

## *Mobility-as-a-Service* from cities & PTO perspectives

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# MaaS – a key enabler for mobility futures

**Mobility-As-a-Service (MaaS)** aims at **providing consumers with seamless, flexible, efficient and users-oriented mobility services**

It ultimately folds a **shift away from the personal ownership** of individual (motorized) transportation modes and non-integrated means of transportation **towards the use of multimodal mobility solutions, consumed as a service**

This is enabled by combining transportation services from public and private transportation providers (incl. “new mobility solutions”) through an **integrated mobility platform** that creates and manages the journey and integrating planning, booking, ticketing and payment on a **one-stop-shop principle**

## Cities and PTO understand *public benefits* of MaaS



### Consumers

- Improvement of **customer experience**, providing **freedom of movement** to all
- Reduction of households **mobility budget**



### Cities/ Authorities

- **Optimization of investment** in infrastructures
- **Productivity and efficiency improvement** of the system (including PT)
- Ability to **orient mobility usage** towards sustainable mobility, helping to solve congestion and reach sustainable development goals (SDGs)
- Contribution to **mobility for all** through better integration of PT with first & last miles solutions



### Mobility Solutions Providers (public/private)

- **Real-time optimization** of the each of the mobility offerings
- **Extended access to customers for “new mobility” MSPs**, reducing customer acquisition costs and improving coverage rate

... but also have **fears** towards private MaaS players entering “**their**” mobility systems with commercial-driven approaches

### Fears from authorities perspective<sup>1</sup>

Fear of **encouraging a shift towards cars** and away from sustainable transport modes

Fear of **higher costs for transport** and **inequality of services and reach** to citizens (focusing on most contributive customers)

Fear that private MaaS operators would **capture relationship with the customer**, weakening authority’s brand image

### Fears from PTO perspective

Fear of **losing direct contact with the customers** and of **commoditization**

Fear that the **core PT offering will be undermined** in case private MaaS operators would favor car-based solutions

Fear of **losing part of the revenue from ticket distribution** (part of the endowment for incumbent PTOs)

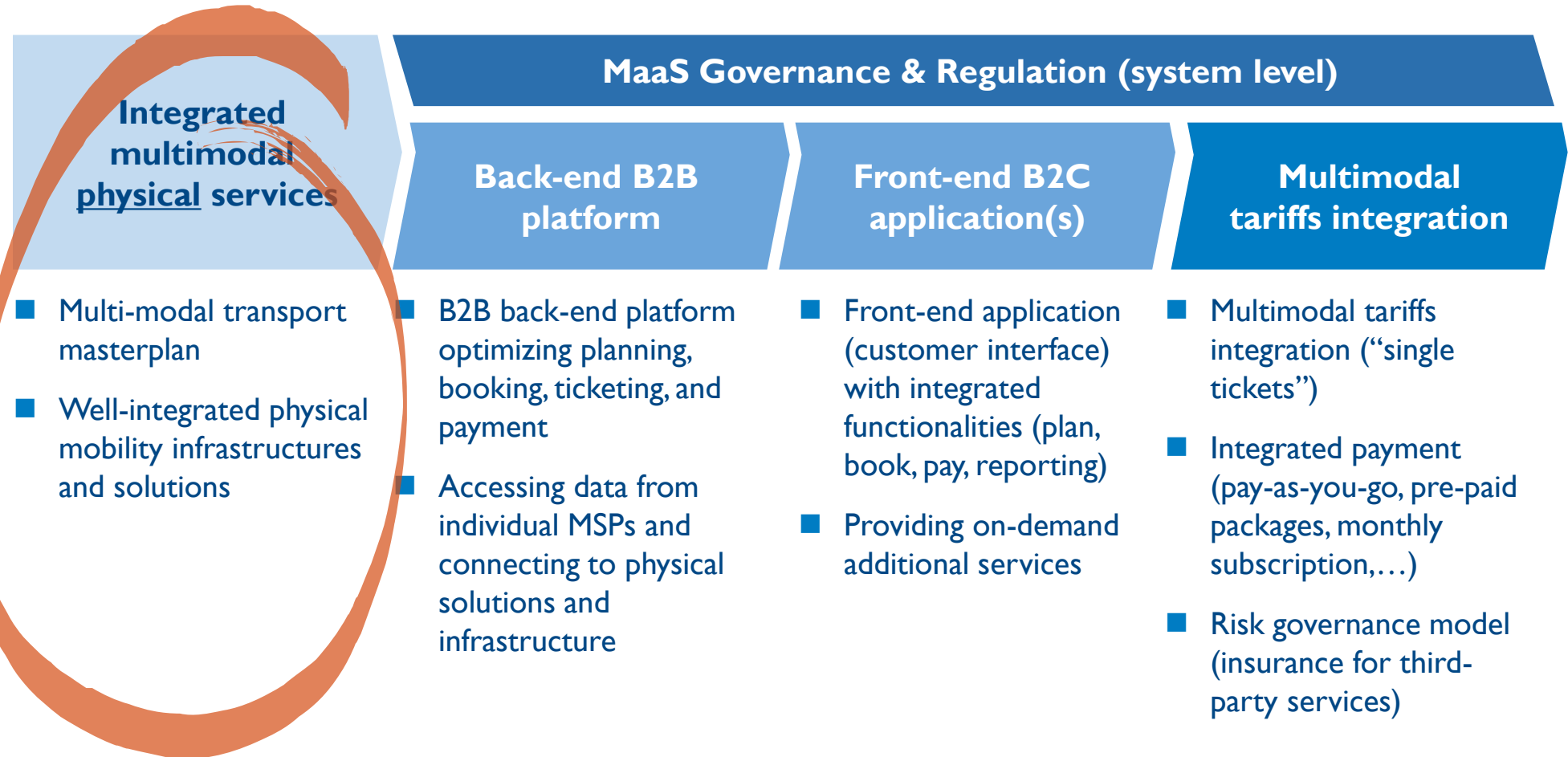
Risk of **not being part of capturing the potential of the MaaS market**

Most PTA & PTO realize they have a *role to play*... but many are still *struggling* to define their vision and strategy

- *How can PTA contribute to frame a virtuous MaaS for their city?*
- *What is the appropriate MaaS market model?*
- *What is the right governance and industrial model between PTA, PTO and private actors?*

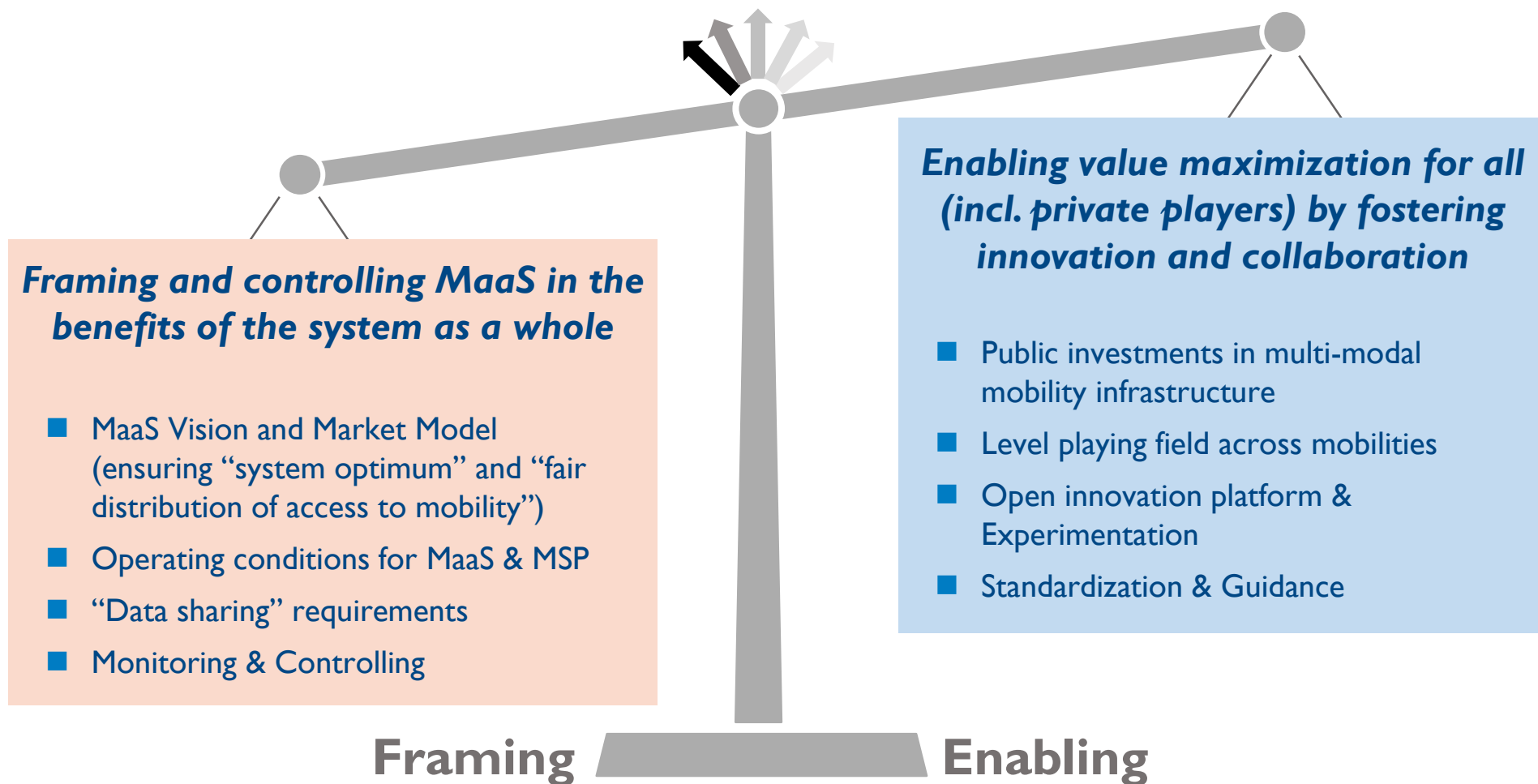
# MaaS at system level from city perspective

## – *It is not just a platform & apps!*

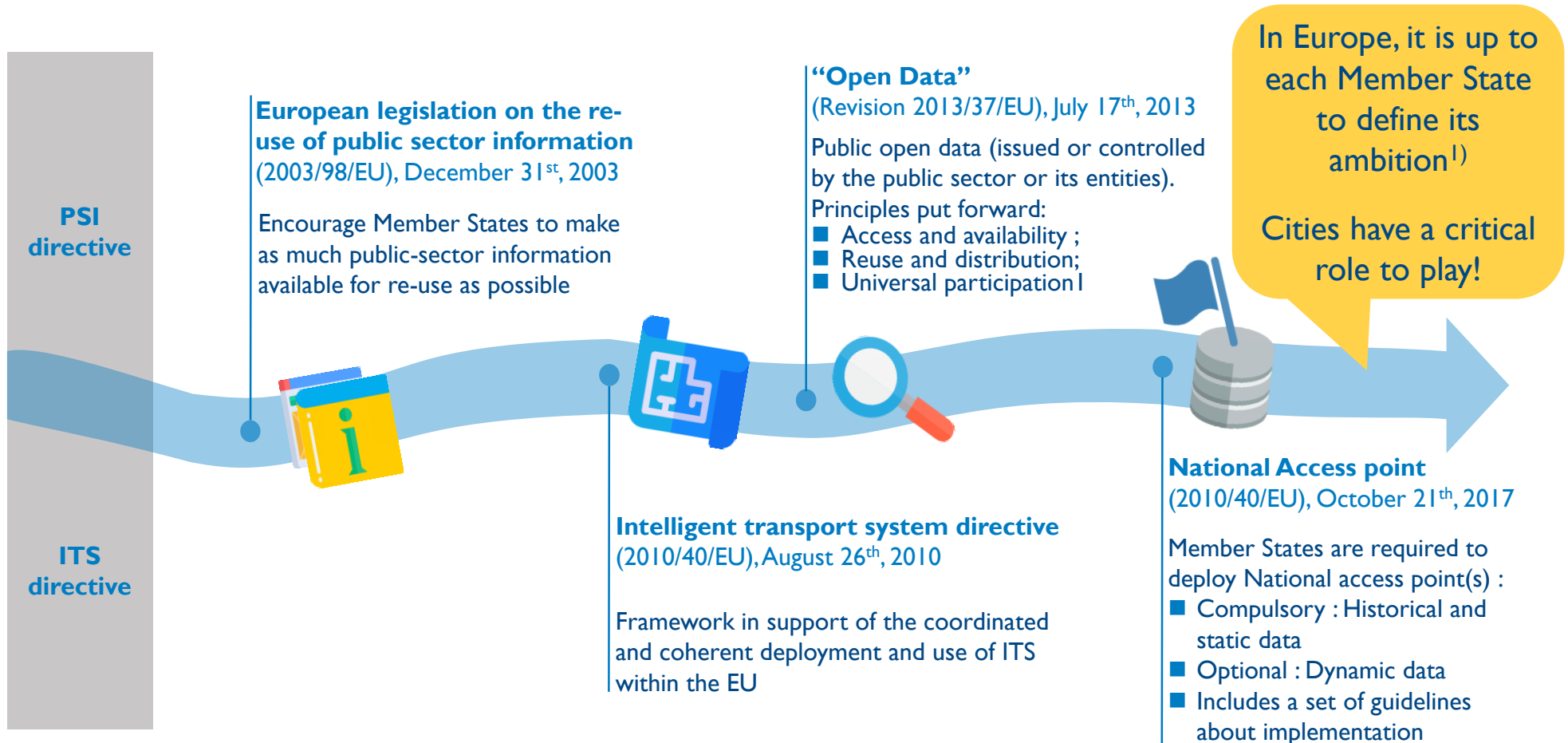


Cities must play an **active role** in MaaS...

... finding the right balance between **framing** and **enabling**



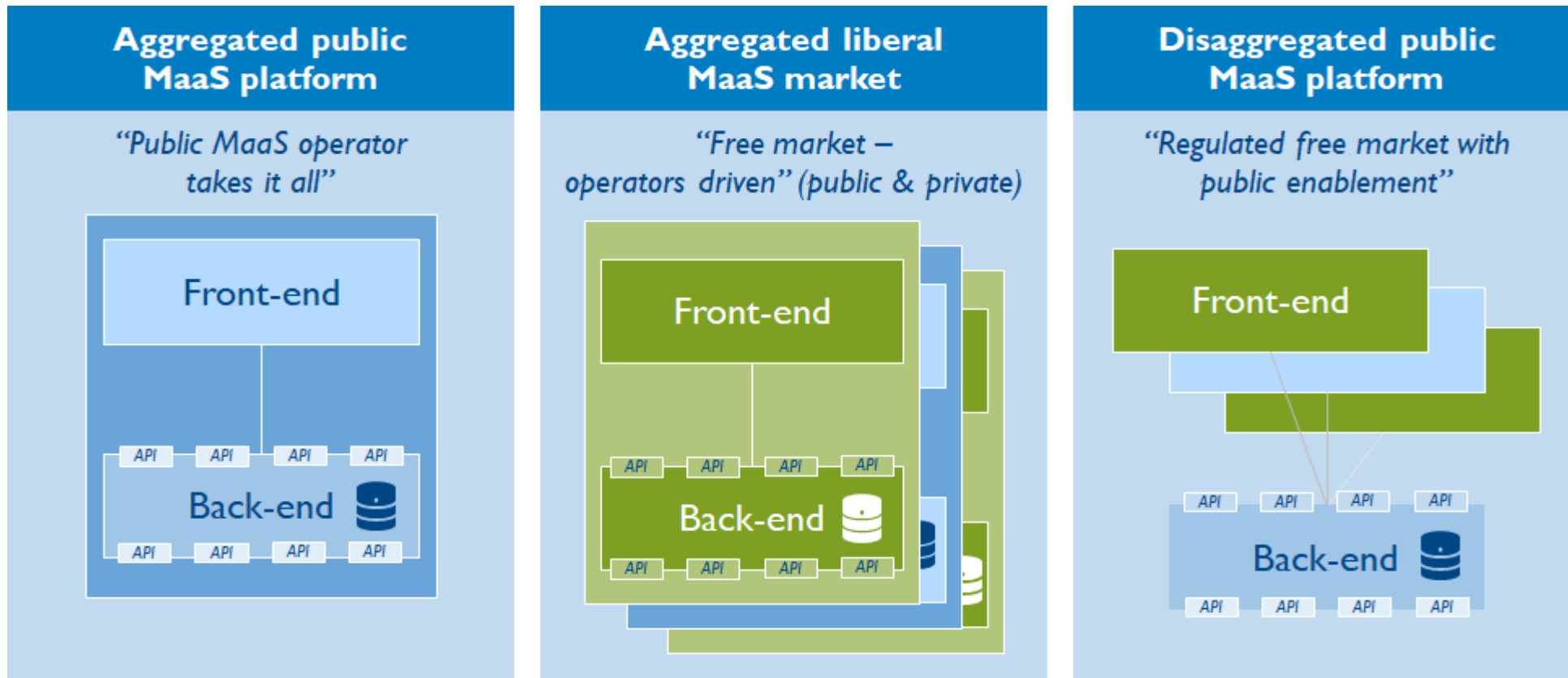
# Cities can also play a critical role to enable MaaS through deployment of *mobility data-lakes* (e.g. NAPs)



Source: Arthur D. Little analysis. 1) (i.e. nature of data to include, depth of integration and operating model: one single NAP (Database), several access points with an “orchestrating” layer (DataWarehouse) or a simple register



# Three *MaaS* market models

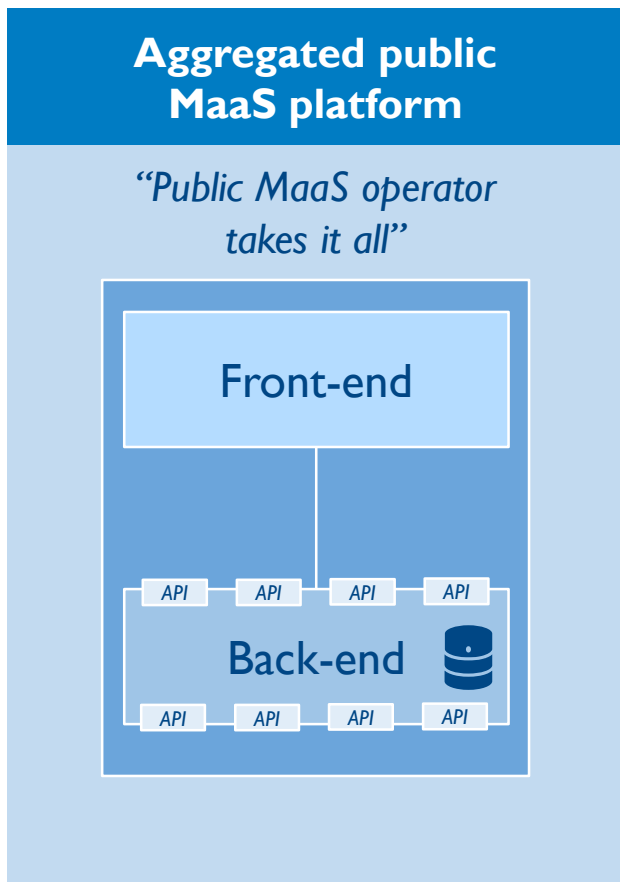


Transport authority and/or PT operator(s)<sup>1</sup>

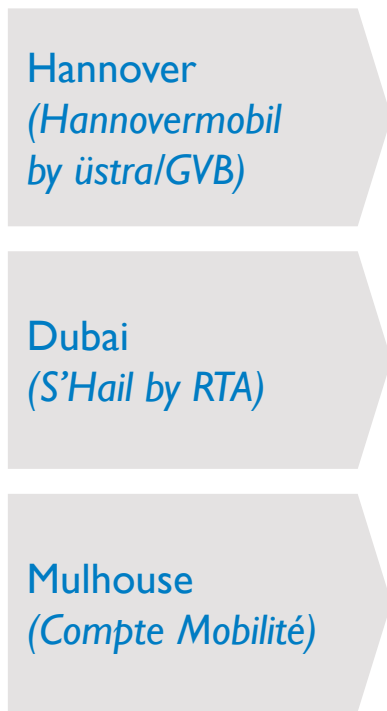
Transport operators<sup>1</sup> (public or private) or private MaaS operators

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# The **aggregated public MaaS platform** model implies non-openness of PT data & development of a “closed” public MaaS



## Representative examples



- Pilot in 2014, 2nd phase in 2016 by GVB (PTA) and üstra (PTO)
- Plan, book, ticket, payment of PT, taxi and car-sharing (PaYG)



- Launched in 2017, integrating PT (journey planning) and taxi (plan & book)
- Operated by RTA



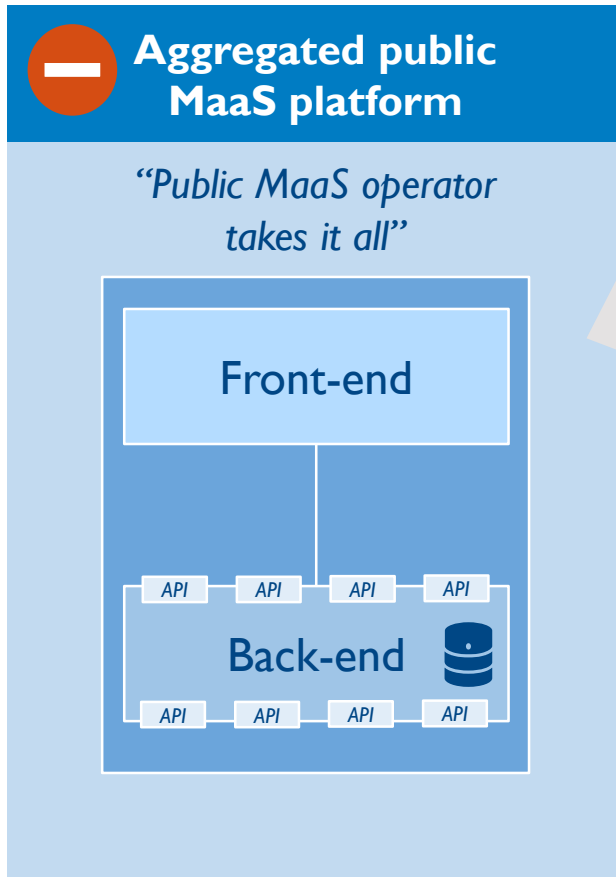
- Hybrid Card & App MaaS with post-PayG, integrating PT, bike & car-sharing, VTC and bicycle parking facilities
- Developed & operated by Transdev



■ Transport authority and/or PT operator(s)<sup>1</sup>
■ Transport operators<sup>1</sup> (public or private) or private MaaS operators



# Cities increasingly recognize the *limitations of this “transitional model”* which is likely to become obsolete



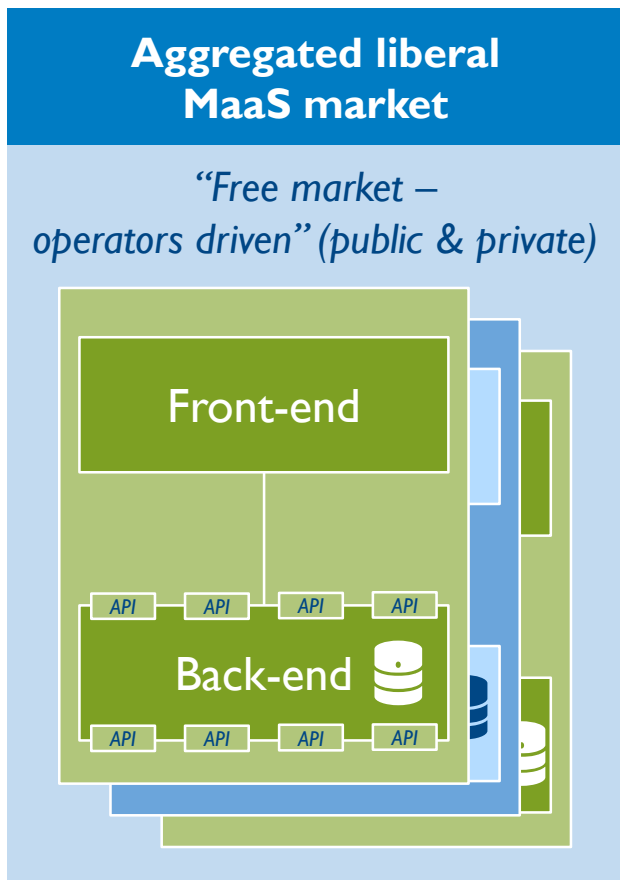
- This model is based on the **public's hold on the MaaS**, implying a policy of non-openness to third parties of PT data
- Public player (PTA or PTO) operates a unique MaaS platform, integrating its own modes and aggregating third party modes
- It **does not allow for free-market dynamics** and thereby can severely **limit innovation** at the detriment of citizens
- **Transition model** – In Europe, this model might become obsolete given expected evolution of the ITS Directive (i.e. NAP)

Transport authority and/or PT operator(s)<sup>1</sup>

Transport operators<sup>1</sup> (public or private) or private MaaS operators

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# The “*aggregated liberal MaaS market*” implies openness of PT data/APIs to allow development of (public & private) MaaS



Transport authority and/or PT operator(s)<sup>1</sup>

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## Representative examples

- Helsinki, Birmingham, Antwerp (*Whim*)
- Denver/US (*Uber*)
- London (*Citymapper*)

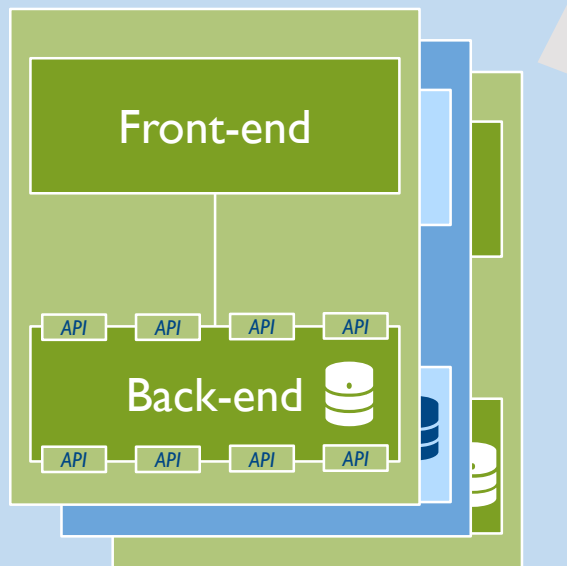
- In Helsinki (since late 2016), Birmingham and Antwerp & more to come soon
- Multiple mobilities, PayG & subscription based
- First app-based integration of PT ticketing by private eHailer
- Strong ambitions (‘head of cities’ in Europe)
- Card-based MaaS with PayGo and subscriptions integrating PT, rail, cycles and ride sharing
- “From J. planner to MaaS”



# If properly framed, the *liberal MaaS model* has multiple *benefits* and foster innovation at the benefits of the customer

### Aggregated liberal MaaS market

“Free market – operators driven” (public & private)



- This **liberal model** (involving open data and APIs of PT) allows for **strong free market dynamic favoring innovation** to the benefits of the customers
- It requires **strong framing/regulation by PTAs** to ensure that MaaS operators are striving for the system optimum
- From a city perspective, a disadvantage of this model is that – in case of multiples platforms and data-lakes – it **would not allow optimization of mobility flows in public interest**

Transport authority and/or PT operator(s)<sup>1</sup>

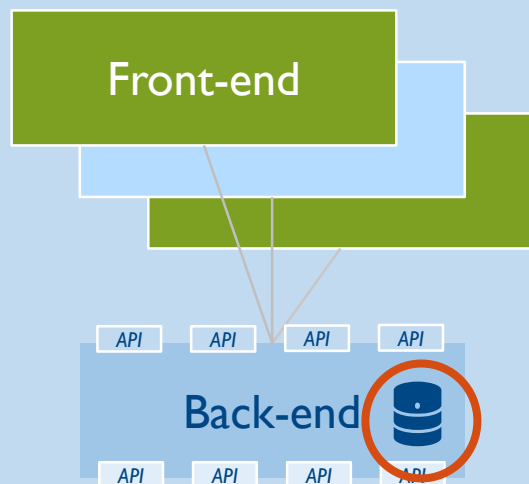
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# The “Disaggregated public MaaS platform” model implies the development of an “open back end” by public

## Disaggregated public MaaS platform

“Regulated free market with public enablement”



Vienna + planned extension to other Austrian cities (*Upstream*)

Hamburg (*Switchh*)

Other cities in planning (& more to come)

## Representative examples

- Founded in 2016 by WienerStadtwerke (PTA) and Wienerlinien (PTO) after 1<sup>st</sup> pilot in 2012
- Several MaaS front-ends in place or in development



- MaaS back-end developed by Hamburger Hochbahn (PTO), with Upstream
- Comprehensive MaaS front-end planned by late 2019



- Paris (IDFM): Tender recently launched to find a solution provider for back-end platform
- Brussels (STIB / BM): Cf. MaaS vision published in April 2019 by Brussels Minister of mobility

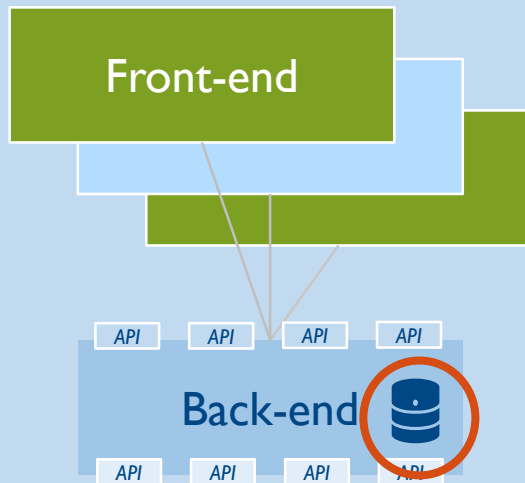
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**If properly operated** (requiring agility of public entities), **this model can be virtuous** and is increasingly considered by cities

### Disaggregated public MaaS platform

“Regulated free market with public enablement”



- Development by public (authorities and/or PTO<sup>1</sup>) of a **public back-end** and **data-lake** (incl. PT and third party MSPs data)..
- ... allowing (public or private) MaaS operators to connect and to deploy their front-end MaaS B2C applications
- **Provision of PT data** through the back-end (under non-discriminatory conditions) to front-end operators
- If properly operated, it combines the advantages of the liberal model while allowing **dynamic optimization of traffic flows in the public interest** (authority accountability)

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# MaaS... *Challenges and Opportunities* for all players!

## Cities and Public Transport Operators

- **Cities have a strong role to play:**
  - Framing/Controlling & Enabling
  - Investing in physical integration of mobilities
  - Co-development of MaaS back-end (data-lake & mobility flow optimization)
- PTO should not consider MaaS as a threat and **open their system...**
  - ...while assessing opportunities to **play a role in MaaS back-end platform** development (along with authorities)

## MaaS operators & technical suppliers

- Main challenges for MaaS operators are:
  - **Customer acquisition costs**
  - **Recruiting MSPs**
  - **Securing a viable business case**
- **MaaS operators and suppliers should get closer & collaborate with cities**
  - ... increasing access to customers (reduced acquisition costs) and to MSPs (easier integration)
  - ... as well as further assess opportunities from MaaS B2B





The Future of Mobility Lab is **Arthur D. Little's contribution to tackling the urban mobility challenge**. Arthur D. Little aims to use its Future Lab to support cities and nations in **shaping the extended mobility ecosystems of tomorrow** and as a catalyst to enable and facilitate an open dialogue between mobility stakeholders.

– Ignacio Garcia Alves, Arthur D. Little Global CEO

- 1 **Foresight analysis and mobility scenario development in uncertain environment**
- 2 **Definition of national/regional/urban mobility vision, strategies and roadmaps**
- 3 **Opportunity assessment & Due Diligence of innovative business model and solutions**
- 4 **Go-to-Market Strategies (incl. set up of multi-stakeholders ecosystems)**
- 5 **Assessment of mobility performance (Urban Mobility Index)**

[www.adl.com/futuremobilitylab](http://www.adl.com/futuremobilitylab)

# “Who says it can't be done?”

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