What *MaaS* we consider when thinking of data and platform governance?

1. Data
2. MaaS agents and data value
3. Data sharing and governance
4. Data syntax
who | what | where | when | how | how much?
New data sources

Apps
Operating systems
Devices
3 things about mobility data

- Some (even anonymised) data is inherently privacy-sensitive
- Some data is inherently commercially sensitive
- Some data is brand-sensitive
The value of data: For whom and for what?

<table>
<thead>
<tr>
<th>People</th>
<th>Operators</th>
<th>3rd Party Aggregators</th>
<th>Public authorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>... to access services they value</td>
<td>...to improve operations and build their brand</td>
<td>...to develop products and sell data insights</td>
<td>...to carry out their mandates for citizens</td>
</tr>
</tbody>
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The power of the user interface

All of MaaS is only \( \sim 30 \text{ cm}^2 \)

Presentation bias is significant in determining user preference*

Issue common to other digitally-mediated services – e.g. airline CRS

Should the potential recourse be MaaS-specific or medium-specific?

Data sharing, governance and MaaS models

Application programming interface - API

Application or client → API request (syntax) → Data source server → API response (syntax)
Data sharing, governance and MaaS models

Commercial Integrator
- "walled gardens" curated bespoke/open APIs

Public Transport/Authority Integrator
- "public MaaS" Uni-directional APIs

Open and regulated back-end platform
- "regulated utility MaaS" Multi-directional APIs

Decentralised MaaS ecosystem
- "Mesh-y MaaS" Smart contracts instead of APIs

Adapted from UITP, EMTA, Polis, ITF
Platform economics and competition

Platform mediation reduces coordination (transaction) costs

Network effects in two-sided, multi-sided markets: early and large players develop advantage – contestability of the market untested

Data sharing helps building services but bypasses operator self-distribution channels– trust “contracts” and “smart” contracts

Common basic fare APIs, bespoke contract-based joint fare APIs built on open standards
“Who do you trust?”

trust architecture models

operator

public authority
Trust Architectures

“don't trust public authorities”

operator

data processing

aggregate data

public authority

audit
Trust Architectures

“don’t trust operators/platforms”
Trust Architectures
“don’t trust anyone”

operator → raw data → trusted 3rd party data processing → aggregate data → public authority audit
Trust Architectures

Trust linked to transparency on purpose, use and data minimisation
- **policy objective**: equity, obstruction of public space, future planning

- **regulatory task**: ensure services are present in all areas, enforce parking restrictions, gather information on travel demand and location

- **data ask**: monthly zonal aggregate "start_trip" and "end_trip" data, device-specific "end_trip" location stamp (data only retained for non-conforming incidents), aggregate route traces for origin-destination and travel path insight
Issues regarding data sharing

Direct access to data (lakes) or ensuring competitive access (APIs)

Data specification or functional outcome specification

Data sharing under different regulatory/operating regimes (PT vs others)
So far, if we look only at the speed and duration of commuting trips, it seems that car trips have an advantage over public transport. Indeed, as jobs tend to disperse into suburbs and household income increases in many large cities of the world, it seems that the ratio of car trips over public transport trips is increasing, to the alarm of transport planning. The congestion created by cars is a major concern. I alluded to this problem by warning that as denser parts of cities, the shorter commuting time made possible by traveling by car depend on the number of commuters using public transport. The larger the number of commuters using public transport, the higher the speed of commuters using cars will be. This means the popular support for public transport investments in cities like Atlanta, where most commuters are using cars and intend to keep using cars in the future.

Speed, Congestion, and Mode of Transport

Road congestion is a real estate problem. Through regulations, planners or developers allocate portions of urban land to streets when the land is originally developable. It is usually less expensive to build the roads, the supply of land allocated to streets and the demand for road space creates congestion—too many users for too little street space.

Congestion decreases travel speed and therefore decreases mobility. In our quest to increase mobility, it is important to measure the street area consumed per passenger for each mode of urban transport and eventually to price it so that users who use large road areas would pay a higher price than those who use small road areas. Being able to price congestion in term of real estate rental values could enable us to increase mobility not so much by increasing supply as by decreasing consumption. The objective remains to increase mobility by pricing congestion, not to select or encourage a preferred mode of transport.

In the next sections, I describe how to measure congestion and various attempts to increase road supply to manage demand.

Measuring Congestion

Congestion is the expression of a mismatch between supply and demand for street space. Traffic engineers define a road as congested when the speed of travel is lower than the free flow speed. The free flow speed of vehicles establishes the non-congested speed, which traffic engineers use as a benchmark to measure congestion. Any speed below the free flow speed is indicative of congestion and is measured by the travel time index (TTI), which is the ratio of travel time in peak periods to travel time in free flow conditions. For instance, a car driving at 15 km/h on Fifth Avenue in New York’s peak hours would indicate a TTI of 2.8, if we assume that the free flow speed in New York is equal to the maximum regulatory speed limit of 90 km/h. The mobility report published by Texas A&M Transportation Institute in 2012 evaluates the urban average TTI in 49 US urban areas at 1.97, Los Angeles, with 1.3, has the highest TTI among US cities. New York City is slightly lower at 1.35. The use of TTI allows us to measure the number of additional hours spent driving compared to what they would have been at free flow speed, and by extrapolation, the additional gasoline spent. From TTI, it is then possible to calculate the direct cost of congestion: the opportunity cost of the driver time plus the additional cost of gasoline compared to what it would have been under free flow conditions.

Using TTI to measure congestion is convenient, but is, of course, arbitrary. Starting November 1, 2014, New York City reduced its speed limit from 30 miles per hour (48 km/h) to 20 miles per hour (32 km/h). The new regulatory limit is based on under the free flow speed, to take the new regulatory speed of 40 km/h as the free flow speed, and to reduce its travel time to 15 km/h has consequently decreased from 2.8 to 1.77. The reduction of the New York speed limit comes at a time where traffic accidents involving pedestrians, cyclists, and motorists did not result in a reduction of traffic commuting. It has even probably slightly increased it, in spite of the decrease that TTI implies the opposite. In the case of New York, the decrease in TTI in the fall of 2014 will be a false positive.

Using TTI to measure congestion is useful as a relative measure of mobility in a city (providing the benchmark—free flow speed has not changed, of course, as it did in New York in 2014). It is also useful to identify streets were traffic management needs to be improved. However, TTI is not a good proxy for mobility when comparing cities. What is important for mobility is the change in average travel time.

Passengers using minibuses are also subjected to road congestion, although they are not the main cause of it, as they consume—at least at peak hours, when the bus is full—very little road space per passenger compared to drivers alone in their car, as we will see later. However, in addition to delays due to congestion, public transport users are also delayed when buses and trains are overcrowded and they are unable to board or when the schedule is unpredictable because of mismanagement or poor maintenance. Public transport overcrowding is a form of congestion internal to the public transport system, as it does not affect commuters using other modes of transport.
Road congestion is a real estate problem. Through regulations, planners allocate portions of urban land to streets when the land is fully built, increasing the area of no rents. It also reduces household incomes, and businesses. In most cases, businesses do not pay for the land use they consume, and they have a natural incentive to reduce their land consumption. The mismatch between the supply of land allocated to streets and the demand for street space creates congestion, which reduces the value of land in the space.

Congestion decreases road mobility, and therefore decreases the amount of road space per passenger. The objective remains to increase road supply to manage demand. In the next sections, I describe how to measure congestion and various attempts to increase road supply to manage demand.

Measuring Congestion

Congestion is the expression of a mismatch between supply and demand for road space. Traffic engineers define a road as congested when the speed of travel is lower than the free flow speed. The free flow speed of vehicles establishes the speed at which vehicles can travel without interference from other vehicles.
Glossary and Metrics

Regulators—from policymakers to infrastructure managers and planners—rely on data to make decisions. It is imperative that performance metrics are consistent across operators and regions to enable stakeholders to effectively communicate and measure the impact of new forms of mobility. *Data Sharing Glossary and Metrics for Shared Micromobility* provides a consensus-based set of definitions for commonly used terms and metrics.
common/compatible syntax
A data standard to enable communication between mobility companies and local governments.

- agency
  - regenerate all schemas again
- policy
  - Update Rule Type beta language
  - regenerate all schemas again
- provider
  - optimize the common definitions deepcopy
- schema
  - add Mac .DS_Store files to git ignore
- .gitignore
  - Updating team names
- CODEOWNERS
  - additional updates to main
  - additional updates to main
- CONTRIBUTING.md
  - Additional updates to main
  - Additional updates to main
Dernière modification : 26 décembre 2019 à 17h13

Loi du 24 décembre 2019 d'orientation des mobilités
EU Data-sharing Framework (MMTIS-NAP – 2017)

EU-wide multimodal travel information services – standardised traffic and travel data for all mobility providers (MMTIS)

National Access Points for linking to MMTIS data (NAP)

Does not address open booking and payment
Thank you
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