

DIGITISATION & MOBILITY AS A SERVICE: REGULATORY CHALLENGES & OPPORTUNITIES

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Improving network and digital industries regulation



Shared Mobility Opportunities & challenges

Part 1



Georgina Santos

Research Fellow, CERRE

Senior Lecturer, Cardiff University



Shared mobility and MaaS



MaaS



Shared mobility

- Shared mobility entails the sharing of an asset (i.e. a vehicle) that is not owned but accessed.
- Such access is typically facilitated through a digital platform.



The three main types of shared mobility



The four main models of shared mobility involving cars and vans



Via (New York City, Chicago, Washington, DC)

"Via is re-engineering **public transit**, from a regulated system of rigid routes and schedules to a fully dynamic, on-demand network."

Source: https://platform.ridewithvia.com



Benefits to customers

- New mobility services are mainly provided by private enterprises, which are not controlled by the state (although they can be regulated).
- The very nature of the new mobility providers in a market economy entails that consumers are best served if companies compete to provide the best services at the lowest possible prices.

Shared mobility services

Public transport

Local authorities / Municipalities

Private car

Problematic



Trends in local authorities' objectives



Accidents Air pollution CO₂ emissions Noise Congestion



Walking and cycling Modal shift to sustainable modes / public transport

Efficient use of public roads



MaaS?

Shared mobility



Shared mobility presence

- Île-de-France
- Frankfurt Rhine-Main
- Barcelona Metropolitan Region
- Oslo Metropolitan Region

Impacts of shared mobility (1/3)

- **No data** for Europe (except for some small studies)
- First recommendation: collect data
 - On the number or share of trips by each Model (1, 2, 3 and 4);
 - Surveys on: what mode of transport shared mobility users would choose if shared mobility was not available; what modes they used before; whether shared mobility induces demand, etc.



Impacts of shared mobility (2/3)

Impacts on traffic congestion
 Impacts on air quality
 Impacts on CO₂ emissions



Impacts of shared mobility (3/3)

Intuition / expected results:

- > If car replaces car \rightarrow no change
- > If bicycle / scooter replaces car \rightarrow some change



kapten_









Mini Cooper, BMW, or Tesla Rent and unlock with your phone.





ZOIO Mini Cooper

Kim S.



However...

1) Newer cars / Electric vehicles? +

2) Driving for pick-up? -

3) Importantly...

Although any given car trip may cause the same emissions and congestion, there **may** be a reduction in emissions and congestion, not linked to that given trip but to a behavioural change linked to Models 1, 2, and 3.

Example: a reduction in car ownership (we shall come back to that) +



Ride-sharing (Model 4)

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Does Model 4 (ride-sharing) reduce congestion and emissions?

It **does** if ride-sharers are replacing a solo auto journey with a shared ride.

It **does not** if ride-sharers are replacing a public transport, walking or cycling trip with a shared ride.





Model 2 (car sharing, car clubs) (1/3)

- Car ownership is low amongst longer term members of car clubs.
- Car ownership amongst new members falls after joining.
- Car clubs reduce the need to purchase a car.
- Car clubs help to defer future car purchase by members.
- Joining a car club is associated with a reduction in annual car mileage.
- > Car club members frequently use sustainable travel modes.

Source: Steer Davies Gleave (2017, pp. 20-31)



Model 2 (car sharing, car clubs) (2/3)

Car clubs allow people who **do not need a car for most journeys** to benefit from the flexibility of car travel when they need to.

Source: Steer Davies Gleave (2017, pp. 13)



Model 2 (car sharing, car clubs) (3/3)

Car club cars are used when public transport, walking and cycling are less practical

Examples:

- When carrying luggage/bulky items
- When alternative would have taken too long
- When going to more than one place



Models 1, 2, 3 and 4 and car ownership (1/2)

Car ownership is lower amongst those who are shared mobility (Models 1, 2, 3 or 4) and public transport users compared to those who are public transport users but do not use shared mobility.

Source: Feigon and Murphy (2016)



Models 1, 2, 3 and 4 and car ownership (2/2)

- 20% of respondents who were shared mobility and public transport users reported postponing a car purchase
- > 18% reported having decided not to purchase a car
- > 21% reported having sold a car without replacing it, and
- 8% reported having bought a car



United

Model 3: ride-hailing (1/2)

- Smith (2016)
- Rayle et al (2016)
- Clewlow and Mishra (2017)
 States
- Hampshire et al. (2017)
- Erhardt et al. (2019)



Model 3: ride-hailing (2/2)

- Lower car ownership
- Lower distances by car
- Additional miles due to pick-up
- Additional congestion in pick-up and drop-off
- Evidence of Model 3 being both a substitute and a complement of public transport



Models 3 and 4 (1/2)

Models 3 and 4 (ride-hailing and ride-sharing) can act as substitutes for public transport.



Models 3 and 4 (2/2)

Models 3 and 4 (ride-hailing and ride-sharing) can be valuable extensions of public transport.



Policy recommendations

- Introduce policies to discourage trips by car
- Invest in public transport, walking and cycling
- Implement subsidies
- Harness the opportunities offered by MaaS

MaaS, Platforms & Data Towards a New Era for Mobility?

Part 2

Jean Coldefy Independent Expert

Background

- Mobility issues are raising, and we are faced with the need to:
 - \odot Shift from car use to eco-friendly modes,
 - **Increase PT links between city centers and their peripheries** (in response to the increase of distance from home to work, which is due to the increasing costs of housing in cities and to the rise of metropolis as major economy leaders)

\circ Provide efficient and cost effective solutions to end users and public authorities.



Increase of distance from home to work in Lyon connurbation from 1968 to 2011 (white : < 5 km, red > 50 km)



Mobility and MaaS / Background





Information, multimodal ticketing and MaaS: to what ends?



- A user centric vision : ease users' life, combine different modes;
- A vision centred on new mobility services providers : attract more users, lower commercial costs;
- A vison centred on public authorities: as mobility providers (public transit) but also as public mobility regulators.

Multimodal ticketing

Multimodal information

There are multiple possible combinations of those three approaches





Key points about mobility (1/2)



We should also consider the environmental costs of solo cars.

In France car use covers only 20% of its costs in urban areas, and 125% in rural areas



Key points about mobility (2/2)

- In urban areas, there is a **direct correlation** between **flow increase**, **decrease of service cost supported by the user** and (consequently) **increase of the public subsidies**.
- The main reason is **public space scarcity** in dense areas, which leads MTAs to set up mass transit systems to avoid congestion and public space invasion caused by individual cars.
- Individual services (cars, bikes, etc.), public or private, although useful, will never reach the necessary flow and low public space occupancy.



Analysis of current situation (1/2)





Analysis of current situation (2/2)



Contractual framework of urban mobility:



Traveller information and ticketing systems

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Branding, a key advantage



2 brands are very powerful:Google and that of the local public transport authority .~ 70% audience rate each



Data and services scheme (1/2)





Data and services scheme (2/2)

Our recommendations:

- Set up a **data management policy steered by MTAs** as trusted third party, with a licensing policy allowing consistency of reuse with public policy and fair competition.
- Open sales channels for all mobility services and all tariffs under 2 conditions: 1) reselling must be at the same price as that set by MTAs unless agreed by them; 2) MaaS provider should give MaaS data back to MTAs.
- **PTAs should engage in dialogue with private sector** to build new mobility offers that (in a sustainable way for public funds) facilitate intermodality and reduce car usage.

Regulatory Issues

Part 3



Yves Crozet

Research Fellow, CERRE Professor Emeritus, Sciences Po Lyon

The regulatory challenges of MaaS

1) Urban mobility: a fragmented regulation

- 2) MaaS, new mobility services and the paradigm of substitution
- 3) Towards an integrated regulation of urban mobility?



Urban mobility: a fragmented regulation (1/2)

- 1) At the urban area level, there is a variety of public authorities (PAs) involved in mobility: municipalities, transport authority (MTA), region, etc.
- 2) Most often, the PAs in charge of road (maintenance and traffic management) are not the same as the MTA in charge of public transport (PT).
- 3) The MTA is supposed to be a "benevolent and omnipotent ruler" in charge of organising, financing, monitoring and sometimes operating PT.



Urban mobility: a fragmented regulation (2/2)

- 4) But from a general urban mobility perspective, MTAs are "bridled regulators", with limited possibilities.
- 5) With MaaS and new mobility services, two questions arise:
 - Is it necessary and possible to have a single mobility regulator encompassing all mobility services?
 - What about the relation between MTAs and the PAs in charge of roads?



Urban mobility & the paradigm of substitution (1/3)

For decades, the **paradigm of substitution** has been the basis for public policies: modal shift from car to public transport (PT); walking and cycling instead of driving; teleworking as a substitute for mobility, etc.

In accordance with this paradigm, new mobility services are often presented as:

- Substitute to private cars (driving and/or ownership)
- And/or substitutes to PT, that is to say either competing with PT (USA) or replacing it, especially in low density areas.

Urban mobility & the paradigm of substitution (2/3)

- New mobility services are also sometimes presented as a way to substitute public financing by private initiatives (free floating, real time information, etc.).
- But given the fragility of the business models of the new mobility providers, there is potentially a higher demand of public funds. The business models of new mobility providers are moving from "Business to Consumer" (BtoC) to "Business to Government" (BtoG).



Urban mobility & the paradigm of substitution (3/3)

Substitute, supplementary or complementary?

- MaaS is a concept based on the paradigm of substitution: better information on available new mobility services can induce a modal shift.
- But for now, new mobility services are most often **supplementary** to former mobility services:
 - Sometimes they are a bad substitute for PT (more car traffic!).
 - Or they are an ineffective substitute for car driving because they are only a supplementary option for commuters (niche activity).
 - Or an ineffective substitute for car ownership because of the cost.
- > The BtoG rationale is a good option in case of complementarity.



Towards an integrated regulation of urban mobility? (1/3)

- Although new mobility services are still in the infancy, they must not be neglected by MTAs, for they can improve the quality and the diversity of urban mobility services (as substitute, supplements or complements).
- But: new mobility services are mainly focused on road.
- Therefore, two questions arise:
 - How to articulate road management and organisation/monitoring of PT?
 - How to combine new and former mobility services?



Towards an integrated regulation of urban mobility? (2/3)

Public regulation, a top-down process

Acting as an "aggregator" an MTA can:

- Design a sustainable mobility plan at the urban area level.
- Define the expected market shares of the different mobility services and the rules of the game for users and private operators
- Manage the contracts with the PT operators
- Monitor the road traffic
- Establish an integrated pricing system
- Set up a suitable platform and the corresponding app.



Towards an integrated regulation of urban mobility? (3/3)

Private initiatives: a bottom-up process?

- Acting as an "integrator" and thanks to digitisation, a global data collector can produce a platform or an app, and thus provide a comprehensive mobility offer: information, ticketing, private services, etc.
- A scenario where the public regulator remains bridled?

How to combine the top-down and the bottom-up processes?



Towards an extension of the role of MTAs | Recommendations (1/3)

- Due to the enlargement of the spectrum of mobility services, MTAs must move towards a better integration of all the urban mobility vectors that they – directly or indirectly – control.
- Due to complex interactions between land-use and transport, social conditions and environmental issues, the regulation of urban mobility must be unified and integrated.



Towards an extension of the role of MTAs | Recommendations (2/3)

- Public policies must favour transport modes that optimise the use of public space, and not those that offer infinitesimal time savings to users.
- MTAs must, in one way or another, intervene on the uses of roads and even sidewalks and pedestrian zones. Encouraging the development of carpooling will require limiting access to roads for vehicles transporting one person only.



Towards an extension of the role of MTAs | Recommendations (3/3)

- A second necessary extension of the role of MTAs lies in the "digital space". It stems from the increasing role that the management of databases, platforms and applications will play in the coming years.
- MTAs must value their own data as well as their own brand name. They must not refrain from developing their own platform, even if, or more precisely, because they will eventually be faced with the opening of sales channels.

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Centre on Regulation in Europe

- Avenue Louise, 475 (box 10)
 1050 Brussels, Belgium
- 132 2 230 83 60
- 🖂 info@cerre.eu
- 🕂 cerre.eu
- ♥ @CERRE_ThinkTank

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