

Institute of Transport and Logistics Studies (ITLS): Shining the spotlight on our MaaS research

<http://sydney.edu.au/business/itls>



THE UNIVERSITY OF
SYDNEY



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The Institute of Transport and Logistics Studies (ITLS) at the University of Sydney Business School has been undertaking extensive research on Mobility as a Service (MaaS) and Intelligent Mobility for the past four years.

The MaaS team is led by Professor David Hensher and Professor Emerita Corinne Mulley with Dr Chinh Ho, Professor Rico Merkert and Honorary Professor John Nelson as key contributors. The team includes PhD students Yale Wong and James Bushell.

Our industry partners in MaaS related research activity include:

- Claus von Hessberg—Founder and CEO, SkedGo
- Clare Gardiner—Deputy Secretary, Freight, Strategy and Planning, Transport for NSW
- James Datson—Principal Technologist: Mobility as a Service, Transport Systems Catapult (UK)
- Juan Carlos Munoz—Director, Department of Transportation and Logistics Engineering, Pontifical Catholic University of Chile (Host institution for VREF BRT+ CoE)
- Michael Roschlau—Strategic Adviser, City of Edmonton (Canada)
- Matt Threlkeld—Executive Director, BusNSW
- Chris Lowe—Executive Director, BusVic
- Michael Apps—Executive Director, Bus Industry Confederation
- Stephen Rowe—Director, Busways Group
- Stephen Lucas—Managing Director, Buslink Queensland and Chairman, ConnectU Warrnambool
- Andrew Lezala—Managing Director, Metro Trains Australia



This newsletter shares the many studies, publications and our current research.

Our partners on MaaS research include:

Bus associations in NSW (BusNSW), Victoria (BusVic) and Australia (Bus Industry Confederation)

<https://www.busnsw.com.au>

<http://www.busvic.asn.au>

<http://ozebus.com.au>



SkedGo (MaaS and smart city enabler), who provide the IT platform for MaaS systems such as Whim

<http://skedgo.com>

<https://whimapp.com>



Volvo Research and Educational Foundations (VREF) Bus Rapid Transit (BRT+) Centre of Excellence

<http://www.vref.se>

<http://www.brt.cl>



Bus and rail operators including Busways Group and Metro Trains Melbourne

<https://www.busways.com.au>

<http://www.metrotrains.com.au>



Our funders and engagement include:

Australian Research Council (ARC): Discovery Project linked to MetroScan¹

<http://www.arc.gov.au>



Transport Systems Catapult (UK): Establishing willingness to pay for MaaS bundle elements in the UK

<https://ts.catapult.org.uk>



Transport for NSW: Advice through the funded Chair in Public Transport and by other colleagues on the Future Transport agenda

<https://future.transport.nsw.gov.au>



University of Sydney Business School: Funding of projects on MaaS bundles

<http://sydney.edu.au/business>



University of Sydney Business School: Funding of projects on MaaS bundles, Partnership funding on MaaS bundles for the older and frail communities (with Community transport organisations in Australia and Queensland)

City of Edmonton (Canada): Subject Matter Experts on the city's Smart Transportation Action Plan

https://www.edmonton.ca/city_government/initiatives_innovation/smart-transportation-action-plan.aspx



¹ MetroScan-TI is the ITLS state of the art planning and evaluation capability (encompassing demand forecasts, benefit-cost analyses and economic impacts) to assess the merits of major infrastructure such as roads, airports, public transport (heavy and light rail and bus and ferry systems), as well as precinct investments such as new housing and industry/business stock

An Overview of MaaS

Mobility as a Service (MaaS) is the popular interpretation of future collaborative and connected mobility services, centred on a changing society embracing a sharing culture which can satisfy their mobility needs without owning assets such as a car. MaaS emerges because of opportunities afforded by digital information platforms to plan and deliver multimodal mobility options in point-to-point trips and/or first-and-last mile travel to public transport journeys. MaaS packages will provide consumers with seamless mobility options with integrated payments through a single app in much the same way as unified telco packages provide users with a choice of mobile minutes, data and text options.

MaaS is aligned with the notion of disruption. We are still at the early stages of understanding what MaaS might mean to future demander and suppliers. We need to know what packages demanders will want and how much they are willing to pay and on the supply side, what are the governance issues and the implications for the way in which governments procure collective transport? There is also a current imperative to understand the barriers to disruption of which the five key ones are:

1. The **momentum barrier**, in that potential switchers/users are accustomed to the status quo
2. The **technology-implementation barrier**, which could be overcome by existing technology reflected in the digital platforms of today
3. The **ecosystem barrier**, which requires a change in the business environment to overcome
4. The **new technologies barrier**, which is the technology required to change the competitive landscape and which may not yet exist (this is linked to future digital platforms)
5. The **business model barrier**, whereby a disrupter would have to adopt the cost structure of existing providers on part or all of their MaaS offering such as an Uber or single mode public transport provider

ITLS Papers and Publications

Already Published

Hensher, D. A. (2017). Future bus transport contracts under a mobility as a service (MaaS) regime in the digital age: Are they likely to change? *Transportation Research Part A: Policy and Practice*, 98, 86-96.
<https://doi.org/10.1016/j.tra.2017.02.006>

This think piece looks to the future in which digital opportunities are present to improve the customer experience—specifically in the form of MaaS. It presents a number of positions that could potentially represent future contexts in which bus services might be offered, recognising that a hybrid multi-modal state of affairs may be the most appealing new contract setting, enabling the design of contracts to be driven by the mode-agnostic customer experience, and the growing opportunity to focus on MaaS.



The digital age has opened up new opportunities to improve the customer experience in using public transport. Specifically, we see the role of smart technology in the hands of customers as the new rubric to deliver services that are individualised to the needs and preferences of current and future public transport users. This frontline of service delivery has become known as MaaS, whereby an

individual can book a service delivered through a range of possible modes of transport. At one extreme we have point-to-point car-based services such as Uber, Lyft, BlaBlaCar and RydHero (for children), with futuristic suggestions of these gravitating to driverless vehicles (cars and buses). Variations around this future are bus-based options that include smart bookable 'point-via-point-to-point' services that offer up options on travel times and fares (with the extreme converting to the point-to-point car service, possibly also operated by a bus business); as well as the continuation of conventional bus services (with larger buses) where the market for smart MaaS is difficult or inappropriate to provide (e.g., contracted (often free) school bus services). For a full copy of this paper, please contact business.itls@sydney.edu.au.

Hensher, D. A. (2018). Tackling road congestion—What might it look like in the future under a collaborative and connected mobility model? *Transport Policy*. <https://doi.org/10.1016/j.tranpol.2018.02.007>

This is an invited paper from the Editor-in-Chief Tae Oum. This links the important issue of traffic congestion to future mobility models. Traffic congestion continues to be the bane of many metropolitan areas and has exercised the minds of experts for at least the last 60 years. With the advent of smart (intelligent) mobility, aligned with digital disruption and future connected and collaborative transport including extensions to autonomous vehicles, is there a new window of opportunity to tame congestion?

It is, however, very unclear what the future will look like in respect of congestion on the roads, especially if we rely on 'smart' technology and continue to reject reform of road user charging and new opportunities to fund the sharing model. This paper looks at a number of themes as a way of highlighting possibilities and challenges and promotes a position that congestion may not be reduced, especially without a significant switch to the sharing economy and relinquishing of private car ownership; the urgent need for government to define the institutional setting within which smart mobility can deliver reductions in congestion; and the crucial role that road pricing reform must play to ensure that those who benefit (suppliers and travellers) contribute to pay for the infrastructure (in particular) that they gain benefit from.

For a full copy of this paper, please contact business.itls@sydney.edu.au.



Mulley, C. (2017). Mobility as a Services (MaaS)—Does it have critical mass? *Transport Reviews*, 37(3), 247-251. <https://doi.org/10.1080/01441647.2017.1280932>

This editorial challenges the established thought that technology is driving change and argues that it is more of an enabler and that more than just technology is required to have successful MaaS. One of the biggest challenges is cultural practices and attitudes.



To read this editorial at
<https://www.tandfonline.com/doi/full/10.1080/01441647.2017.1280932>

Mulley, C., Nelson, J. D. and Wright, S. (2017). Mobility as a service for the older population: A transport solution to land use changes in essential services? Paper presented at the *2017 World Symposium on Transport and Land Use Research (WSTLUR)*, Brisbane, Australia, 3-6 July.

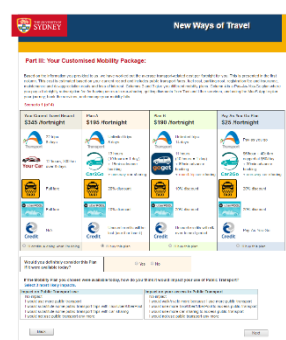


Against a background of the centralisation of services, this paper considers the equity impacts on the older and frail population. The evidence draws on the experience of the UK and Australia since it is in these two countries that Community Transport (CT) has emerged to serve the older and more frail population. The paper proposes a MaaS solution to this change in land use which has led to the delivery of essential services in areas of lower land use mix and considers whether this mobility solution would be effective which in turn would provide greater horizontal equity for older members of our society.

Land use changes in relation to everyday services are resulting in the centralisation of local services from mixed land use town centres to single land use destinations on the edge of cities. Technology advances are disrupting the provision of local community services such as local shops and local health care. Cost considerations and the benefits achieved by economies of scale are driving the land use changes which are changing the landscape of service provision. Whereas hospitals, for example, were typically located in city centres they are now more often in peripheral locations. For many sections of society, these changes have offered better convenience and higher quality of service. However, these changes have both spatial and horizontal equity impacts, particularly for older people and particularly for areas of lower density where accessibility will significantly decline. This paper explores the potential contribution of MaaS in promoting greater equity for older people using CT as the service co-ordinator. The travel needs and behaviour of older people are reviewed as well as the contribution of flexible transport services towards meeting these needs. Drawing on discussions with a group of CT operators in Australia, the key characteristics of the MaaS model are explored in the context of older people to ascertain whether CT acting as the service co-co-ordinator fits the MaaS model. A series of MaaS packages are proposed to show how the model could be delivered in practice. The paper concludes that as a business model, MaaS for CT could be one way of ameliorating the lack of equity for the old and frail age group brought about by land use changes in essential services.

For a full copy of this paper, please contact business.itls@sydney.edu.au.

Ho, C., Hensher, D. A., Mulley, C. and Wong, Y. Z. (2017). Prospects for switching out of conventional transport services to mobility as a service subscription plans—A stated choice study. Paper presented at the *15th International Conference on Competition and Ownership in Land Passenger Transport (Thredbo 15)*, Stockholm, Sweden, 13-17 August.



This paper examines different business models in which travellers can either pre-pay for their mobility services bundled into a MaaS plan, or pay as they go using a smart app linked to the service. The paper seeks to

understand how large the market of MaaS would be if travellers are offered this one-stop access to a range of mobility services, and how much potential users might value each item included in a MaaS plan. Results provide estimates of willingness to pay.

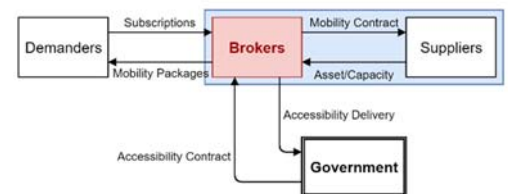
This study was partially funded by the University of Sydney Business School and the Volvo Research and Educational Foundations (VREF) Bus Rapid Transit (BRT+) Centre of Excellence. The paper presents a stated choice survey of 252 people administered via a face-to-face method in Sydney, Australia and the resulting state of the art model estimated to elucidate their preferences. Results indicate that almost half of the sampled respondents would take MaaS offerings, and the potential uptake levels vary significantly across population segments, with infrequent car users being the most likely adopters, and car non-users the least. On average, Sydney travellers are willing to pay \$6.40 for an hour of access to car-share, with one-way car-share valued more than station-based car-share. Estimated willingness to pay for unlimited use of public transport is around \$5.90 per day which is significantly lower than the current daily cap. These findings suggest a careful segmentation of the market and a cross-subsidy strategy is likely to be required by MaaS suppliers to obtain a commercially viable uptake level.

For a full copy of this paper, please contact business.itls@sydney.edu.au.

Wong, Y. Z., Hensher, D. A. and Mulley, C. (2017). Emerging transport technologies and the modal efficiency framework: A case for mobility as a service (MaaS). Paper presented at the *15th International Conference on Competition and Ownership in Land Passenger Transport (Thredbo 15)*, Stockholm, Sweden, 13-17 August.



This paper develops the modal efficiency framework to investigate a number of scenarios likely to emerge as a result of changes in collaborative consumption, next generation vehicles, demographic change and digital technologies. Various models for implementing MaaS are evaluated including the distinction between commercially-motivated models (presently well advanced in research and development), and systems which incorporate an institutional overlay.



The land passenger transport sector lies on the cusp of a major transformation. Whilst there is widespread enthusiasm across the community for this nexus of disruptors, the wholesale implications on road capacity, traffic congestion, land use and the urban form remains unclear, and by extension, whether this emerging transport paradigm will bring a net benefit to the transport system and our communities. Some issues include the proliferation of point-to-point transportation, a continuation of universal vehicle ownership, and the demise of fixed route public transport—all envisaged by various industry leaders in technology and transportation. In this paper, we develop the *modal efficiency framework*,

with axes representing spatial and temporal efficiency to illustrate why some of these developments may be geometrically incompatible with dense urban environments. We then investigate three potential scenarios likely to emerge and explain why they may be problematic with reference to this framework. MaaS based on shared mobility and modal integration is then introduced as a sustainable alternative which accounts for the realities of spatial and temporal efficiency. Various models for implementing MaaS are evaluated including the distinction between commercially-motivated models (presently well advanced in research and development), and systems which incorporate an institutional overlay. The latter, government-led MaaS, is recommended for implementation given the opportunity for incorporating road pricing as an input into package price, defined by time of day, geography and modal efficiency. In amidst the hype of this emerging transport paradigm, a critical assessment of the realm of possibilities can better inform government policy and ensure that digital disruption occurs to our advantage.

For a full copy of this paper, please contact business.itls@sydney.edu.au.

In the Pipeline

Mulley, C. and **Kronsell, A.** (2018). Workshop 7 report—The “uberisation” of public transport and mobility as a service (MaaS): Implications for future mainstream public transport. In **Alexandersson, G., Hensher, D. A.** and **Steel, R.** (Eds.), *Competition and Ownership in Land Passenger Transport (Selected papers from the Thredbo 15 conference)*. *Research in Transportation Economics*, Elsevier Science.



The Thredbo 15 conference included for the first time a dedicated workshop of fourteen papers on MaaS chaired by Professor Emerita Corinne Mulley. The Workshop had 27 participants coming from twelve countries. The Workshop developed a long list of areas worthy of further research including understanding how to move travel behaviour from ownership to MaaS, a need for further pilots to develop the evidence base, defining the regulatory frameworks and understanding pricing strategies.



Thredbo² is the world's premier conference on competition and ownership in land passenger transport which ITLS has steered towards the digital era. Participants at Thredbo 15 in Stockholm, Sweden in August 2017

Workshop 7 was specifically concerned with the way in which the widespread adoption of portable and/or wearable internet-connected devices such as smartphones has opened up new possibilities in the transport sector. These are referred to as 'uberisation' by some and the creation of MaaS by others. In some cities and countries, these new services have been welcomed and even facilitated, while in others there have been clashes with regulators as well as with incumbent operators. Workshop 7 considered how these new services might be integrated into the market. Specifically, what sort of regulation is appropriate in order to create "fair" conditions in the market and perhaps set minimum standards, what are the implications for collaboration between different modes and how this might impact on the design of business models? Underpinning the concept of MaaS is the way technological developments made possible by digitalisation can lead to easier sharing of mobility resources. This in turn has broader implications for public transport. The Workshop considered whether more widespread development of ride-hailing or ride-sharing might lead to new ways of creating flexible and truly on-demand urban bus services, or alternatively would the way public transport is organised and financed ultimately be disrupted so that what is viable in terms of competition, contracts and governance would need to be reconsidered. The Workshop presented evidence and undertook discussion that could be considered under four themes: conceptual; the role of MaaS in the uncertain future, including the new digital era; the experience of flexible transport in developing countries as compared to Australia and finally, how MaaS might provide for community needs. Over and above the detail provided by the evidence in papers, the Workshop discussion identified a tension between policy formulation and operator viewpoints, the need for flexibility in developing contracts, the importance of partnership in developing MaaS packages, including bundling mobility with other services provided by government and a need to address consumer protection issues.

The full report will be available in *Research in Transportation Economics* in June 2018.

Wong, Y. Z. and Hensher, D. A. (and other authors). The role of autonomous taxis in future urban transport systems worldwide. Joint paper with ETH Zürich, Bandung Institute of Technology, University of California (UC) at Davis, University of Connecticut, State University of New York (SUNY) at New Paltz, nuTonomy Asia, Southwest Jiaotong University and University of Chile. Paper submitted to *Transportation Research Part A: Policy and Practice*.



Led by Henrik Becker of the Institute for Transport Planning and Systems (IVT) at ETH Zürich, Switzerland, the aim of this research is to provide reliable cost estimates for autonomous transportation in different countries around the world. Comparing their cost structures will offer insight into the potential role of different (autonomous) modes including private vehicles, individual taxis, pooled taxis and line-based public transport in a future transportation system. Of particular interest is the market niche of autonomous taxi services, which have so far been expected to be the most important outcome of driverless technology. The results show that whilst there are substantial gains to be expected from automation in Switzerland or the US (up to 80% reduction in taxi prices), the effect in other countries is much smaller (30% reduction in Chile and even a potential price increase in India).

For further details of this study, please contact Yale Wong at yale.wong@sydney.edu.au.

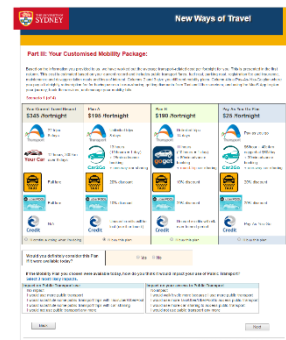
² See <http://www.thredbo-conference-series.org>



In preparation

Ho, C., Mulley, C. and Hensher, D. A. Public preferences for mobility as a service: Insights from stated preference surveys. Paper in preparation for special issue of *Transportation Research Part A: Policy and Practice* on MaaS and Intelligent Mobility.

This paper investigates the potential uptake of MaaS by identifying public preferences for mobility packages within the stated choice experimental environment. Economic and social factors that make MaaS offers more attractive than conventional unimodal transport options (e.g., private car and/or public transport service as it currently exists) are identified to inform MaaS providers how best to package, cost and market mobility plans to different segments of the population based on their travel needs and willingness to pay for new mobility services.



For more details of this study, please contact Dr Chinh Ho at chinh.ho@sydney.edu.au.

Mulley, C., Nelson, J. D. and Hensher, D. A. Intelligent Mobility, Chapter 21. In **Stanley, J. and Hensher, D. A.** (Eds.), *A Research Agenda for Transport Policy*, Edward Elgar Publishing.

Intelligent mobility as innovative applications of technology to resolve transport problems is discussed in the context of its application areas including public transport (journey planning, automatic vehicle locators, smart ticketing, priority systems, safety systems), with mode-specific discussions where appropriate; traffic management (traffic signal control, ramp metering, dynamic route guidance through in-vehicle and variable message signs); and parking. MaaS is an example of a future scenario which relies on a combination of technology and its application to bring travel change under the auspices of sustainable transport policy.

For more details of this chapter, please contact Professor Emerita Corinne Mulley at corinne.mulley@sydney.edu.au.

Merkert, R. and Bushell, J. Firm collaboration and lessons from long distance travel for integrated mobility. Paper in preparation for special issue of *Transportation Research Part A: Policy and Practice* on MaaS and Intelligent Mobility.

This paper applies the MaaS concept from the micro/urban scale to the macro (interurban/international) network in the long-distance rail, maritime and aviation sectors. Whilst adequate research exists on the plethora of alliances, joint ventures and bilateral agreements that govern behaviour between multiple operators, researchers have not yet analysed the organisational mechanisms behind the actual cooperation activities between operators that facilitate this cooperation. We posit that the flexibility, optionality, governance and efficiency that these mechanisms entail require further investigation and understanding from a firm perspective to understand how the features of these mechanisms lead to the development of cooperative agreements that are mutually acceptable and beneficial to collaborating parties.

For more details of this study, please contact Professor Rico Merkert at rico.merkert@sydney.edu.au.



Funded Studies

Mulley, C., Hensher, D. A. and Nelson, J. D. (2016-18) *Mobility as a service: A future direction for community transport?* University of Sydney Business School Partnership grant in conjunction with five Community Transport Organisations.



The MaaS concept is explored within the community transport (CT) sector through discussion groups, travel diaries and a detailed stated preference choice experiment. Four reports have been written so far:

1. Landscape scanning (**Nelson, J. D.** and Wright, S.)
2. Supply-side issues (**Mulley, C.** and Blewitt, L.)
3. Demand-side issues (**Mulley, C., Ho, C., Hensher, D. A., Balbontin, C.** and Blewitt, L.)
4. Business planning (Blewitt, L., **Mulley, C., Ho, C., Hensher, D. A.** and **Balbontin, C.**).

A paper is also under preparation for the special issue of *Transportation Research Part A: Policy and Practice* on MaaS and Intelligent Mobility.

Whilst literature and experience suggest MaaS will be driven by the younger generation's travel behaviour which appears to be less dominated by car ownership (following the peak car literature), this paper looks at a different but very specific segment of the population in Australia that have their accessibility provided by CT and arguably are the complete antithesis of the younger generation in terms of chasing technological change (but in other ways show some similarities like the lack of access to private

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Transport Research

vehicles). The paper reports on focus group type discussions and a specially commissioned stated preference study, pivoted around existing travel behaviour for existing CT users and non-users to establish willingness to pay for mobility bundles.

Ho., C., Mulley, C., and Hensher, D. A. (2018). *Public preferences and willingness to pay for mobility as a service (MaaS) in a UK context.* Report in preparation for Transport Systems Catapult.



This project aims to establish potential uptake and users' willingness to pay for mobility services offered under the MaaS framework and identifying the main drivers for potential uptake.

The ultimate outcome of this project is to provide input for MaaS providers as to how best to package, cost and market mobility services to different segments of the population based on their travel needs and willingness to pay for new mobility services. A stated choice survey approach is undertaken as the most suitable method to meet the aims and objectives of this project, since MaaS plans are not yet available in the study area. The validity of this approach has been verified with a prior survey of 252 face-to-face interviews in Sydney, Australia. Building on the Sydney study, this project adapts the Sydney survey instrument to collect behavioural responses to MaaS offerings in Tyneside, UK. Data collected are then used to develop behavioural choice models from which public preferences and willingness to pay estimates for MaaS features are estimated.

Stanley, J., Hensher, D. A. and Wong, Y. Z. (2018). *Disruptive technology: A better future for land passenger transport? Bus and Coach Industry Policy Paper 11.* Report in preparation for Bus Industry Confederation.

The paper explores changing values and technologies, largely by developing optimistic and pessimistic scenarios about how the future of land passenger transport might emerge in coming years. In particular, the paper discusses how MaaS and autonomous electric vehicles (AEVs) might impact public transport service provision, distinguishing between trunk and local service offerings.



Changing societal values and emerging new technologies are increasing the probability of massive shifts in transport service offerings in coming decades, with potentially huge benefits and/or costs. AEVs have been the main focus of this discussion internationally and form a key element in the current paper. The paper explores changing values and technologies, largely by developing optimistic and pessimistic scenarios about how the future of land passenger transport might emerge in coming years. It suggests that trunk public transport services will remain important components of urban passenger transport networks, because of the wider economic benefits that these services release, particularly in bigger cities. Concerns are expressed, however, about low volume local public transport services, the main value from which is social inclusion. Policy measures to help ensure that emerging



transport technologies are net contributors to social welfare are outlined, including transport pricing reform, urban land use/transport planning to promote more compact towns and cities and to slow urban sprawl, together with *shared mobility contracts* to support social inclusion from local transport. The paper also argues for mandatory motor vehicle emission standards, in line with European or US standards, to substantially lower vehicle greenhouse gas emissions (by helping to ensure that autonomous vehicles are increasingly AEVs).

ITLS Presentations (not included above)

Mulley, C. (2017). *Mobility as a service: Where is it going?* Business Breakfast: Mobility as a Service, Aberdeen, UK, 26 April.

Hensher, D. A. (2017). *Digital public transport in an era of sharing and collaborative mobility.* Plenary opening address, Roads Australia (RA) National Roads Summit, Sydney, Australia, 31 May-1 June.

Wong, Y. Z. (2017). *Bus contracts, business models and MaaS—What might they look like?* Bus Industry Confederation National Conference: Moving People—Mobility as a Service, Hobart, Australia, 12-15 November. Available at:
<https://www.youtube.com/watch?v=JBauh1bmoKA>

Mulley, C. (2017). *Prospects for switching out of conventional transport services to mobility as a service subscription plans—A stated choice study*, based on a paper by **Ho, C., Hensher, D. A., Mulley, C.** and **Wong, Y. Z.** 1st International Conference on Mobility as a Service (ICoMaaS), Tampere, Finland, 28-29 November.

Mulley, C. (2018). *Prospects for switching out of conventional transport services to mobility as a service subscription plans—A stated choice study*, based on a paper by **Ho, C., Hensher, D. A., Mulley, C.** and **Wong, Y. Z.** Universities Transport Studies Group (UTSG), London, UK, 3-5 January.

Hensher, D.A. (2018). *Shared mobility and public transport—A new future!* Panel on shared mobility, International Transport Economics Association (ITEA) Annual Conference, Hong Kong, 27-29 June.

For full copies of these presentations, please contact business.itls@sydney.edu.au.





Coming Soon

Special issue in *Transportation Research Part A: Policy and Practice*: **Hensher, D. A.** and **Mulley, C.** (Guest Editors) Introduction to special issue on developments in mobility as a service (MaaS) and intelligent mobility.

The papers selected for this special issue will address some of these questions to inform involved stakeholders (policy-makers, operators and businesses) as to what the future might look like. Over 20 papers are currently in preparation from leading researchers worldwide to provide a state of the art and practice snapshot of themes relevant to the growing interest in new ways of delivering mobility services in the transport market.



Wong, Y. Z. *Integrated mobility services and contractual structures*, PhD research using stated choice methods to identify the structure of broker/aggregator mobility contracts.

A major unknown in the design and implementation of MaaS is the broker/supplier interface, in terms of the market's willingness to provide mobility services demanded by the public. Present thinking suggests that mobility brokers/aggregators will emerge as the conduit between end users and suppliers of the transport asset/capacity. Yale has designed and developed the idea of *mobility contracts* which form the interface for bringing together interested businesses as partners under a new entrepreneurial model. This work has been informed by interviews with innovative technology disruptors in this space, engagement and consultation with established transport operators and non-mobility providers (through BIC and SBA), as well as a study visit to South Africa (funded by VREF) where he engaged with the minibus taxi industry to see what could be learnt from informal providers of demand-responsive service in developing economies. Yale recently launched a global stated choice survey to test these new mobility broker/aggregator models and identify commercial interest with businesses from across five continents. Key respondents include public transport

operators, transportation network companies, technology providers, infrastructure operators, consultancies and financial enterprises. Yale's research has taken him to conferences in Yichang (ITDP, 2016), Stockholm (Thredbo, 2017), Dar es Salaam (ITDP, 2018), Brisbane (CASPT, 2018) and Washington, DC (TRB, 2019). By using advanced techniques to elucidate supplier preferences, this research will ultimately inform how future business models for delivering MaaS might emerge and develop.

For further details of this study, please contact Yale Wong at yale.wong@sydney.edu.au.

Bushell, J. *Strategies for coordinating public transport ecosystems—The value of seamlessness and the future of smart ticketing platforms*, PhD research on transport integration and system integrity.

James' research looks to understand more about how smart ticketing platforms may play a larger role in the governance and management of transport systems. In two parts, James' research will examine consumer values of seamlessness in transport systems (with links to MaaS) and in particular the value that can be derived through the systemisation of interactions of consumers with operators. From an operator perspective, James' research will look to understand more about how operators want to coordinate with each other, and how these coordinative activities may be managed to create a more seamless public transport network. Drawing from experiences in other sectors of the economy, this includes a potentially expanded role that smart ticketing platforms may play in facilitating operator-to-operator coordination to generate more seamless (and therefore more attractive) journeys for consumers, in doing so increasing the effectiveness of the public transport sector.

For further details of this study, please contact James Bushell at james.bushell@sydney.edu.au.



Briefing Seminar: Wednesday 18 July 2018

ITLS is hosting a half-day briefing seminar on our MaaS research on Wednesday, 18 July 2018 at the University of Sydney Business School's CBD Campus (Level 16, Stockland Building, 133 Castlereagh St, Sydney): http://sydney.edu.au/business/about/buildings/cbd_campus