



EUROPEAN CITIES AND REGIONS NETWORKING
FOR INNOVATIVE TRANSPORT SOLUTIONS

MOBILITY AS A SERVICE: IMPLICATIONS FOR URBAN AND REGIONAL TRANSPORT

Discussion paper offering the perspective of Polis member cities and regions on Mobility as a Service (MaaS).

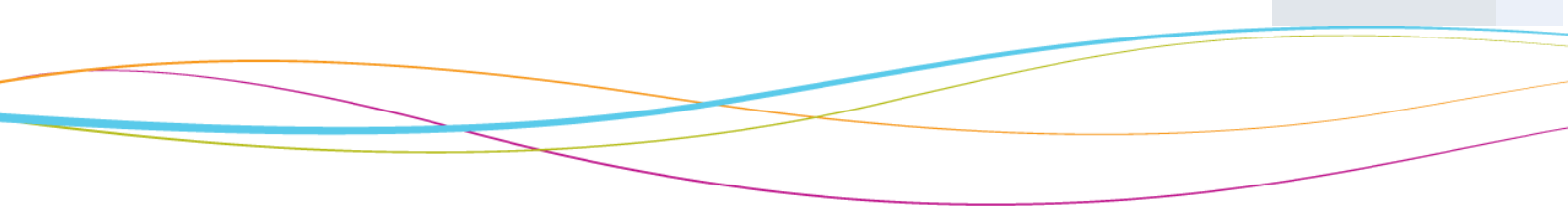
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mobility
& traffic efficiency



WHY PREPARE A DISCUSSION PAPER ON MAAS?

“Mobility-as a-Service” has been marketed as a new transport concept that may change or disrupt current models of transport provision, particularly in urban areas. The concept of MaaS claims to offer a personal mobility package based on lifestyle needs and delivered through an IT model.

Discussion of MaaS, driven partly by business and technology priorities, is beginning to have an impact on policy thinking, including at EU level. It is important that city and regional authorities, who play a key role in regulating and/or providing transport services, contribute to this debate. Polis members believe that a key factor in sustainable urban mobility is effective integration of planning and services.

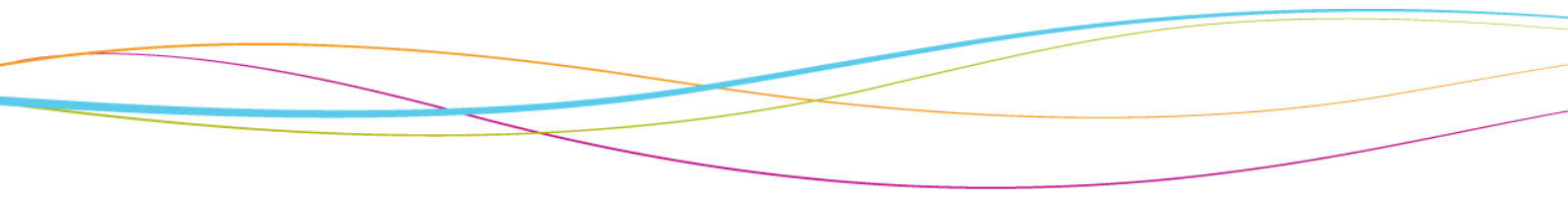
To the extent that new mobility services are developed by the private sector, Polis members would like to ensure that these are developed collaboratively with local and transport authorities and support city and regional transport priorities and policies.

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The purpose of this paper therefore is to:

- I. gain clarity on what is MaaS, promote awareness among local and regional authorities and determine the best role for them in the MaaS environment
- II. discuss the views of local and regional government on MaaS to ensure the debate is not entirely business- or technology- driven
- III. promote integration of new and traditional mobility services with city and regional transport policies, notably the principles of multi-modality and active travel and the key objective of modal shift
- IV. encourage more communication and greater cooperation between new mobility service providers and local and regional authorities

The paper is specifically targeted at:

- I. City and regional authorities, to support them in reflecting on how they could approach the introduction of MaaS in their own area
 - II. New mobility service/MaaS providers, to make them aware of the views of transport authorities and the need for partnership working to ensure MaaS delivers benefit for all rather than the few
 - III. National and European authorities, to inform their policies and funding programmes related to MaaS
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1. BACKGROUND

The role of local government in managing transport is multi-faceted. This role differs across the EU but involves some or all of: policy formulation (local transport policy/strategy); setting transport rules and regulations (to meet the local or national transport policy, such as access restrictions, parking zones, public transport or more liveable cities); transport service delivery through in-house or contracted services (public transport, public bike schemes, travel information), as well as operational aspects (traffic management).

Advances in technology and changes in customer expectations mean that this role must continue to evolve. For example, travel information services can now be provided by satellite navigation companies and through Smartphone apps, a trend that is likely to grow in view of greater availability of open data and new EC rules¹. Another example is the new shared mobility service area, particularly car-sharing, in which the private sector is playing an active role, including vehicle manufacturers.

Transport authorities generally support working in partnership with the private sector to develop better outcomes for customers, especially for journeys (low demand) and population groups (elderly and disabled) that cannot be easily accommodated by traditional public transport. There may therefore be opportunities for authorities to work with the private transport market to deliver new transport solutions for users that fill a service gap and support the city's wider sustainable transport policy goals (e.g. ridesharing that complements the existing public transport network).

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2. POLIS AND MAAS

Polis has observed that attention given to MaaS at European level and national level in some Member States is not necessarily replicated at local/regional level. While a few Polis members are engaging in projects involving new mobility services, others are not actively considering new approaches. Nonetheless, where there is awareness of the development of new mobility services, there is acknowledgement that these could play a role in reducing car use/ownership and improving access to the full range of available transport services.

Except for a few city authorities, there is a perception that the involvement of local and regional government in MaaS activities has been limited. The same could be said about the public transport sector. MaaS has largely been driven forward by digital and ITS industries and the personal transport sectors of car-sharing and taxis. The role of the wider public transport sector appears to have been minimised, which is a major issue for city and regional authorities as mass transit is the backbone of mobility. This lack of involvement and understanding of key stakeholders may go somewhere towards explaining why MaaS commercial integrators have indicated a key challenge of MaaS will be developing commercial agreements with public transport operators.

There has been limited involvement of local and regional government and the public transport sector in MaaS developments to date.

¹ Commission delegated regulation (EU) 2015/962 and proposed delegated regulation C(2017) 3574, 31/5/17

3. TOWARDS A COMMON MAAS VISION

It has become clear that there is no one definition of MaaS. It has become a general term to describe many different things. Some define it in terms of the few MaaS apps in operation today, in other words as an online platform for accessing (planning, booking and paying for) a tailored package of public and private transport services. Others use it to denote a wider vision for shared mobility. Whereas others still use it more liberally to describe a transport service (such as car-sharing, ride-hailing or cycle hire), an integrated traveller information service (eg, a trip planner) or an integrated transport payment scheme (such as a Smartcard). Since many of these services exist already in many cities, in some cases for many decades, it begs the question what is MaaS and why is it so different to what we have already? Polis members have attempted to shed some light on this.

What is MaaS and why is it so different to what we have already?

One model of MaaS seeks to offer the:

- Integration of commercial transport services (taxis, car-sharing schemes and car hire companies) into a mobility offer – currently most integrated traveller information services and payment systems are restricted to public sector-supported services, such as public transport.
- Personalisation of the mobility offer to meet the travellers' needs.
- Private sector delivery of functions traditionally sitting with local transport authorities and/or contracted bodies, particularly information and payment related to public transport services

This third-party model of MaaS requires:

- Transport services: without trains, buses, trams, taxis, car-sharing clubs, etc, MaaS cannot happen. These services are operating without MaaS but MaaS could potentially influence their shape and form in the future
- Open access to data about the transport services: this could include service routes, passenger counts, distance travelled, schedules, real-time information and (likely to be more sensitive) fare data
- Commercial agreements, potentially entrusting the selling of transport services to a third party. Existing transport operators may be cautious about this.
- Users: demonstrating to potential users that a MaaS offer provides something new and advantageous compared with existing service provision.

The overriding public policy priority is to reduce the environmental impact of transport, increase safety, while keeping people moving and supporting economic growth.

However, this approach seems to assume that there is little current integration of services and that the best way to address this is through the creation of a market of third-party (private sector) integration platforms. This may be the case in certain circumstances but is unlikely to be a workable model where considerable integration already exists. In any case, the overriding public policy priority is to reduce the environmental impact of transport, increase safety, while keeping people moving and supporting economic growth. The creation of new markets or promotion of certain technologies is only to be supported if they contribute to these

goals. To this end, a balanced governance model with public sector leadership should be sought to ensure an equitable and sustainable transport system.

An alternative model will see some cities and regions using the MaaS concept to develop a systems approach to transport planning and service delivery. By leveraging local authority partnerships with transport operators and defining the parameters and objectives of a MaaS system, some transport authorities and local/regional government organisations are aiming to create a single, integrated MaaS offer featuring a range of transport choices including traditional public transport and new mobility services. This approach relies on a clear vision and strategy and could enable cities and regions to develop and improve their travel demand management, dynamic network management and route optimisation of traditional public transport services, along with offering greater flexibility and travelling options to the public. This style of MaaS could see transport authorities and local government organisations delivering an integrated offer themselves or monitoring a MaaS system with some degree of strategic control, ensuring it is accessible, sustainable and meets wider city and regional goals.

4. OPPORTUNITIES OF MAAS

4.1 Promote sustainable travel

By improving integration of transport systems and services, advocates claim that MaaS could lead to a reduction in car use and/or car ownership. By providing easier access to personal transport services (including car hire companies, car-sharing clubs and taxis) and by facilitating more informed decisions about which mode(s) of travel to use in a certain set of circumstances, it is possible that the need to use or own a car would be reduced.

If access to mobility is easier and use and ownership of a car is less attractive, customers may be more inclined to use public transport and potentially to walk more or use a bicycle (at least to reach a public transport stop), ie, they would use a wider range of transport modes (multimodal) and different modes for a trip (intermodal). Whether, in reality, a customer will actually give up his car will depend on a number of factors, including the price, convenience and comfort of alternative mobility services and whether they are prepared to change behaviour by, for example, greater use of car hire, car-share clubs and taxis or other shared mobility services.

If access to mobility is easier, customers will use a wider range of transport modes.

4.2 Improve efficiency of existing transport services and public resources

For many Polis members, MaaS holds potential to make better use of existing transport services and resources. While traditional public transport services, such as buses, trams and even taxis, are well utilised (even over-subscribed) in city centres during peak times, the same cannot be said for the suburbs and rural areas and for services provided in the early morning or late evening/night-time periods. In these situations of low

and dispersed demand, the service can be under-utilised and therefore proportionately more costly.

Offering customers access to other types of existing services, such as personal or shared taxis or other forms of demand-responsive transport, could offer a more efficient use of resources. For example, one Scandinavian Polis member is aiming to make the city's taxi service more efficient, by promoting shared taxis and reducing the high proportion of time the taxis are not actually carrying customers. Another member is using MaaS to foster greater cooperation among the main public transport operators. These offer examples of how public authorities are implementing a MaaS approach, as a solution to a well-defined problem without putting a burden on public budgets.

4.3 Take advantage of the personalised approach to develop an inclusive transport system

The personalised approach of MaaS may offer inspiration for developing sustainable transport solutions for all citizens, especially those who find it difficult to use traditional public transport, such as the elderly and the disabled by easing access to door-to-door transport provision. Mobility provision is not only a fundamental right but also meets social and economic goals – it is widely acknowledged that keeping people active increases their physical and mental well-being. The level of transport service for people with reduced mobility can vary enormously from one area to another: dedicated solutions put in place tend to be organised and subsidised by public authorities or supported by volunteers as “traditional” services (public or private) tend to be too costly. Personalised services for vulnerable categories of society could fill the gap and improve access to mobility.

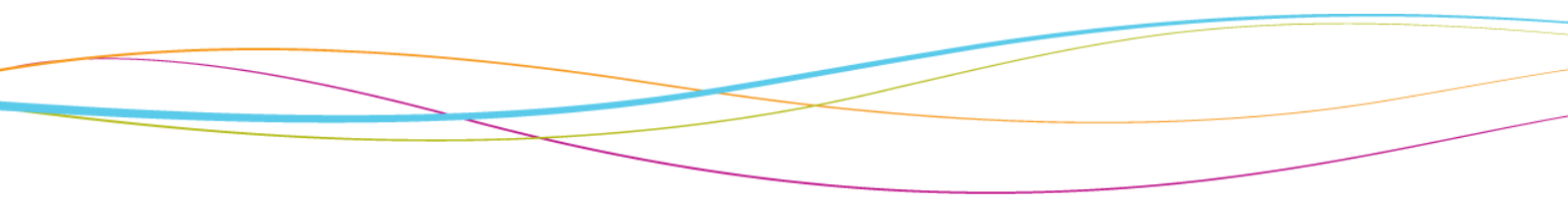
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4.4 Enhance access to transport services

While many cities and regions have some form of integrated travel information and payment schemes or they are working towards this, these rarely include the full range of mobility services available in a city. Many other towns and regions have very poor or no such platforms. MaaS has the potential to make service provision more accessible. Furthermore, some Polis members agreed that the private sector may be able to deliver a more attractive platform for providing information on or access to transport services, just as some Smartphone app developers today are delivering better travel information services than public authorities, often using public sector data.

The diversity of Europe's cities and regions make it unlikely that a single MaaS model would be universally applicable.

Given the different circumstances in different cities and regions, it seems unlikely that a single MaaS model would be universally applicable. Cities and regions engaging with the MaaS concept need to have a clear strategic vision of how they intend to develop. This vision can be used to guide MaaS systems and improve collaborative partnerships with transport operators and private MaaS organisations, to ensure a MaaS system fits with policies and wider goals.



4.5 Offer choice to users

With the possibility to include any type of transport provider (public or private), MaaS has the potential to provide easier access to a wider range of services, thus offering the user greater choice and potentially the most affordable trip for the purpose. If designed in the right way, this type of service also has the potential to reduce environmental impacts and provide customised mobility options and better accessibility to people with disabilities or reduced mobility. Cities and regions utilising the MaaS concept will need to engage with operators and communities to ensure new mobility services are accessible and inclusive. They will want to avoid a situation where a MaaS offer only addresses the most profitable part of the market leading to a two-tiered approach to mobility, with some areas having considerably better transport provision than others.

5. THE RISKS OF A PURELY COMMERCIAL APPROACH TO MAAS

5.1 Dis-incentivise sustainable trips

The previous chapter highlighted the opportunity for MaaS to promote more sustainable travel, notably by reducing private car use and ownership. There is risk that the opposite may happen, that there is a shift from public transport to individual modes (taxis, car-sharing, etc) and from active modes (walking, cycling) to motorised modes (mass transit or individual modes). The success in some markets of new services, including apps for private-hire vehicles and ride-sharing, clearly has the potential to disrupt existing urban mobility services and could also encourage a shift towards car use away from more sustainable modes.

The predominance of individual modes and the poor visibility given to public transport in current MaaS discussions and developments is a cause for concern. Ultimately, user modal choice will depend on how the MaaS system is designed and how services are priced and promoted. For instance, in one current MaaS structure if a subscriber does not use all the trips, notably the taxi or car-sharing trips, that are part of a monthly package, these are carried over to the next month. Without this option, the user may be inclined to make unnecessary motorised trips to avoid losing them.

5.2 Higher costs for the user or the transport provider and unequal services

In case of commercial Megaservices, the operator will need to receive payment for the services delivered. Who will ultimately bear the cost for these services remains to be defined: will it be the customer or will it be the transport provider, such as the bus or tram operator? Both cases are of concern to transport authorities, who ensure that public transport fares remain low (often through subsidy) to keep them affordable and to make public transport an attractive travel option. Or can MaaS take advantage of other revenue streams, such as advertising, which is already commonplace in the digital sector? Additionally, it may happen that MaaS further increases inequality, for instance, where new MaaS services offer

It may happen that MaaS increases inequality where premium levels of service are on offer to those who pay more.

premium levels of service to those who pay more (such as priority seats and boarding, or faster and safer connections).

5.3 Create a disconnect between the user, the transport provider and the transport authority

Transport authorities have invested substantial time and public money in recent years to improve the quality of public transport services and to encourage citizens to use public transport. Part of this effort has involved creating a relationship between the user and the public transport operator, for instance creating a single branding for several transport modes, as is the case in a number of cities. It may be that established public transport operators would be reluctant to participate in a system which required an intermediary between the transport provider and the transport user if they believed that their relationship with the customer and their brand image would be weakened. The digitalisation of transport services may create an additional disconnect for those who are less tech-savvy, leading to the widening of the so-called digital gap.

6. KEY ISSUES

6.1 Defining the best role for the transport authority in the MaaS environment

Should it be an enabler, a leader or let the market develop unimpeded? These are the questions that transport authorities are asking themselves. To date, commercial MaaS developments have tended to happen with little public authority involvement. However, there is a growing recognition that if MaaS is to take off, there has to be stronger collaboration between the public and private sector. While some commercial MaaS operators hold the view that MaaS should not be led by the public sector, some transport authorities are taking the lead in setting this up within their city or region, recognising that by being the provider or overall controller of a MaaS system, the benefits can be utilised in a greater number of areas, including data analytics and schedule optimisation, and the system will have a greater chance of supporting wider goals and objectives.

Whatever the nature of the MaaS service introduced in a city or region, there is a need for the public sector to oversee these developments, notably to monitor the performance of this service with respect to quality, affordability, access and inclusiveness.

Should the transport authority be an enabler, a leader or let the MaaS market develop unimpeded?

6.2 Finding the right public-private sector balance for transport service planning/booking/payment

This is a fundamental issue for transport authorities as it touches on core functions that they typically use for strategic purposes, such as integrated payment systems (eg, Smartcards) or trip planning to make travelling on public transport more seamless and therefore easier. A shift of some functions from the public to private sector is already happening through open data policies for instance, which is seeing all sorts of static and dynamic transport data made available to app developers, including the

release of APIs for journey planning and even public transport fares in some rare instances. Allowing third parties to sell tickets represents a paradigm shift for transport authorities and the public transport sector generally and will no doubt require extensive discussions between the parties concerned to ensure key issues such as affordability, access and service levels are guaranteed to the user.

This issue of defining an optimal balance has generated significant debate among elected members of local and regional authorities and highlights that a unique approach to MaaS will need to be taken by any city or region engaging with the concept and considering implementing a MaaS system.

6.3 Understanding the impact of MaaS on travel behaviour

Enthusiasts claim that MaaS can succeed where other initiatives have failed, namely, to persuade people to give up their car. This is a very ambitious goal and one that does not just rely on the presence of a MaaS platform in a city or region, but more importantly on the availability of alternative transport modes (public transport, taxi, etc) and their effective combination. Conversely, as explained in the previous section, there is a fear that MaaS could in fact induce less sustainable travel. Evidence of the impact of MaaS on travel behaviour is therefore needed.

6.4 Creating a win-win: combining the personalised approach of MaaS with delivering system benefits

The fact that MaaS is meant to be more personalised offers an opportunity to build a transport system that responds to individual needs, including those with limited transport access, as described in section 5. However, these personalised services must equally respond to wider societal and transport policy goals. Innovations in technology and services have not always given sufficient consideration to overall system impacts, which has slowed down their deployment. One example is the area of cooperative ITS (C-ITS), which is slow to be deployed in cities and regions because the benefits for a city and regional transport authority have not been adequately explored.

Innovations in technology and services have not always given sufficient consideration to overall system impacts.

6.5 Determining the best market environment for MaaS

In the circumstances where third party, private sector MaaS platforms are being developed, the value and importance of having an open and multi-player MaaS market cannot be overestimated. Some public transport operators have already voiced concern that in a situation where there is only one MaaS operator, this player could dictate the terms under which the transport provider sells tickets to the operator, e.g., the price and volume. However, a multi-player MaaS environment could potentially become chaotic and confusing for the user, especially for people who are not able to use modern technology (smartphone apps, online banking, etc) today, such as the elderly. Whatever approach is taken, there is a need for the transport authority to have control/oversight of the system. From the European legislative perspective, good market conditions need

Whatever MaaS approach is adopted, there is a need for public sector oversight.

to be created and passenger rights safeguarded, particularly regarding issues such as roaming costs and levels of service.

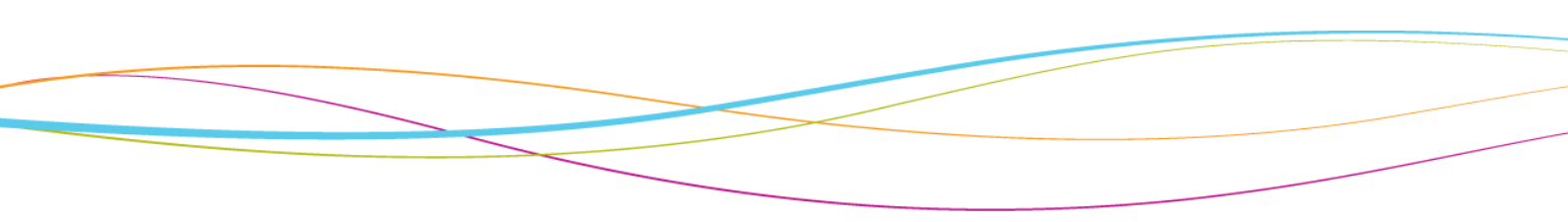
6.6 Understanding the business model and who will pay

Some clarity is needed on the business model for MaaS. Insights on this aspect are few and far between, mainly because MaaS is still very much in a piloting phase, i.e., there are very few commercial systems in operation today. This area will require further discussion and review between cities and regional authorities and MaaS related businesses. It is still not clear whether there would be a workable business case for third-party MaaS offers, particularly if the service depended on effective integration of a wide-range of existing public transport and other mobility services.

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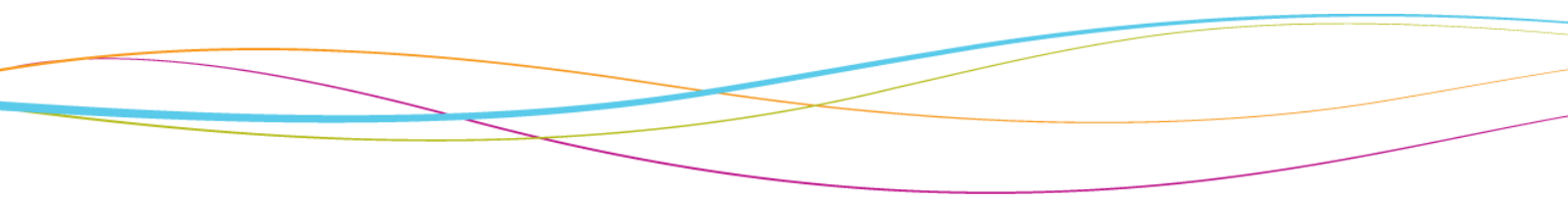
6.7 Exploring the potential long-term impact of MaaS on transport service procurement

This is more of a potential long-term effect of MaaS but certainly something that should be monitored as the market develops. In some areas of Europe, there are already movements afoot to move away from the traditional approach of tendering transport service supply (eg, bus routes) towards a more innovative approach based on tendering transport service demand.



7. CONCLUSIONS

- I. Cities, regions and local transport providers are in many cases already providing integrated mobility offers, though the scale and coverage of these differs widely across the EU. Policy makers at EU and national level should take this into account
- II. Polis members should actively consider how new mobility services might affect traditional public transport provision in their areas
- III. Where new mobility services do develop, the policy environment (at EU, national or local level) should ensure these contribute to sustainable mobility goals, for example by being complementary to public transport provision and the encouragement of active modes (walking and cycling), ie, truly intermodal trips
- IV. Whether it makes sense to encourage development of third-party private MaaS platforms will depend on local circumstances and, in particular, on the level of integration of existing services.
- V. Further research is necessary to gain greater insight into the potential impact of new mobility services, especially in terms of travel behaviour change, and an understanding of those situations in which such services can deliver greatest and quickest benefit.
- VI. City and regional authorities need to be involved in the development of policy around MaaS at EU and national level, through new models of governance and with public sector leadership, to avoid environmental, economic and social dysfunctions.
- VII. MaaS should not be regarded as a distinct player from policy; it can only achieve its goals if integrated with other measures such as low emission zones, pedestrianised areas, on-street parking policies, personal/work place mobility management, etc.



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