6th Combined Mobility Workshop, Barcelona, 14 April 2016

Report - Tomorrow’s mobility: What should be the role of public authorities?

The benefits of shared modes and how to encourage combined mobility today to achieve shared autonomous mobility tomorrow

In cities with strong public transport, complemented with services like carsharing, bikesharing, bicycle parking, shared taxi services, ride-sharing etc. one can easily move around and there is an opportunity to deliver door-to-door services.

What impact does combined mobility have?

All over the world and especially in North America and Europe shared mobility is evolving and growing rapidly. It has been shown to impact travel behaviour where it operates, however that impact varies according to the mode and the local context. Regarding carsharing, recent studies from TSRC, University of California, Berkeley and Germany show that it provides a key to less car ownership. Dr. Elliot Martin explained, that since users either sold a vehicle or postponed a vehicle purchase since joining carsharing, one shared car replaces 9-13 cars in North America. In German city centers the percentage of car-free households among carsharers amounts to 78% according to a recent study from the BCS (Bundesverband CarSharing). However, Gunnar Nehrke (BCS) underlined that the usage patterns of free-floating car-sharing and station-based carsharing are different. While station-based carsharing is best at generating multimodal mobility, free-floating carsharing is particularly attractive to car-affine households. Combined systems may be a “best-of-both-worlds” approach for customers and cities, as they have the highest impact on car reduction and their users have a higher share of sustainable modes.

Combined CS-Systems: Impact on mobility choices
In North America the impact of ridesourcing such as Uber/Lyft/Sidecar is likely to bring more driving around relative to carsharing, but it also brings scale and access of shared mobility to a wider region.

**RIDESOURCING IMPACTS**

How would you have made this trip if Uber/Lyft/Sidecar were not available?

- 92% would still have made this trip
- 8% induced travel effect
- 33% would have taken public transit (bus or rail)
- 4% named transit station as origin/destination, suggesting some use ridesourcing to access transit
- 20% avoided driving after drinking

Rayle et al, 2014

In Barcelona, the public bikesharing system bicing is very popular and its main contribution is to act as catalyst for private bicycles as stated by Rheda Zetchi, Head of Bicing Unit, B:SM.

Amongst its main success factors to maximize the benefits of a bike sharing system the integration into a global strategy of encouraging more cycling and sustainable modes and the subsequent development of infrastructure are vital.

A model of urban mobility combining public transport and shared modes offers citizens the travel flexibility and convenience of the private car, without its negative externalities, such as congestion, emissions and wasteful parking requirements. Mobility as a Service, Mobility Shops or integrated mobility platforms are hence key to reduce car ownership. Indeed, the results of the SMILE Project have convinced Vienna that an integrated mobility platform providing registration, information, routing, booking, payment, and billing for the use of all available mobility services is part of the solution for public transport, explained Klaus Bamberger, Head of Transport Planning & Mobility Management, Wiener Linien. It contributes to an increase in the combination of modes with public transport as backbone and a higher use of sustainable transport modes. This convinced Vienna to proceed and intensify its efforts on
integrating multimodal mobility with the introduction of a multimodal smart card, Wienmobil, and the upcoming Beam Beta integrated mobility platform.

Today, multimodal behaviour is a trend that is growing but one of the main questions is about the measures that should be taken by public authorities to ensure multimodal travel behaviour becomes mainstream whilst ensuring combined mobility services are complementary to public transport.

**Measures to encourage Combined Mobility**

Since it is the offer of an integrated combination of sustainable urban mobility services that most effectively challenges the flexibility and convenience of the private car, the question arises on what can be done by authorities to encourage combined mobility services such as car-sharing, bike-sharing, bicycle parking, shared taxi services, ride-sharing in different areas such as network & city planning, data & travel information, fare & ticketing system and service quality. Concerning the funding and financing of integrated mobility platforms it was suggested that although value can be generated by aggregating data, they could also be financed by every participating mobility service.

**Physical network & city planning:** How can combined mobility services be encouraged and better integrated with public transport in spatial terms? What measures can be taken to transform large public transport stations into multimodal hubs?

The outcome of the discussions focused on the following aspects: Strong political leadership is needed with the establishment of a common vision and clear modal split objectives, but at the same time there should be room for innovation. Not only the urban situation but also the regional situation should be taken into account to offer alternatives to private car use, e.g. through a well communicated Park & Ride policy that is consistent with a restrictive inner-city parking policy. An effective Parking management with the reduction of available parking spaces clearly seems an important measure to limit the use of private cars. Regarding interchanges and hubs, they should be planned to attract new customers through creating a social environment and not only focus on mobility. They should be planned to create demand that can be diffused on different mobility modes.

**Data & Travel information:** What is the ideal travel information from a customer point of view? What measures and tools are necessary to implement the appropriate information system? What data needs to be shared?

Discussions suggested to shift from customer perspective to the traveler’s perspective to adopt a more global and less segmented approach and that three different levels of travel information are needed:

1. **Planning from A -> B** (one booking, all modes, including road traffic) with the parameters time/price (analogy hotel/flight booking platforms)
2. **On-trip** real time & predictive information & routing including information in case of disruption with alternative route proposals
3. **Information at the destination** “What’s around me?”

To be able to provide the customer with this type of information a new type of regulatory approach called “data deals” appears. It includes compulsory but safe provision of quality data for any mobility service provider and the obligation to respect public policy goals in
exchange of operational authorization and access to road space. To enable this a common valid trusted way/methodology to access/fetch information at the data holder needs to be put in place. Regarding the tools to provide the information, apps are considered to be easiest to use but it should be kept in mind that not all travelers have a smartphone. The legal framework on privacy needs to be reviewed to allow shared mobility. Open data policy as implemented by Transport for London certainly creates innovation on the one side but the data provider should also get something back.

**Ticketing & Fares:** How to price combined mobility services and who should decide about the fare levels? How to bill urban mobility services, should it be part of an integrated ticketing system?

Discussions revealed a general agreement that hence authorities role is to achieve certain public policy goals they should have the final decision on the mobility services available. This can be linked to a willingness to control price levels, but what about those services that are not subsidized like car-sharing or Uber-like services? All urban mobility services should be offered under a common umbrella with one subscription for all modes and an integrated ticketing system. The billing and clearing would be taken care of by one provider. Questions arose around a prepaid or postpaid system or even a flat rate, but the risk that it would push for a higher utilization of less sustainable modes was mentioned.

**Service quality:** How to ensure that combined mobility services are safe and respond to the quality criteria of public services? Is service rating by customers a sufficient regulation mechanism?

Public authorities should have the leadership and fix a number of requirements or minimum standards in different fields such as data sharing, liability or safety to ensure quality of services, but at the same time it should leave room for innovation.

A panel of experts composed of Maurus Bründler, Project Manager Strategic Projects, Mobility Car Sharing Switzerland; Albert Cañigueral, Co-Chair, Ouishare Spain, Daniel Bergeron, Vice-president, AMT Montreal, Canada and Ramon Pruneda, Technical Director, AMB Cetrama, Spain reacted on the proposed measures under the moderation of Rafael Cuesta, Head of development and innovation at TfGM Manchester, UK. They agreed that public authorities have the role to provide accurate travel information and to ensure alignment on the global strategy of the city. Therefore they should take leadership to be the integrator as long as they provide fair and equal access to integrated mobility platforms for all mobility services at a reasonable price. Enough room for innovation and testing should be given. Enabling citizens, making new partnerships, taking risks to try out new services and measure the impact is essential, especially since the solution also depends on the local context. When setting up minimal regulation for new services public authorities should be kept in mind that high capacity public transport forms the backbone of an integrated urban mobility solution.
What measures are taken in Munich to encourage combined mobility?

Kilian Kärgel, Head of Multimodal Mobility, Stadtwerke München explained that given that Munich is expecting a 13% population increase by 2030, that the smartphone usage is rising along with mobile shopping and the growing sharing economy, they see that digital and physical mobility offers will finally merge. As a response Munich is actively promoting the integration of mobility services. The interchange hub Münchner Freiheit offers access to all urban mobility services and more.

The multimodal App MVG more acts as personal mobility assistant offering real time information on carsharing, bikesharing and public transport and is the key for multimodal mobility usage. The MVG–owned rental bike system, MVG Rad, focuses on enhancing the flexibility of public transport. By connecting different means of transport, mobility becomes simple in Munich.

**Autonomous vehicles – impact on urban mobility**

Autonomous driving is talked about as a revolution. But is it? Even though it is clear that this would significantly improve road safety, it is unlikely that autonomous driving in itself will cause a revolution in urban mobility. An autonomous traffic jam will still remain a traffic jam. Unless the shift to autonomous driving is taken advantage of to rethink profoundly how vehicles are used in cities.

In Singapore, Jeremy Yap, Deputy Chief Executive Public Transport, Policy & Planning, at the Land Transport Authority explains that autonomous vehicle (AV) technology also represents an opportunity to help achieve the Singapore’s Land Transport Masterplan 2013 that aims to promote public transport as the mode of choice. Since it is a problem to find bus drivers, it will help address the challenge of manpower crunch and through AV fleet coordination and
control infrastructure facilitate efforts to improve the reliability of public transport services. On the service provision side it will offer first- and last-mile connectivity as well as on-demand services through a demand-responsive fleet of shared autonomous vehicles.

Therefore Singapore is preparing itself through trials to integrate autonomous vehicles into the public transport network once they are ready.

At the same time, massive effort is underway to build up public transport walking and cycling infrastructure and rally around a car-lite Singapore.

In order to realize this vision of an AV-enabled town, Singapore needs to study emerging trends such as aging population, land availability, commuter needs etc. in the planning process to ensure public transport remains at the core and the town is transit oriented while
planning for infrastructure provision for AV’s. The establishment of a regulatory framework to facilitate technology, testing and deployment of autonomous vehicles will also be ensured.

The International Transport Forum (OECD), has worked on a scenario for urban mobility with Lisbon’s real origin-destination data to see how fleets of shared (and autonomous) vehicles could change the city. The modelling took into account real trips with realistic routes offering the same quality and found out that by replacing all trips with simultaneous ride-sharing (shared “taxis”), optimized on-demand buses (Taxibuses) and high capacity public transport, the number of cars could be reduced by 97% while providing the same trips as before. All street parking would be eliminated and off-street parking would be reduced by 80%, which would help citizens to regain an incredible amount of space for leisure or economic activities. Accessibility would be increased while the number of kilometers driven and CO2 emissions would be cut as well as the operational costs and prices for the shared “taxis” and Taxibuses. Cities must anticipate the potential disruption and public transport, taxis and governance must adapt to embrace this opportunity to profoundly change urban mobility.

During the discussions the vision shared for the future urban mobility with autonomous vehicles, is clearly one built around high capacity public transport complemented by shared autonomous fleets. It is a vision where mobility will be safer, cleaner, quieter and more cost-effective. It will enhance quality of life, help regaining urban space and better serve all travelers, ranging from children to elderly persons, in cities but also in rural areas. Rail-based high capacity transport will be fully autonomous, which will also make the service more flexible in terms of adapting the offer to the actual demand. The key issue at stake is now promoting the shared use of autonomous vehicles. Coupling the rise of autonomous driving with the shared use of these vehicles is what could transform mobility in cities towards more efficiency and less negative externalities.

But are we actually going in that direction? From this early stage on, the policy focus should not only be on vehicle technology, safety, and liability issues, but also on the conditions to promote shared use of autonomous vehicles.
What actions and measures should be taken?

The role of public transport will change profoundly, and to ensure the public transport industry will play a leading role it needs to be more entrepreneurial and adopt an AV strategy that includes testing AV technology now. The public transport sector needs to step forward to be an actor in the shaping of the regulatory framework and the future use of AV’s as otherwise it will be mainly shaped by the car industry. Some public transport actors like Singapore or the Province of Gelderland (Netherlands) are pro-active and operating tests with autonomous vehicles now to evaluate how they can best integrate them into the public transport fleets. “We need to be involved, since public issues like the right for mobility are involved”, argues Marieke Kassenberg from the Province of Gelderland. Regulatory frameworks need to be adapted to allow public transport to innovate and launch pilots much more!

General consensus was also given to the idea that it is important to prepare citizens for the shared use of vehicles now and the way to achieve this is to encourage existing shared mobility initiatives such as carsharing and ridesharing now. Public authorities should push for shared mobility by giving tax incentives for shared mobility and fiscal regimes to discourage car ownership and favour shared ownership of vehicles. More shared mobility and more digital services will lay the ground today for shared autonomous fleets tomorrow. Governments could even ask themselves if they should still allow individual car ownership? “Arriving alone in your own car might well become the new smoking!” says Till Ackermann, VDV, as smoking is still allowed in some places, but these places are more and more limited.

Fare systems and the pricing of mobility services could be determined according to the sustainability of the service.

Concerning the role of the different mobility actors, Philippe Crist (ITF) reminds that it should be kept in mind that the changes ahead will bring a permeability of roles. To the traveler it does not matter who will run the service but what type of service exists. Public transport authorities need to ensure that the services run are in line with public policy goals to provide safe, clean, equitable, accessible and affordable mobility solutions. For carsharing companies, Marco Viviani (Communauto) explains the difference between station-based and free-floating carsharing will disappear, since the car will go to the customer instead of the customer going to the car. The impact the arrival of autonomous vehicles will have on employment is also an issue that needs to be addressed.

Wrap up

Considering the dynamism of the mobility services market, with more and more solutions, platforms, new acquisitions and new apps, the impact of shared mobility will continue to grow. Although that impact might vary according to the local context and type of service, these new mobility solutions offer the opportunity to take the focus away from car ownership. Therefore public authorities need to take measures to encourage combined mobility and integrate these services with a strong public transport network. Especially since coupling the rise of autonomous driving with the shared use of these vehicles is what could transform mobility in cities towards more efficiency and less negative externalities, authorities need to take actions to prepare citizens for the shared use of vehicles. The way to achieve this is to
encourage existing shared mobility initiatives now because it will lay the ground for shared autonomous fleets tomorrow. To ensure the public transport industry will play a leading role tomorrow it needs to be more entrepreneurial and adopt an AV strategy that includes testing AV technology now. The public transport sector needs to step forward to be an actor in the shaping of the regulatory framework and the future use of AV’s as otherwise it will be mainly shaped by the car industry.

Please click [HERE](http://mobi-uitp.org/ListRecord.htm?list=folder&folder=545&context=0) to download the workshop presentations

This workshop was organized by the UITP Combined Mobility Platform with the support of the Organising Authorities Committee. For more information please contact Caroline Cerfontaine at caroline.cerfontaine@uitp.org

List of Speakers:

Opening & Session 1: Benefits of Combined Mobility

Moderator:
- David van Kesteren | Chair of the UITP Combined Mobility Platform and Coordinator, Cambio TaxiStop, Gent, Belgium

Speakers:
- Elliot Martin | Transportation Sustainability Research Center University of California, Berkeley, United States of America | Shared Mobility: Impacts and Developments
- Gunnar Nehrke | Head of Public Relations, Bundesverband Carsharing, Berlin, Germany | The impact of car-sharing on urban mobility - new studies
- Reda Zetchi | Head of Bicing Unit, B:SM; Barcelona, Spain | Bicing Experience
- Klaus Bamberger | Head of Transport Planning & Mobility Management, Wiener Linien GmbH & Co KG, Vienna, Austria | Multimodal Ticketing Applications - Part of the solution for future public transports?

Session 2: Measures to encourage Combined Mobility

Moderator:
- Rafael Cuesta | Head of Development & Innovations, Transport For Greater Manchester, London, The United Kingdom

Expert Panel:
- Maurus Bründler | Project Manager Strategic Projects, Mobility Car Sharing AG, Luzern, Switzerland
- Albert Cañigueral | Co-Chair, Ouishare, Barcelona, Spain
- Daniel Bergeron | Vice-President, Strategic Information & Metropolitan Affairs, AMT - Agence Métropolitaine de Transport, Montréal, Canada
- Ramon Pruneda | Technical Director, AMB Cetramsa, Barcelona, Spain
**Speaker:**

- Kilian Kärgel | Head of Multimodal Mobility, SWM - Stadtwerke München, Germany | New mobility solutions - The Mobility Station at Münchner Freiheit

**Session 3: Autonomous vehicles – impact on urban mobility**

**Moderator:**

- Sebastian Schlebusch | Head of Global Business Development, Nextbike GmbH

**Speakers:**

- Jeremy Yap | Deputy Chief Executive, Public Transport, Policy & Planning, Land Transport Authority, Singapore, Singapore | Autonomous Vehicles for Public Transport - Threat or opportunity?
- Philippe Crist | Administrator, International Transport Forum (OCDE), Paris, France | Urban Mobility System Upgrade: How shared self-driving cars could change city traffic

**Experts Panel:**

- Till Ackermann | Manager Economics, Business Development, Verband Deutscher Verkehrsunternehmen e.V., Köln, Germany
- Marco Viviani | Director, Development & Public Relations, Communauto Inc., Montreal, Canada
- Jeremy Yap | Deputy Chief Executive, Public Transport, Policy & Planning, Land Transport Authority, Singapore, Singapore
- Philippe Crist | Administrator, International Transport Forum (OCDE), Paris, France
- Marieke Kassenberg | Project Manager, Provincie Gelderland, Arnhem, The Netherlands

**Learning points and closing**

- David van Kesteren | Chair of the UITP Combined Mobility Platform and Coordinator, Cambio Taxistop, Gent, Belgium