

# MaaS Implementation; Local Authorities' Perspectives?

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## Abstract

Mobility as a Service (MaaS) is being developed as a means of providing passengers with a convenient, on-demand, multi-modal service. Pilot trials claim that MaaS can bring substantial benefits at individual and city level in terms of increases in efficiency, health and environmental factors. The H2020CIVITAS SUITS project hosted a one-day conference in Coventry (UK) on the theme of 'stimulating transport innovation through capacity building in small and medium local authorities. The 60 delegates comprised of transport consultants, academics, local authority representatives, transport stakeholders and representatives from EU transport projects. In a workshop, the challenges that LAs are faced with in setting up MaaS were discussed. The results, collated from moderated round table discussions are presented, reveal considerable concern of local authorities, and the need for consultation and planning on a wider range of issues than those that have been considered so far.

## Keywords:

MaaS, regulatory framework, local authorities, stakeholder engagement, financing

## Introduction

The aim of the 4-year H2020CIVITAS SUITS (<http://www.suits-project.eu/project/>) is to increase the capacity of local authorities to develop and implement sustainable, inclusive, integrated and accessible transport strategies, policies, technologies, practices, procedures, tools, measures and intelligent transport systems that recognize the end-to-end travel experiences of all users and freight. This is being achieved through 2 pilots looking at the potential of crowdsourced data (in Kalamaria and Torino), provision of bespoke training material to support implementation of sustainable urban mobility measures and organizational change in LAs to help them to respond to transport innovations.

Mobility as a Service, or MaaS, is a system which unifies various mobility services, accessible via a

single access point, such as a mobile app, allowing users to define the way in which they travel and see how much various options will cost (MaaS Alliance website). It could be seen as an extension of public transport systems with unified ticketing (e.g. London's Oyster, Berlin) to encompass non-public transport modes, such as shared vehicles (bicycles, cars or scooters) and taxis (Bailey 2018). A MaaS system would likely have a number of key components: at the heart of a MaaS system would be a "MaaS operator". This body could be public or private and would present the MaaS offering to the end consumer, acting as an intermediary between the end consumer and "mobility service providers", also known as transport operators. The MaaS operator would buy capacity from mobility service providers and sell packages to the end consumer, as well as providing journey planning and fares information to the end consumer (Kamargianni et al. 2018).

MaaS is seen as having the potential to transform how transport is provided and used.. However, in the UK at least, 'the government's current vision focuses too much on the growth of electric vehicles and connected and autonomous vehicles' House of Common's Transport Report (2018, para 28.)

The workshop was held to understand the issues of concern to LAs in relation to MaaS implementation. This understanding will be used to develop training material for LAs as part of H2020COVITAS SUITS on-line toolkit, and ultimately as part of the wider EU training material. The results are timely given the House of Common's Transport Report (2018) which stressed the need for increased attention to be paid to MaaS and for leadership, practical support and legislative/regulatory changes.

### **Method**

The workshop was organized using a version of the world café system (The World Café Community Foundation website). Brief introductory presentations were given by Chris Lane (Transport for West Midlands – MaaS in the West Midlands – Initial Findings), Chris Perry (MaaS Global – Implementing a MaaS system in the UK) and Giles Bailey (TravelSpirit – a vision of an open ecosystem MaaS system). Then the delegates were randomly assigned to one of 6 moderated tables, each with a different topic (see Table 1). After 15 minutes, the delegates moved to another table, and the discussions continued, building upon the previous discussion of the previous delegates at the table. This cycle was repeated once more then the results of each table were summarized and briefly presented to the plenary and feedback on the findings sought from the introductory speakers. Following the discussion and presentation the material was collated and analyzed by the SUITS team.

**Table 1 – Table topic and structure of the workshop**

<b>Regulatory framework</b>	
Table 1	What are LAs' strengths and vulnerabilities in implementing MaaS measures regarding the regulatory framework?

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Table 2	What are the opportunities and risks for a LA implementing MaaS measures regarding the regulatory framework?
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**Financing**

Table 3	What are LAs' strengths and vulnerabilities in implementing MaaS measures regarding financing?
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Table 4	What are the opportunities and risks for a LA implementing MaaS measures regarding financing?
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**Stakeholder engagement**

Table 5	What are LAs' strengths and vulnerabilities in implementing MaaS measures regarding stakeholders?
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Table 6	What are the opportunities and risks for a LA implementing MaaS measures regarding stakeholders?
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**Results**

*Regulatory framework*

Participants were asked to discuss the two questions shown in Table 1. Tables 2 and 3 show that although the LAs were excited by the opportunities provided by MaaS, there were many unanswered questions and issues in the practicalities of implementation which need to be addressed.

**Table 2- Perceived opportunities for MaaS from an LA perspective**

<b>Opportunities</b>	
Data	<ul style="list-style-type: none"> <li>• Generation, control and ownership of data from MaaS would enable LAs to save money through efficiencies and pooling of data e.g. socio demographic</li> <li>• Data sourced from MaaS usage could be used to model and deliver new services, and provide an evidence base for new tenders</li> <li>• Open data can enable agility and provision of services people want</li> </ul>
MaaS offering	Could be incorporated into new tenders, and would enable greater competition between service providers
Extended interest	MaaS would provide interest and investment opportunities for a wider range of stakeholders
Innovation	Potential to trial services in co-operation with private companies, leading to new business opportunities and vibrancy in the city
Finances	Reduction in costs of transport service provision, increase in grant availability from national or supranational bodies for development of new services
Regulatory issues	New innovations and different types of service provision will require new regulatory frameworks

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Change of focus	<ul style="list-style-type: none"> <li>• New focus on sustainability and efficient mobility</li> <li>• Equal attention given to MaaS and autonomous and connected vehicles</li> </ul>
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**Table 2 - Perceived risks and unresolved issues relating to MaaS implementation**

Risks and unresolved issues	
Market failure	<ul style="list-style-type: none"> <li>• Extent to which LA would be held responsible (financially or otherwise) for failures in service provision (e.g. vehicle breakdown, weather disrupting services) and bankruptcy/operator failure.</li> <li>• Extent to which the LA would be required to take over the service of a failed MaaS operator or mobility service provider.</li> <li>• New regulations which need to be developed to mitigate negative effects, including enforcement of service provision</li> </ul>
Influence of perceptions of PT	In some countries public transport has a very poor image. This may transfer to MaaS and be a barrier to uptake
Mode shift	MaaS may cause people to move to shared vehicles, away from PT, risking PT revenues
Service fragmentation	Funding and operation may be spread across different competing MaaS operators and mobility service providers, increasing complexity and leading to service fragmentation
Finances	<ul style="list-style-type: none"> <li>• Currently PT is not fully outsourced, but there is still a lack of service in deprived areas. There is a risk that deprived areas/communities will not be served by MaaS – resulting in new forms of transport poverty. How will guarantees of service/subsidies be worked out to ensure equality and inclusion</li> <li>• How will fares and benefits to providers (esp. for unprofitable routes/services) be distributed to guarantee coverage of services? Would MaaS make it more difficult for LAs to cross-subsidise from more profitable services to less profitable ones?</li> <li>• What effects will MaaS have on revenue streams for LAs (e.g. lost parking and taxi licensing revenue streams)</li> <li>• There seems to be an implicit assumption that autonomous vehicles will be used collectively, but this is not necessarily the case.</li> </ul>
Effects on overall quality of service provision	<ul style="list-style-type: none"> <li>• May lead to the reduction in the need for certain services which are relied on by certain groups of the community, leading to less choice and greater inequalities</li> <li>• How does MaaS fit into the current mix of transport provision e.g. in terms of taxis and community transport</li> </ul>

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Competition bias	<ul style="list-style-type: none"><li>• Risk that LA may be seen as favouring those providers who take part in MaaS; the LA must be seen to be unbiased toward private operators</li><li>• Monopoly risk of commercial platforms especially if driven by mobility service provider themselves –what is the incentive for the MaaS operator to allow competition?</li><li>• MaaS agreements may limit future LAs' options (e.g. to abolish PT fares)</li></ul>
Change in mind set/time	<ul style="list-style-type: none"><li>• Automotive and mobility sector need to change</li><li>• LAs have to reach a consensus on MaaS (with open public consultations)</li><li>• How can a change in mind set be created to guarantee use of MaaS, what incentives are appropriate?</li></ul>
Data	<ul style="list-style-type: none"><li>• How can the information be used to focus on global rather than individual forms of transport</li><li>• GDPR rules may be interpreted in such a way as to undermine MaaS provision (e.g. regular user journey data)</li><li>• Sharing of open data is an issue, as data has a potential value. How do you valorise it? Should the aim of LAs be to gain financially by selling data or make the data available openly?</li><li>• Concerns about handling and security of the data required by MaaS schemes</li></ul>
Regulatory issues	<ul style="list-style-type: none"><li>• Concern was raised about the extent to which regulations can keep up with innovations and demand for new services</li><li>• Need to include regulations which deal with negative/side effects including enforcement of service provision and workers' rights.</li><li>• Need a legal framework for collaborative schemes, liability for non-delivery of services (bankruptcy etc.) and to encourage competition rather than just favoring MaaS operators</li><li>• Could create friction in LAs' role, e.g. subsidies could distort the market within the MaaS system. LA might have double role as provider and regulator.</li></ul>
Additional burdens on LA	<ul style="list-style-type: none"><li>• Legal, administrative and regulatory issues will increase</li><li>• Conflict resolution and disputes over service provision</li><li>• Management of disruption caused by changing over to MaaS</li></ul>
Inequality and inclusivity	<ul style="list-style-type: none"><li>• How can the needs of vulnerable groups be protected.</li><li>• What happens to hard to reach groups, e.g. older people, people without mobile phones</li></ul>
Predatory competition	<ul style="list-style-type: none"><li>• Considerations around the threat from competition, e.g. Uber, especially as they don't play by the rules, will concentrate on profitable areas/services, leaving the LA to carry the can for unprofitable areas/services.</li><li>• Regulation of their practices, but concern in keeping up and enforcing them</li></ul>

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In summary, the participants in each round mentioned that local authorities differ from country to country in the extent to which they can exert control over public transport, or even influence it. In countries where PT is centrally controlled by a national body (e.g. Greece), larger cities have the advantage over smaller cities in that they will have more representation and can therefore influence national regulations. Differences also occur between LAs depending on whether the bus market is regulated or deregulated, with the former having more power to influence changes. Also, many questions or concerns were tabled related to the complicated position of LAs as a (potential) mobility service provider, and commercial, regulatory and political actor and the ways in which the widespread adoption of MaaS (especially considering a consolidated multimodal MaaS system) could complicate the myriad - heretofore separate in many cases - arrangements and agreements with various actors.

At the local level, where the LA can influence or control PT, they can encourage integration of services, (e.g. by prioritising or facilitating changes to the regulations) or by forcing providers – including taxi or private hire vehicle operators - to cooperate (e.g. by making it a condition of licensing, in terms of standards of service offered, integration with MaaS platform, etc.). In the case of taxis, a barrier to MaaS exists in some jurisdictions where regulations control the areas in which passengers can be picked up so changes in passenger licensing laws are required.

Large cities have an obvious strength in that they more easily can pull together horizontal teams with the necessary skills to implement MaaS – legal, technological, planning, procurement etc. On the other hand, this may require changes to the way work is traditionally done.

In countries where public consultation is necessary, cities may not be able to move as fast as those where public consultation is not a requirement. Strong political support is necessary for any changes; this may require engaging stakeholders such as mayors or local councillors.

*Financing*

Participants were asked to consider what the LAs’ strengths, vulnerabilities opportunities and risks were in implementing MaaS measures in terms of financing. Table 3 provides a summary of the main points.

**Table 3 - SVOR analysis in terms of financing for MaaS**

<b>Strengths</b>	<b>Vulnerabilities</b>
Transparency and public scrutiny	Limited direct financial opportunities for smaller cities
Central hub for linking suppliers and funding	Lack of knowledge about how to deal with finances
Ability to offer concessions	Lack of knowledge to gain funding/ developing financially viable projects/access to

	crowdfunding/big variability/vulnerability in LAs
Existence of public authority	Big city's internal competition and lack of prioritisation/competitive funding
	Internal knowledge sharing. Lack of knowledge leads to support in wrong places; high variability
<b>Opportunities</b>	<b>Risks</b>
Backing from political parties	Transparency and public scrutiny
Scale of opportunities for business case. Large city good potential market	Big ideas and too much competition with too little know how
Better PR and communication to gain public support for taxation system and deliver eco-friendly messages	Cities which already have committed to existing systems are vulnerable
Ability to differentiate volume and destination usage	Ability to offer concessions

The discussion identified many of the factors outlined in the previous section. Positively, MaaS was seen as an opportunity to increase the number of stakeholders involved as potential funders. However, major problems were seen in relation to how transport operators would react to new transport services, if the modal shift was away from them, and resulted in a loss of revenue, if not closure of their business, and in relation to how the revenue streams would be shared between MaaS providers. Although data was mentioned as a solution, participants were not able to elaborate how this could be used.

#### *Stakeholder engagement*

The development and implementation of MaaS offerings represent a major challenge for local authorities as many stakeholders with different interests must be involved in this process. These interests are sometimes contradictory, difficult to take into account and do not necessarily reflect the interests and ideas of the initiators of such a service. The workshop addressed the question of which stakeholders play an important role in this process and which challenges arise in terms of cooperation.

The first step in the group work was to get an overview of which stakeholders play a role in this context. At the suggestion of the participants, a subdivision into internal and external stakeholders was made. Internal stakeholders are mainly initiators or people responsible for the planning, implementation and decision-making of a MaaS undertaking. External stakeholders mostly play an important role in the subsequent operation of the service.

**Table 4 – Overview of internal and external stakeholders**

Internal stakeholders	External stakeholders
Transport department, Other Departments within LA: IT department, technical department, public tender department; Highways, finance, communication, Transport cabinet members; planning cabinet members; security board; local councilors,	Public transport providers, private mobility service providers, software developers for a platform, technology companies, the future users of the service, Infrastructure providers, press and media

One major challenge was seen as the need to raise awareness of the project within the LA and on the part of policy makers. The development of a MaaS requires the close cooperation of all departments involved and the common will to implement such a complex and ambitious project. Moreover, it is not easy to get political support, as there is little experience to date and such a project is accompanied by many uncertainties and risks. The conviction of internal stakeholders is therefore one of the greatest challenges.

But also the acquisition of external stakeholders is a demanding task, as most of them need to invest time and money to get MaaS to work and it is not yet clear what they might get out of it in the end. This can become a particular problem for smaller transport service providers.

Key ways in which stakeholders could be encouraged predominantly took a user centered approach, including:

- Promoting the possibility for stakeholders to use data (e.g. reason for journey, origin-destination data, frequencies of use)
- Carry out user surveys in advance in order to verify the needs and requirements of the users to the stakeholders. (what might encourage use, what are they dissatisfied with at the moment, what are their expectations?)
- Get people storytelling e.g. how a nurse gets to hospital at hours when there isn't a commercially viable conventional public transport service
- Show benefits in terms of economics and health
- Show financial benefits (best with concrete calculation examples that compare the ownership of an own vehicle with the use of MaaS)
- What are the benefits for all groups for MaaS
- Clearly highlight the benefit for the individual user groups

With regard to the opportunities and risks, it was felt that it is important to get the right balance between public and private transport service providers or -offerings. A solid competition between participating providers can increase the quality of the services offered. Therefore, a danger was seen in putting too much power in the hands of the authority. On the other hand, a completely free market can lead to a



situation where MaaS operators and mobility service providers play off each other from positions of power. If the service is offered by a private operator, and the goal is to maximize profits, the main question is: how to create a fair balance between the large and small mobility service providers. Can small providers exist alongside large ones? A situation with just one MaaS operator, was therefore also seen as a risk.

The local authority could create a fair balance between the large and small mobility service providers ensuring that there is a fair distribution of profits between them. Service providers should not only destruct each other, rather they should try to cooperate to offer the best service to the users. Nevertheless, it is a great challenge to create this situation. However, it was stressed that the user experience should remain the focus. Offerings must be tailored to the user needs. If the users recognise that mobility is becoming simpler, more comfortable and all in all cheaper, they will rethink mobility behavior. Changing mobility behaviour remains one of the greatest challenges and the LAs needs to consider carefully what incentives can be created to encourage people to start using the service.

Participants recognized a distinction between small and larger cities, but it should be noted it is very hard to generalize from one city to another, or one country to another. In terms of strengths, smaller cities seem to have more flexibility. They were able to identify and reach stakeholders and connect more easily between multiple stakeholders. Innovation and research consortia were able to collaborate strongly with LAs, who were better placed to influence the public to adapt to MaaS. They could more easily enforce policy and focus on social visions and had the potential to involve the public through consultations and public enquiry.

However small cities were seen as lacking technical knowledge, know-how and persuasive arguments. They saw complex systems as risky, and may be vulnerable to influence from powerful stakeholders. They were also seen as inefficient with overlapping responsibilities, too central governance and not being able to identify and serve local needs. Clearly there is some disagreement in the characterisation of small cities, but the overall opinion was that small cities could mobilise and be more receptive to change.

Larger cities were seen as lacking flexibility and being unable to change rules. They were seen as being over protective and biased, giving preferential treatment to certain stakeholders and incumbents. They found it harder to integrate public and private service providers or transfer services. Additionally, in some cases, the citizens were felt to have a weaker knowledge of sustainable mobility.

### **Conclusions and recommendations**

The results presented above not only align closely with the views expressed in the House of Common's Transport Report (2018) but go further in expressing the issues each LA will need to content with. Johan Herllin (op cit) was quoted as saying 'there is nothing inherently altruistic about

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MaaS. It could undoubtedly bring benefits, but it requires management as a new form of business. The LAs have responsibility for ensuring equality and inclusion in cities. There are warning signs that MaaS could have negative consequences for road congestion, pollution, digital and social exclusion and increase transport inequalities.

The delegates raised many questions or concerns related to the complicated position of LAs in a MaaS deployment. An LA could take on the roles of MaaS operator and/or mobility service provider while also being a regulatory and political actor. Which of these roles the LA takes on will depend on local contexts, since LAs' role in the current provision of transport also varies substantially. Current arrangements and agreements with various actors could also be complicated by these new roles.

Some of the concerns presented by LAs centre around conflicts between these roles: for instance, the challenge posed by an LA running a MaaS application and simultaneously acting as one of the mobility service providers. The LA taking on a role as regulator of an ecosystem of MaaS operators and service providers may be a burden on LAs, who may not have the appropriate competencies or capacity to do so.

LAs' role in the MaaS space will likely remain contested as MaaS operators and mobility service providers seek to collaborate with LAs or public transport authorities in order to leverage their brand recognition and perceived service quality, while other mobility service providers pursue integration of PT fares data and ticketing in their own offering.

LAs' role in MaaS deployments is also likely to influence how LAs can make use of the data available from MaaS deployment. LAs identified opportunities for the use of data but the availability of these opportunities may depend on regulations and local agreements. National regulation may assist LAs in reaching the opportunities presented by data: for instance, the Finnish Act on Transport Services imposes a requirement on MaaS operators and mobility service providers to release a minimum level of data openly (Ministry of Transport and Communications 2017). Policy of this nature is likely to aid LAs in reaching the opportunities to use data to improve their own decision making. In the discussions LAs expressed a great deal of anxiety about the implementation of the MaaS and what it would mean for them as an organisation. From the comments, it is quite clear that they are only just starting to grapple with a wide range of issues for which they do not have any answers. There is a clear need to provide guidance, training and a forum for LAs to enable them to discuss such issues, and possible solutions as part of existing trials and prior to any stakeholder engagement.

## Acknowledgements

H2020CIVITAS SUITS project has been funded by the European Union's Horizon 2020 research and Innovation programme under grant agreement no 690650.

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