhold, and Samios (2015b), Lindau, Petzhold, Tavares, & Facchini (2015a)) are ways of addressing these challenges in practical terms, in both planning and city systems. Complete streets in particular have become a powerful motivator of change in North American cities, while BRT has come to the fore as a crucial articulator of transport systems in Latin America and elsewhere in the world.

The workshop discussed the following challenges of intermodality:

- Accessibility;
- Changing demand characteristics and the need for responsive planning;
- Financial/economic considerations;
- Geographic/topographic/cultural constraints;
- Seasonal/temporal and derived nature of demand;
- User acceptance and rights;
- Governance and planning issues.

In relation to *accessibility and changing demand*, issues of trip motivation (whether for work or leisure), impaired mobility and the ease of connections between different modes emerged, as highly relevant, in a context where social demands for mobility and access are becoming increasingly important (Sagaris & Arora, 2015). On shifts in demand, there is a strong trend toward use of the private car for short trips. In Santiago, for example, 45 per cent of car trips are under 5 km, generating extreme congestion and gridlock, which then worsens bus, cycling and even walking conditions. Simply replacing one mono-mode, the car, with public transport is not sufficient to respond to diverse needs and the characteristics of passengers.

Consideration of *financial and economic considerations* raises the issue of the cost of provision of inter-modal transport systems and the funding constraints facing most authorities, a situation worsened by fare evasion, as noted by Ortegon and Tyler (2015). The resulting shortfalls hit revenue and thus inter-modal transport provision. Integrating modes requires integration payment systems, another financial issue, which can be seen as central for

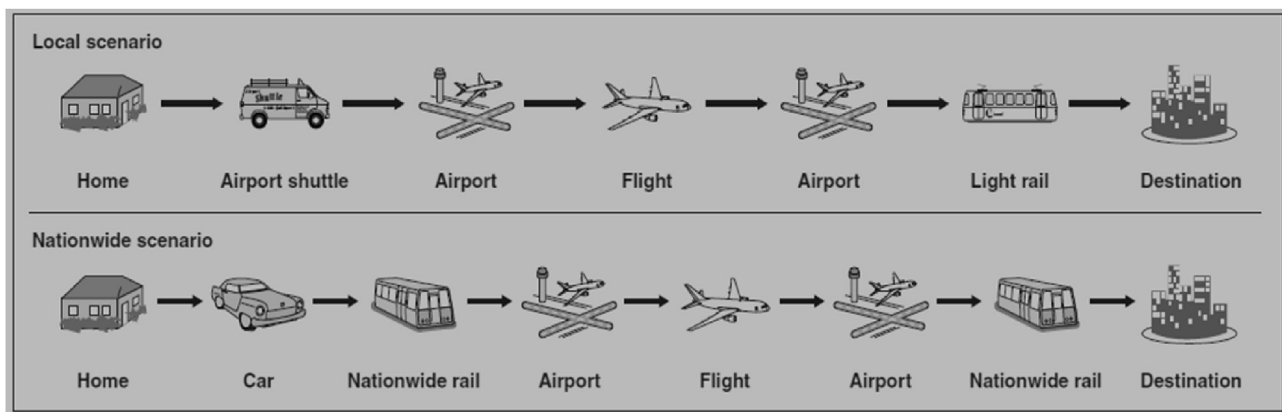


Fig. 1. Two examples of intermodal connections for an airline passenger.

Source: GAO (2006)

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