# MOBILITY AS A SERVICE

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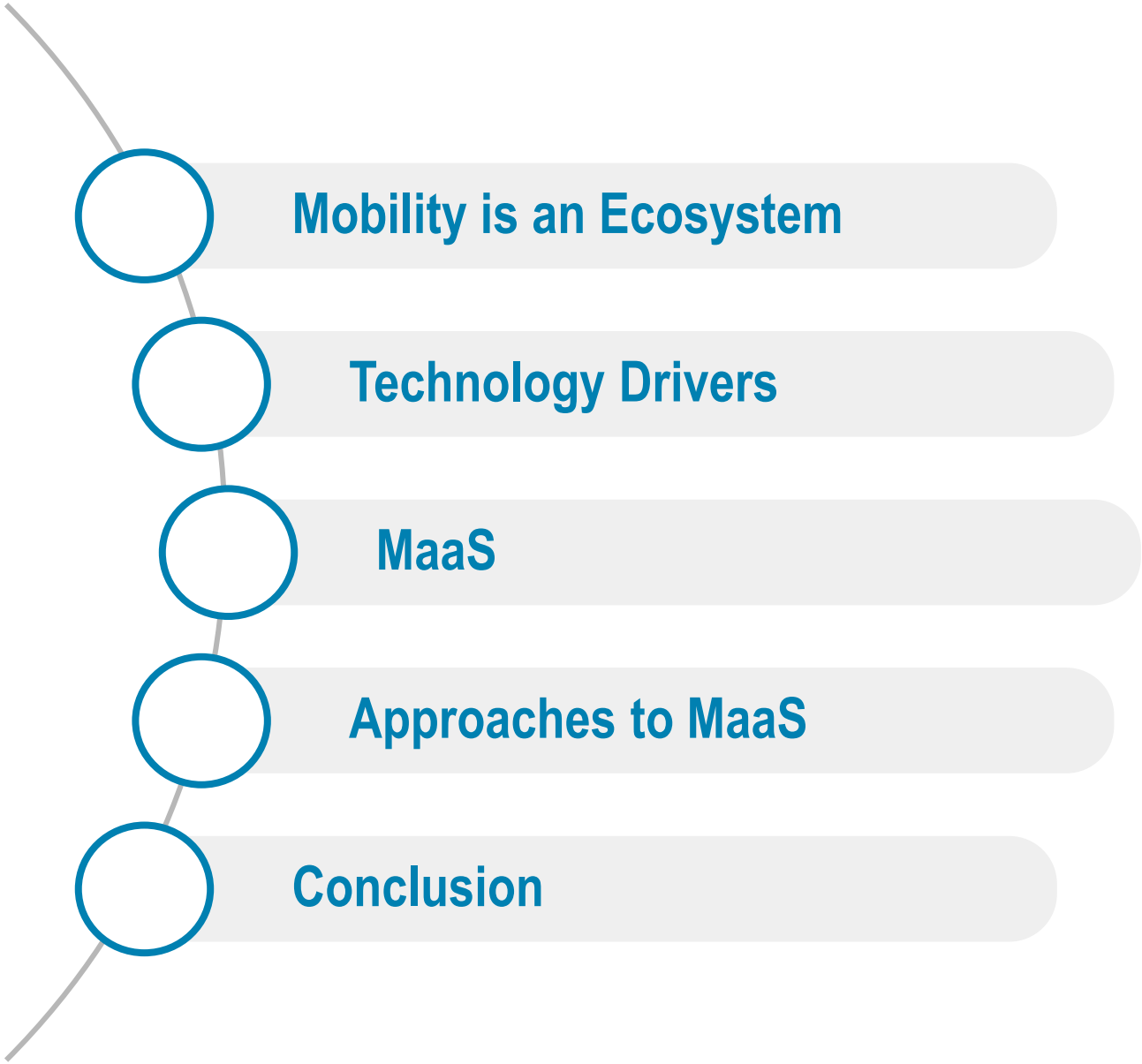
NTT DATA
Trusted Global Innovator

*May 24th*

# Agenda


Mobility is an Ecosystem
Technology Drivers
MaaS
Approaches to MaaS
Conclusion

# MARKET CONTEXT

*Mobility services are rapidly evolving driven by the needs of millennials*

- **Sharing Economy**: Pay-per-Use vs Pay-per-Own
- **User Experience** as a central element for the creation of an end-to-end service ecosystem

**69M of connected vehicles**

Constant growth of population concentration in urban areas

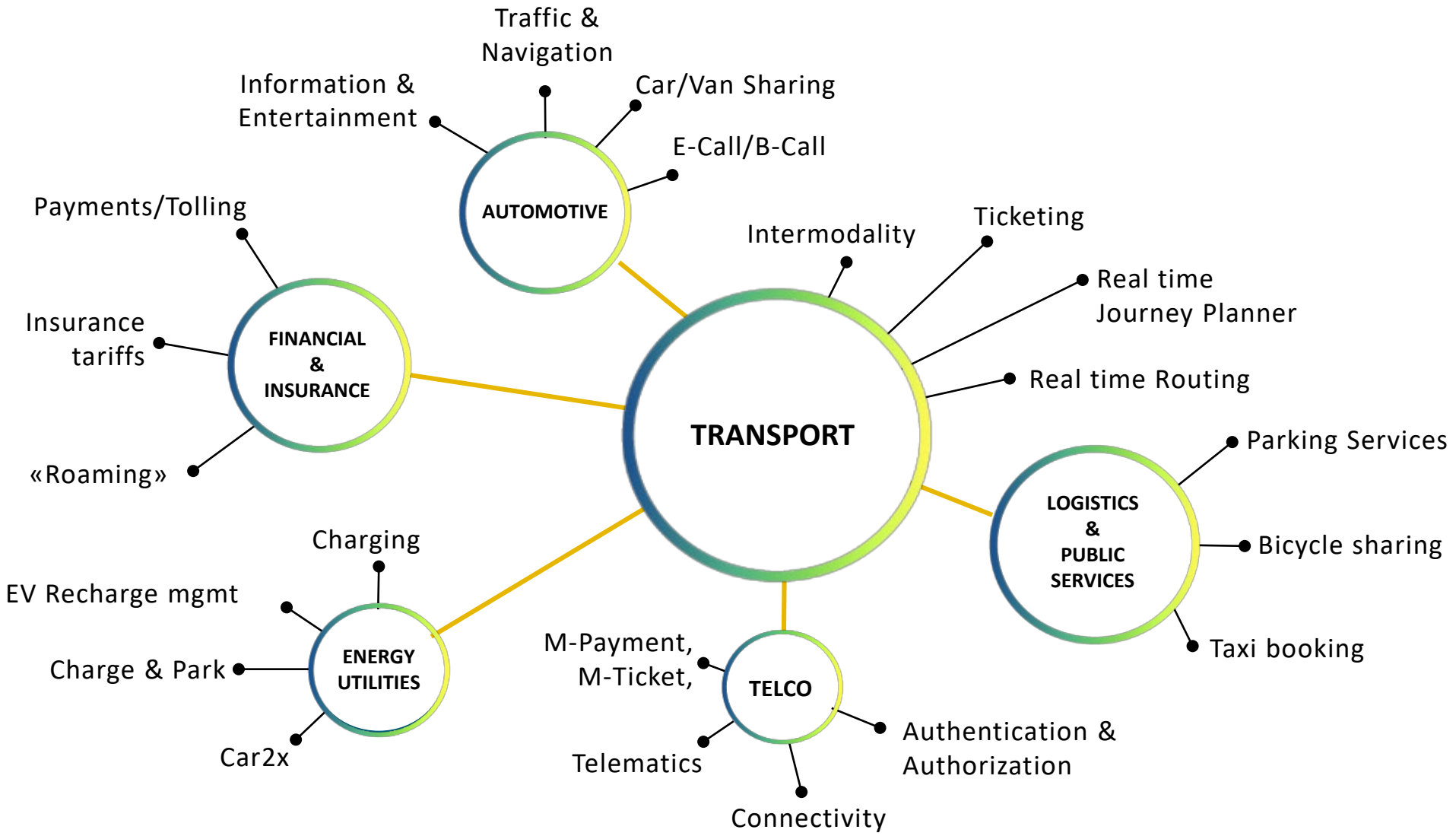
In the next 3 years, about 70% of payments will be made using a smartphone

+ 25% growth in online retail sales
in the years 2018-2023

# MOBILITY IS AN ECOSYSTEM

*of services and service providers*

Smart Mobility



# MOBILITY TECHNOLOGY STACK

*Overview of (some) technologies*

**Backend**

Payment | ... | Insurance | Concierge | Reservation | MAPs | ... | Traffic | Advertising | Streaming | Dealer | Service | Customer | OEM

Service Provider | Content Provider | Cloud/Backend

Servers

Internet

IT

**Infrastructure**

Maintenance | Safety / FF | Traffic Contr. | ... | Lighting Mgm.

AI - Algorithms

Sensors | Actuators

SCADA/PLC

OT

**Connectivity**

Online Services

Software | SW

Infotainment | ECUs

**In-Vehicle Electronic Components**

E2E Services

Cyber Security | Artificial Intelligence | Cyber Security

Motion / Body

SW | Software | Software | Software

Sensors | Actuators | ADAS HW | Cameras / Radars

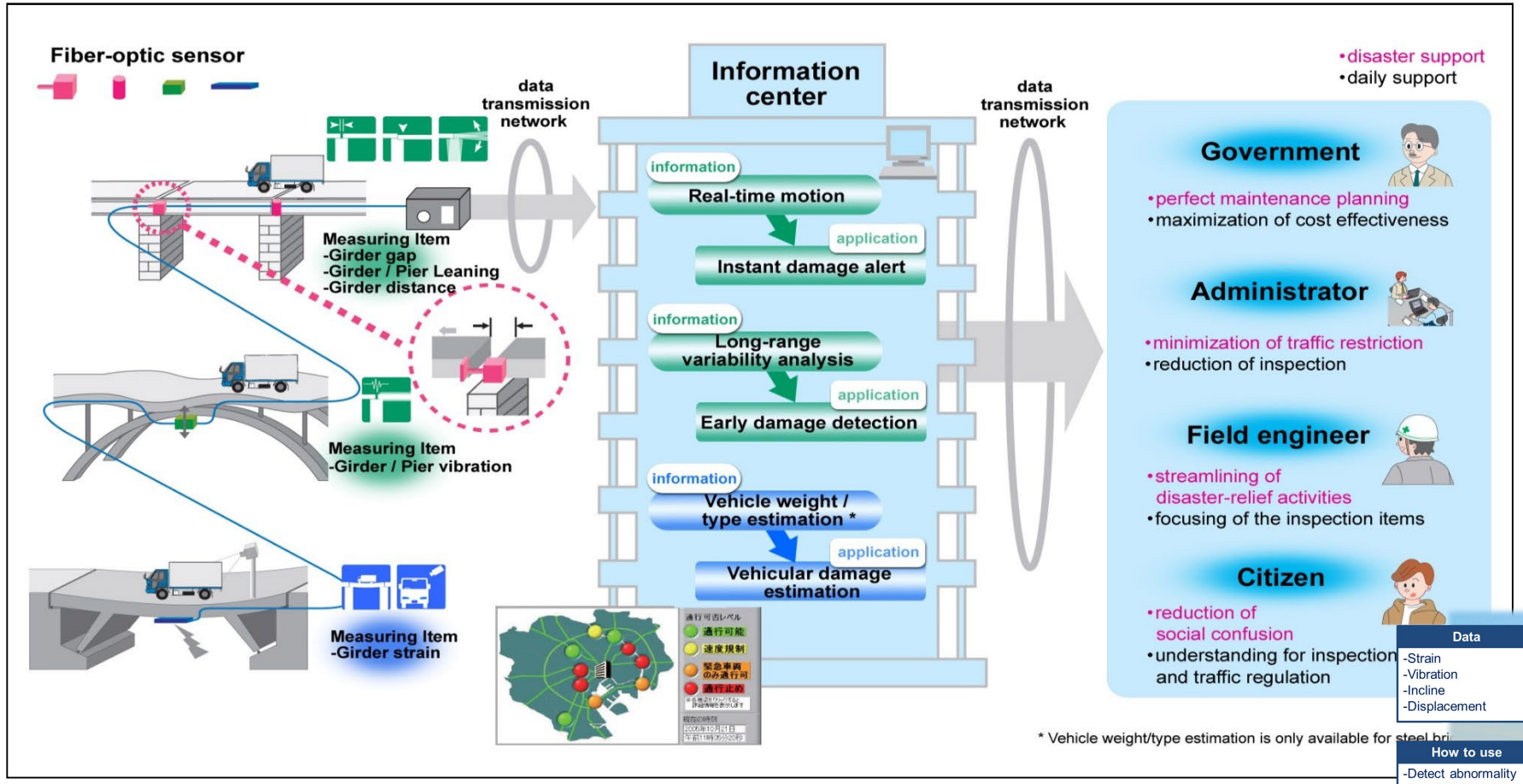
Network / Vehicle Buses

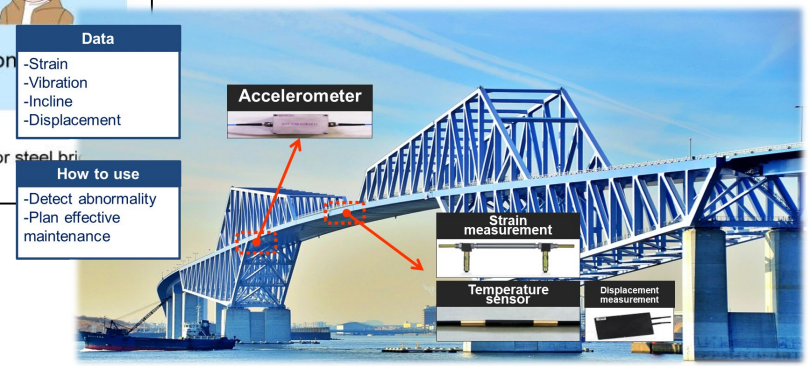
Vehicle

OT

IT

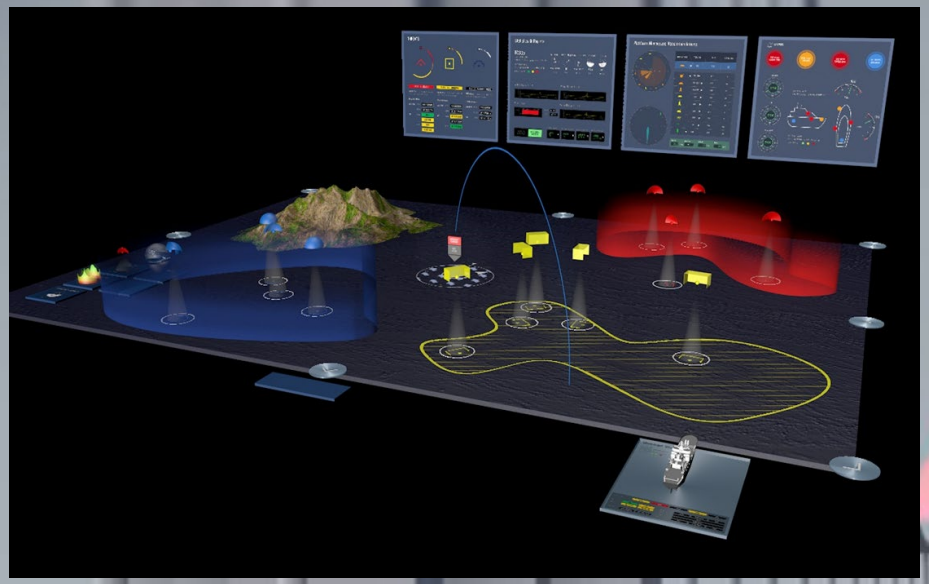
# OT EXAMPLE. MONITORING OF CRITICAL INFRASTRUCTURES AGAINST SEISMIC EVENTS



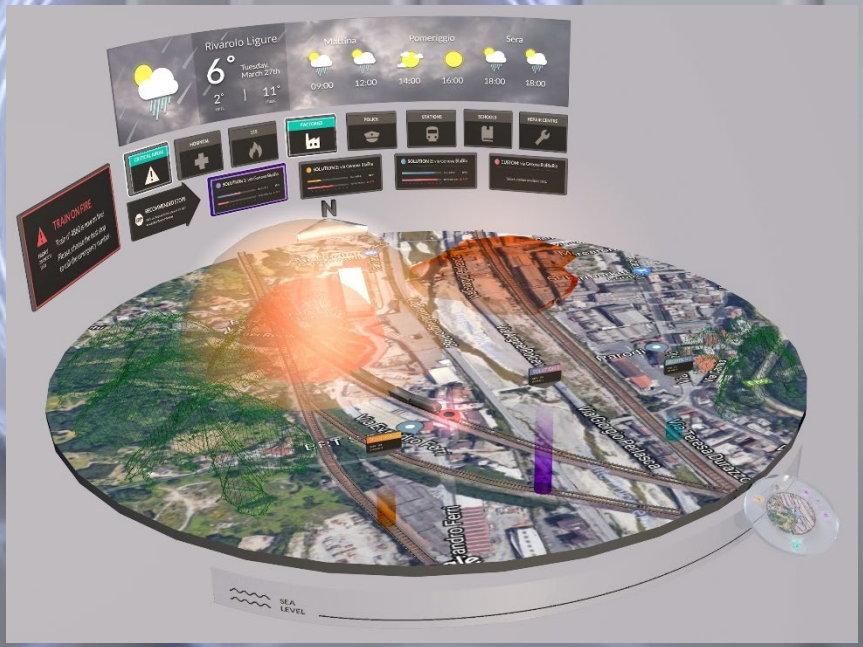




*Tokyo Gate Bridge*

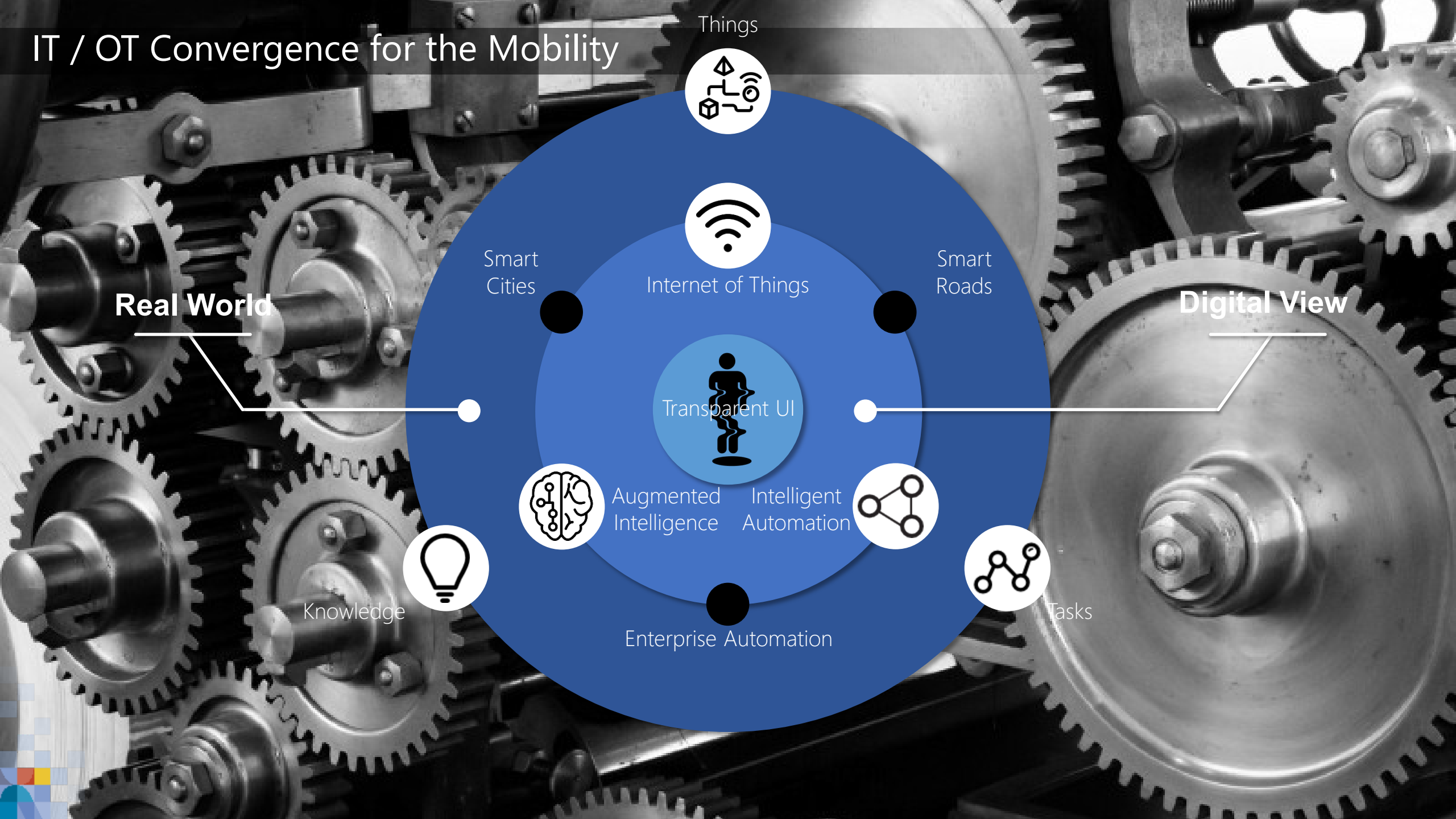
# *OT/IT convergence will bring information and actions on-board (OBU) as VAS*



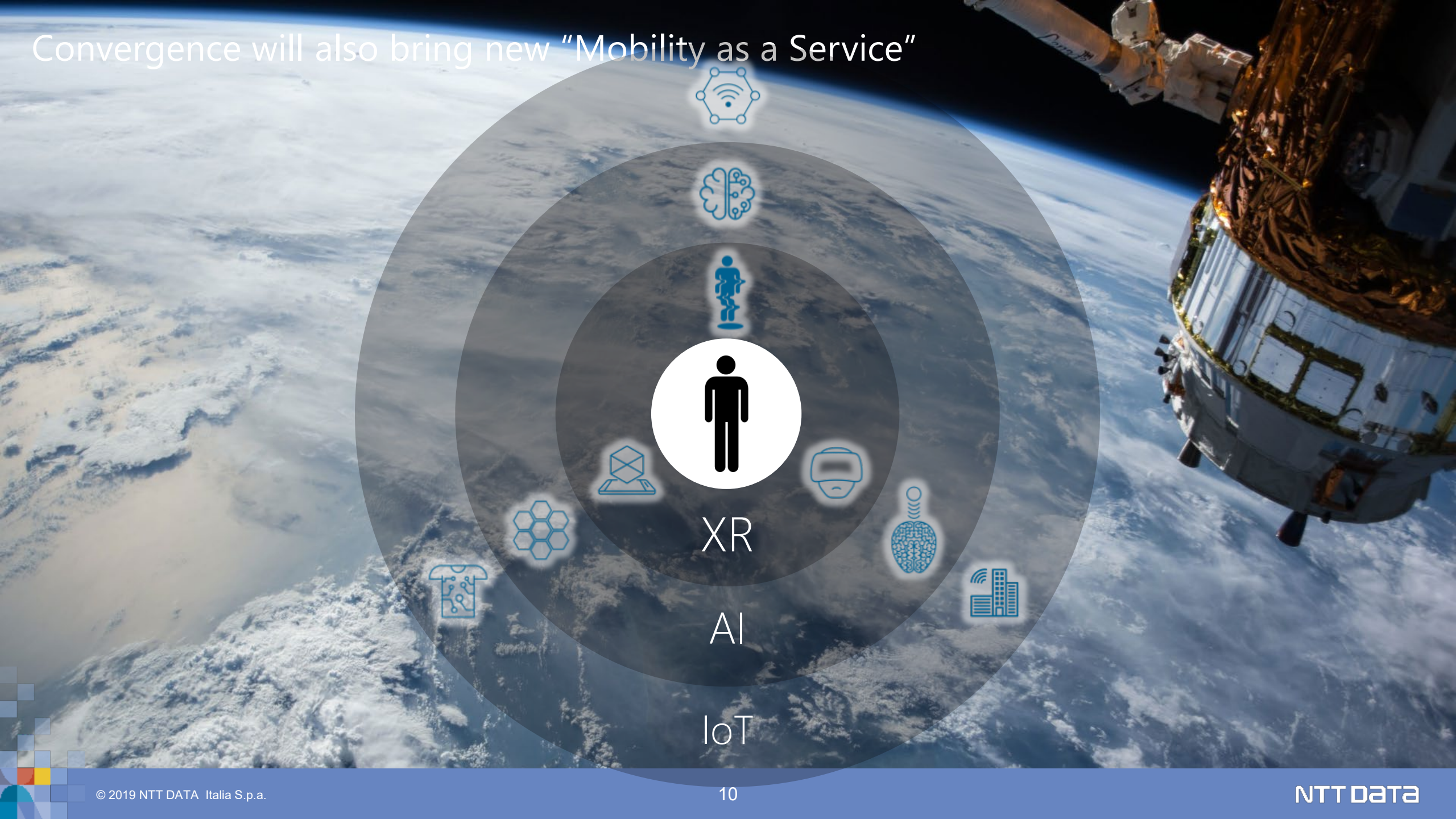
- Improvement of the **User Experience** in the field of maintenance / crisys mgm. / mobility operation.
- Development of up-to-date interfaces with high integration **but easy to use**.
- **Integration between HMI and integration level**.
- Templates for **all User Journeys** with visual integration of different systems (ACS, CCTV, MMIS, etc).



# IT / OT Convergence for the Mobility



# Convergence will also bring new “Mobility as a Service”

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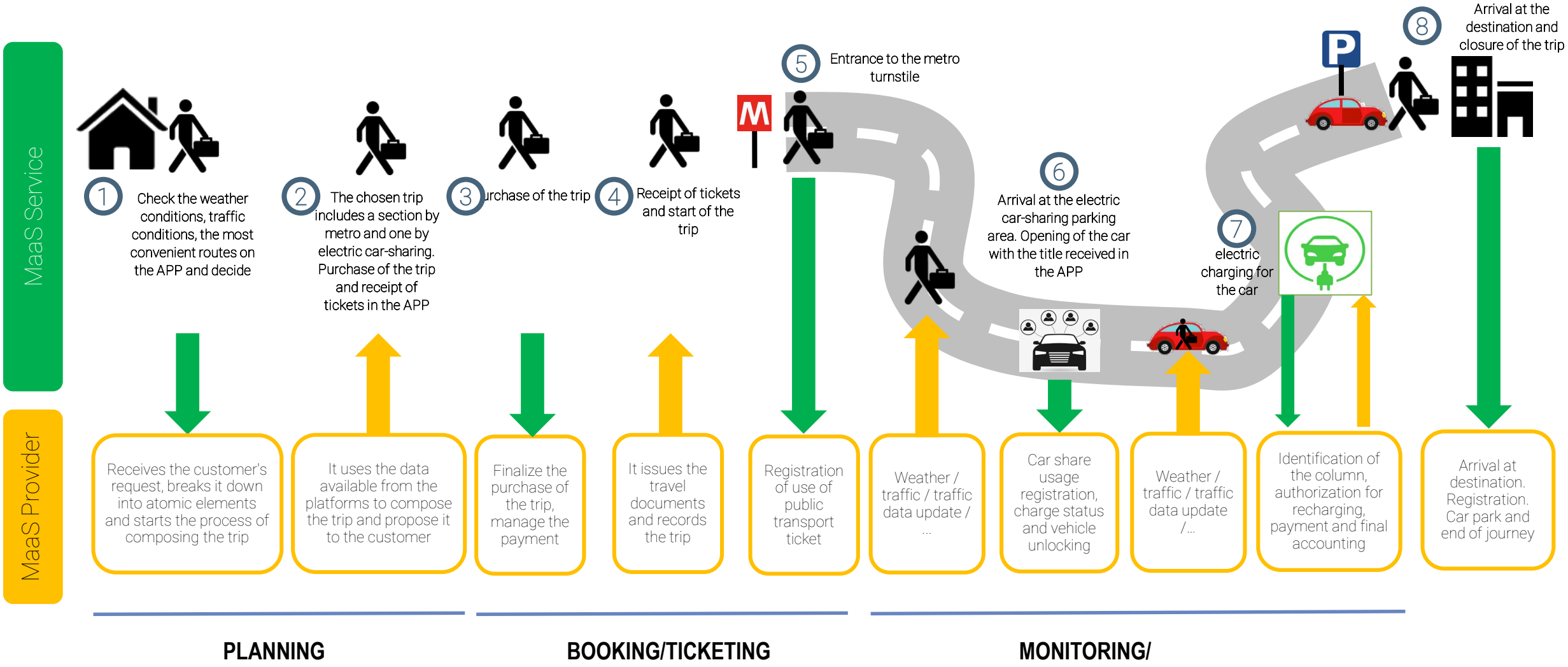
# MOBILITY AS A SERVICE

*An example of the process of composing and purchasing the trip on the "commute from home to work"*



# *MAAS: TECHNOLOGY DRIVERS*

A MaaS Provider must consider three fundamentals:

1. **INTEROPERABILITY** of their systems and technological solutions to integrate business partners (service providers, banks, fintech, …) by the adoption of a “interoperability by design” architecture

2. **REAL-TIME SERVICES** to monitor and reschedule the service as soon as any change occurs during service delivery

3. **SYSTEMS PORTFOLIO ALIGNMENT** to new technology (and UX) trends by constantly renewal applications landscape to provide a seamless end-to-end customer experience

# *DIFFERENT APPROACHES TO MAAS*

**TRANSPORT OPERATORS** are trying to enter the MaaS race on the understanding that if they want to secure their core business (selling train tickets, cars, etc.) they have to keep this link with the end users and propose mobility as an end-to-end experience.


2015 - SMILE: Wiener Stadtwerke and ÖBB developed, together with competent partners, the prototype of an integrated mobility platform, complete with a smartphone app.
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2018 - NUGO, a start-up of Gruppo Ferrovie dello Stato focused on door-to-door integrated mobility to simplify travel planning and meet the needs of passengers, offering public, collective and shared means of transport throughout Italy.


raas

2022 – Renfe as-a-Service RaaS

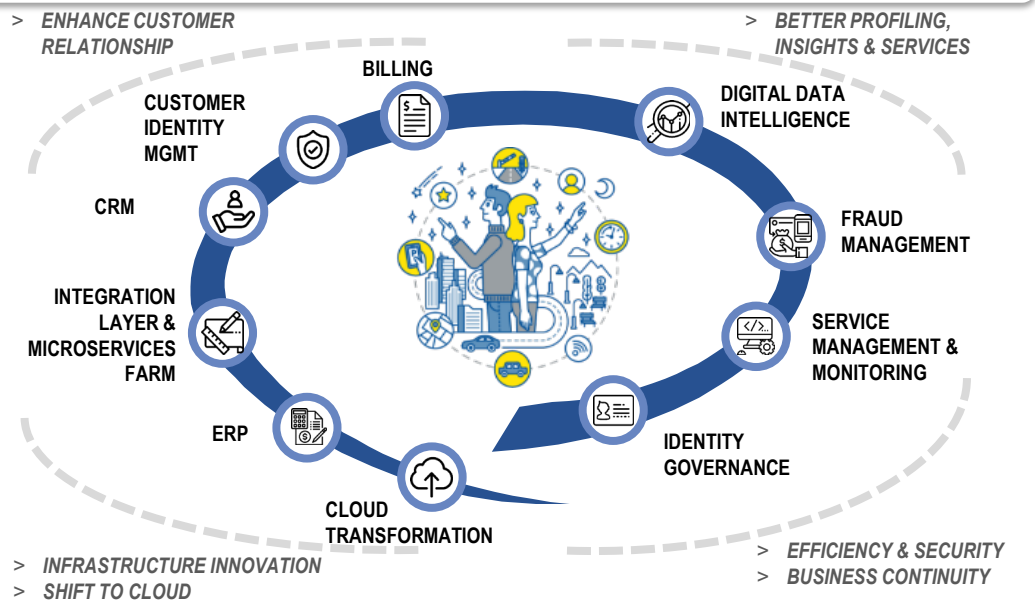
**TECH GIANTS AND SCALE-UPS** are capitalizing on their huge databases and a massive volume of users to rapidly develop more consistent and customized mobility services, such as **Google**, **Citymapper**, and **Uber**, but also SCALE-UPS like **Telepass**.

Telepass

# TELEPASS Evolution Journey

*Transformation journey (to MaaS) started in mid 2018 starting from Digital Transformation*

## The Digital Transformation & Go To Cloud Journey




## Engineering Next Generation Mobility Support Devices

**Trucks & B2B**

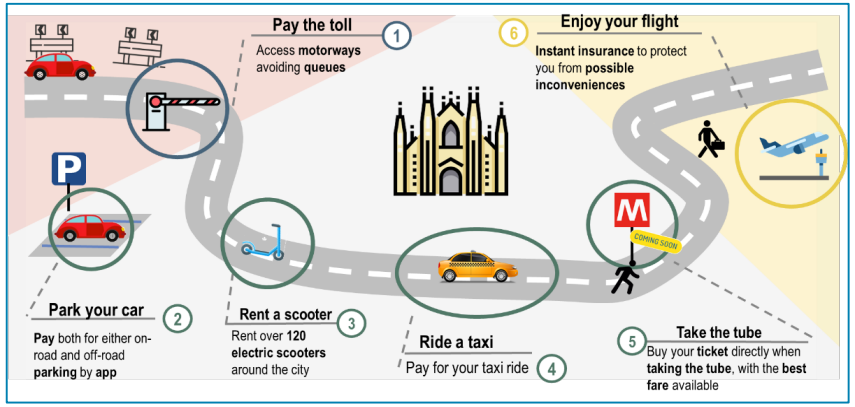
- Tolling
- Predictive Maintenance
- Insurance
- Geolocalized Fuel Payments
- Fleet Management
- Satellite Anti Theft System
- Fraud Detection
- Infomobility
- Driving Behaviour


**B2C**

- Tolling
- Predictive Maintenance
- Car Wash
- On & Off Street Parking
- Car Tax & Fines Memo
- Congestion Charge & Restricted Area Access Management
- Micro Insurance
- Satellite Anti Theft System
- Infomobility
- Driving Behaviour

## Enabling

### E2E Mobility Journey Management




### Smart Vehicle Mobility Hub

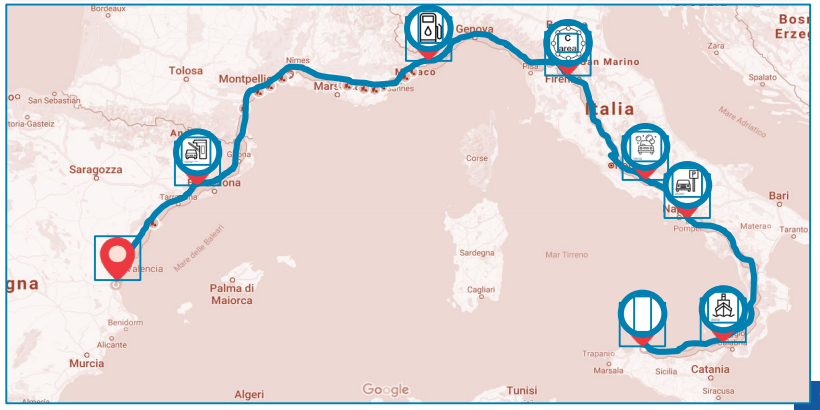
Vehicle as «Mobility Hub»

- Tolling EU
- Off Street Parking
- Ferry
- Congested City Area
- Fuel
- Taxi
- Ride Sharing
- On Street Parking
- Car Washing
- Vehicles tax and fines
- In car delivery
- Others

**connected cars become a platform for mobility services**

- Barrier-free mobility
- Data leverage
- Car as a smart hub

### Seamless Mobility Services Management Platform



# *TELEPASS: K1/NEXT Key Elements*

*New OBU (K1) to support the new business model*

**Multifunction**
The new IoT device connects the vehicle to the big internet and to customer network

K1 B2B version for trucks


**Remote Control**
The K1/NEXT device is remotely managed for configuration and activation

**Open Platform**
To facilitate integrations and implementation of new value-added services

K1 B2C version for cars

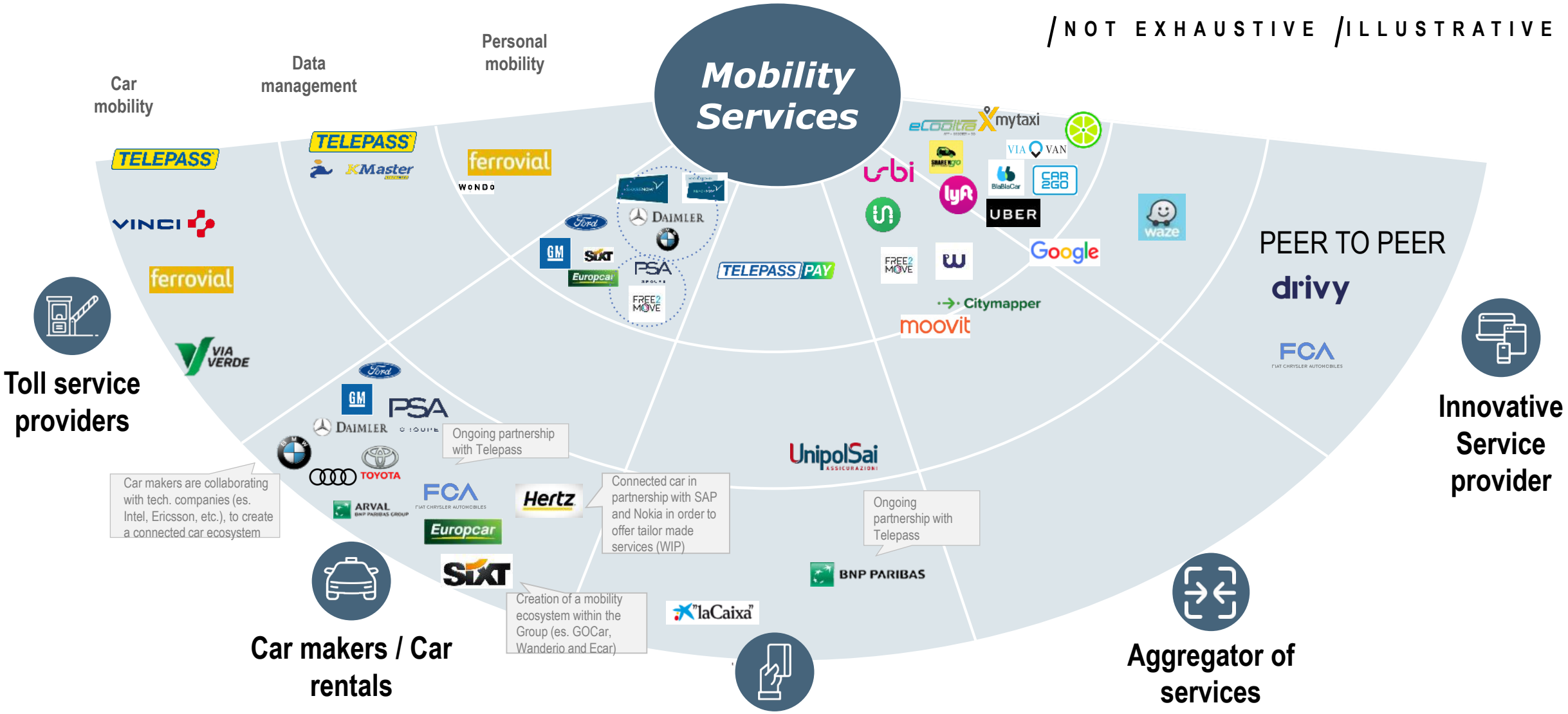

**Vehicle Info Transmission**
It may communicate all the infos related to veihicle like speed, position, …

**Artificial Intelligence**
Voice interaction with the device enables a new user experience

# TELEPASS: MARKET PLAYERS

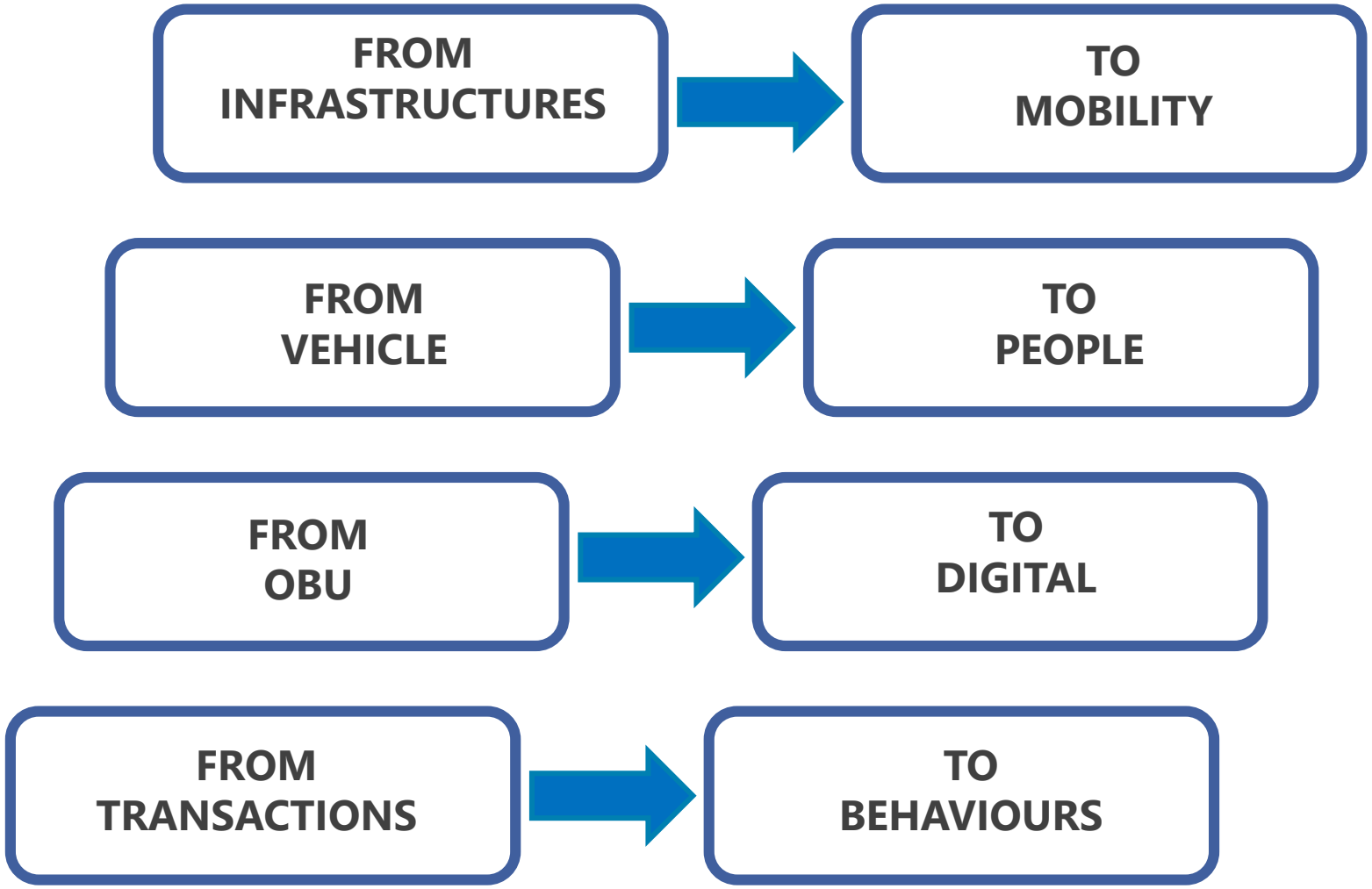
*Several players in different market sectors are looking to mobility services. Telepass has a privileged positioning due to its early start*

/NOT EXHAUSTIVE /ILLUSTRATIVE



## CONCLUSION

**MaaS mobility services** requires the adoption of new technologies available on the market, the definition of an **interoperable**, **scalable**, open and highly integrated architecture also with the **infrastructures** (OT) and able to integrate various transport operators.
A new point of view is needed that transport operators often struggle to address.
The platforms enabling the MaaS should be made available by the **Institutions** both as a matter of investments and as a **guarantee of impartiality** with respect to operators at times in competition.



# THANK YOU

## Big view to build the future.

Data Intelligence I Intelligent Automation
Customer Experience I IoT
IT Optimization I Cybersecurity