



Contents lists available at ScienceDirect

Research in Transportation Economics

journal homepage: www.elsevier.com/locate/retrec

Workshop 1 report: Innovations in Service Delivery and Performance Management

Graham Currie ^{a, *}, Rico Merkert ^b^a Public Transport Research Group, Institute of Transport Studies, Monash University, Clayton, Victoria 3816 Australia^b Institute of Transport and Logistics Studies, University of Sydney Business School, NSW 2006 Australia

ARTICLE INFO

Article history:

Received 13 October 2016

Accepted 20 October 2016

Available online xxx

JEL codes:

R4

L1

L9

L5

Keywords:

Reliability

Service design

Transit planning methods

User perceptions

Performance monitoring

Procurement

ABSTRACT

This paper synthesizes evidence from Workshop 1 ‘Innovations in Service Delivery and Performance Management’ of the Fourteenth International Conference on Competition and Ownership in Land Passenger Transport. The paper outlines key findings from 18 research papers presented at the workshop which was structured into five separate issue or challenge areas including A. Improving reliability & speed with transit priority and operations reform, B. Service design improvement and innovation, C. Improving transit planning methods, D. User perceptions, needs and behaviour change, and E. Innovation in performance monitoring and procurement. Based on the three day collaborative workshop thinking, this paper discusses for each area ‘Trends’ affecting the area, research ‘Gaps’ and likely ‘Future’ developments and priority issues and the drivers of change.

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1. Introduction

Workshop 1 was the largest workshop at Thredbo 14 and one of the largest ever held in the Thredbo series; there were 39 participants from a total of 13 countries including Australia, Canada, Chile, Italy, Japan, Mexico, New Zealand, Singapore, South Africa, Sweden, United Kingdom, the United States of America and Venezuela. The workshop explored new approaches to service delivery and performance management with a particular focus on methods of improving the operational performance of public transport, trade-offs in bus network design and innovations in performance improvement and measurement.

There are strong economic, environmental and social rationales for investment in urban public transport in growing cities worldwide. However significant challenges remain in how to best implement, operate and manage urban transit. The following

sections describe the strategic structure of Workshop 1 which revolved around a series of five issue areas (A to E) which explored these challenges using the submitted papers as a base and framework for further discussions. Questions which arose are identified and key findings outlined. The issue areas are:

- A. Improving reliability & speed with transit priority and operations reform
- B. Service design improvement and innovation
- C. Improving transit planning methods
- D. User perceptions, needs and behaviour change
- E. Innovation in performance monitoring and procurement

A total of 18 papers were presented at the workshop which included in-depth and focussed discussion as well as workshop group work around:

- TRENDS – What are the key trends in Innovations in Service Delivery and Performance Management?
- GAPS – What aspects have not been covered by the papers presented in the workshop?

* Corresponding author.

E-mail addresses: graham.currie@monash.edu (G. Currie), Rico.merkert@sydney.edu.au (R. Merkert).

- FUTURES – Where do we see the industry in regard to innovation, service delivery and performance management say in 2020?

For each of the five issue areas, key priority issues are discussed and drivers affecting these identified.

2. A – Improving reliability & speed with transit priority and operations reform

Most public transport operates on-street, yet growing traffic continues to deteriorate operating performance (speed and reliability) reducing the competitiveness of bus (and streetcar) services. Traffic priority treatments are now common in cities globally; however, approaches to justify these remain simplistic and face difficult political and operational trade-offs in road space (and time) allocation between competing traffic, bus and freight uses. It is also unclear how operators can best design service to take advantage of redesign of roads providing priority. The following papers explore these issues:

- When is a Bus Lane Warranted – (Litman, 2015)
- Improving Bus Service Reliability: The Singapore Experience – (Leong & Goh, 2015)
- Increasing the speed: a case study from Santiago – (Schmidt, Munoz, Bucknell, Navarro, & Simonetti, 2015)
- Scheduled vs headway based operation: A hybrid approach – (García & Muñoz, 2015)

Six key **trends** were identified in the workshop on this theme. Two major issues were an increase in the amount of bus priority, express service and improved bus running speed measures. Reliability as a concern in contracting was also thought to have become more important. Other trend issues included better availability and quality of operations data from systems such as automatic vehicle monitoring and smart cards that provide more detailed information on passenger demand. Several authorities noted an increase in the concern about the user experience; with reliability being a critical element in this. Speed was seen as an exogenous but still very important issue since it can affect fuel use and emission levels. Some jurisdictions noted an increase in pro-transit policies compared to the car; however this was certainly not true in all jurisdictions.

A range of **research gaps** were identified, but key amongst these was a concern that there are poor regulatory and political structures to deliver more quality priority for public transport on roads. A human factor based behavioural approach to understanding the impacts of improved service reliability was considered a major gap. A range of other gaps were also identified including approaches to traffic signal and dynamic priority, approaches to data integration, human factor perspectives (and responses) to new technology, approaches to understanding the impacts of better coordination/synchronization of timetables, and the role that place and street-scapes play in relation to road redesign.

In relation to transport **futures** for this theme, it was thought that real time operation responses including automation and how transit priority will operate with driverless vehicles, is a key area for future research and practice. It was also thought likely that a much larger range of operational schedules might be operated in future as the processes required to develop schedules become simpler (and IT more powerful). The scope for new modes, including shared vehicles in relation to improved reliability and speed, are useful areas to consider in the future. It was also thought that more open data and greater data availability will present great opportunities for future research and practice.

Critical issues identified were concerns about how contracts approach the handling of priority benefits and costs. For example operational benefits to bus operators can reduce fleet and crew resources but these may benefit operators and are not necessarily traded off against the costs of providing priority treatments such as bus lanes and signal priority incurred by road authorities. Major drivers of practice with priority are advances in digital computing and data which improve approaches to design. In addition, growing needs to tackle increasing congestion in cities make seeking more efficient ways to increase travel throughput such as priority, more attractive.

3. B – Service design improvement and innovation

Many advances have been made in Bus Rapid Transit (BRT) development, notably in major South American cities. Yet whether all BRT systems are value for money as well as optimal design for non-BRT and local routes which comprise the bulk of urban transit are less clear. Public Transport planning remains divided between a view that (forced) feeding to high frequency line hall services (a closed network) is preferred to direct transfer free operations (an open network). No clear consensus has been found on the dilemma between high frequency low area coverage service vs low frequency high coverage service. The ‘last mile’ service access challenge and approaches to cost effectively servicing low density fringe developments remain pervasive problems for the field to address. Approaches to balancing the conflicting needs of network design remain simplistic and are poorly articulated; a fundamental problem at the heart of objective, open and defensible planning and policy. The following papers explore these issues:

- An overview of enhanced bus services in Australian cities: What has been tried, what has worked? – (Clifton & Mulley, 2015)
- Super express services operated on urban highways: The opportunity of a new metropolitan transport mode – (Navarro, Muñoz, Bucknell, & Schmid, 2015)
- Comparing Open and Closed BRT networks in medium-sized cities – (Proboste, Munoz, & Gschwender, 2015)

The major **trend** regarding service design was the wide diversity of bus rapid transit system designs which were being tested in a range of environments. The workshop considered this an excellent development and one to be encouraged as a means of better understanding good practices. To do this, however, the performance of alternative bus operating models needs to be more widely understood and monitored. The paper of Merkert, Mulley, and Hakim (2015) presented in workshop 4 was seen as providing a useful framework for such performance benchmarking.

A range of **research gaps** were identified, notably best approaches to achieving dedication of corridor rights of way to transit, how shared mobility might be best adopted as a means of dealing with the last mile, and low density area access to transit. Gaps were also identified concerning amenity or ‘soft factor’ issues associated with bus information. From a service design perspective research on niche market models for airport and university access were also considered a research gap. Gaps were also identified in relation to best approaches to improving bus stop and interchange infrastructure design, best approaches to frequency concentration in corridors, design of demand responsive transit, and intermodal integration.

Automation of vehicles was again raised as a **futures** issue for this theme. Dynamic assignment of vehicles may be much easier using a driverless vehicle system as an operating basis for transit vehicles. It was also thought likely that there would be more demand responsive transit services in future, which raises the

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