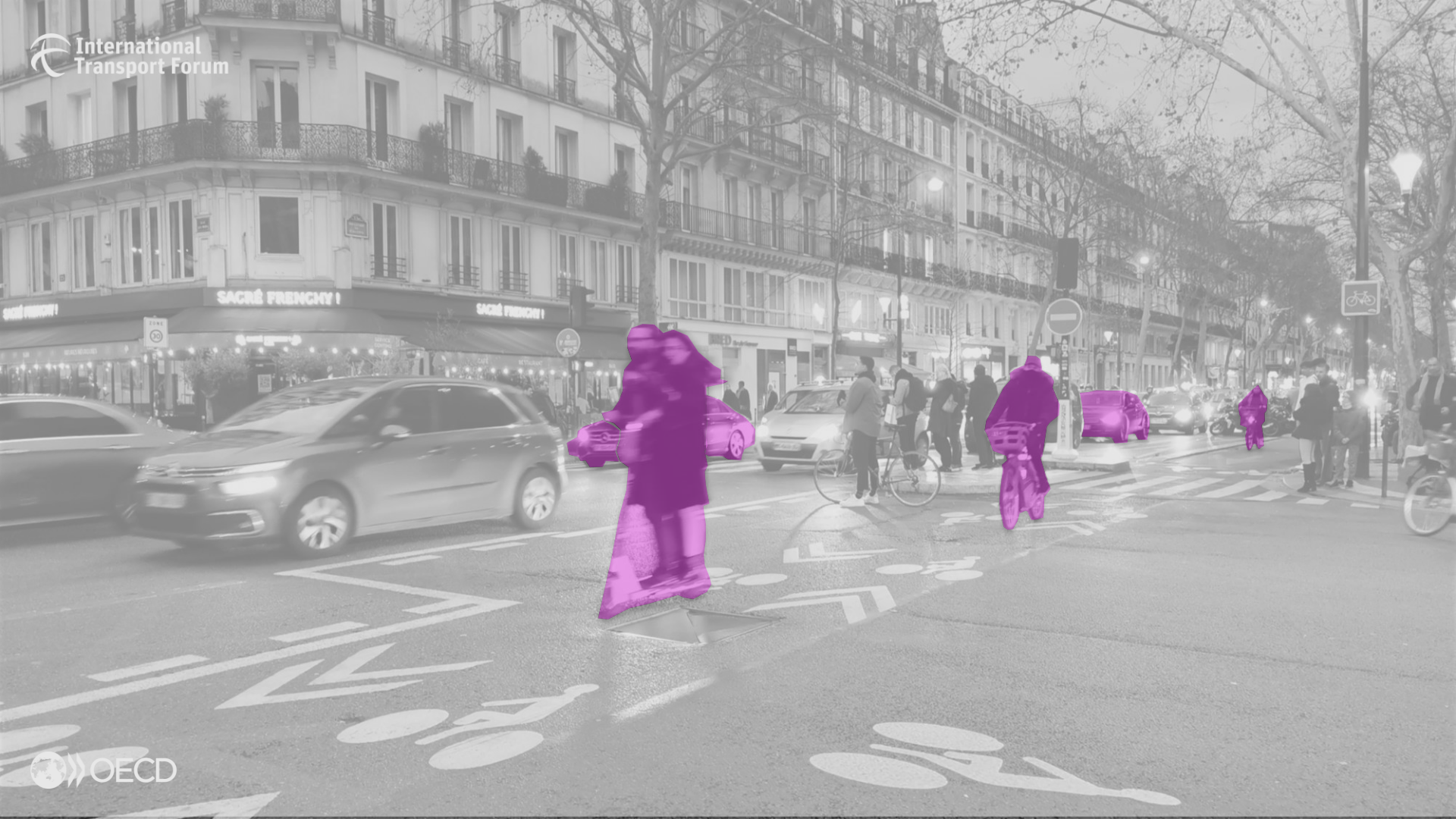


# What *MaaS* we consider when thinking of data and platform governance?

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?

*People*

*... to access  
services they  
value*

*Operators*

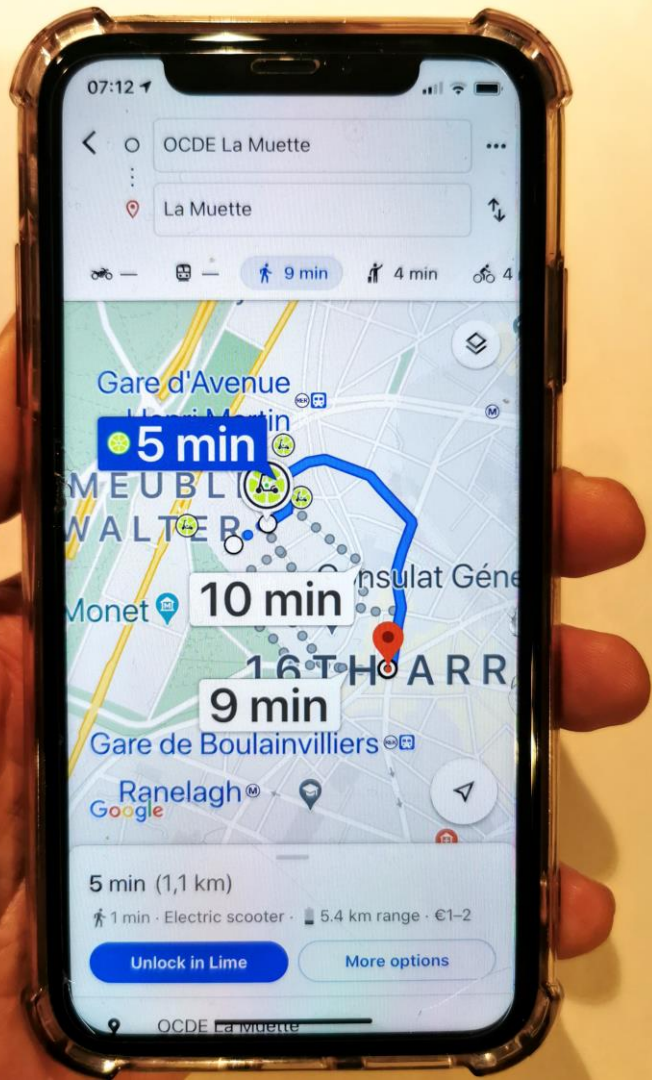
*...to improve  
operations  
and build  
their brand*

*3rd Party  
Aggregators*

*...to develop  
products and  
sell data  
insights*

*Public  
authorities*

*...to carry out  
their  
mandates for  
citizens*



## The power of the user interface

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

Presentation bias is significant in determining user preference\*

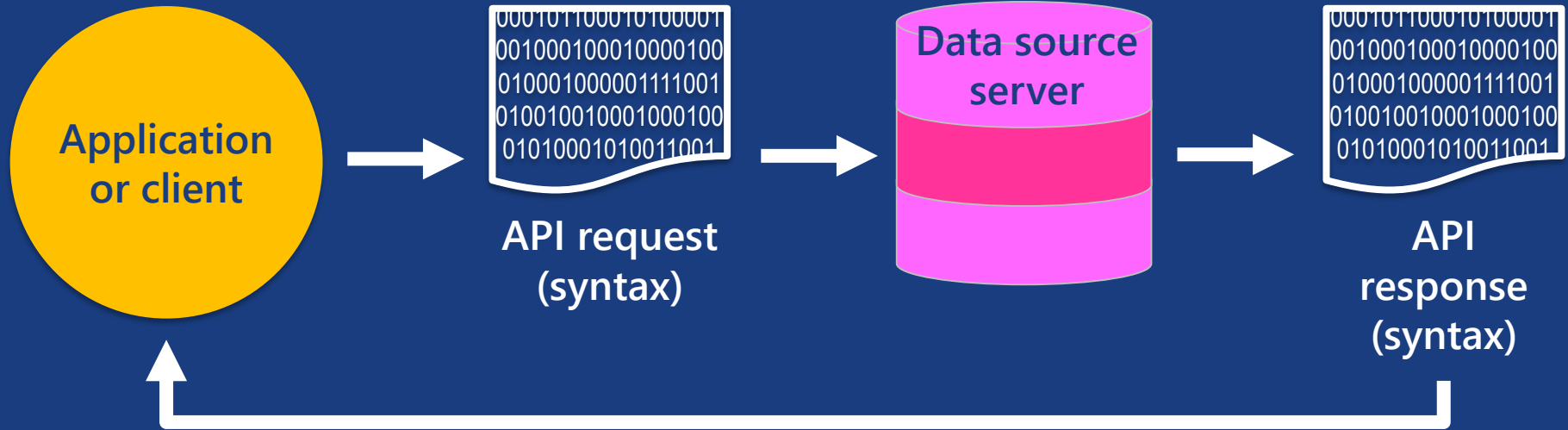
Issue common to other digitally-mediated services – e.g. airline CRS

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



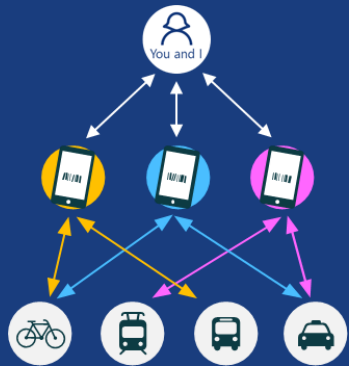
# Data sharing, governance and MaaS models

## Application programming interface - API



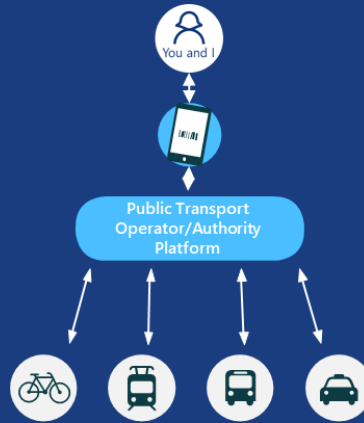
# Data sharing, governance and MaaS models

## Commercial Integrator



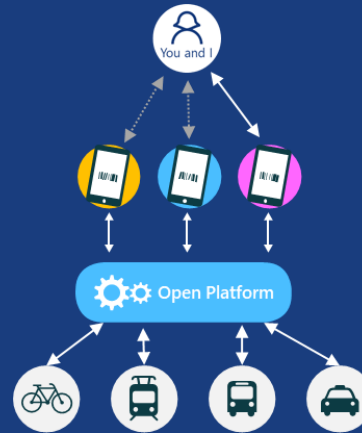
« walled gardens »  
curated  
bespoke/open APIs

## 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

# 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"*



# Trust Architectures

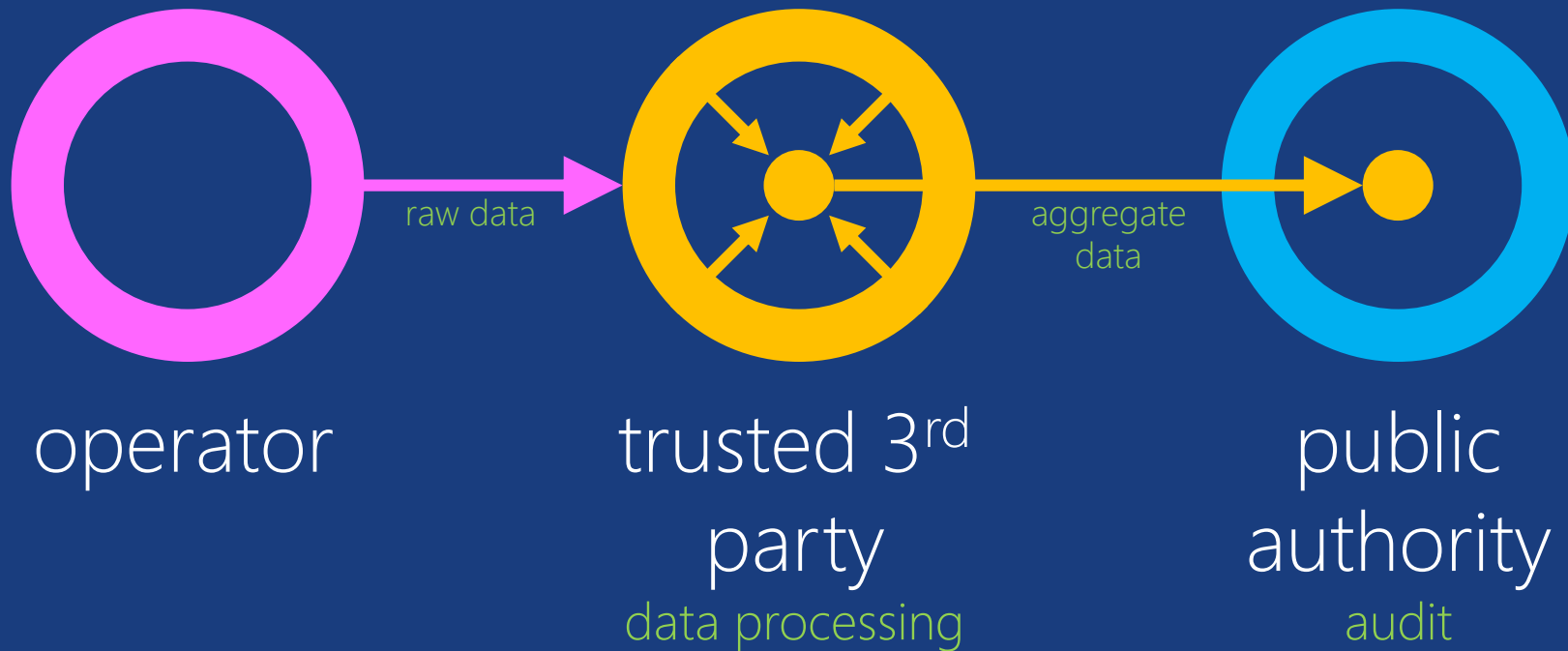
*"don't trust operators/platforms"*





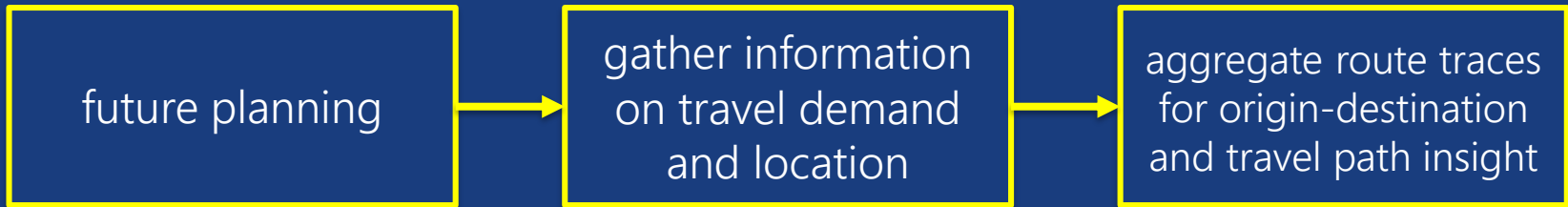
# Trust Architectures

*"don't trust anyone"*



# Trust Architectures

Trust linked to transparency on purpose, use and data minimisation





# 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 also increasing, to the alarm of transport planners. 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 depended 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 trend explains 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 developed. This allocation is fully paid, increasing the area allocated to streets is extremely costly financially and socially, and it requires decreasing the land allocated to uses that produce urban rents while increasing the area allocated to other uses. It also requires the relocation of people and jobs.

In most cases, cars, buses, and trucks are not subject to these costs. For the same reason, they have therefore no incentive to reduce their land consumption. The mismatch between the supply of land allocated to streets and the demand for street 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 terms of real estate rental value would 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

noncongestion speed, which traffic engineers use as a benchmark to measure congestion.<sup>18</sup> 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 in 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 40 km/h. The mobility report published by Texas A&M Transportation Institute in 2012 evaluates the urban average TTI in 498 US urban areas at 1.18. Los Angeles, with 1.37, has the highest TTI among US cities. New York's TTI is slightly lower at 1.33. 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 25 (40 km/h). The new regulatory limit is bound to reduce the free flow speed. If we take the new regulatory speed of 40 km/h as the free flow speed, the TTI of a car running at 15 km/h has consequently decreased from 2.8 to 2.0. In New York, the TTI in November 1, 2014, was 1.33. The reduction of the New York speed limit, which has led to fewer accidents involving pedestrians, obviously did not result in a reduction of the average commuting time; it has even probably slightly increased it, in spite of the decrease in TTI implying 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 where 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 changes in average travel time.

Passengers using motorbuses 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.

# Word

## Shared definitions

# Phrase

## Common (or compatible)

## syntax

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## 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.



shared definitions

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- 🛡 Security
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🔑 master ▾ 🌿 4 branches 🏷 0 tags

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↓ Code ▾

seime Added missing keyref to AdministrativeZone (#106) ✓ 3f80f64 on Aug 21 🕒 76 commits

📁 .circleci	Changes and fixes up until May 17th 2019 (#88)	6 months ago
📁 examples	Added missing keyref to AdministrativeZone (#106)	last month
📁 xsd	Added missing keyref to AdministrativeZone (#106)	last month
📄 .gitignore	Changes and fixes up until May 17th 2019 (#88)	6 months ago
📄 .travis.yml	Disable ruby installation for Travis	3 years ago
📄 LICENSE	Create LICENSE	3 years ago
📄 NeTeX.spp	Changes and fixes up until May 17th 2019 (#88)	6 months ago
📄 NeTeX.xpr	Changes and fixes up until May 17th 2019 (#88)	6 months ago
📄 README.md	(minor) updated copyright period to include 2020 (#91)	5 months ago

## About

NeTeX is a CEN Technical Standard for exchanging Public Transport schedules and related data.

[netex-cen.eu](https://netex-cen.eu)

- public
- transport
- xsd
- schema
- cen
- netex
- timetable
- exchange

📖 README

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## Releases

No releases published

common/compatible syntax



# 📄 TOMP-WG / TOMP-API

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🔗 Pull requests 1

▶ Actions

📁 Projects 8

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<b>bonbakermans</b> Add files via upload <span style="float: right;">8917c09 5 days ago 🕒 333 commits</span>		
📁 .github/ISSUE_TEMPLATE	Updated bugreport to also incorporate changes	5 months ago
📁 documents	Add files via upload	5 days ago
📄 LICENSE	Create LICENSE	9 months ago
📄 README.md	Update	4 months ago
📄 TOMP-API.yaml	Remove planning inheritance from planning-request	3 months ago
📄 styleguide.md	<a href="#">#59</a> : overlays can now be handled in a composit-leg,	8 months ago

## About

Transport Operator to Mobility-as-a-Service Provider-API development for Mobility as a Service

📖 Readme

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## Releases

🔖 11 tags

## Packages

📦 No packages published

README.md

🔗 Transport Operator Mobility-as-a-service Provider

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openmobilityfoundation / **mobility-data-specification**



Code

Issues 42

Pull requests 17

Actions

Wiki

Security

Insights

schnuerle Merge pull request #544 from openmobilityfoundation/release-1.0.0 ... b6d9ea5 14 days ago ⌚ 902 commits

.github	Delete release-final.md	3 months ago
agency	regenerate all schemas again	18 days ago
policy	Update Rule Type beta language	14 days ago
provider	regenerate all schemas again	18 days ago
schema	optimize the common definitions deepcopy	16 days ago
.gitignore	add Mac .DS_Store files to git ignore	15 days ago
CODEOWNERS	Updating team names	7 months ago
CODE_OF_CONDUCT.md	additional updates to main	3 months ago
CONTRIBUTING.md	additional updates to main	3 months ago

A data standard to enable communication between mobility companies and local governments.

- mds
- scooters
- cities
- carshare
- bikesharing
- scooter-sharing
- mobility-as-a-service
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Dernière modification : 26 décembre 2019 à 17h13

# Loi du 24 décembre 2019 d'orientation des mobilités

coherent framework

## 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

[philippe.crist@itf-oecd.org](mailto:philippe.crist@itf-oecd.org)