

Standardizing MaaS

MaaS Scotland special interest data group

31-05-2022 – online meeting

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An illustration of a smart city. In the foreground, a hand holds a smartphone displaying a map with a blue route and the word 'Booking' at the top. The background shows a stylized city with buildings, roads, and various transportation icons in circular frames: a train, a pedestrian, a car, a motorcycle, and a bus. A network of lines connects different points in the city, suggesting a smart infrastructure.

Topics for today

1. eHUBS
2. Why should we standardize?
3. TOMP-API
4. CDS-M
5. Workshop

Mpact

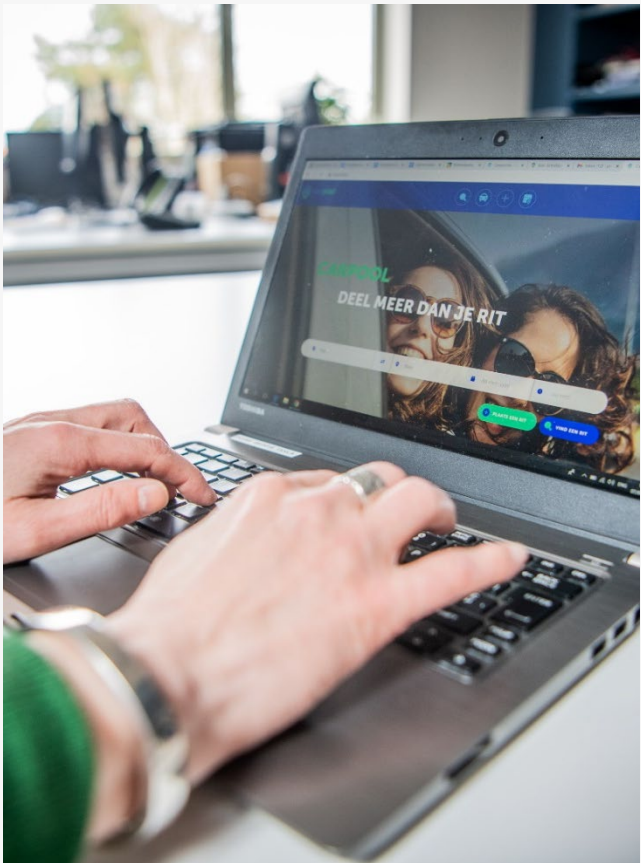
The organisation formerly known as Taxistop.
Do more with less – since 1975

More efficient mobility by **mpact**

Solutions



Innovation



Awareness



Some of our services in shared mobility



Cozywheels

Cozywheels is a service that allows you to share a vehicle with your neighbors, friends or acquaintances (individuals ...

[> know more](#)



Mobitwin

Everybody knows someone who can no longer get around independently due to his age or due to another cause. In order to avoid...

[> know more](#)



Carpool home-work

Driving together allows you to share costs, makes driving more fun and helps protect the environment. Place an ad and Carpool...

[> know more](#)

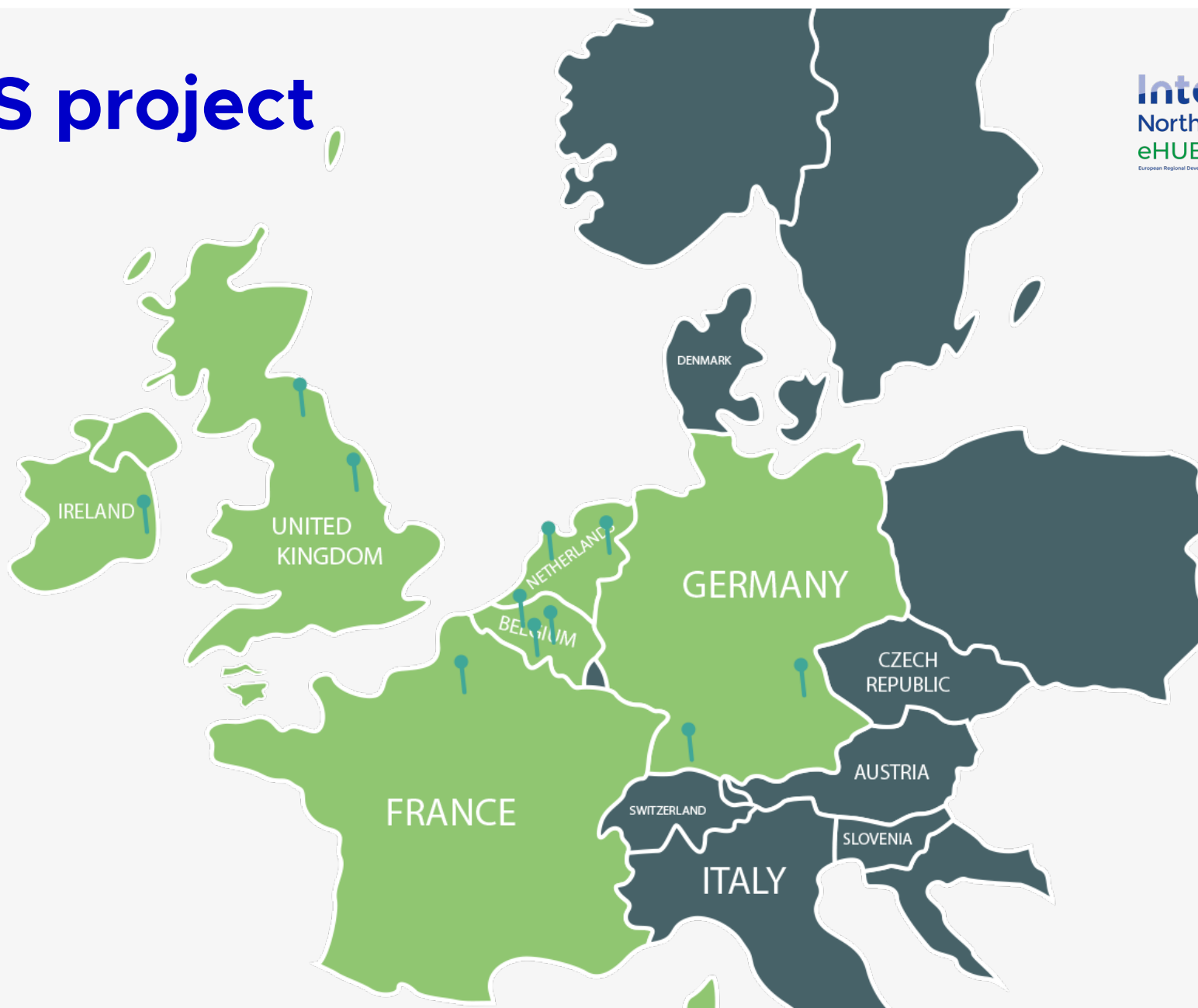


- We enable more efficient use of resources, often linked to mobility.
- Create real solutions for people.
- Increasing political and public awareness.
- Aim to realize a social and ecological impact.
- We prefer to do this through cooperation

eHUBS

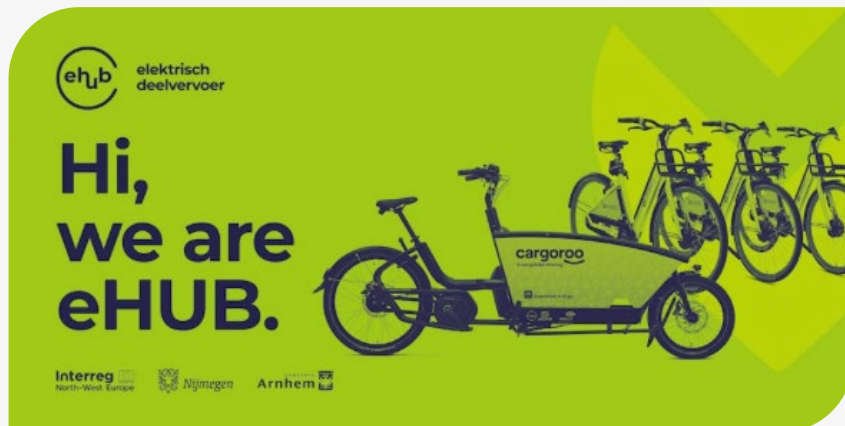
Let's get physical

The eHUBS project



What is an eHUB?

- A place in the public space where multiple electric mobility modes come together.
- This offers a wide range of possibilities to get from A to B without taking the most obvious mode : a private car.



The kiosk



 **TREINEN
BIJ VERTREK** **12:30**

ANTWERPEN-BERCHEM

12:30	IC	→	CHARLEROI SUD	+5'	9
12:30	S33	→	ANTWERPEN CENTRAAL		8
12:31	IC	→	ANTWERPEN NOORDERDOEK		10
12:37	S34	→	ANTWERPEN CENTRAAL		7
12:37	IC	→	LEUVEN		5
12:38	IC	→	AMSTERDAM CENTRAAL	+23'	10
12:42	IC	→	BRUSSEL ZUID		12
12:43	IC	→	POPERINGE		6
12:44	S32	→	ESSEN		7
12:44	S1	→	NIJVEL		5
12:47	IC	→	ANTWERPEN CENTRAAL		8
12:48	S32	→	PUURS		6
12:50	IC	→	ANTWERPEN CENTRAAL		7

 **STARTSCHERM**  **HOE BETALEN?**  **KAART**  **INFORMATIE**

12:30  23°C

maandag 28 juni 2021

	12:36	136	→	CAMPUS	
	12:40	S32	→	ESSEN	
	12:42	72	→	INDUSTRIEZONE IV	
	12:57	928	→	LUCHTHAVEN	
	13:07	IC	→	BRUSSEL ZUID	
	13:09	120	→	KERKPLEIN	
	13:18	IC	→	ANTWERPEN C	

 **FIETSDELEN**

 **AUTODELEN**

 **TREIN**

 **BUS**

 **TAXI**

 **OPLADEN**

 **STALLING**

 **LOCKERS**

 **STALLING**

 **FIETSPOMP**

 **FIETS HERSTELLEN**

 **MEER INFO**

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 **Fietsdelen**

 **Autodelen**

 **Trein**

 **Bus**

 **Taxi**

 **Opladen**

 **Stalling**

 **Lockers**

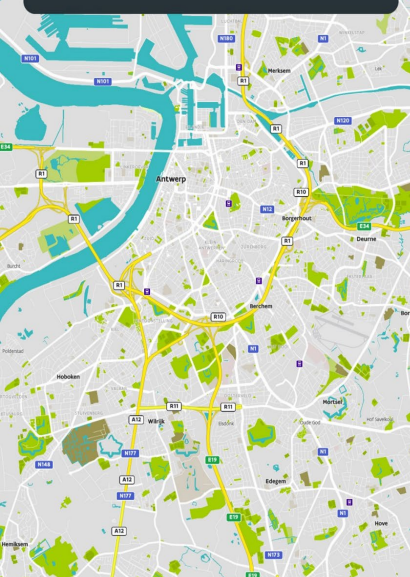
 **Stalling**

 **Fietspomp**

 **Fiets herstellen**

 **Meer info**

 **KAART** **12:30**



 **Startscherm**

 **Inzoomen**

 **Uitzoomen**

 **Informatie**

The importance of data

Let's get digital

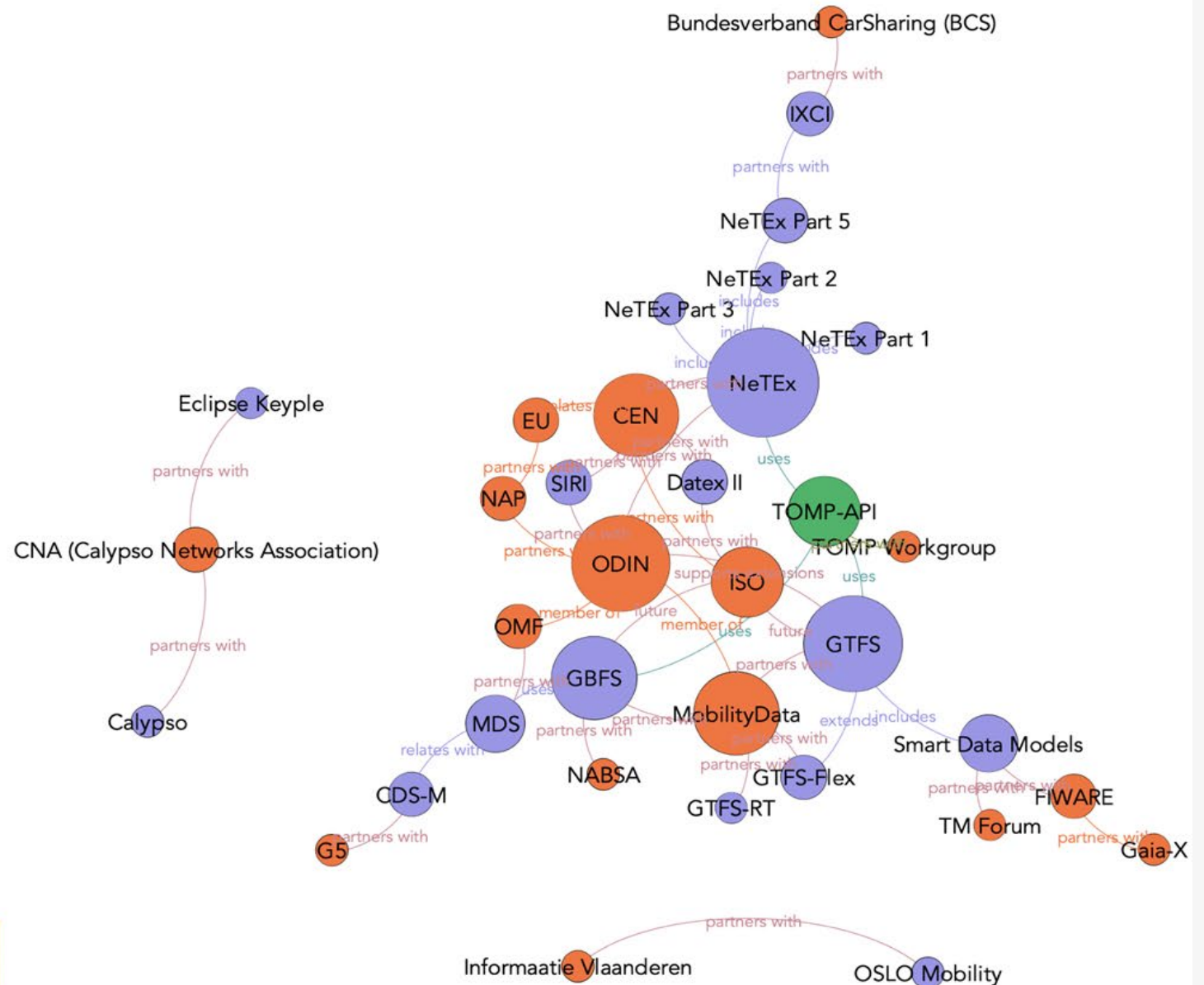
Why standardisation



- It's all different
- Find/work for the perfect fit
- Each piece has its own specifications.
- Forcing it will break it



MaaS Data Model Ecosystem



The four levels of MaaS (sochor et al.)



Data & MaaS (standardized)

- Get mobility modes integrated faster & easier into a MaaS(-like) platform.
- Facilitate regulation for mobility modes
- Create a fair & equal opportunities for all players.
- Offer cities/municipalities/... an insight in the use of mobility on their territory.

TOMP-API

Effortless mobility for everyone



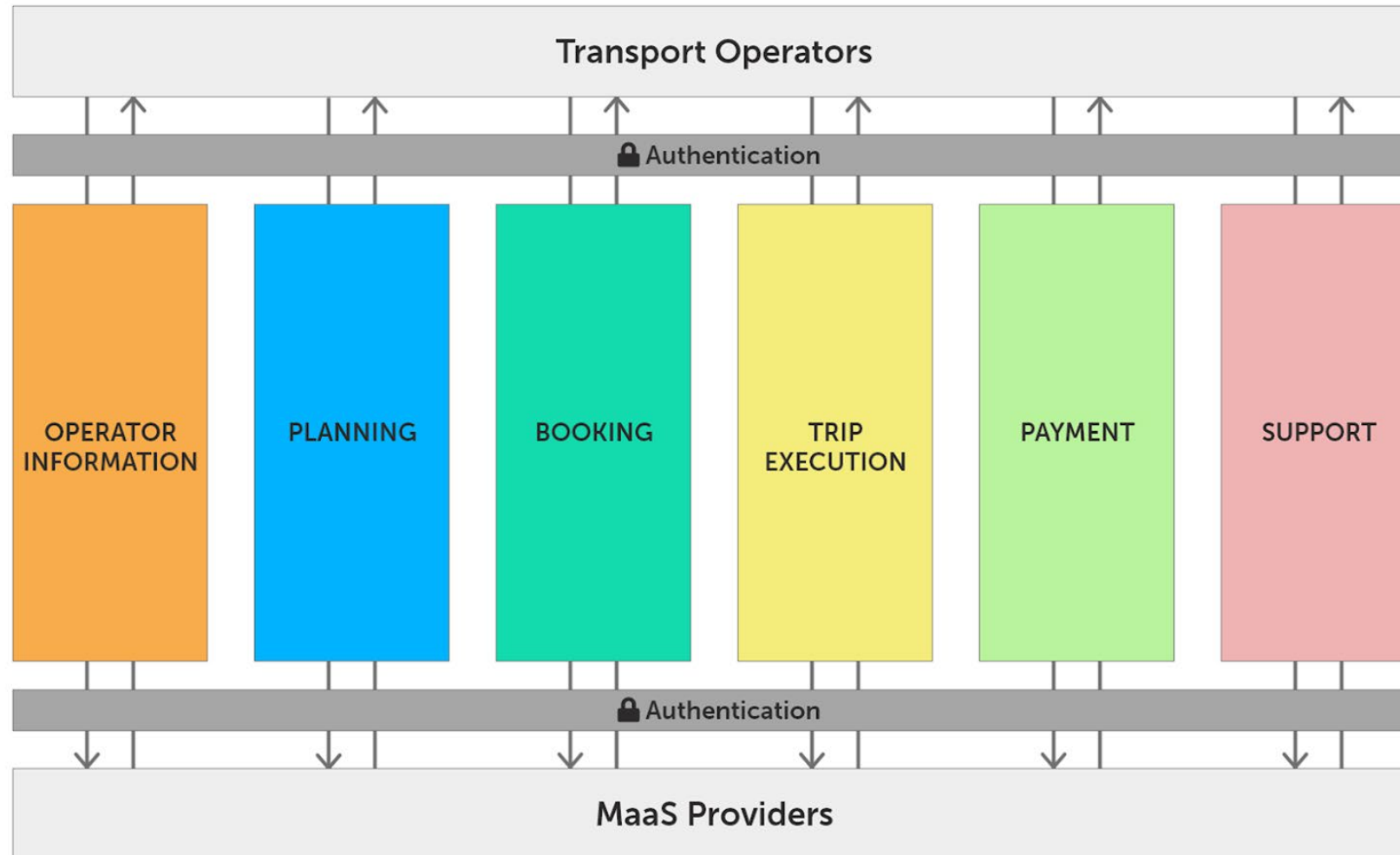
What is the TOMP API

- Technical specification of how to exchange data between **T**ransport **O**perators & **M**aaS **P**roviders
- Transport Operators will need to provide data conforming to this protocol, MaaS Providers need to interact according to this protocol.
- Covers the complete trip for a user – for any Mobility mode
- Open Source model working group with players over the whole spectrum.

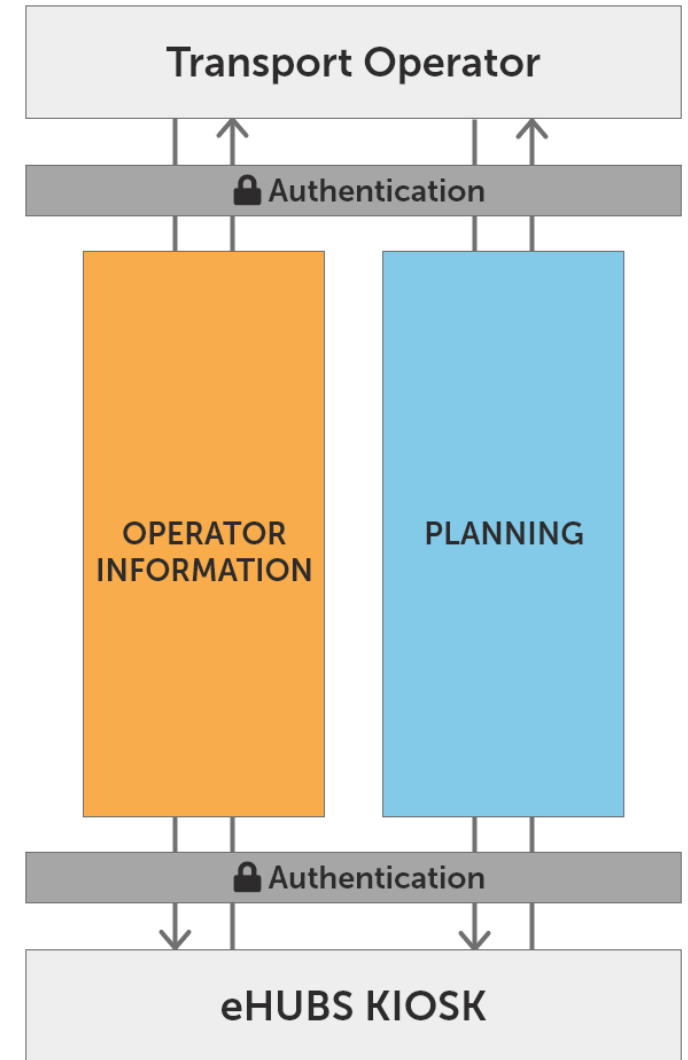
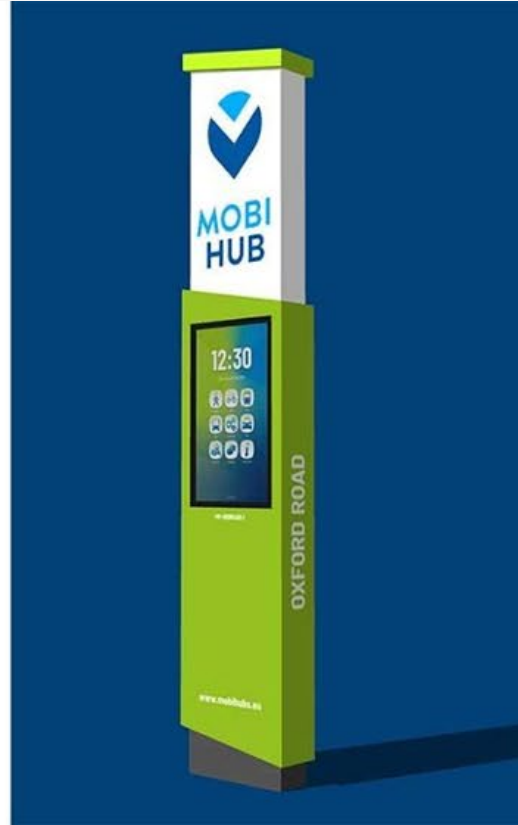
The TOMP working group aims to develop and sustain an internationally governed interoperable open standard for technical communication between Transport Operators and MaaS Providers, by means of definition, improvement, alignment and dissemination.

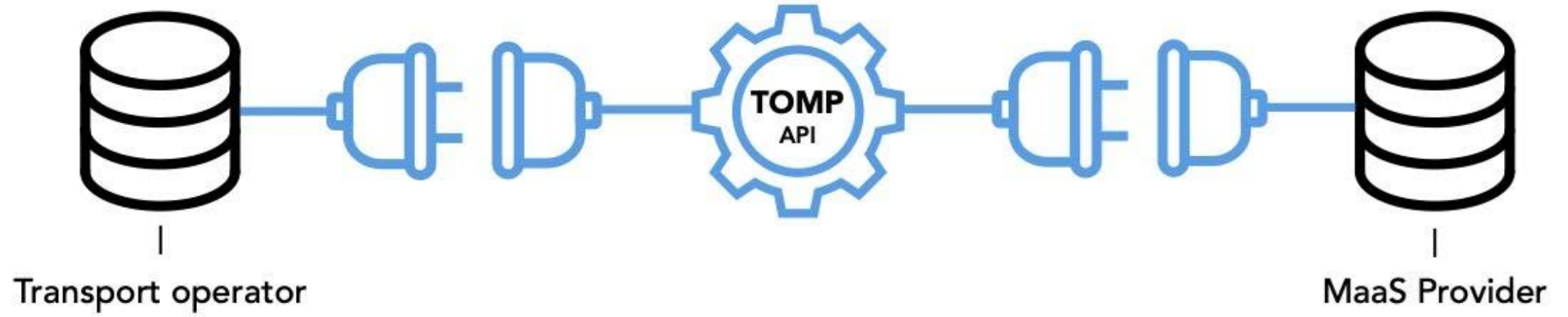


The modules



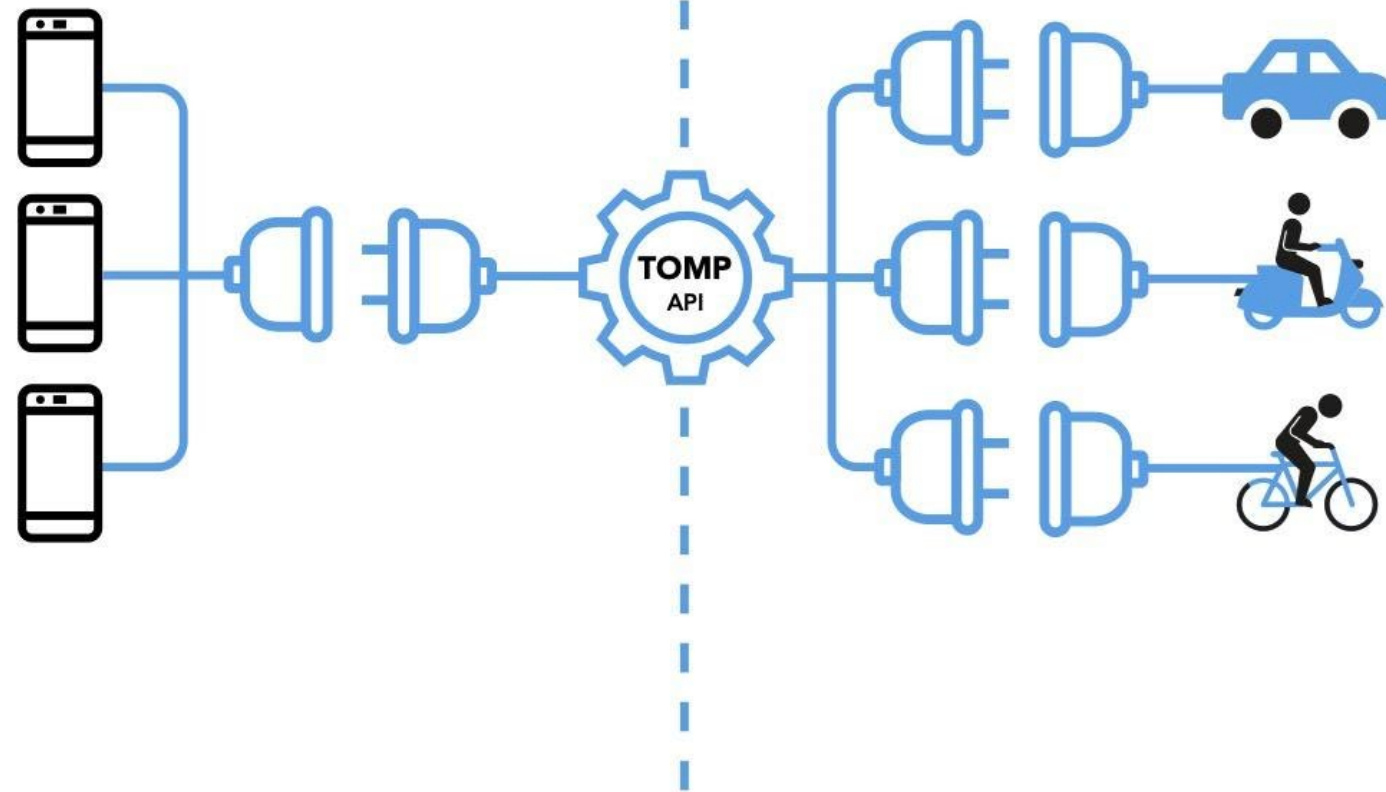
eHUBS





MaaS Provider

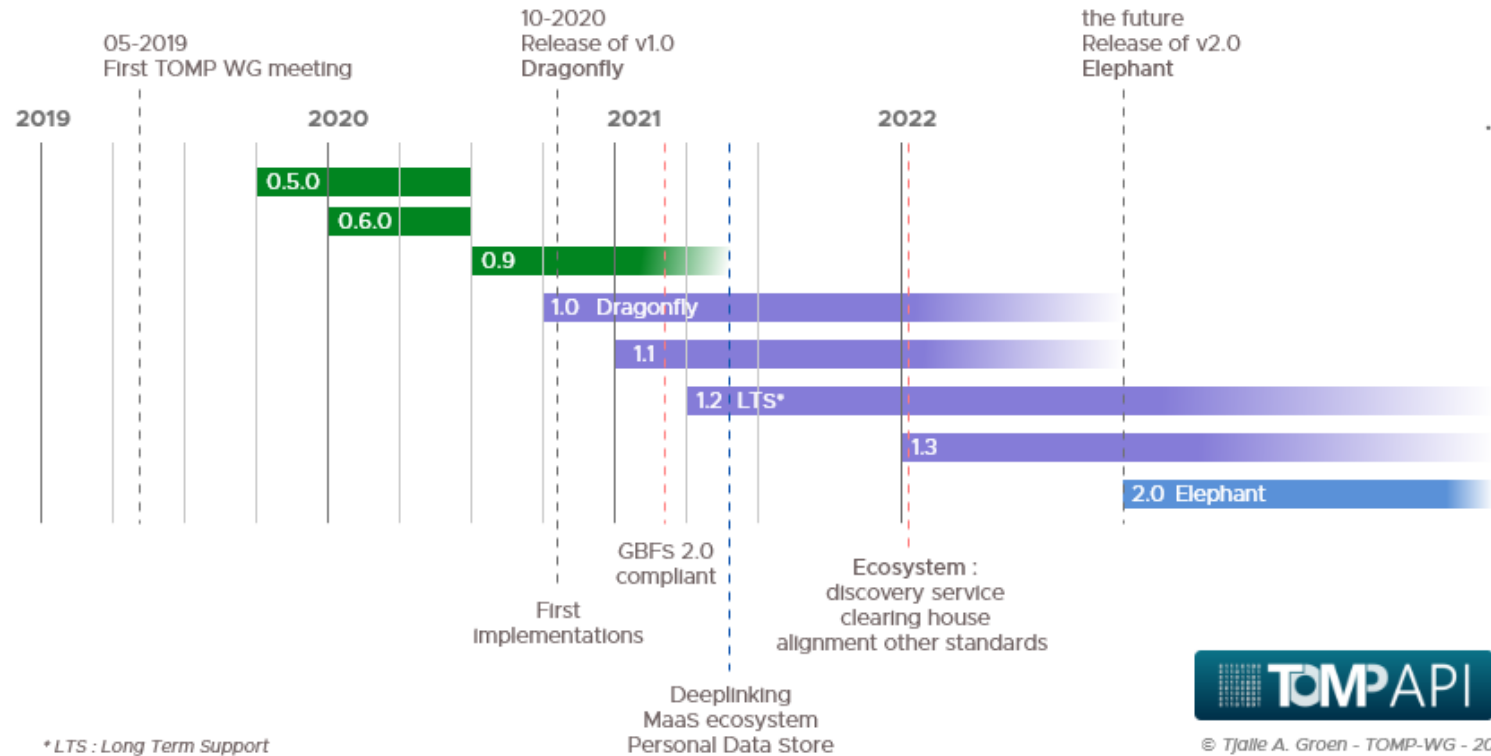
Transport operator



Roadmap

TOMP-API roadmap

05-2022



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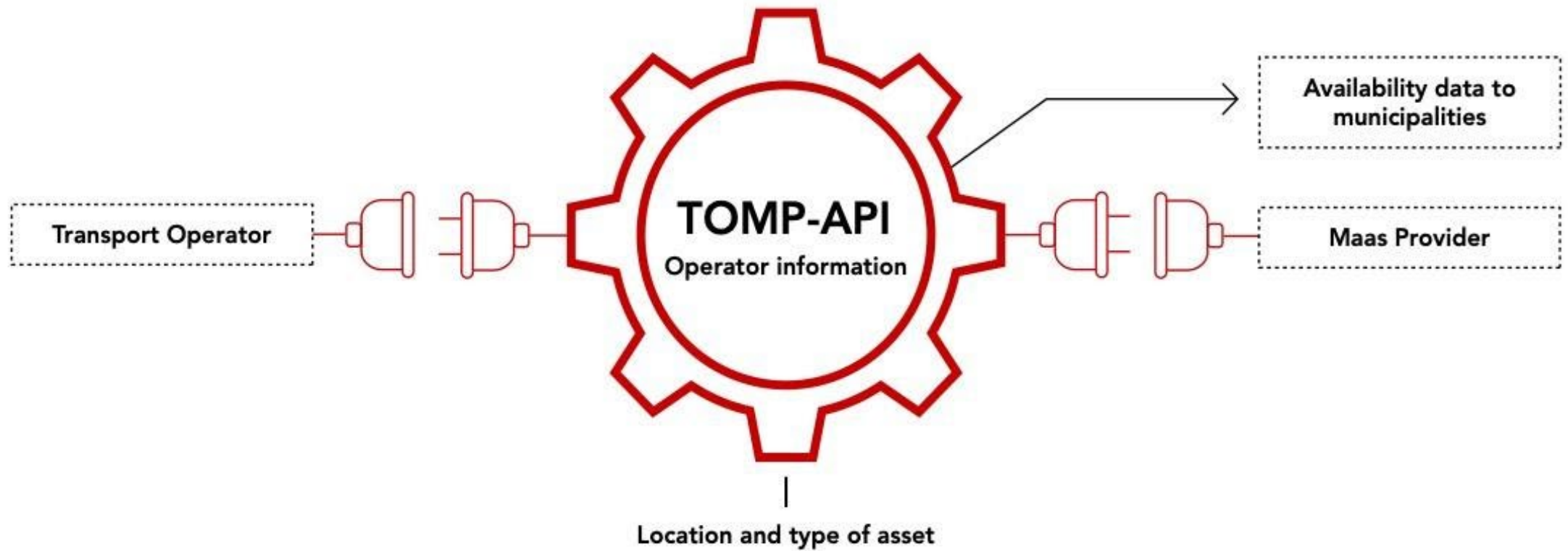
New version

- Early 2022 a new version has been released.
- Backwards-compatible with the current version
- New features :
 - Integration with “On-Demand” mobility solutions (GOFS)
 - More ancillary options (accessibility)
 - Support for external user verification (Blockchain?)

Now what?

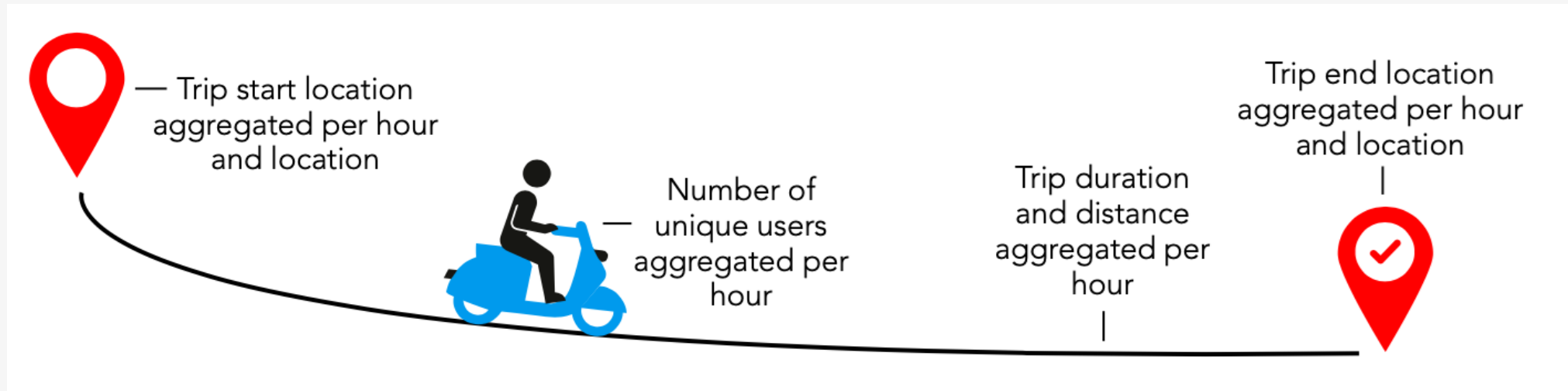
- TOMP-API standard itself is mature, ready & currently being used in real life applications in multiple countries.
- 50+ production versions, 100+ working on implementation.
- Frees up time for other things
 - Dissemination
 - (self)Certification
 - MaaS islands
 - Ecosystem of trust
 - Discovery services
 - Personal information – standardized
 - Governance

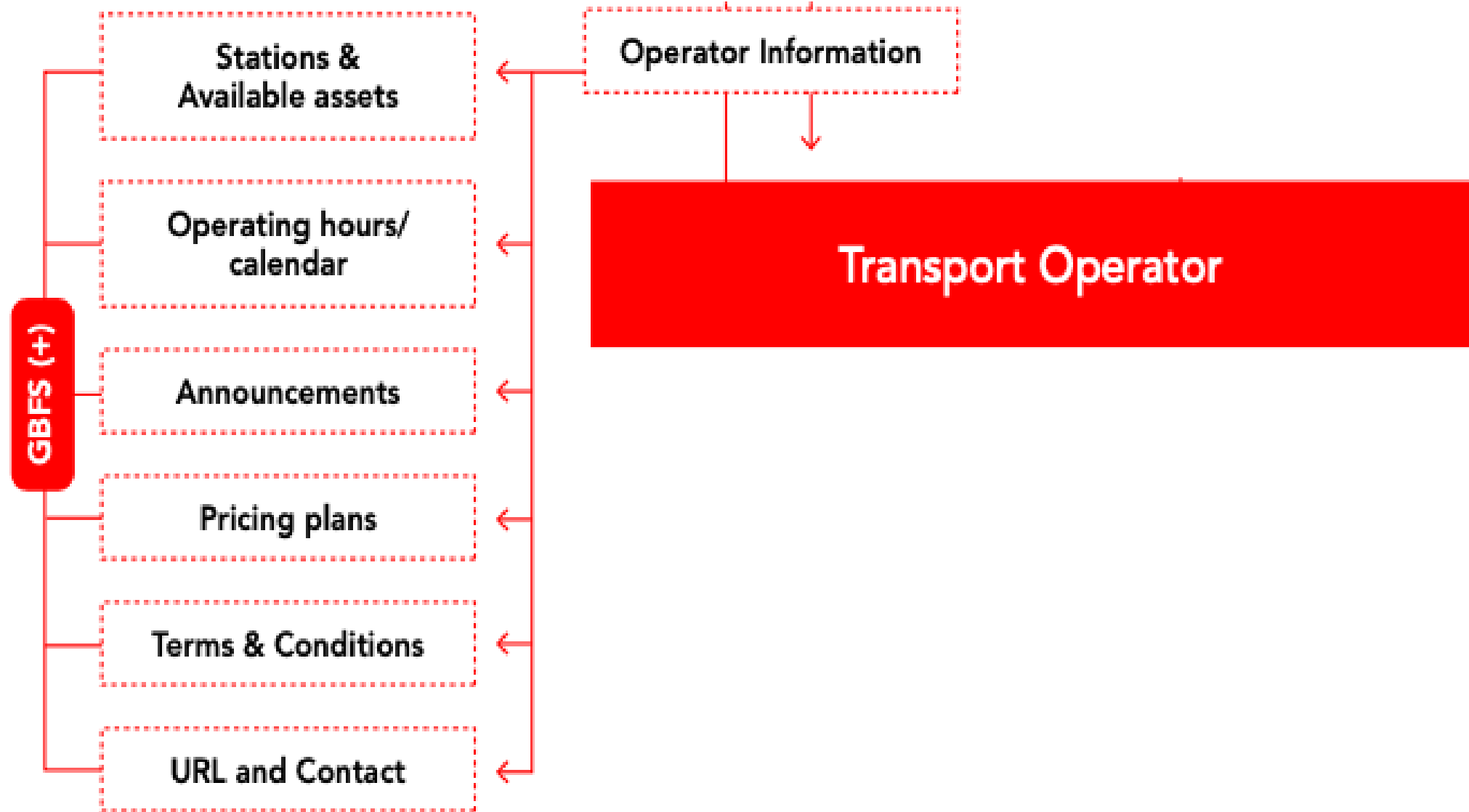
CDS-M?



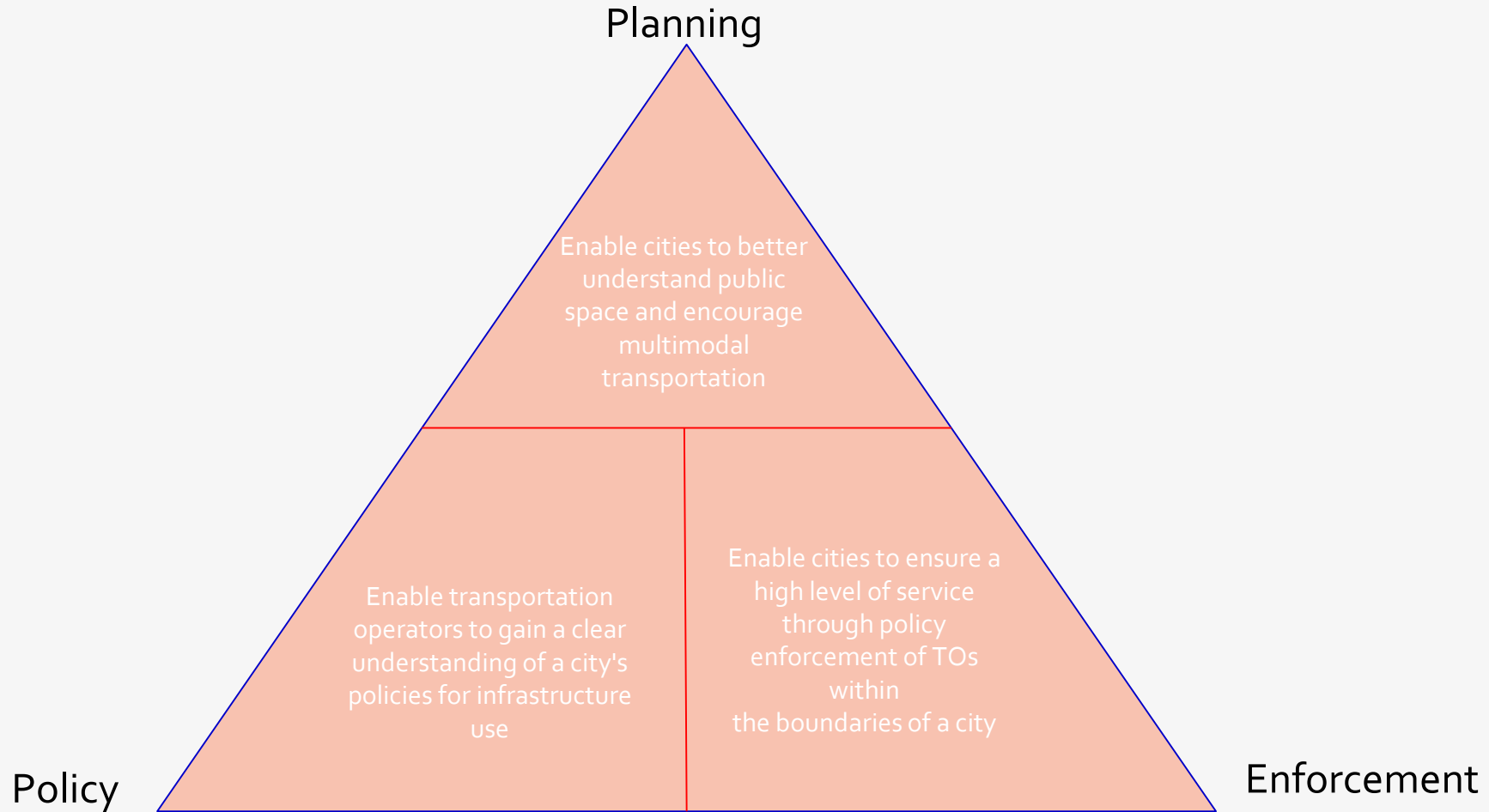
What data is needed

Location assets in non-booked state





Why is this Mobility data needed?





the purpose

The aim is to work towards a standard European method around data sharing supported by mobility operators and public authorities.

That is why we are creating the **CDS-M toolbox**. Consisting of agreements that strengthen cooperation among actors enabling scale up of new mobility solutions.



what?

Toolkit CDS-M

- Use case store with ready to use designs
- step-by-step plan data driven policy
- how-to's & templates
- standardized Data Protection Impact Assessment (DPIA)
- Security Checklist
- standard contracts



Why?

- A single CDS-M will clarify which data may be processed for which purpose/use case in terms of privacy;
- and how data should be processed, stored and exchanged safely.
- The CDS-M framework is a standard way of handling data, resulting in delineated data requirements per use case. It also clarifies which data can be used for which policy purpose.
- By linking the data requirements to the use cases, it is possible to compare data from different cities with the same use cases and learn from each other.
- Because the CDS-M framework requires policy-makers to think about which metrics achieve which use cases and policy goals (purpose reasoning), research into the effect of shared mobility on the city is done in a focused way.



- Easy to use
- Safe - privacy & security by design
- High quality data exchange - API driven
- Energy efficient due to data minimization

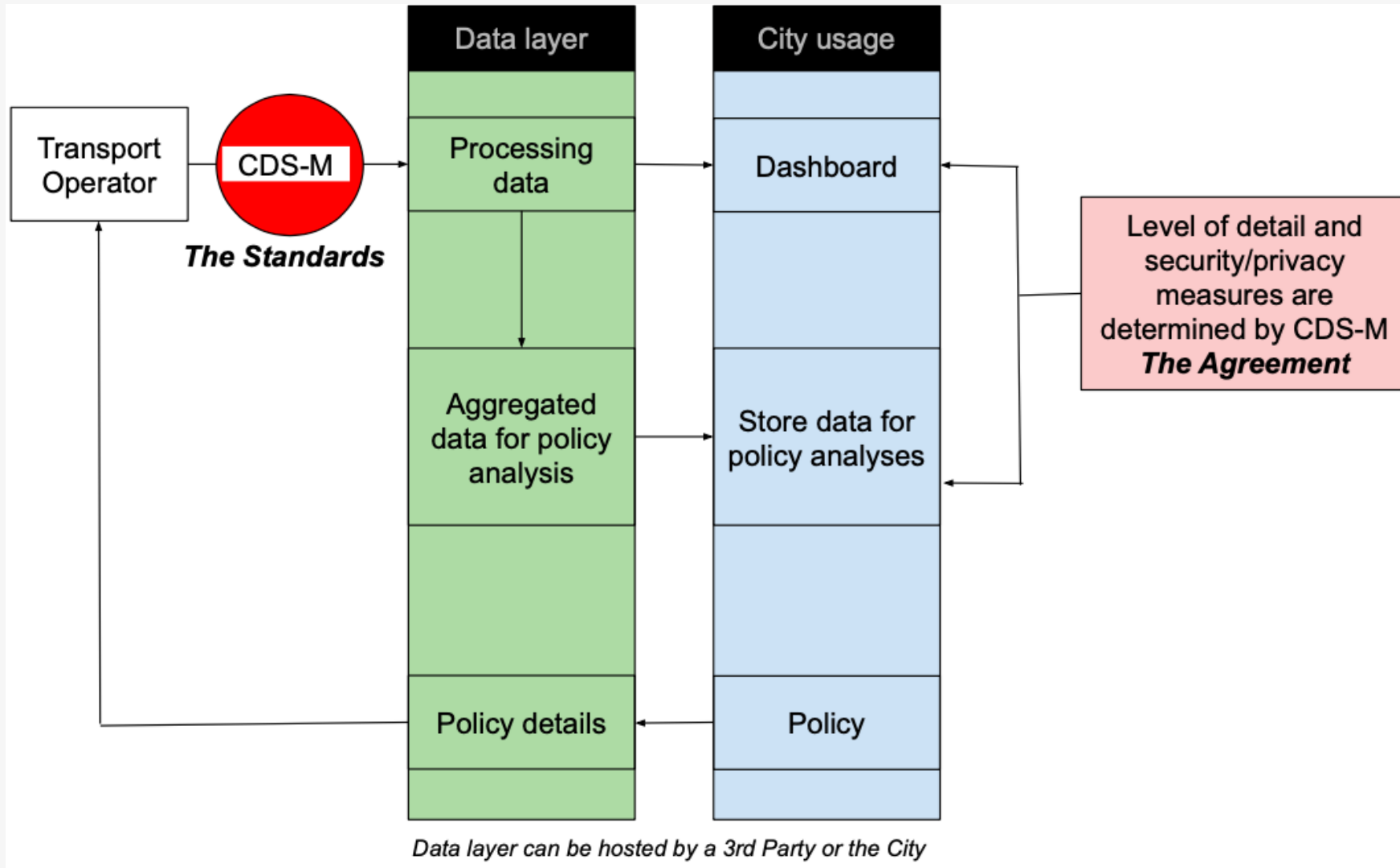
Why Privacy and Security by design?

Researchers recently analyzed a pseudonymised dataset consisting of 15 months of spatial-temporal mobility coordinates of 1,5 million people on a territory within a radius of 100 km. They showed that 95% of the population could be singled-out with four location points, and that just two points were enough to single-out more than 50% of the data subjects (one of such points is known, being very likely “**home**” or “**office**”) with very limited space for privacy protection, even if the individuals’ identities were pseudonymised by replacing their true attributes [...] with other labels.

Trip data = personal data, pseudonymous data = personal data

Aggregate mobility data provides masked mobility records in each time slot, but when performing statistical analysis with algorithms, individuals' trajectories can still be traced with high accuracy. **This means that aggregated trip data is not anonymous, but "pseudonymous," because additional information or statistical analysis can lead to identification.**

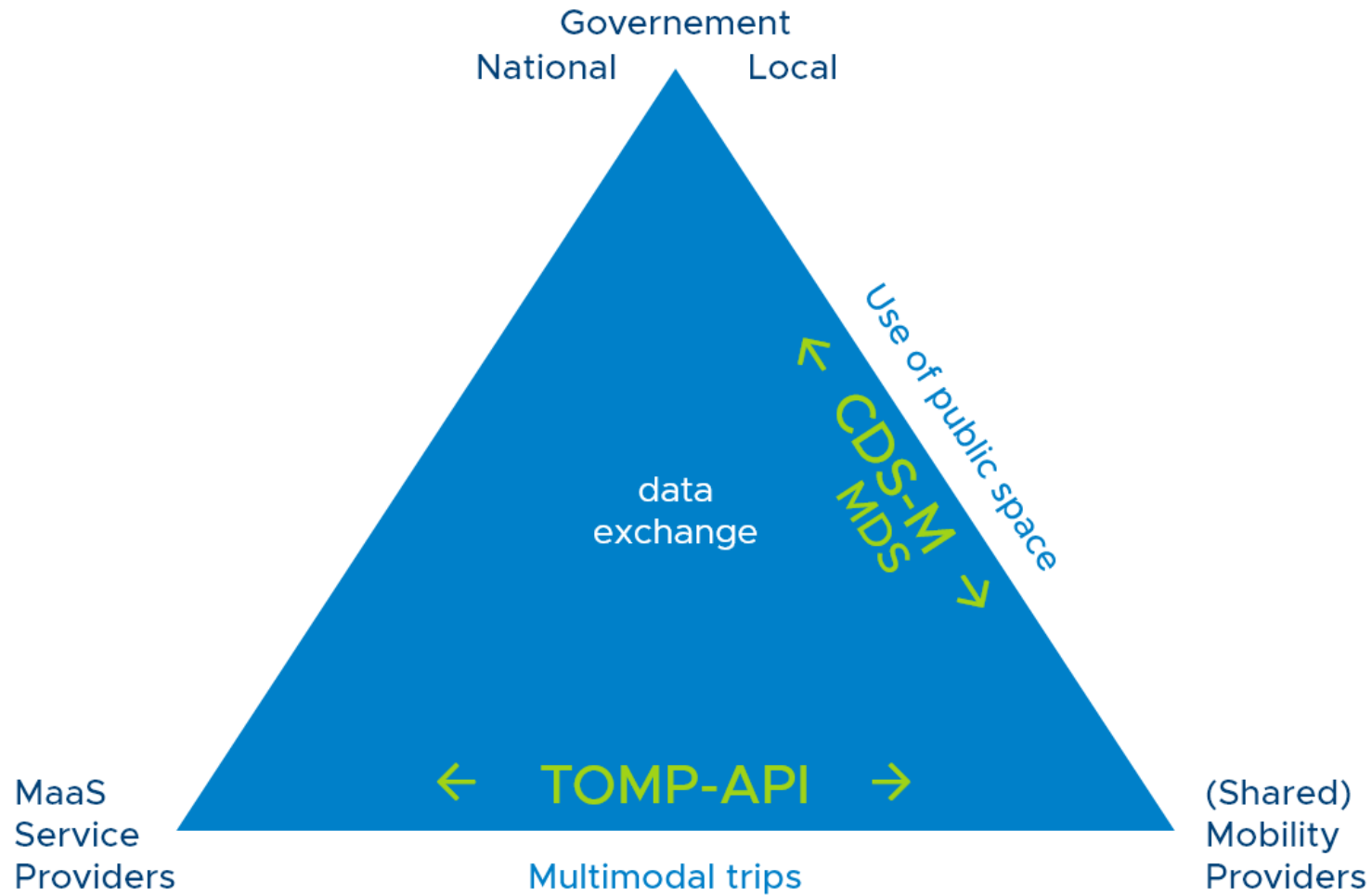
The GDPR defines "pseudonymization" as "the processing of personal data this means that the use of "additional information" can lead to the identification of the individuals, and therefore pseudonymous personal data are still personal data.



What can cities do with this data?

- Policy
 - Parking space performance
 - Car reduction and transportation impact analysis
 - Distribution analysis (inclusiveness)
 - Parking pressure analysis
 - Dynamic policy
- Planning
 - Lay out public space based on demand/use
 - Modality specific route development
 - Special pick-up/drop-off/charging/parking zones
- Enforcement and contract management
 - Vehicle ceiling
 - Clustering and curb management
 - Service area enforcement, geo-fencing

In conclusion





Dig a bit deeper?

- TOMP-API
 - Website : <https://tomp-wg.org/>
 - WIKI : <https://github.com/TOMP-WG/TOMP-API/wiki/TOMP-API-for-dummies>
 - Swaggerhub : https://app.swaggerhub.com/apis-docs/TOMP-API-WG/transport-operator_maas_provider_api/1.2.0
 - eHUBS : DL LTP6.3 : <https://www.nweurope.eu/projects/project-search/ehubs-smart-shared-green-mobility-hubs/#tab-7>
- CDS-M
 - <https://www.polisnetwork.eu/wp-content/uploads/2021/03/Principles-CDS-M2.pdf>
 - Some of the images in this presentation – courtesy to the City of Amsterdam

QUESTIONS?

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