UITP ADVANCING PUBLIC TRANSPORT

POLICY BRIEF

READY FOR MAAS?

EASIER MOBILITY FOR CITIZENS AND BETTER DATA FOR CITIES

MAY | 2019

INTRODUCTION

The urban mobility landscape is evolving fast and new solutions are being offered to citizens all over the world: From e-scooters, to bike- car- and ride-sharing to the rise of (e-) cycling and ride-hailing. The number of mobility services are growing rapidly, and especially in larger cities. Is this the mobility revolution everyone is talking about? Or are these niche services hyped by the media and huge capital investments? And how should public authorities and local public transport companies act in response?

It becomes more and more clear that we are at the beginning of a new mobility era based on these fundamental trends:

- **Clean vehicles**: Combustion engines will be phased out and in the future all vehicles will (have to) be clean.
- **Shared vehicles:** The shared use of vehicles will increase both in the form of car-sharing (consecutive sharing of vehicles) and ride-sharing (simultaneous sharing of vehicles).
- **Automated vehicles:** In the future vehicles will be driverless and connected, which will offer many opportunities for completely new mobility services .
- **Digitalisation of mobility**: Optimisation of existing services and creation of new ones based on smart data and IT solutions that change the way people move and consume goods.

But are we ready for these changes? Instead of being a spectator, we should act now and steer developments into the right direction. Because, if applied in a smart way, these trends offer an absolute momentum for better and more sustainable urban mobility with public transport as the backbone! They will help us to reclaim urban space and rebuild streetscapes to create attractive cities for people. If no action is taken, the risk is that cities and public transport companies lose control and the ability to shape future urban mobility systems.

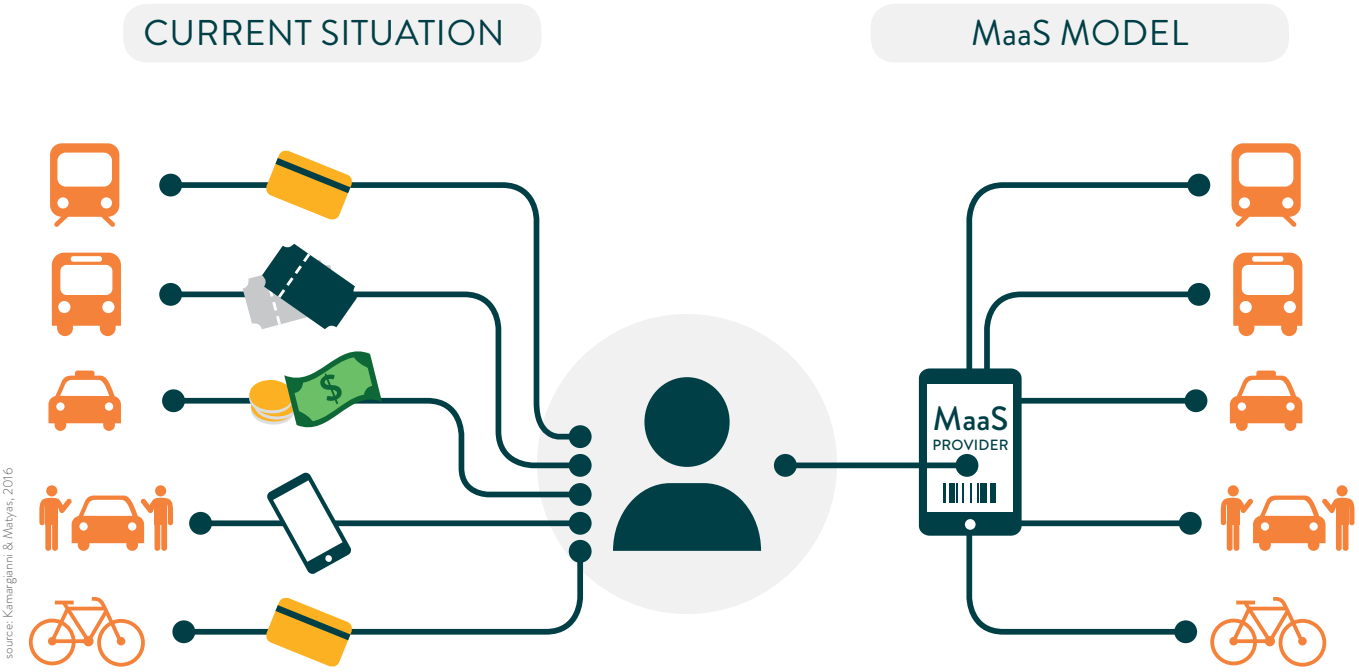
Yet, to reap the benefits of these trends, we require the integration of all the different mobility options to offer an alternative to car ownership: Mobility as a Service (MaaS).

This official Policy Brief of UITP aims to provide guidance on what MaaS is and how it can become a tool to provide better and more affordable mobility for all.

WHAT IS MOBILITY AS A SERVICE?

New players are offering a multitude of new services to move around cities. But for the traveller confronted with the increasing number of options, finding the best way to move around can be challenging. This is where the Mobility as a service (MaaS) – concept steps in: MaaS is about offering a complete mobility solution and taking away the hassle of finding the most suitable mobility option. At UITP we define it as follows:

Mobility as a Service (MaaS) is the integration of, and access to, different transport services (such as public transport, ride-sharing, car-sharing, bike-sharing, scooter-sharing, taxi, car rental, ride-hailing and so on) **in one single digital mobility offer, with active mobility and an efficient public transport system as its basis.** This tailor-made service suggests the most suitable solutions based on the user's travel needs. MaaS is available anytime and offers integrated planning, booking and payment, as well as en route information to provide easy mobility and enable life without having to own a car.



source: Kamargianni & Matyas, 2016

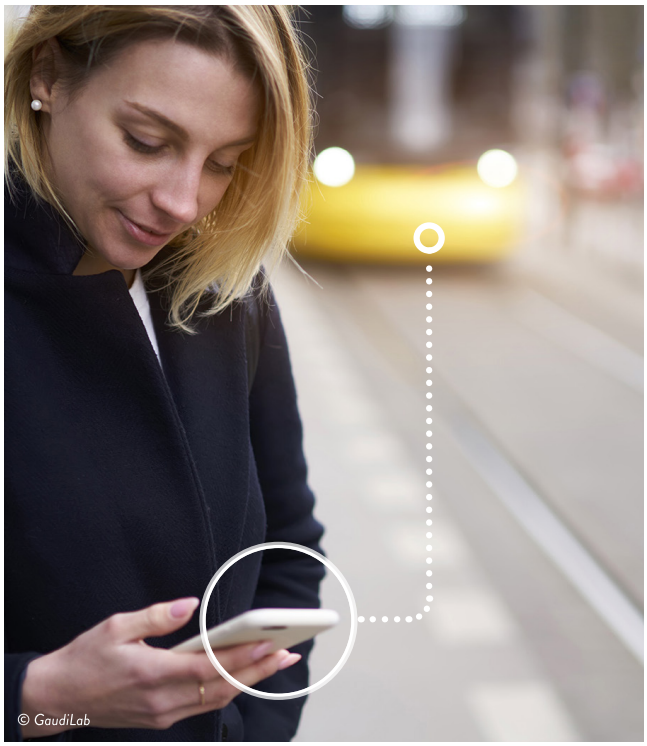
DIVERSITY OF MAAS PLATFORMS

The coexistence of MaaS platforms of different geographic footprints is likely to become a reality. Although many MaaS initiatives are currently being built at a local level, the 'market reality' is evolving with the emergence of national and even global MaaS platforms. Moreover, MaaS has the potential to appeal to a very broad audience, from young persons to persons with reduced mobility, international business travellers, families or elderly persons etc. Therefore there will probably be different MaaS offers addressing different customer segments.

WHY IS MAAS INTERESTING?

MaaS is an important and unavoidable step in building a better mobility system, because:

- **The importance and thus number of mobility services will continue to increase** in the future. New services will grow out of their niches and customer expectations will continuously evolve. The arrival of automated vehicles will be the ultimate game changer, helping car- and ride-sharing and ride-hailing services to become a common reality.
- The mobility services are merging to form a 'continuum' of different options. Consequently, the traveller's choice will depend more on the price and performance (quality, comfort, flexibility, etc) than on the mode. But **help to make the right choice of mode is expected!**
- **If organised in a smart way, MaaS is a key to change travel behaviour towards more sustainable mobility** options, reduce private car use and provide better and more affordable mobility.



It is imperative to act now to ensure MaaS is the desired tool to build a more sustainable future as global platforms are already becoming widely available.

MaaS has the potential to increase the modal share of all mobility services at the expense of single-car usage. Therefore, it will not only benefit travellers but all mobility providers. It is in the traveller's interest to set up an integrated mobility- ecosystem, including all public and private mobility services, based on an optimised system to enjoy total freedom of mobility. It is in the community's and city authorities' interest that the integrated offer is built with high capacity public transport and active modes at its heart.

The MaaS solution should help to optimise the mobility system which requires adequate rules, controls and governance where appropriate.

Consequently, there needs to be incentives to increase efficiency and occupancy rates and to complement mass public transport. There should be disincentives for the cannibalisation of public transport, walking or cycling, as well as for single occupancy or empty trips.

CREATING A USER-CENTRIC SERVICE

If MaaS is not responding to the travellers needs then it will not be able to attract enough users to trigger the shift towards sustainable transport modes. Therefore, it is crucial to put the traveller at the heart of the MaaS solution.

The key expectations from the traveller are:

Trustworthiness: MaaS should guarantee correct real time information, a high level of quality, have a strong reputation/brand and offer or point to reliable transport services with a fair pricing.

Simplicity: an easy, user-friendly, convenient service offering a single sign-on access with integrated information all along the trip to help the traveller in the decision-making process.

Impartiality: MaaS must be non-discriminatory and provide access to all available mobility options, keeping in mind efficiency and sustainability over commercial profitability.

Flexibility: MaaS must be able to adapt to changing traveller's needs and thus should take into account fair pricing and personal preferences.

MAAS IS ALL ABOUT COLLABORATION

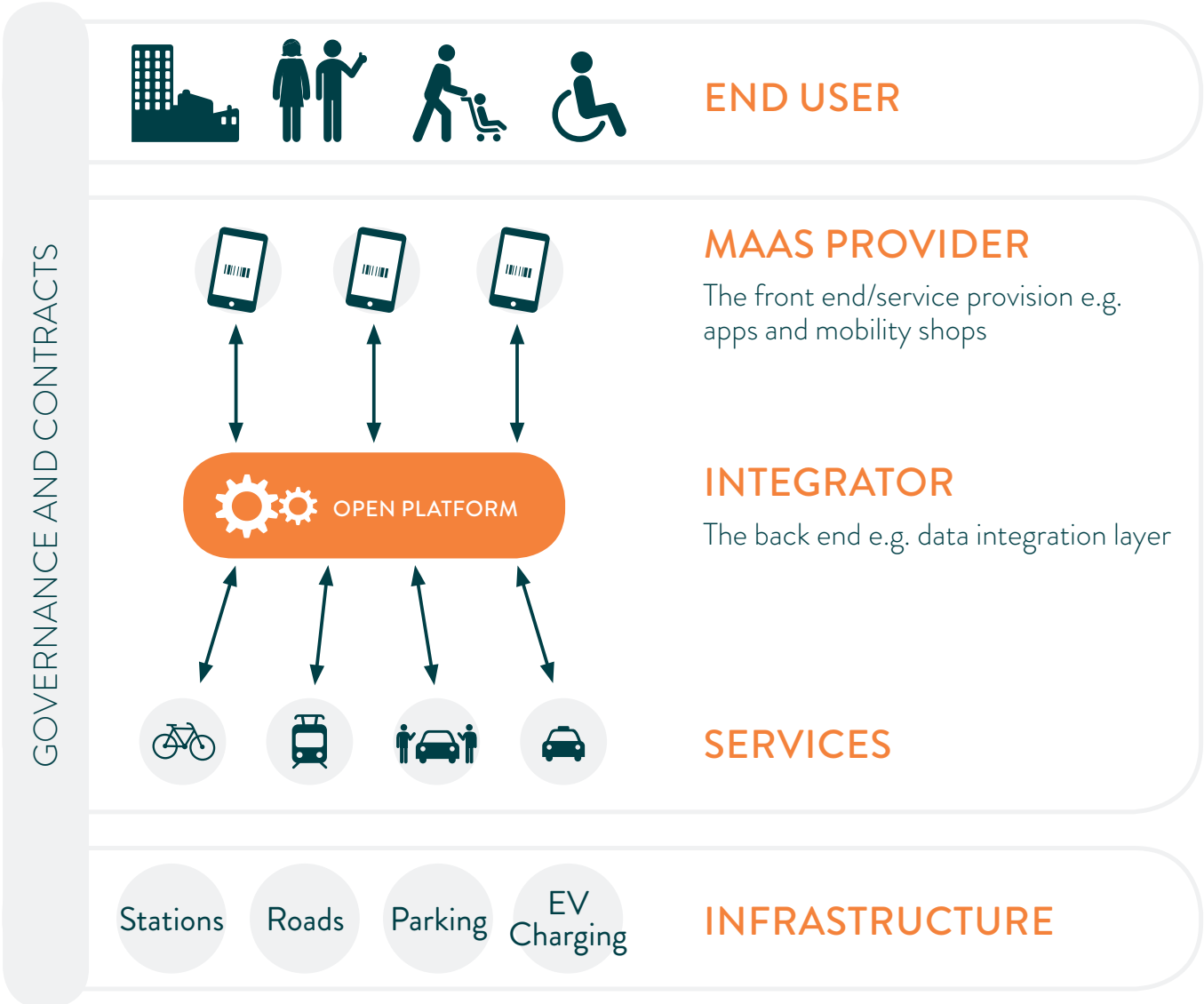
MaaS is about building a strong partnership. This means different transport operators working as business partners alongside the public authorities in charge of strategic mobility planning. In order to trust a MaaS provider who runs the platform, and join the integrated mobility offer, the business partners expect **impartiality, fairness,** an **innovative strong brand** with a positive image, and an integrator that is **stable** and **trustworthy** enough to stay for a long time. Indeed, all business partners should be treated as equals, and the approach of the MaaS provider towards transport operators should be non-discriminatory. The access conditions to join the MaaS platform should be fair. In addition, the usability of the solution must be excellent in order to be highly attractive to the traveller. Of course, all transport operators expect to gain new customers through the MaaS platform.

THE ROLE OF THE MAAS PROVIDER AND THE INTEGRATOR

To build a MaaS solution there are different layers of actors involved. The integrator is responsible for the integration of data from multiple transport operators and infrastructure data and the MaaS provider builds the solution on top of the integrated layer. The integrator could be different from the MaaS provider, but sometimes these roles are taken by the same actor.

The one question that is on everyone's lips is who will be the MaaS integrator. But the key question is rather who is able to attract the maximum customers to produce the maximum benefits for sustainable and affordable mobil¬ity? Therefore the role of the integrator is to make MaaS fly. Only by having happy customers and happy business partners will a MaaS provider be able to scale and create maximum benefits for sustainable mobility.

Who takes which role?



The roles of the MaaS provider and integrator could be taken by different actors such as the public transport authority, the public transport operator, any mobility service operator, a tech firm, a MaaS company or any other actor from the banking or the telecommunications sectors. This would depend on the local context, thus taking into account many factors such as the strength of established mobility services, the readiness of the travellers, the institutional organisation and legal framework for the transport services, to name but a few.

DATA & CUSTOMER RELATIONSHIP: BUILDING TRUST FOR A STRONG PARTNERSHIP

The integrator and MaaS provider need different data sets from the infrastructure operators and the transport operators to build a MaaS solution:

- Transport data:

Data on the availability of the mobility service, real-time data via secured API's

- Access/ticketing data:

Data to resell the access to the mobility service, mobile ticketing, online booking through secured API's

- Traveller data:

Personal data on the traveller is needed to clear them for the use of the mobility services (e.g. driving license for Car-Sharing)

- Infrastructure data:

For example, availability of EV charging points, parking spaces, road conditions and congestion levels

Not all transport operators have this data available yet in the required format. Questions arise regarding the financing of adaptation.

DATA ANALYTICS & USAGE DATA

Data analytics based on the usage data, including demand data, from the MaaS operation can provide organising authorities and transport operators valuable insight on how to adjust their network or service to enhance the overall service quality of all transport services and better respond to traveller's needs.

The data value lies in the service above the generated data:

- It allows the MaaS provider to improve the service by providing more personalised services and optimise the business with a global view on usage and needs

- It gives the transport operators better knowledge of their customers and helps them to improve their offer and optimise their costs
- It enables cities and authorities to have a better understanding of the needs to improve their urban infrastructure. It could also be used to better manage the demand and supply of transport services by spreading demand over different routes, modes and times.

Customer and usage data should be shared by the MaaS provider with the transport operators and authorities in respect of data protection laws. It empowers the whole ecosystem and contributes to building better cities, which in return is beneficial to MaaS. This must be built on the reciprocity principle in the opening of data.

BUILDING TRUST: DATA SHARING CONCEPTS & ALGORITHMS

Transport operators may feel concerned about opening their data, as they see different perceived risks:

- Losing the customer relationship
- MaaS provider would become the gatekeeper to all demand and usage data
- Disclosing the business model to competitors by sharing data
- Uncertainty that all transport operators are treated fairly by the integrator

Transport operators also need to have full trust that the MaaS provider will give a quality service to their clients. The real question is less about opening data and more about how to share the access with the customer. In order to build the trust, and ensure that only data essential for improving services is shared and operator's commercially sensitive data is protected, these risks need to be addressed. This can be done by:

- The MaaS integrator proposing fair business rules i.e. terms and conditions for the reselling of the transport services
- A clear reselling contract such as a share-alike licence set by the transport operators
- Regulation and governance
- A shared approach involving all actors, for example by defining a Code of Conduct

ON REGULATIONS AND STANDARDS

The quality and consistency of data shared and the data format are essential for MaaS. It must be easy for all transport operators, large and small players, to plug in the MaaS solution. A standard to share data should be set up, to which every actor could adapt voluntarily. Forcing transport operators to open their booking and/or ticketing via regulation will not necessarily address the above-mentioned risks.

There needs to be a collaborative approach as setting up a MaaS solution is all about cooperation

MULTIPLE MAAS MODELS WITH DIFFERENT ACTORS AS INTEGRATORS

BUILDING THE SOLUTION

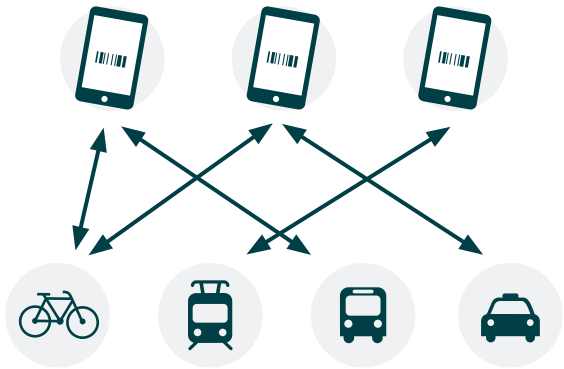
There are many different ways to build a MaaS, and pilots are taking place around the world. They all have advantages and disadvantages depending on the perspective of each involved player. **Local context matters.** When contemplating which model would work best for one's city it might be helpful to look at the following basic MaaS models described here below to see how they could perform against the following set of objectives:

- Mode shift towards public transport, walking & cycling
- Number of users / Market penetration
- Social inclusion
- Innovation
- Customer orientation / usability
- Alignment with public policy goals
- Integration of local mobility providers
- Non-discriminatory approach
- Sharing data back with public authorities

MAAS MODEL 1

COMMERCIAL INTEGRATOR

MaaS PROVIDERS

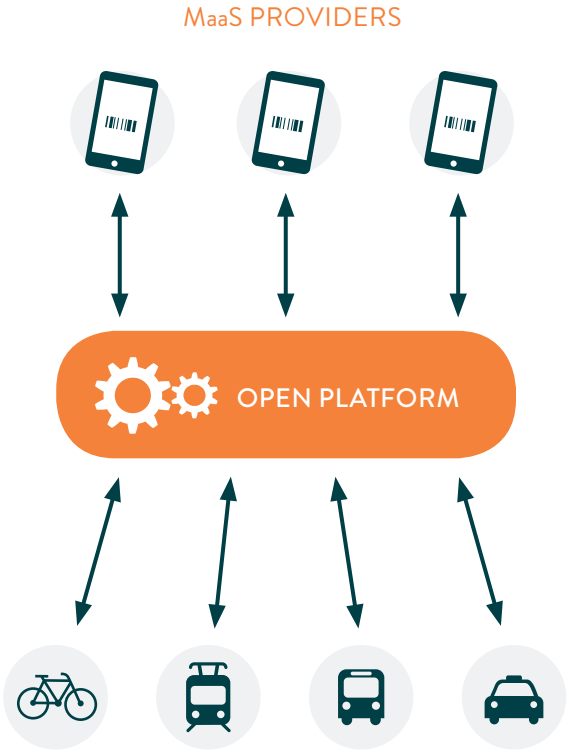


- Marketplace with agreements between MaaS provider and transport operators
- Competition
- Free, unregulated market

- Perceived as providing a customer-oriented and innovative solution
- Doubts on whether it would be socially inclusive
- Data would probably not be shared with public authorities – unable to improve existing public transport services and planning with data analytics
- The risk of a bias in the presentation of the transport options is perceived as high

MAAS MODEL 2

OPEN BACK-END PLATFORM

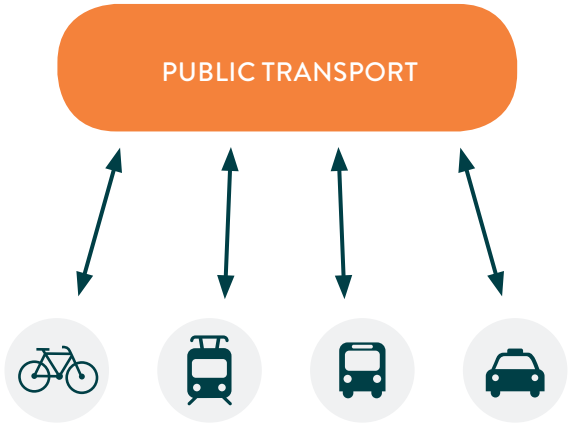


- Set up by a public entity with rules determined by the public authority
- Serves as public infrastructure on which different actors could build a MaaS solution
- All mobility services have to open up their API's
- Competition on the front side

- Perceived as offering a customer-oriented, innovative and unpartial service
- Local mobility providers are more likely to be integrated
- Financing the open back-end platform needs to be addressed

MAAS MODEL 3

TRANSPORT AS THE INTEGRATOR

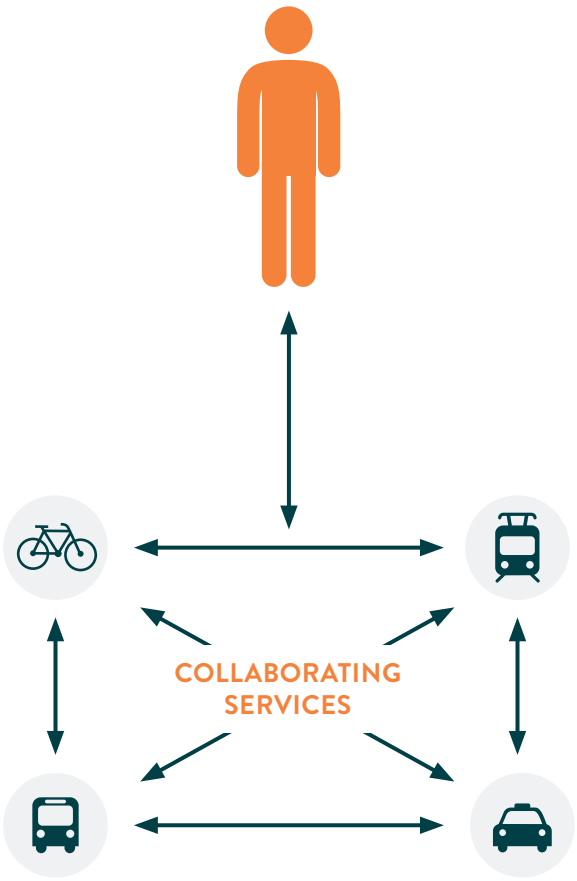


- MaaS run by public transport with selected mobility services
- Rules set by public transport
- Other mobility services providers may have to open up their API's

- Public transport already has the largest customer data base, and is the backbone of sustainable urban mobility, so it makes sense to take the lead in integrating other mobility services
- Public transport remains relevant towards existing customers and appear more attractive to new ones by becoming a real mobility provider
- Perceived as being able to achieve the highest increase in sustainable mobility, be socially inclusive and best aligned on public policy goals as data would be shared with public authorities
- Perceived as possibly providing a less customer-oriented and innovative service

MAAS MODEL 4

DECENTRALISED LEDGER TECHNOLOGY FOR MAAS



- Distributed mobility using blockchain
- All stakeholders work on a shared platform via decentralised ledger technology
- Prevents the need for a single entity in the middle, while still creating a coordinated mobility ecosystem

- It could allow for transport authority incentives on certain mode choices and determine rules for the mobility economy
- Research on this possibility is still ongoing

INSTITUTIONAL LANDSCAPE AND A REGULATORY FRAMEWORK TO PROMOTE MAAS AND SUSTAINABLE MOBILITY

MAAS AND CITIES' POLICY GOALS

From a city or regional perspective, MaaS gathers valuable data about user movement and network operations that can be used to improve service efficiency and network planning.

MaaS should be a tool to steer travel behaviours into more sustainable modes.

Mass public transport is the backbone of sustainable mobility together with walking and cycling and therefore public authorities need to ensure it is at the heart of any MaaS solution. Nudging and heuristics, meaning approaches to encourage the traveller to use more sustainable modes, are often underestimated in terms of the influence they can have on people's behaviour and perception of different options available to them. For example, the default settings on many route planners often favours the car, which results in this being the first and most prominent result on any search device. Instead, by showing sustainable modes first, it can increase the

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salience of these options. Gamification and nudging are elements of motivational techniques to be used with rewards as an incentive for recognised sustainable travel behaviour, for example via bonus schemes.

The data derived from MaaS would help to make more efficient use of existing infrastructure and help enhance sustainable mobility and public transport planning. But public authorities need to have access to this data.

Since MaaS is a mix of public and private players, there is also a risk purely commercial players take advantage, for example with algorithms that would favour certain services.

The regulatory framework needs to ensure that high capacity public transport and active modes are the backbone of MaaS.

SETTING THE RIGHT REGULATORY FRAMEWORK TO PROMOTE MAAS

Many wrong incentives like free parking or subsidised company cars are currently hindering sustainable mobility behaviour and preventing MaaS from being really attractive to car drivers. Thus, one of the biggest incentives for MaaS would be to stop these unsustainable incentives. Tools to control car traffic and car usage, such as access restrictions, road user charging, parking restrictions and charging car ownership need to be considered.

INSTITUTIONAL COORDINATION & MULTIMODAL URBAN PLANNING

The institutional fragmentation between different authorities in charge of the mobility services available in a city can be a barrier for the quality of the MaaS solutions. Indeed, different regulations and responsibilities for the diverse transport modes are often the source of missing coordination. Today, most mobility resources are planned and operated vertically in silos. Therefore, even if mobility services are integrated at the travellers' level (i.e. payment), it doesn't mean that the offer itself will be appropriate to meet the needs. The adaptation of the current institutions to bring together all urban mobility services in mobility agencies or multimodal transport authorities would lead to a coordinated organisation of mobility services. Quality management of the different services could also be facilitated. The same applies to urban space allocation and street design.

MaaS might be a digital gateway to different mobility services but these services need to be integrated from a physical point of view to become really attractive.

The creation of multimodal interchanges, mobility hubs, offering visibility to all mobility options is essential to promote combined mobility.

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CONCLUSION

Different approaches exist and still have to be tested, but one thing is clear: With an ever increasing number of mobility options, Mobility as a Service will become the business model of the future. If deployed in the right framework centered on high capacity public transport and active mobility it can be a brilliant tool to change citizens travel behaviour towards more sustainable modes and optimise our urban mobility systems. Authorities need to take action now as global platforms are building solutions that do not necessarily have a non-discriminatory approach nor favour more sustainable travel behaviour.

Let's make sure MaaS is the desired tool to build a more sustainable future!

For feedback and questions please get in touch with Caroline Cerfontaine (caroline.cerfontaine@uitp.org)

RECOMMENDATIONS FOR PUBLIC AUTHORITIES AND POLICY-MAKING BODIES

In order to ensure Mobility as a Service helps to reach public policy goals, it is urgent to take action now. UITP recommends the following:

- Create the right regulatory framework to promote MaaS
  - Stop wrong incentives that support car use and thus hinder sustainable mobility behaviour and MaaS (free parking, company cars etc).
  - Increase measures to limit single car use (access restrictions, road pricing, parking restrictions, street reclaiming etc).
  - Invest in digital solutions that promote integration and openness.

Build up institutional and policy integration

- Overcome institutional fragmentation with **mobility agencies or multimodal transport authorities** in charge of all urban mobility services e.g. by widening the competences of existing public transport authorities, and ensure they have the necessary capabilities and **resources to handle algorithms and data analytics.**
- Encourage **multimodal urban planning** for the development of mobility hubs and multimodal infrastructure.
- Include MaaS as a catalyst to **reach policy KPI's** related to climate, environment, spatial use, social inclusion and livability of cities and in **urban mobility plans**.

Setting up successful MaaS solutions

- **Build the eco-system**: set-up **participative processes** that include public and private actors, research institutes and customers to encourage all actors to draft a code of conduct. With regards to subjects such as business model, openness, standardisation, interfacing, data reciprocity and customer sharing.
- **Ensure public transport and active mobility options are at the centre** of any MaaS solution. As mass public transport is the backbone of the urban mobility ecosystem, it is a key success factor of all MaaS models.
- **Data reciprocity & protection**: data is key. Impose data protection and data reciprocity to the MaaS providers to enable the optimisation of the urban mobility system. Aggregated, anonymised usage data (including demand data such as origin-destination requests) is to be shared in a reciprocal way with PTA's, PTO's and other mobility providers.
- **Develop policies based on the use of algorithms** in order to prevent undesirable effects. For example, a shift from collective modes to individualised modes, or a shift from sustainable to individual motorised modes in the value propositions of MaaS solutions or route planners.
- Make use of the data from any MaaS operation to optimise the urban mobility offer.
- Adopt and harmonise **quality standards** for all mobility providers so that everyone can plug in easily.
- **Fair and free pricing:** If public authorities allow MaaS providers to repackage and reprice existing services instead of just reselling them, then the impact on public transport income and contracts is to be carefully modelled and if necessary compensated, to preserve the public service dimension. Accessible, fair and inclusive pricing for customers of special interest groups needs to be ensured, if free definition of fares is allowed.
- **Foster innovation by funding**: stimulate innovation by making funds available as it can be an important catalyst to inspire co-creation, create customer awareness or tackle technological obstacles.
- **Facilitate partnerships:** offer contractual frameworks that address data reciprocity, conditions to access public transport ticketing, commissions, transactional compensations etc. in order to encourage open cooperation and partnership management.

Discover examples of MaaS in the *UITP MaaS Report* and in the Combined Mobility Toolbox on MyLibrary.

This is an official Policy Brief of UITP, the International Association of Public Transport. UITP has more than 1,600 member companies in 99 countries throughout the world and represents the interests of key players in this sector. Its membership includes transport authorities, operators, both private and public, in all modes of collective passenger transport, and the industry. UITP addresses the economic, technical, organisation and management aspects of passenger transport, as well as the development of policy for mobility and public transport worldwide.

This Policy Brief was prepared by the UITP Combined Mobility Committee.

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