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Main challenges associated with MaaS & Approaches for overcoming them

Study of MaaS Alliance Governance & Business Models Working Group

WHAT IS MaaS?

MaaS is the integration of various forms of transport services into a single mobility service accessible on demand. For the user, MaaS offers added value through the use of a single application to provide access to mobility, with a single payment channel instead of multiple ticketing and payment operations. To meet a customer's request, a MaaS operator facilitates a diverse menu of transport options, be they public transport, ride-, car- or bike-sharing, taxi, car rental or lease, or a combination thereof. A successful MaaS service also brings new business models and ways to organise and operate the various transport options, with advantages including access to improved user and demand information and new opportunities to serve unmet demand for transport operators. The aim of MaaS is to be the best value proposition for its users, providing an alternative to the private use of the car that may be as convenient, more sustainable, and even cheaper while contributing to the achievement of societal and environmental goals.

The objective of this document is to outline some of the key challenges that MaaS implementations might face, illustrate them with examples, point out affected stakeholders and offer some thoughts on how to deal with them.

The document is based on fruitful discussions within MaaS Alliance Working Group: Governance & Business Models. The composition of the Working Group brings together representatives of public and private sector, and ensures a balance of different views on the raised issues. The Working Group acknowledges that these are still early days of MaaS adoption and many changes in the marketplace are foreseen in the years to come. The Authors hope that this document accelerates the path to a common vision in which a wide global MaaS adoption brings significant positive outcomes to all involved stakeholders.

The main challenges are explained and analysed in the following pages. Each challenge is introduced by a question and briefly described in the orange box. The rest of the section provides possible approaches by the industry and the public authorities as well as those that could be conducted by the MaaS Alliance.

Table 1- Stakeholders involved

End User		Technology Provider	
Public Authorities		Public Transport Operator / Authority	
MaaS Operator		MaaS Industry	
Mobility Service Provider		MaaS Alliance	

Table 2 - Key Challenges Identified

Challenge	Type*	Stakeholders most impacted	Stakeholders responsible for solutions
Market Access and Integration Barriers	O R T		
Public-Private-Partnership	O F		
Sales Channel Restrictions & Payment Integration	O T R		
Scalability	O		
Developing of Trust for Collaboration	O T		
Undefined Principles for Data Sharing & Access	O T R		
Lack of Knowledge and Understanding	O		

Key challenges per type and category of stakeholders involved

*Types: (Operational, Financial, Technical, Regulatory)

1. How to gain Market Access and overcome Integration Barriers?

The current legislation occasionally prevents new mobility service providers from entering the market and playing an important role in enrichening the service ecosystem. Moreover, fragmented regulatory frameworks, both geographically and sectorwise, as well as operational interoperability issues, hinder scalability of services and integration.

Public authorities could take a stock of rules and regulations limiting the provision of new mobility services and innovations at local, regional, national and EU level. Fair rules creating a level playing field should be implemented to foster market access and competition.

Solutions to wider (cross-border) integration can be found by launching goal-directed discussions among the key stakeholders on regulatory, operational and technological enablers for integration. This will be supported by the pursuit of harmonised data sharing models and open APIs.

2. How to build successful Public-Private-Partnerships?

MaaS value proposition means a paradigm shift for all stakeholders involved. This challenge can be visible on several levels. When it comes to back-office systems, there is a jarring mismatch between the heavy legacy systems of Public Transport Operators (PTOs) and start-up and scale-up company systems. Where administrative processes are concerned, Public Transport Authorities have longer and heavier administrative processes compared to the more agile private sector decision-making processes. There are also differences in the vision and approach to mobility of the public and private spheres, and the global and local perspectives concerning adequate policy actions of PTOs and digital platform start-ups.

MaaS Alliance could provide use cases demonstrating benefits, and sharing the information from successful implementations. Moreover, trusted and impartial results from pilots, including key financials, if available, could be divulged. Fresh business models, e.g. where public and private operators share brand and profits, should be studied in order to create fair risk and profit-sharing framework as well as aligned business incentives for all partners involved.

The industry can actively engage in dialogue with public sector, including participating in pilots, and share its experience on models deployed, together benefits reaped and results achieved.

Regulators and administrative bodies are encouraged to widely support the different pilots to support the successful Public-Private-Partnership. The success in seizing the moment and encouraging the shift away from capital-intensive ownership-based models requires a step-by-step implementation, having the societal goals clear in mind.

3. How to overcome Sales Channel Restrictions and achieve payment Integration?

Initial mature integration schemes are already in place, albeit only at a local level. The degree of integration of multiple payment methods and technologies is still negligible. There are certainly issues contributing to this deficit, such as geographical differences and variability across cities

Industry can define a clear framework for different Mobility Service Providers while promoting and developing common account integration platforms. Payments through credit cards can also be considered, however, back-office legacy systems may prove difficult to integrate. The

and countries. As citizens and users become increasingly aware of the importance of combined mobility, the significance of sales/payment integration becomes progressively more pertinent. From an end-user point of view, this will ultimately be reflected in an increasing expectation for seamless payment solutions.

Booking, payment and ticketing systems should be seen as part of the infrastructure whilst modernisation and fostering the interoperability of these systems and services should be sought as a part of transport strategies at local, national and international levels. Legislation facilitating the ticket selling possibilities of third parties should be the first step, and this should ideally include flexibility in terms of pricing when emitting public transport tickets. Public authorities should ensure that the framework conditions for the interoperable ecosystem are in place and ultimately promote open data and use of open APIs.

industry could also leverage on the PSD2[1], and these new advanced payment methods could be a starting point for MaaS. Another approach could be rethinking pricing and tariff systems, proposing dynamic pricing, pay per use, as well as subscriptions. Finally, in the future use of blockchain should not be discarded.

The MaaS Alliance could support the industry in building a framework and define a minimum set of requirements to set up an open trusted network. Best practices and information should be shared, together with communicating good results and achievements.

4. How to achieve Scalability?

In addition to technological issues, scalability of services (from city to city and from country to country) is often hindered by multiple regulatory layers encompassing the different acts of law present locally, regionally and nationally. Thus, the possibility of having a solution that can be reused across several jurisdictions is next to nigh, therefore impeding the use of business models based on global approaches.

International governmental bodies like the European Commission should have a strong role in supporting development of the field by facilitating the sharing of the best regulatory practises and the identification of the main blocking issues related to fragmentation of the regulation, whether it is geographical or between transport modes.

The development of collaborations, joint ventures, partnerships across cities, regions and other different players could be a potential approach for the industry.

The MaaS Alliance will facilitate the collection and communication of best practises related to alternative technological, regulatory and operational solutions for scalability. Constant monitoring and analysing of the field can results in recommendations and references for the further development of the whole ecosystem. In addition the MaaS Alliance will work towards technical interoperability of the services, aiming to create common spesification for APIs and eventually initiate the creation of the standardised solutions, when deemed necessary.

[1] The Payment Services Directive is an EU Directive regulating payment services and payment service providers throughout the European Union and European Economic Area

5. How to develop Trust and Collaboration?

Need for trust and collaboration has never been so pressing. The fear of not being "in the driver's seat" and losing control leads to risk aversion behaviour within the ecosystem and deficit of trust. All this boils down to a clear lack of understanding of the potential MaaS societal, environmental and financial gains and the wide benefits acquired from the integration.
There might be also fears related to fairness and neutrality of the new ecosystem. Fairness in this context is not necessarily a question of profit but more about the algorithms. From the Transport Service Provider's point of view, the main question is whether or not they can trust that on a MaaS platform their services are displayed in a fair manner to the end users.

The industry requires increased transparency through contractual agreements and well-defined liabilities, open communications, documenting agreed-upon actions and objectives, also in relation to the end-users. Communication should also include wider impacts of MaaS. A clear influence map for each large project should be defined. Finally, private companies should support the public agenda in matters such as ensuring social inclusion and sustainability of the MaaS services

The MaaS Alliance should share the best practises and communicate trusted and impartial results that include financials from pilots and impacts to society, environment and the ecosystem. Moreover, it should support the collaborative processes and explore whether an industry code of conduct, for instance in regards to passenger rights, would be needed to enhance trust on the MaaS services.

Public authorities can encourage multi-stakeholder collaboration through various pilots and programmes. The public authorities can support the establishment of trusted networks creating privacy-compliant environments (in format of neutral platform) for data sharing and ensuring that there is level playing-field among the market actors, everyone facing the same obligations also towards the users.

6. How to define Principles in Data Sharing and Data Access?

Data sharing and data access are a recurring issue for MaaS. In digital economy, data constitutes a key asset and a competitive advantage. However, comprehensive strategies for data deployment might be missing as well the resources (financial and human) in data management. Data is commonly found in silos, or lacks common structure or format. Privacy and security, low quality and availability, poor data management and fragmentation of data also pose unresolved issues, together with the lack of well-defined standards.
Finally, one of the main concerns has been whether the data obtained from public-funded systems can be used to improve and develop private mobility services and under what conditions.

As a general principle, free flow of data should be endorsed both from technical and commercial perspectives. Ideally, sound agreements should be in place between Mobility Service Providers and MaaS Operators, for the sharing of data. MaaS operators reselling transport services of Mobility Service providers (MSPs) should provide data, judged relevant by the MSP, back to the MSP in order to help deliver an improve the service offered, reaching out end users and improving relations with them. When feasible, MaaS Operator should hand back data to PTOs, other MSPs and public authorities, in order for it to be used in traffic management, transport and urban planning and for better policies.

The MaaS Alliance should continue its efforts in proposing general principles of data sharing: agreement on the feasible level of data to be shared and design of rules & technical requirements for quality and accessibility. There should be a standardisation of data formats and data needs for improved data sharing.

Different data sharing models and frameworks, such as MyData model, can be piloted and supported by projects and programmes. For recommendations regarding the regulatory approaches, please read the MaaS Alliance Data Vision Paper "Data Makes MaaS Happen": https://maas-alliance.eu/library/.

7. How to overcome the Lack of Knowledge and Understanding?

This challenge derives from the lack of a clear and uniform understanding of what MaaS is and what are the benefits.

The MaaS Alliance can share its knowledge and experience on transitioning to MaaS. The MaaS Alliance should recognise the needs and hurdles faced by users and stakeholders at the starting points and acknowledge difference in regional contexts. The MaaS Alliance can lead the way to provide a pedagogical input to stakeholders, promoting MaaS and its benefits addressing the whole value chain and both public and private sector as well as users.

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This document is co-authored by:

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The Mobility as a Service Alliance (MaaS Alliance) is a public-private partnership that is creating foundations for a common approach to MaaS, and unlocking economies of scale needed for successful implementation and take-up of MaaS in Europe and beyond. The main goal is to facilitate a single, open market and full deployment of MaaS services.

For more information & inquiries: www.maas-alliance.eu, info@maas-alliance.eu