Problem Statement

Mobility as a service business models

TD 18-12

Technological Drivers of Change

Problem Description

Question	Response
Description of the problem and purpose of the proposed research	Mobility as a Service (MaaS) is the term used to describe the combination of transportation services from public and private solutions into a unified door-to-door service. Future Transport 2056 Strategy highlights that *"the future of mobility is customer-focused, data-enabled and dynamic. In the future, personal mobility packages will bundle traditional 'modes' with technology platforms and new service offerings like on-demand, car share, rideshare and smart parking."*[1] Essential to the concept is the idea of a single interface through which customers create and manage their total journey, with payment to all service providers coming from a single account and a single payment, possibly through a monthly subscription. This potentially means significant changes to the way transport services are currently offered and paid for in NSW. Today, Transport for NSW (TfNSW) operates under a purchaser-provider regimen, with contractual approaches largely focussed on the performance of individual modes, often within geographically defined areas. MaaS is conceptually a very different model. However, as the owner and manager of transport infrastructure and custodian of public transport service contracts, TfNSW will play a key role in enabling the future development of MaaS, including its commercial and contractual frameworks. TfNSW is therefore looking to increase its knowledge of the emerging commercial frameworks and business models that may be required to enable MaaS to operate. A key need is research that maps the emerging practices in this area to the local legal and procurement frameworks TfNSW currently operates under. A number of proposed threshold difficulties for exploration include: • Developing contractual frameworks that can efficiently integrate multiple modes and organisations into a seamless trip chain. • How fault for delays to trips can be attributed and responsibility for compensation determined. • Data sharing and security requirements between component organisations of the integrated service. • Integrated ticketing (i.e. integrated fares). • Open payment methods (some form of e-ticket or e-payments). • Intellectual property protection.

[1] TfNSW, *Future Transport 2056 Strategy*, p15, accessed at https://future.transport.nsw.gov.au/sites/default/files/media/documents/2018/Future_Transport_2056_Strategy.pdf

Transport for NSW T 8202 2200 | F 8208 2209
18 Lee Street, Chippendale NSW 2008 | PO Box K659, Haymarket NSW 1240

Hypothesis & Variables

Question	Response
For exploratory research, please describe how the proposed research will contribute to future explanatory research	As this is intended to be exploratory, rather than explanatory research, no formal hypotheses is proposed for testing. Instead, a research question has been developed as a starting point to guide the research project. This is: What commercial frameworks (business models and delivery strategies) are emerging as the favoured approaches for delivering MaaS and how easily do they translate to the NSW environment?

Strategic Criteria & Alignment

Question	Response
Alignment with strategic theme	This Problem Statement is aligned with the TfNSW Strategic Research Theme 'Technological Drivers of Change'. This theme is based on exploring how new technologies will impact the economic ecosystem and existing business models that currently guide private and public sector collaboration. The aim of this problem statement is to explore how the emerging leading business models for MaaS could be applied in NSW. The Problem Statement aligns with the Future Transport Technology Roadmap[2] and addresses Strategy 3: to foster shared demand responsive services.
External driver of change analysis **Outline how the research will better position TfNSW to respond proactively to macro drivers of change**	TfNSW uses PESTLE analysis to identify and describe the external drivers of change that the research would help TfNSW be in a better position to respond to. **Political** MaaS is consistent with a political reforms occurring in NSW, based on more flexible service provision and entrepreneurial uses of open data. **Economic** MaaS is a creation of the digital economy. Evidence demonstrates that future mobility concepts will disrupt the economic balance that exists between private sector and government. **Environmental** MaaS is potentially a key enabler of reducing car ownership and car use. Both are key developments in improving sustainability, including lowering emissions. **Technology** New digital data sources and smart phone technologies are key enablers of MaaS/future mobility, and business partners will leverage new technologies to bring the concept to life that will deliver best outcomes for the community. **Legal** Key legal decisions will shape the way MaaS develops. These have been limited to date, but decisions of impact include privacy protections for data collected through smart cards.[3] **Social** MaaS offers the prospect of significant mobility improvements to the aged and disabled.

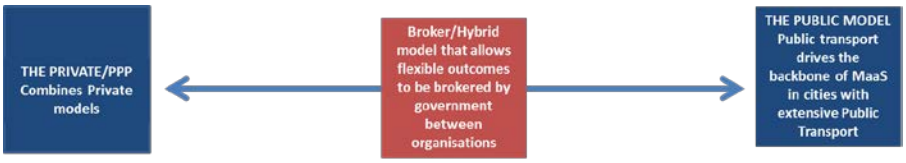
[2] https://future.transport.nsw.gov.au/technology/roadmap

[3] Pash, C. *Court strikes down tracking commuters through their transport cards by the NSW Government*, accessed at https://www.businessinsider.com.au/court-privacy-nsw-government-transport-opal-cards-2018-3

Transport for NSW T 8202 2200 | F 8208 2209
18 Lee Street, Chippendale NSW 2008 | PO Box K659, Haymarket NSW 1240

Question	Response
Forward looking	The research focuses on future opportunities, rather than an immediate issue, and therefore allows time for a considered research project.
Potential research impact	This research is likely to have a fundamental impact on shaping the future governance, policy and commercial frameworks for future mobility services in NSW. In particular, this problem statement focuses on addressing the tensions that exist within a dynamic commercial sector (e.g. new waves of smaller size enterprises and entrepreneurs) and achieving a more agile and customer centric public sector.

Technical Criteria

Question	Response
Innovation **Outline how the proposed research will result in new knowledge**	The research will be innovative in that it seeks to test emerging approaches to MaaS against the local environment in NSW.
Basis in completed research and/or observed practice	The emerging business models for Maas are the subject of ongoing research.[4] However, there appears to be limited research to date on the emerging MaaS business models and their potential impact and applicability in Australia and specifically for NSW. Most studies to date have focussed on European trials. The MaaS concept has been tested in Finland and through EU initiatives. The EU has supported a collaboration and research program called ERTICO.[5] One of the most notable MaaS attempts has been UbiGo[6] in Gothenberg, Sweden. Further research programs include MAASiFiE. From these efforts to date, three broad business models have emerged.  However, no business model appears to have been implemented on a long-term sustainable basis. All trials referenced in recent 2016/2017 papers[7] were still in early pilot stages and none are yet fully proven.
Feasible data requirements	• This section will be further refined once the project is appointed. • It is anticipated that most of the data will be sourced from Europe. • Benchmarking international studies prior to looking at the Australian context in both urban and rural environment.

[4] Aapaoja A., Eckhardt J., Nykanen L. (2017) *Business models for MaaS*. Conference Paper: 1st international conference on Mobility as a Service.

[5] Ertico home page, accessed at http://ertico.com/

[6] UbiGo home page, accessed at http://ubigo.se/

[7] König, D., Eckhardt, J., Aapaoja, A., Sochor, J. and Karlsson, M. (2016) Deliverable 3: Business and operator models for MaaS. MAASiFiE project funded by CEDR.

Transport for NSW T 8202 2200 | F 8208 2209
18 Lee Street, Chippendale NSW 2008 | PO Box K659, Haymarket NSW 1240

Level of Collaboration & Resource Requirements

Question	Response
Level of collaboration **Please select the level of collaboration required to complete the proposed research**	**1. 'Quick-Fire' Research** ☐ Intense bursts of research activity (e.g. under 8 weeks). Intended to make use of 'hackathon'-type environments, where students/researchers work collaboratively and intensely on particular problems involving data interrogation and visualisation.
	2. Undergraduate Final-Year Research ☐ Suitable for final-year undergraduate students (e.g. capstone, Honours) as part of the research requirements for their undergraduate degree (i.e. 1 to 2 semesters).
	3. Higher Degree Research ☐ Project may form whole or part of a postgraduate research degree (i.e. Masters, PhD), and contribute to new knowledge (i.e. 1 to 3 years).
	4. Major Collaborations and Funded Research ☒ Project may form the basis for a significant collaboration agreement between TfNSW and the relevant research institution, including major competitive grant funding (e.g. Australian Research Council funding with TfNSW as an industry partner).
Comments	This problem statement may form the basis for a major collaboration agreement between TfNSW and the relevant research institution in Australia and overseas.
Supporting TfNSW resources	• Access to data and subject matter experts in the NSW Transport cluster will be made available (e.g. technical SME and accelerator teams). • Other NSW clusters. • More resourcing will be selected from the open government website. • Overseas input will be required.

Transport for NSW T 8202 2200 | F 8208 2209
18 Lee Street, Chippendale NSW 2008 | PO Box K659, Haymarket NSW 1240