Integrating Public Transport an MaaS
ITF Roundtable – 12-14 October, 2020, Paris

Mobility as a Service:
a New Ambition for Public Transport Authorities
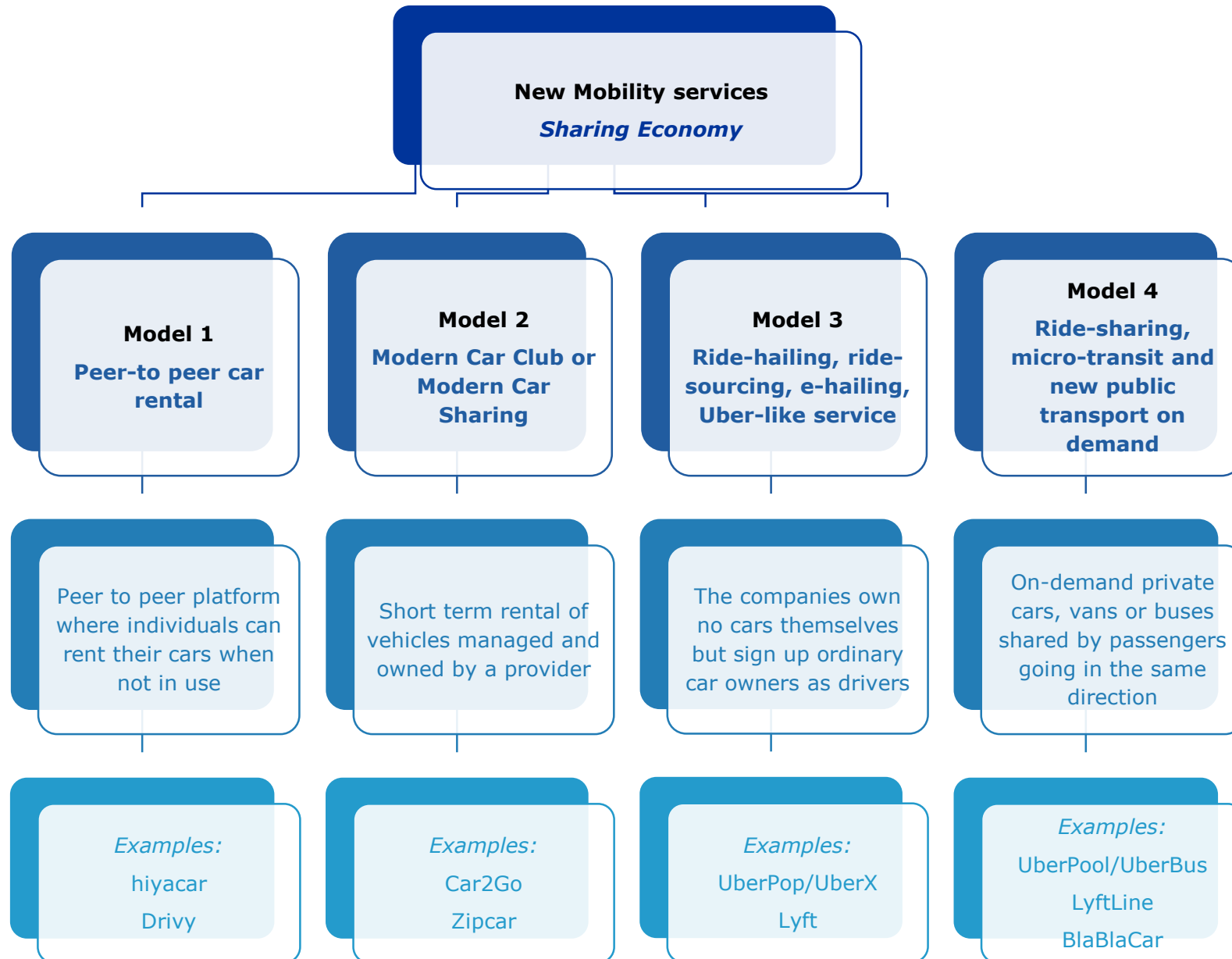
Pr. Yves CROZET

CONTENT

- **1) Mobility as a Service (MaaS) and Public Transport (PT): What is at Stake?**
  - **MaaS and shared mobility: a substitute for public transport?**
  - **Or a complement to PT**

- **2) MaaS and Regulation of Urban Mobility: New Ambitions for Public Transport Authorities (PTA)**

MaaS and New Mobility Services

- Maas is a by-product of digital revolution

- The two main components of digital revolution for urban mobility are:
  - Shared mobility and new mobility services : ride hailing, car pooling, car sharing, free floating services (bikes, motorbikes, electric scooters…)
  - Digital platforms and apps are supposed to reduce the transaction costs of mobility (information, route choice, mode choice, ticketing…)

Shared mobility : 4 models

New Mobility services
Sharing Economy

Model 1
Peer-to peer car rental

Model 2
Modern Car Club or Modern Car Sharing

Model 3
Ride-hailing, ride-sourcing, e-hailing, Uber-like service

Model 4
Ride-sharing, micro-transit and new public transport on demand

Peer to peer platform where individuals can rent their cars when not in use

Short term rental of vehicles managed and owned by a provider

The companies own no cars themselves but sign up ordinary car owners as drivers

On-demand private cars, vans or buses shared by passengers going in the same direction

Examples:
hiyacar
Drivy

Examples:
Car2Go
Zipcar

Examples:
UberPop/UberX
Lyft

Examples:
UberPool/UberBus
LyftLine
BlaBlaCar

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

For decades, the **paradigm of substitution** has been at the heart of public policies:

- modal shift from car to public transport (PT);
- walking and cycling instead of driving;
- teleworking instead of traveling etc.

- In accordance with this paradigm, new mobility services were often presented as:
  - Substitute for private cars (driving and/or ownership)
  - And/or substitutes for PT, that is to say either competing with PT or replacing it, especially in low density areas.

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

- New mobility services were at the beginning presented as **a way to substitute public financing** by private initiatives (free floating, real time information, etc.).

- But it is difficult to reach the critical mass of commuters.

- The business models of new mobility providers are moving from "Business to Consumer" (B2C) to "Business to Government" (B2G) or B2G2C

- The result is the need of public subsidies

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

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.

We have to be careful with the paradigm of substitution.

Shared mobility: a complement to PT

- Toward a radical transformation: i.e. a shared use of cars and finally less car owners thanks to a systematic sharing of autonomous vehicles.

- See the studies conducted by the International Transport Forum in Auckland, Dublin, Helsinki, Lisbon, Lyon (Viegas and Martinez, 2016, 2017)

- But the horizon of the advent of the autonomous vehicle is receding. MaaS has to be introduced within a near horizon, that of the next ten years

# Autonomous vehicles and PT: scenarios tested in Lyon

Source: ITF (2020).

Scenario number	Bus	Car	Rail, LRT	Shared mobility modes
1	100% Replacement	100% of trips replaced	Keep	Shared taxi, taxi-bus and carpooling
2	100% Replacement	20% of trips replaced	Keep	Shared taxi, taxi-bus and carpooling
3	Keep trips where Bus with headway <5 min	20% of trips replaced	Keep	Shared taxi, taxi-bus and carpooling
4	Keep	100% of trips replaced that prefer carpooling. carpooling corridors	Keep	Carpooling
5	100% Replacement	Low Emissions Zone (LEZ) with all private car traffic constrained within LEZ, 20% of car users affected by LEZ restrictions use the shared modes from the origin	Keep	Shared taxi, taxi-bus and carpooling

MaaS and the near horizon of decarbonisation

- MaaS has to be considered as intermediate objective to be linked to the main final objective of metropolitan areas (ITF roundtable "Zero-Car Growth and the Challenge of *Auto Dependence*" December 2019)

- The final objective is the reduction of the external costs and in particular CO_2 emissions

- 1,500 municipalities have declared a climate emergency.

The challenge of reducing CO_2 emissions
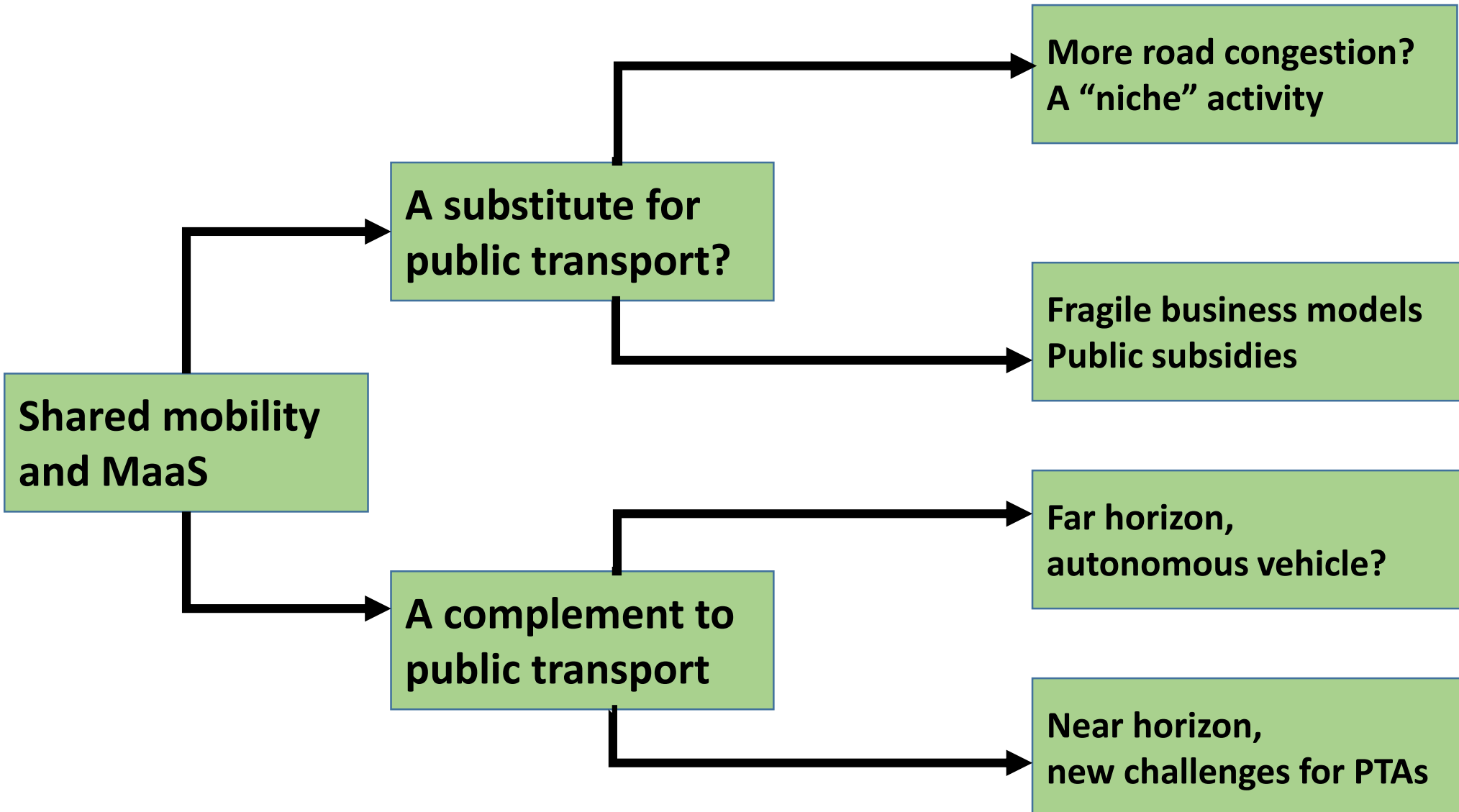

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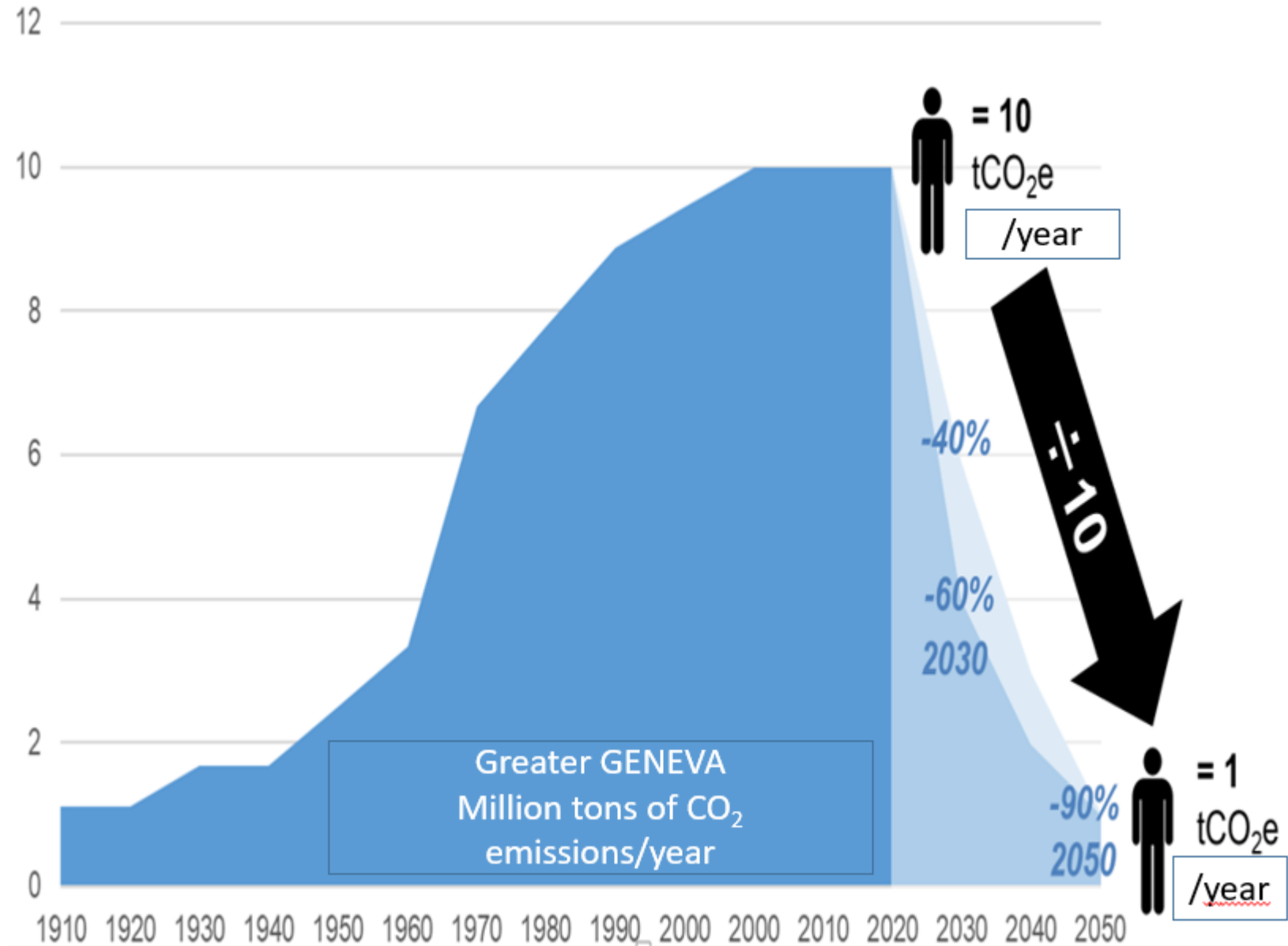
The challenge of changing the modal split

Modal split : city center

	Walking	Public transit	2 wheels	Cars
Barcelona	42 %	34 %	11 % (9 + 2)	13 %
Frankfurt	30 %	22 %	13 %	35 %
Oslo	13 %	68 %	5 %	14 %
Paris	53 %	29 %	4 %	14 %

Modal split: urban area

	Walking	Public transit	2 wheels	Cars
Barcelona	39 %	23 %	6 % (4 + 2)	32 %
Frankfurt	27 %	11 %	11 % (2 + 9)	51 %
Oslo	32 %	26 %	5 %	37 %
Paris	34 %	19 %	2 %	45 %

Shared mobility, MaaS and Public Transport Authorities

Shared mobility and MaaS

A substitute for public transport?
- More road congestion? A "niche" activity
- Fragile business models Public subsidies

A complement to public transport
- Far horizon, autonomous vehicle?
- Near horizon, new challenges for PTAs

CONTENT

- **1) Mobility as a Service (MaaS) and Public Transport (PT): What is at Stake?**

- **2) MaaS and Regulation of Urban Mobility: New Ambitions for Public Transport Authorities (PTA)**

  - **From PTAs to Multimodal Mobility Authorities**
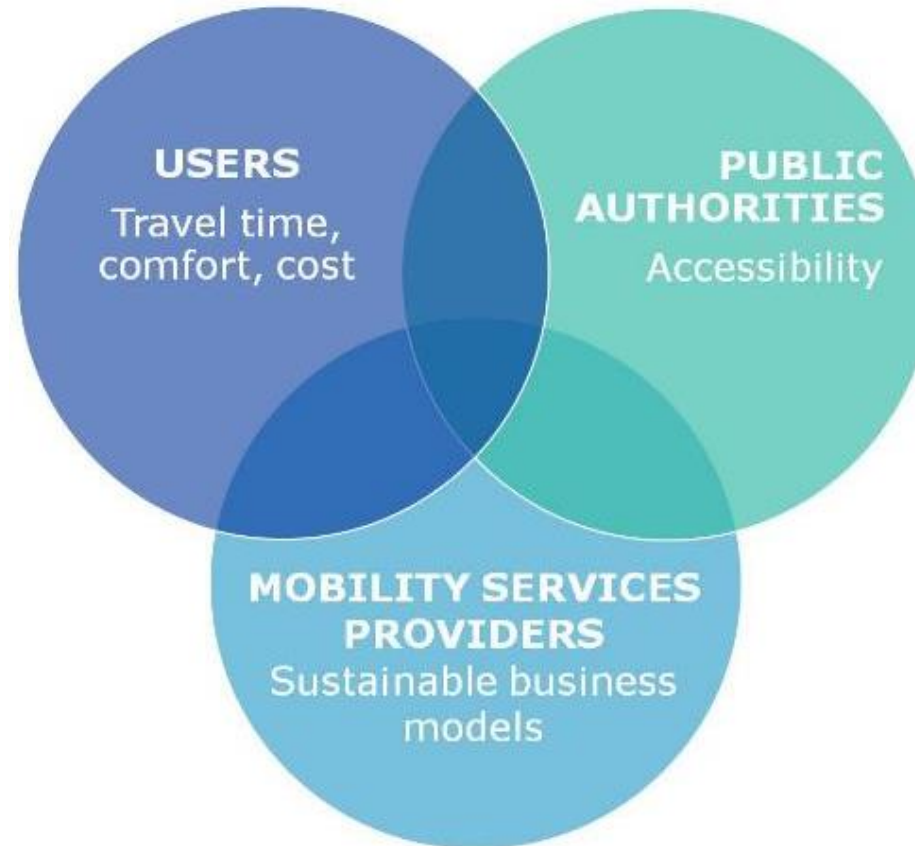
  - **MMAs and data governance**

MaaS: toward multimodal mobility authorities

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MaaS and PTAs ──┬── From PTAs to MMAs ──┬── The multimodality issues
                │                        └── Bottom-up or top-down process?
                │
                └── MMAs, platforms and data ──┬── MMA and the economics of platforms
                                               └── MMA and data governance
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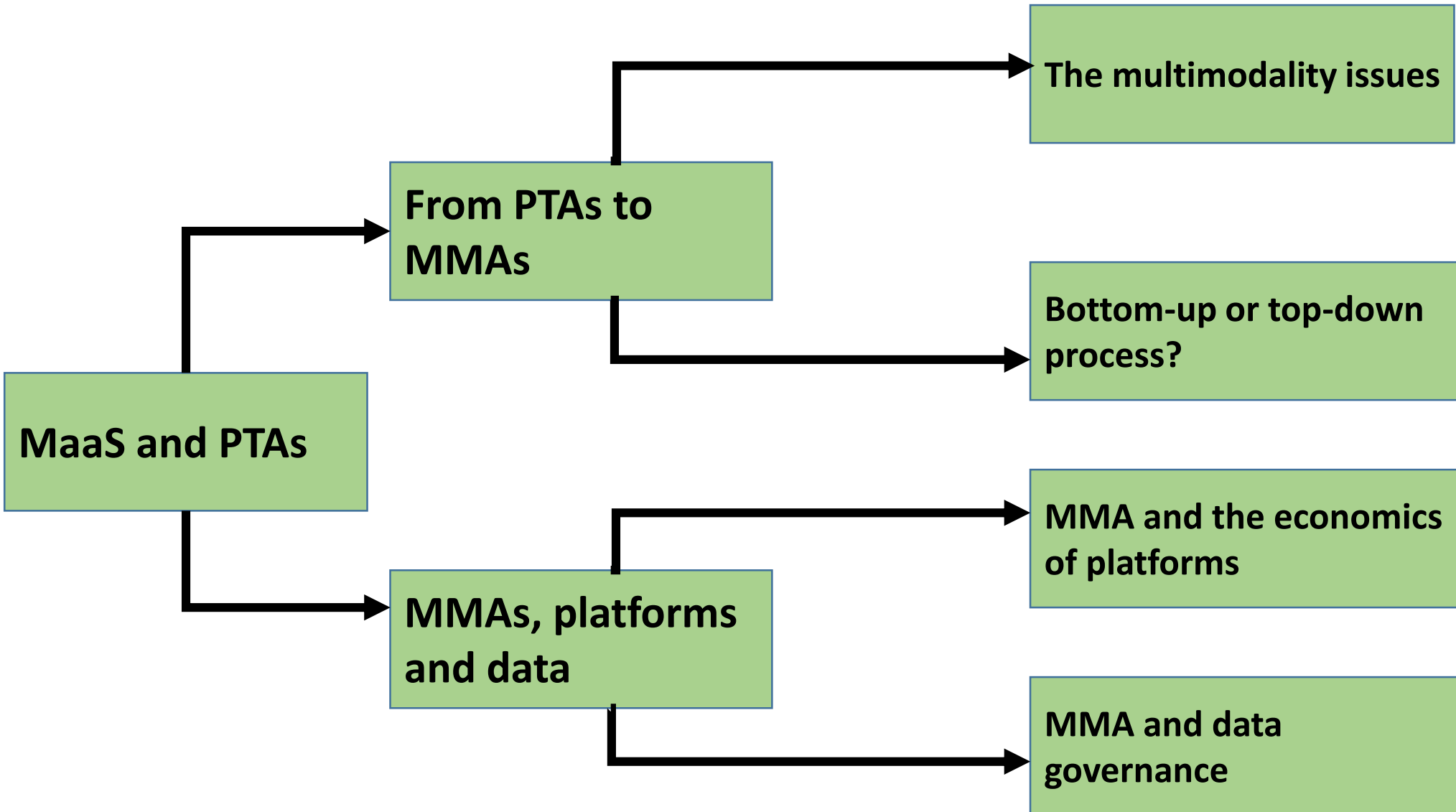
MaaS and multimodality: opening the Pandora box

Multimodal ticketing

Multimodal information

Mobility as a Service

- MaaS is not a magic wand

- It is not possible to improve accessibility for all modes of transport

- A multimodal trip implies additional costs. MaaS is a way to reduce these costs

- Another modal split will be costly for (some) commuters and for the public authorities

USERS
Travel time, comfort, cost

PUBLIC AUTHORITIES
Accessibility

MOBILITY SERVICES PROVIDERS
Sustainable business models

New and former mobility services

- Even if new mobility services are still in the infancy, they must not be neglected by PTAs

- 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?*

- There is a necessity to change the regulation of urban mobility

The fragmented regulation of urban mobility

- At the metropolitan area level, there is often a variety of public authorities (PAs) involved in the regulation of mobility: municipalities, public transport authority (PTA), region, etc.

- Most often, the PAs in charge of road (maintenance and traffic management) are not the same as the PTA in charge of public transport.

- The PTA is <u>only</u> in charge of organising, financing, monitoring and sometimes operating PT.

- But with the enlargement of the spectrum of mobility services, PTAs must become MMAs in charge of organising a better integration of all the urban mobility vectors.

# Toward an integrated regulation of urban mobility?

- Due to complex interactions between land-use and transport, social conditions and environmental issues, the regulation of urban mobility must be unified and integrated.

- Public policies must favour transport modes that optimise the use of public space, and not those that offer infinitesimal time savings to users.

- MMAs must, in one way or another, intervene on the uses of roads and even sidewalks and pedestrian zones. For instance, encouraging the development of car sharing will require limiting access to roads for vehicles transporting one person only.

# The stakeholders of urban mobility:
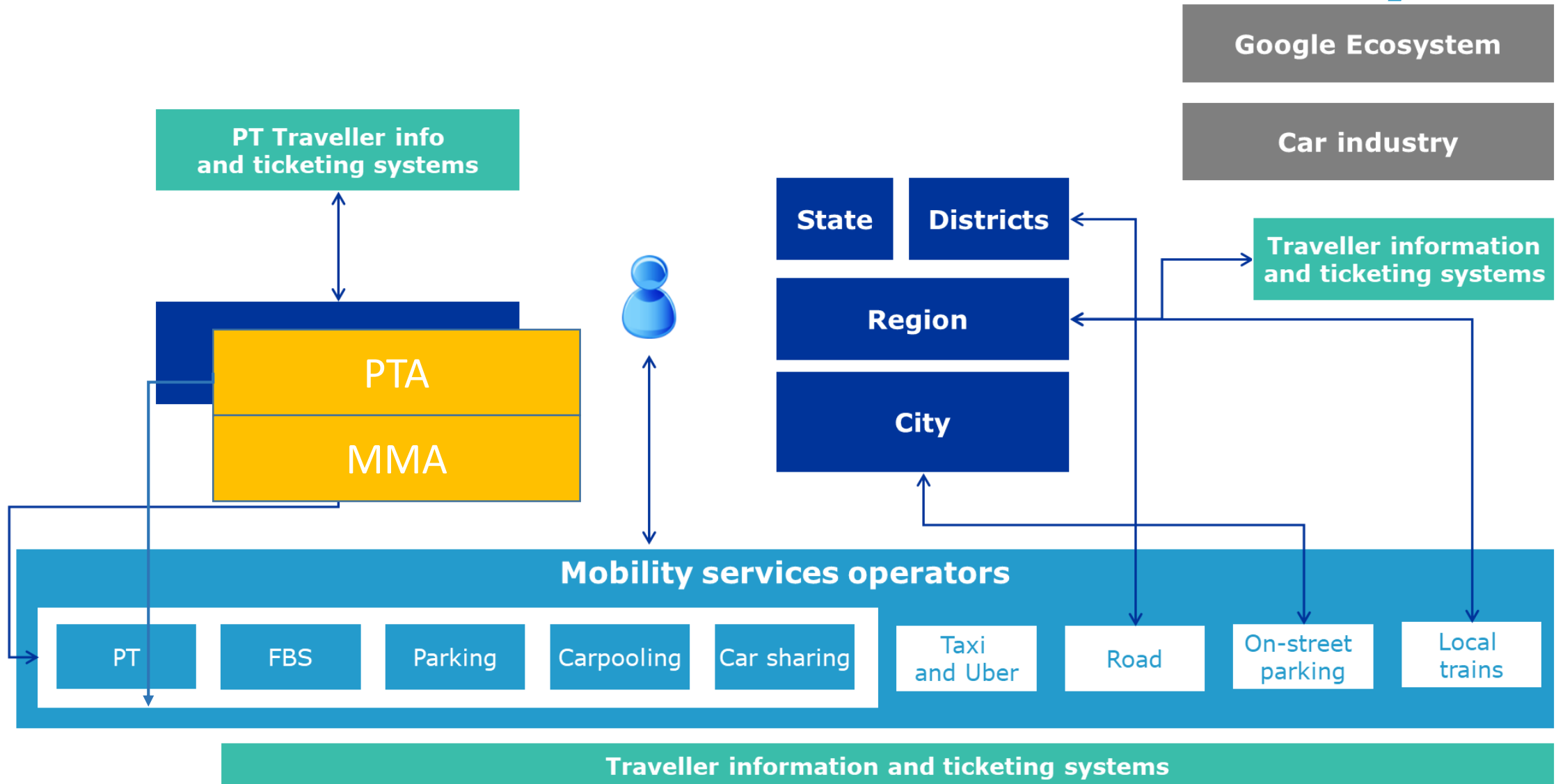
The bottom-up process and its limits

- The bottom-up process is a step by step integration of mobility services by the platforms of new mobility providers.

- Two symmetrical risks appear in this case.

  - Either, the private operator is in a monopoly situation and the regulatory power of the public authorities is very weak,

  - or the private operator fails to achieve the full integration of mobility services and MaaS cannot really work
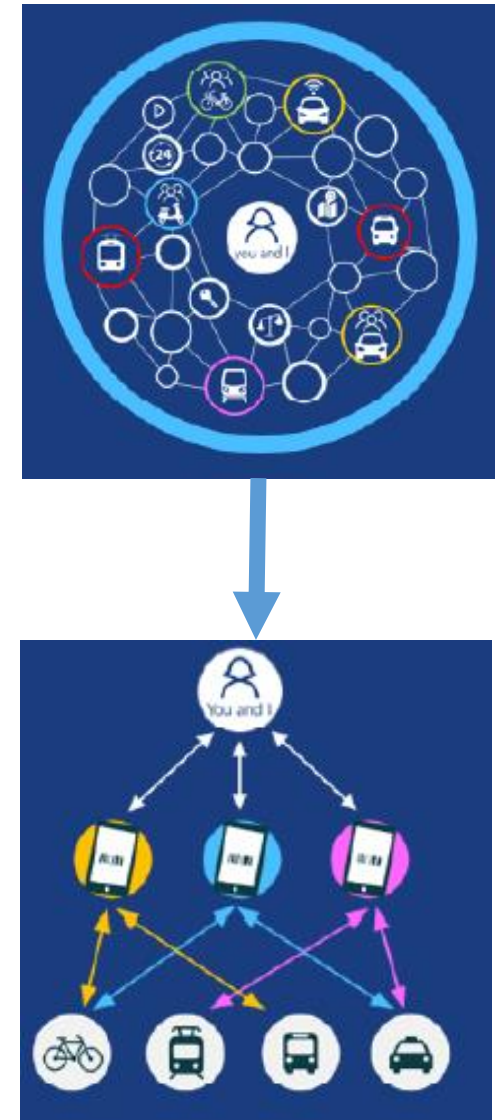
The top-down process and the key role of MMA

- In a top-down model

- The MMA defines clear objectives in terms of accessibility and the expected modal split

- An open public platform centralises all the data from all mobility services and makes it available to all stakeholders. Competition remains between the different mobility providers.

- There is an intermediate model: Delegation of the platform management to the public transport operator (Vienna, Brussels). But two risks exist.

  - an asymmetry between the actors of mobility

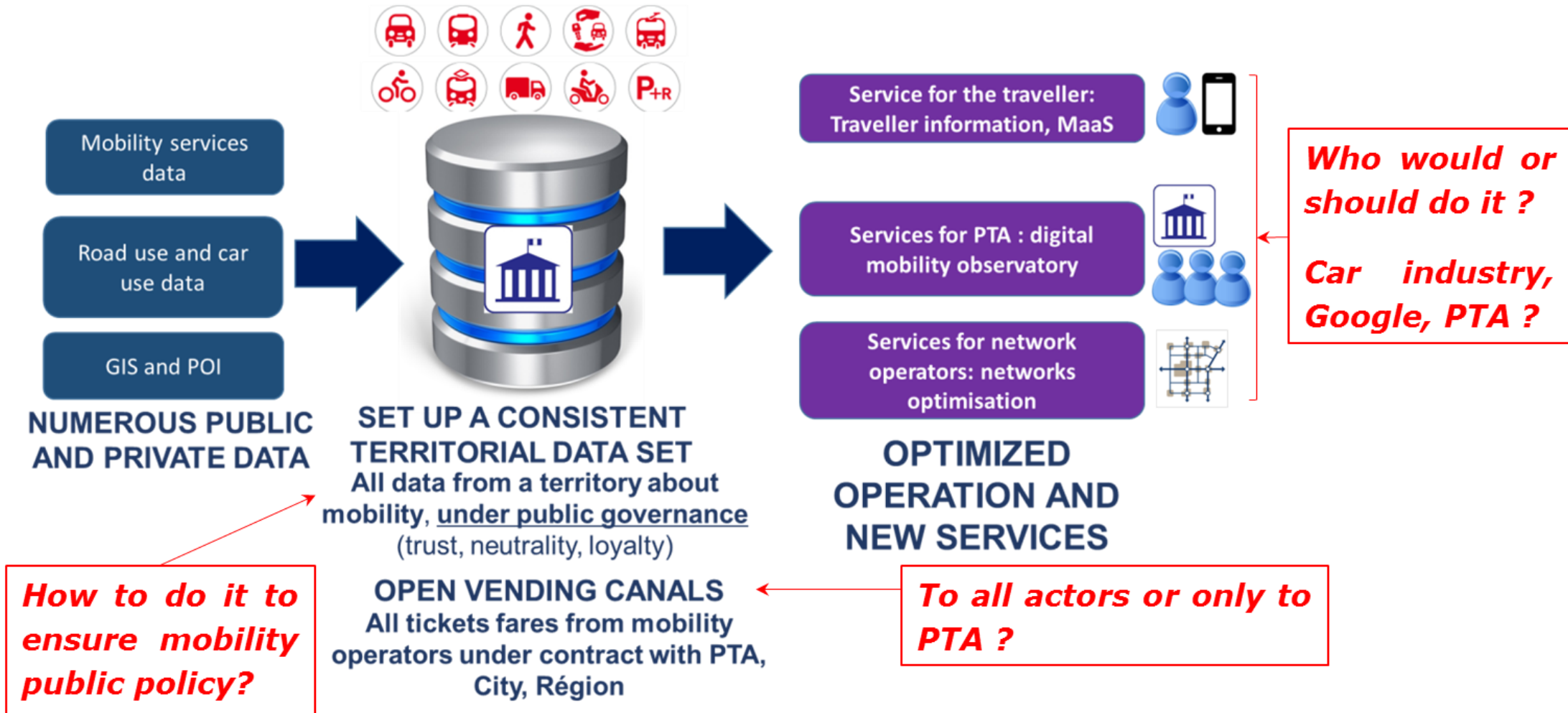 - a weak capacity of the public authority regarding data governance.
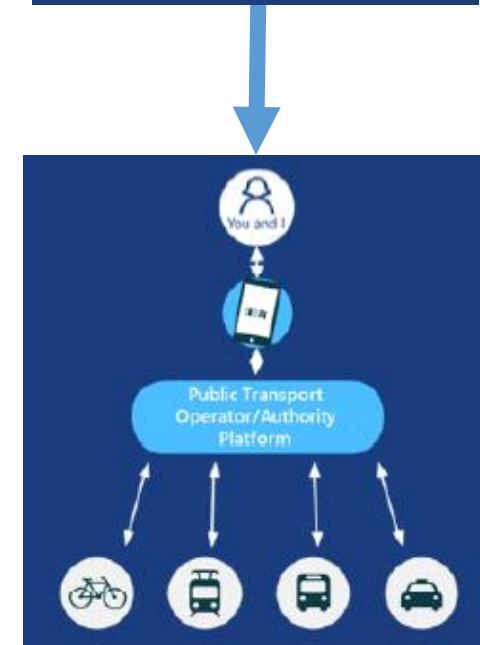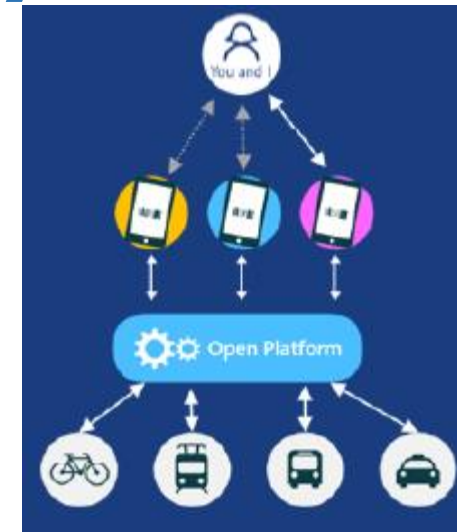
Data and the economics of platforms

- Public authorities fear with the opening of data and the risk to have, at the end of the game, a private platform in a monopoly position to propose all the mobility services

- But the main risk is to have different mono-modal platforms and finally no multimodal application and no change in mobility patterns

- The giant internet companies (GAFA) are mainly interested by the "negative value" of their data. There is few money to win with the "positive value" of an efficient MaaS application.

- The positive value of a MaaS application is an external and non monetary benefit, a kind of "common good": a better urban accessibility with less congestion, less pollution, less CO_2 emissions, less noise…

Data as a public good

- MaaS is a way, via the development of multimodality, to improve the quality of urban accessibility and to manage it as a **common good** (Non-excludability but rivalry).

- But in order to set up an efficient MaaS at the whole agglomeration level, data must become a **public good** (non-excludability, non-rivalry)

- It is therefore necessary to create a consistent territorial data set on mobility, under the governance of MMA.

- On this basis, it is possible to open the vending canals

Territorial data set data, public objectives and private actors

Mobility services data

Road use and car use data

GIS and POI

NUMEROUS PUBLIC AND PRIVATE DATA

SET UP A CONSISTENT TERRITORIAL DATA SET
All data from a territory about mobility, <u>under public governance</u>
(trust, neutrality, loyalty)

OPEN VENDING CANALS
All tickets fares from mobility operators under contract with PTA, City, Région

Service for the traveller: Traveller information, MaaS

Services for PTA : digital mobility observatory

Services for network operators: networks optimisation

OPTIMIZED OPERATION AND NEW SERVICES

Who would or should do it ?

Car industry, Google, PTA ?

How to do it to ensure mobility public policy?

To all actors or only to PTA ?

Source: J. Coldefy (in Crozet and alii 2019)

MMA as trusted third party

- MMAs should engage in dialogue with private sector to build new mobility offers that (in a sustainable way for public funds) facilitate multimodality and reduce car usage.

- In the domain of data governance, MMAs have to become a "trusted third party", with a licensing policy allowing consistency of reuse with public policy and fair competition.

- MMAs have to 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 MMAs unless agreed by them; 2) MaaS provider should give MaaS data back to MMAs.

Conclusion

- Public transport authorities are facing a lot of challenges

- MaaS is one of them associated with the development of multimodality.

- MaaS has to be addressed as an intermediate goal, a way to reach some other key objectives of urban mobility (decarbonisation, social inclusion, financing…)

- A better management of urban accessibility as a common good implies new ambitions for PTAs. The have to become MMAs.

- MMAs have to be involved in the data governance in order to transform the mobility data into a public good.