
XII Symposium on Urban
Mobility Challenges
DATA & AI - UNLOCKING
THE FUTURE OF THE
AUTOMOTIVE SECTOR
AND URBAN MOBILITY
CARNET
FUTURE MOBILITY RESEARCH HUB
Escola de Camins
Escola Tècnica Superior d'Enginyeria de Camins, Canals i Ports
UPC BARCELONATECH
UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH
Telefónica
NFF
NIEDERSÄCHSISCHES
FORSCHUNGSZENTRUM
FAHRZEUGTECHNIK
Ein Zentrum der TU Braunschweig
MobiNexus
Collaborating for Innovative Mobility

9:15 – 9:45

KEYNOTE SPEECH



POLIS **Karen Vancluysen**
Secretary General

POLIS 2026

POLIS
CITIES AND REGIONS FOR TRANSPORT INNOVATION

Barcelona, 2 November 2026

Data in the Driver's Seat? Sustainable Mobility in the City of Tomorrow

Karen Vancluysen
Secretary General, POLIS
kvancluysen@polisnetwork.eu



POLIS
CITIES AND REGIONS FOR TRANSPORT INNOVATION

About POLIS

Peer-to-peer exchange

Policy & Advocacy

Research

Innovation

130 Cities, regions and related entities

SUSTAINABLE URBAN MOBILITY INNOVATION

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www.polisnetwork.eu

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Main mobility challenges & policy goals



AIR QUALITY



MODAL SHIFT



SAFER ROADS



DECARBONISATION

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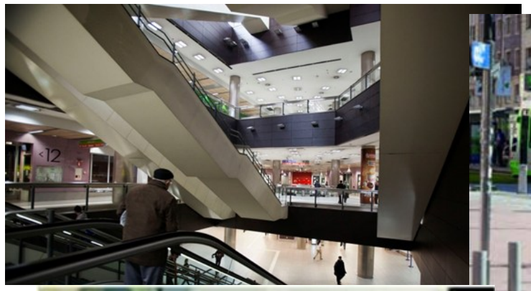
User Needs & Expectations

















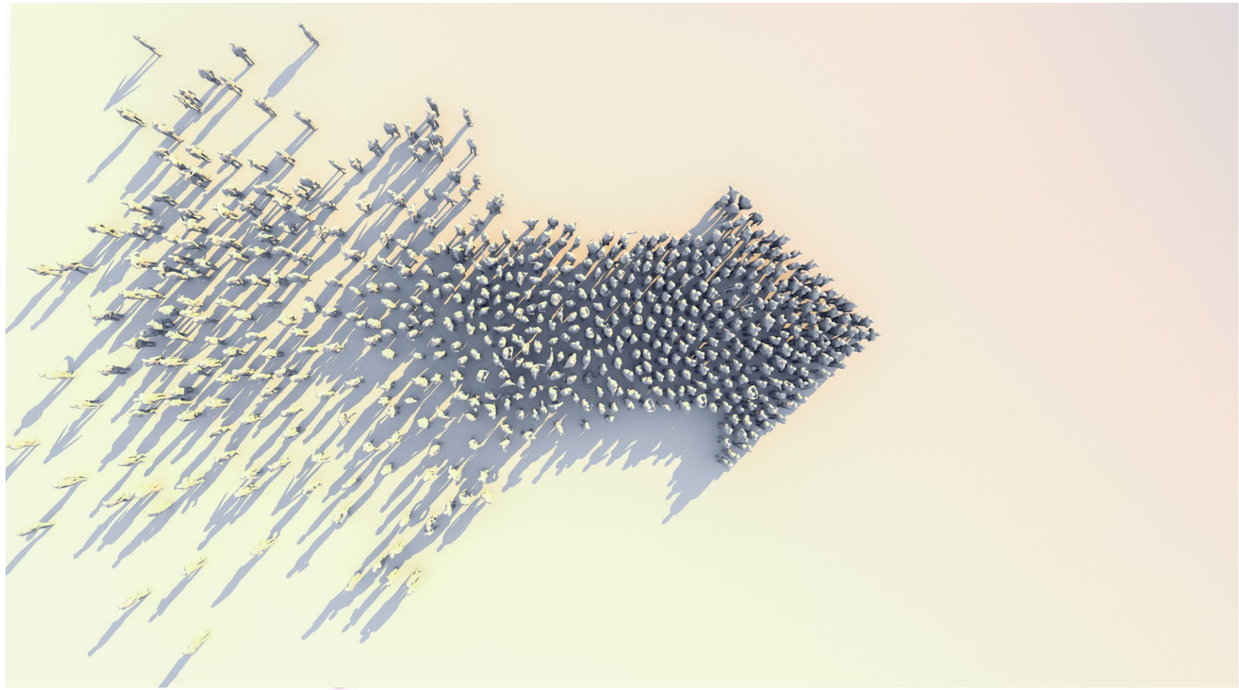






Paradigm shift

- Modal shift
- Motor shift
- Space shift
- Cost shift
- Risk shift
- Budget and investment shifts





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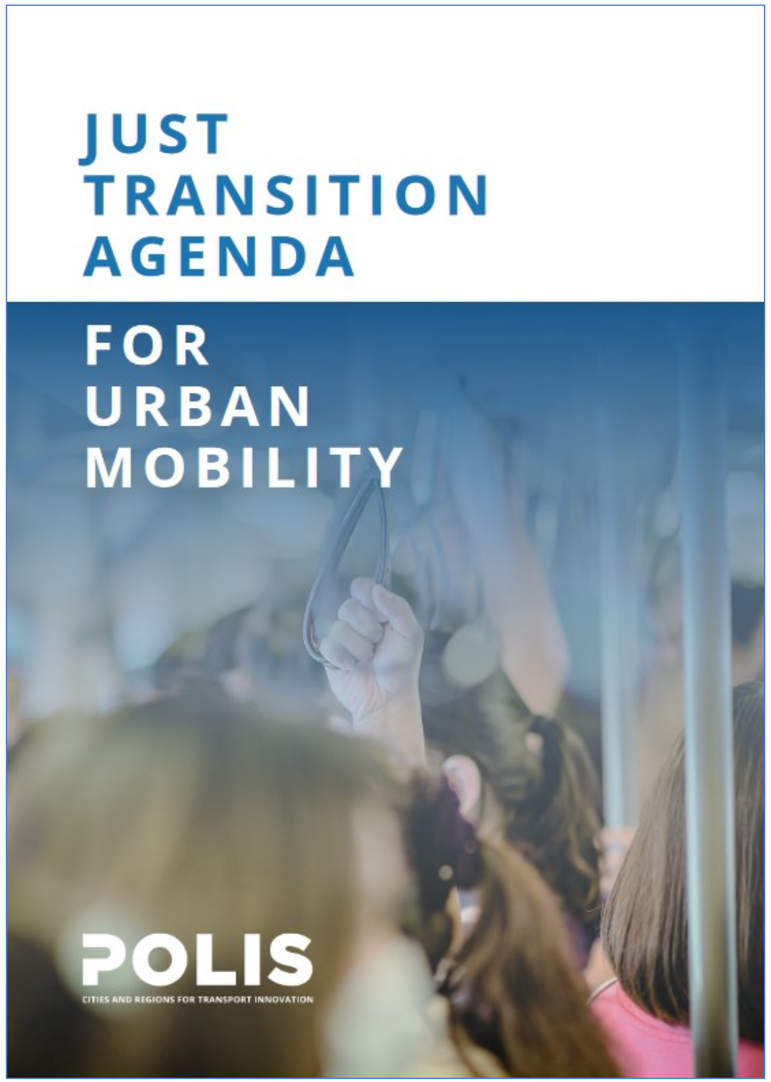
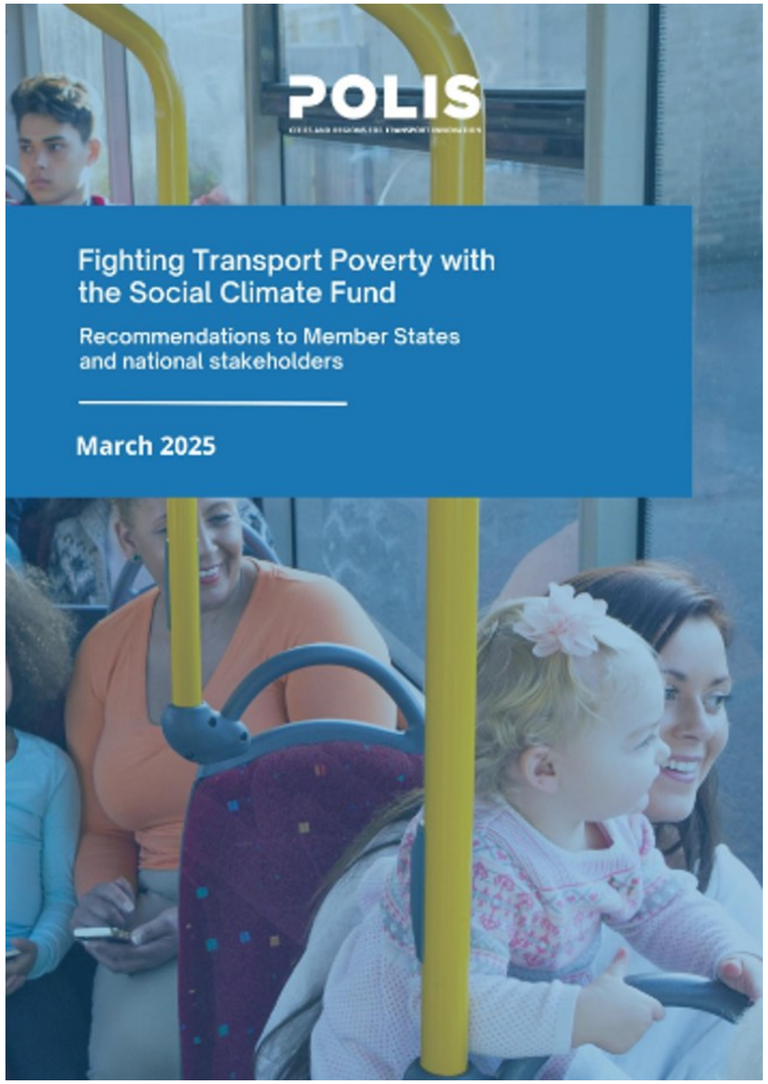
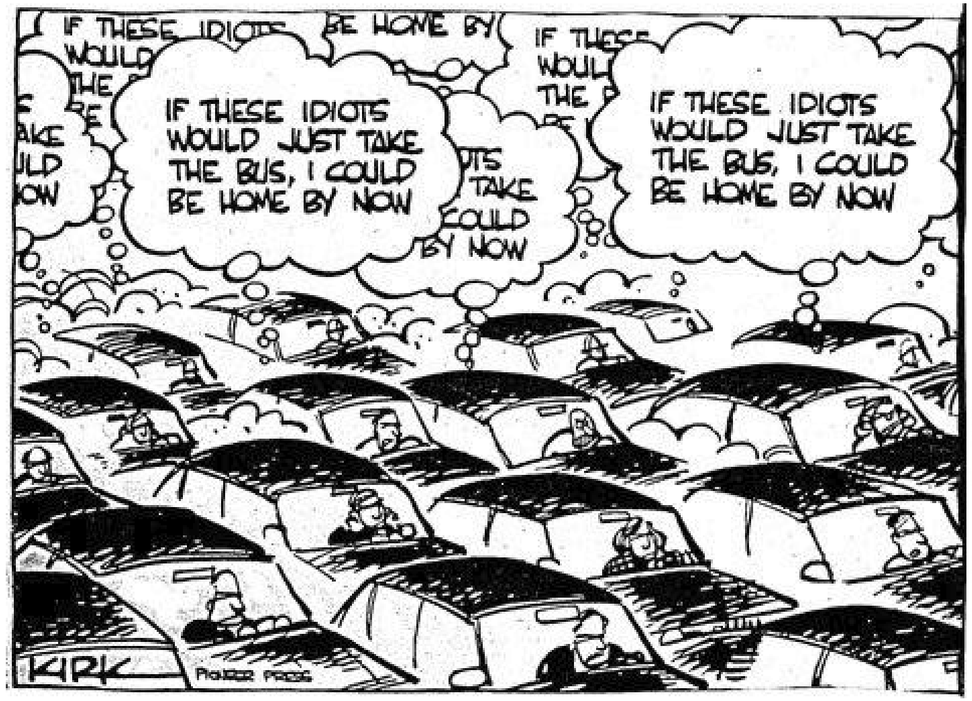
A just & inclusive transition





Populism & Polarisation



Reconciling what the citizen wants with what society needs…









Regional Travel: a post-WWII euphemism for long & unsustainable car trips



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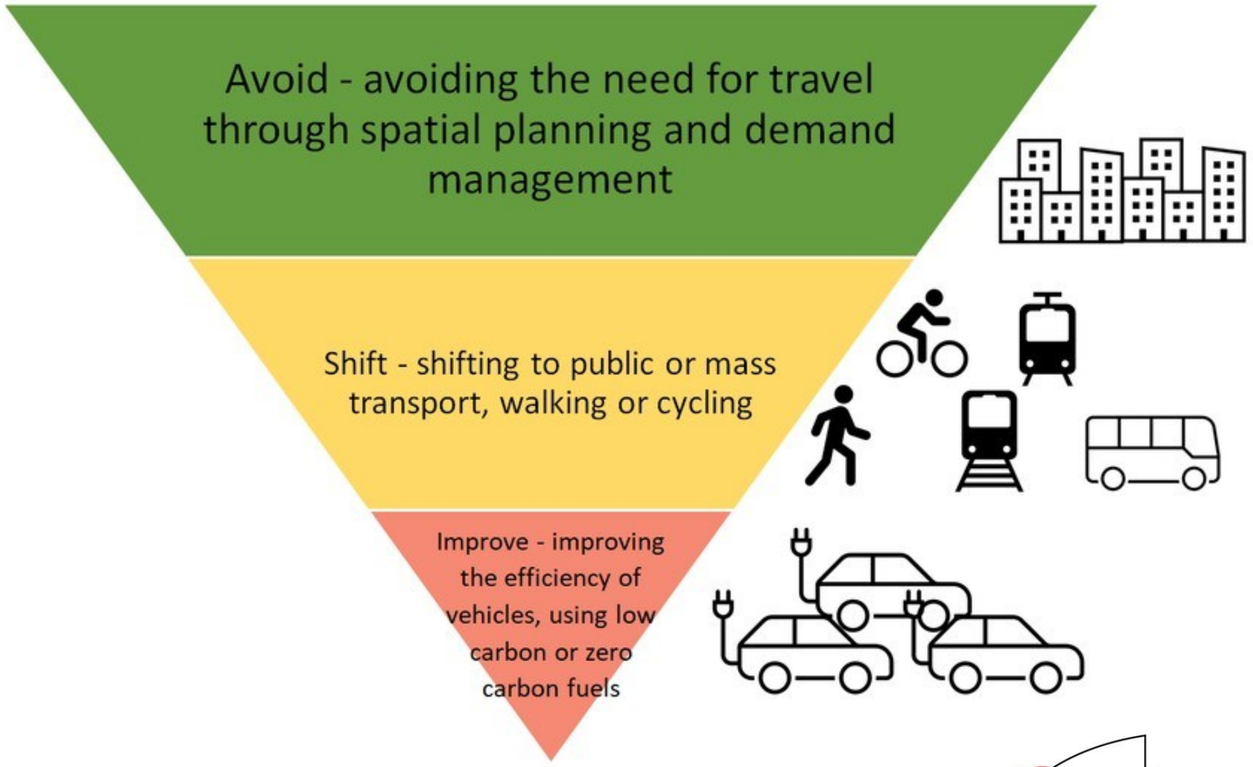
Sustainable mobility ecosystem



⇒ **Towards multimodal lifestyles**
⇒ **Multimodality = resilience**



- **Mass transit & active travel = backbone**
  - Efficiency
  - Equity, accessibility, affordability
  - Liveability, sustainability
  - But not meeting all needs everywhere
  - City versus region
- **Embrace mix of mass transit and shared mobility services**
  - Adopt broader definition of PT, including shared mobility & DRT
  - Forge new public-private partnerships, including new business models & subsidies

Picture: Zuid-Limburg bereikbaar

Graph: On track or not? Why modelling low carbon policy pathways for passenger transport in Ireland matters, Vera O Riordan

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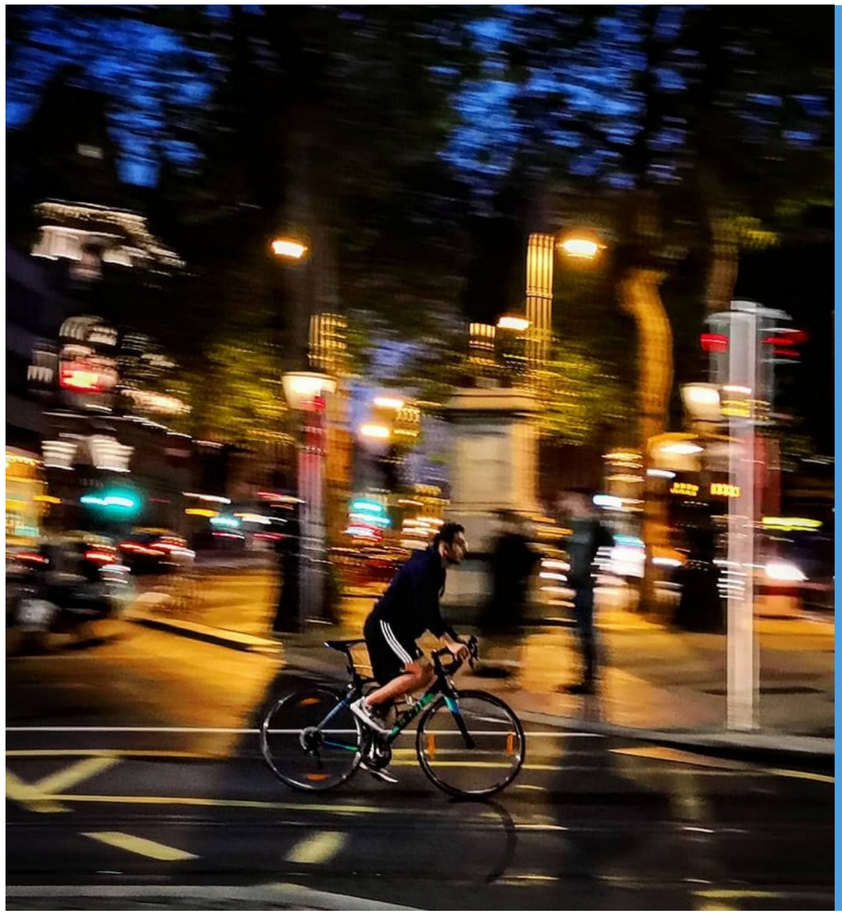
Blurred Lines

Systems approach

Modal shift

Mix of measures with multiple benefits





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Blurred Lines

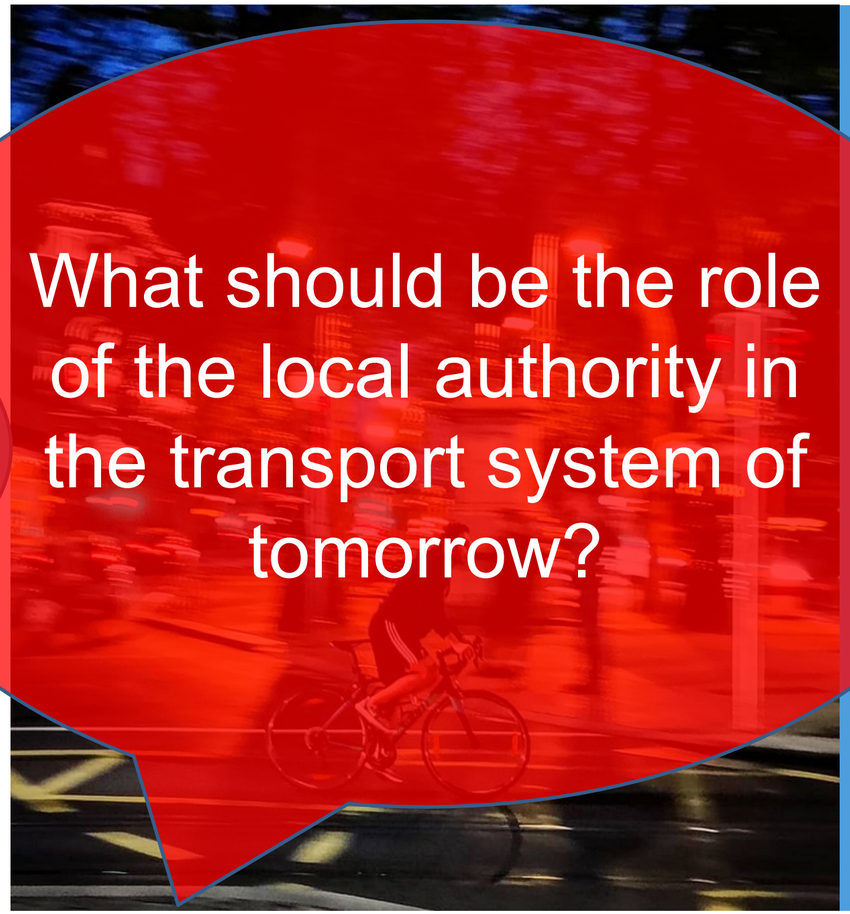
Systems approach

Public transport & active travel as backbone

Modal Shift

Mix of measures

with multiple benefits



What should be the role of the local authority in the transport system of tomorrow?



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Innovation … Disruption?

























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YES! WAIT, NO! WELL, ONLY IF...









...and FOMO

Governing Innovation

Maximise opportunities

Mitigate negative externalities

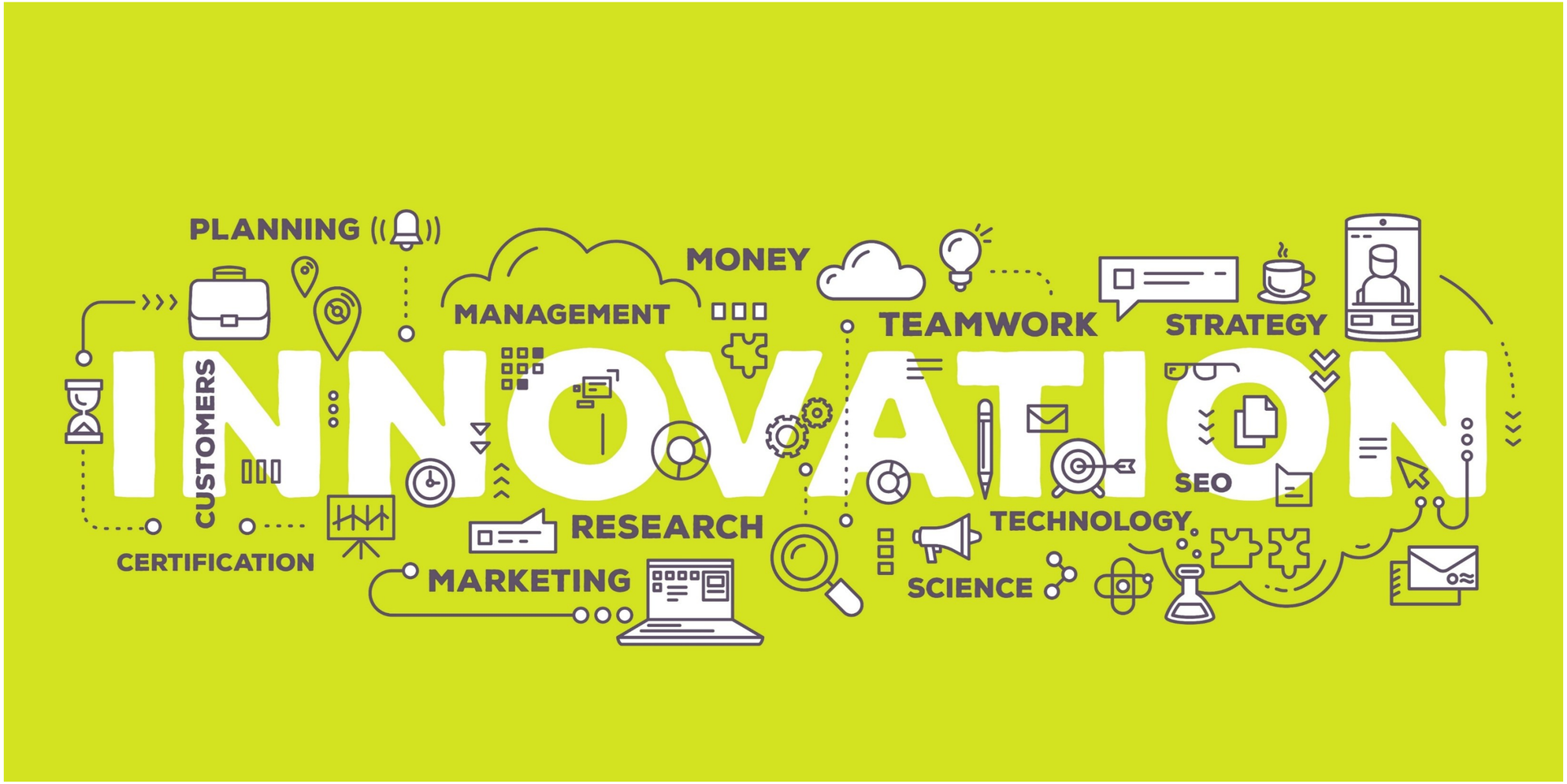
Public sector oversight

Regulate to smartly innovate

Policy-responsive innovation



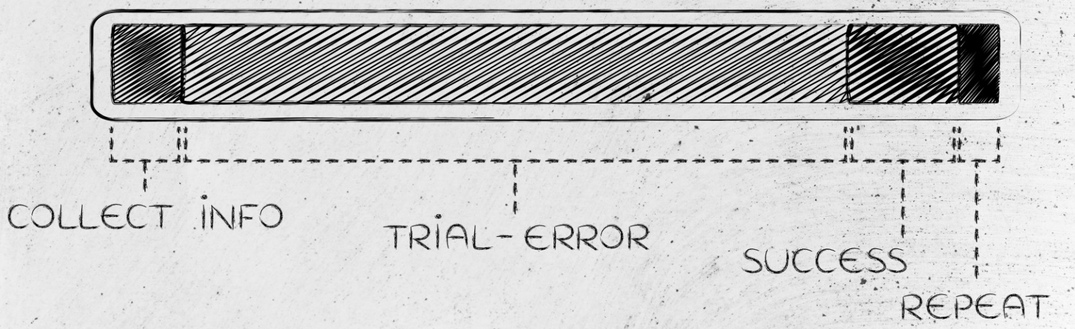
Innovating Governance







LEARNING AND EXPERIMENTING



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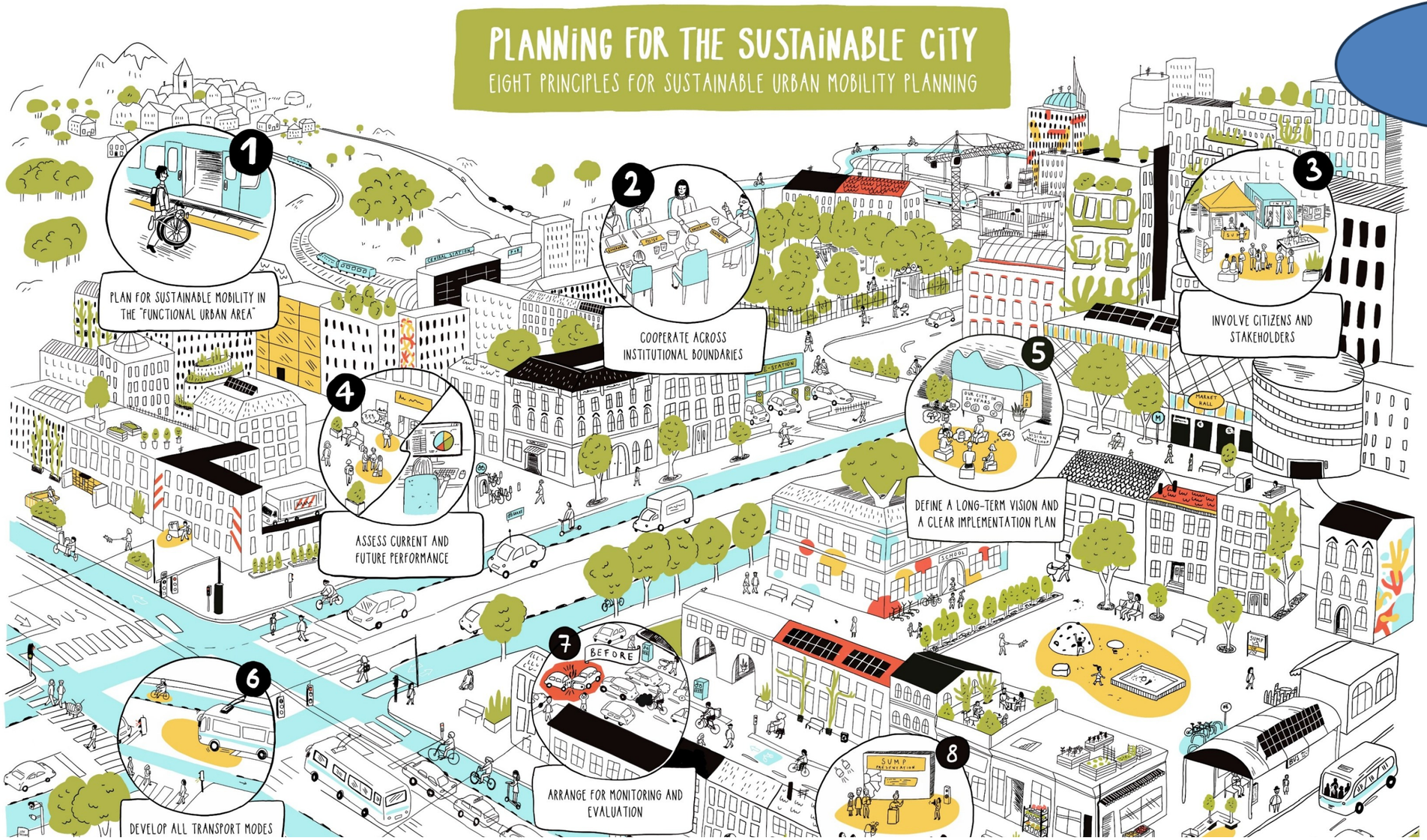
2027



Urban Mobility Indicators


MAX
INNOVATION
MIN

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Electromobility



Multimodal





Captive Fleets

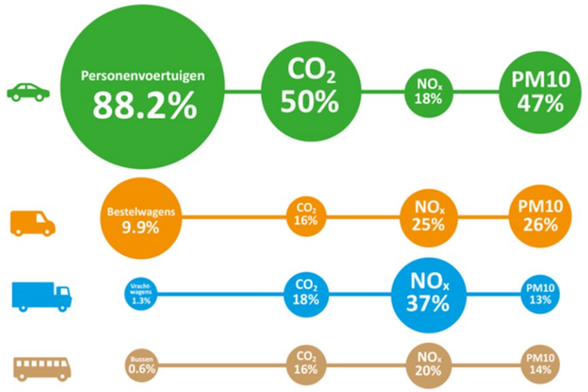




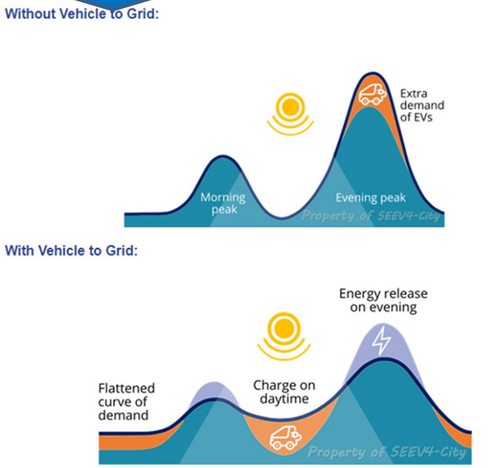
Charging infra



Total emissions city traffic in Rotterdam



Smart grid



FACTOR 100

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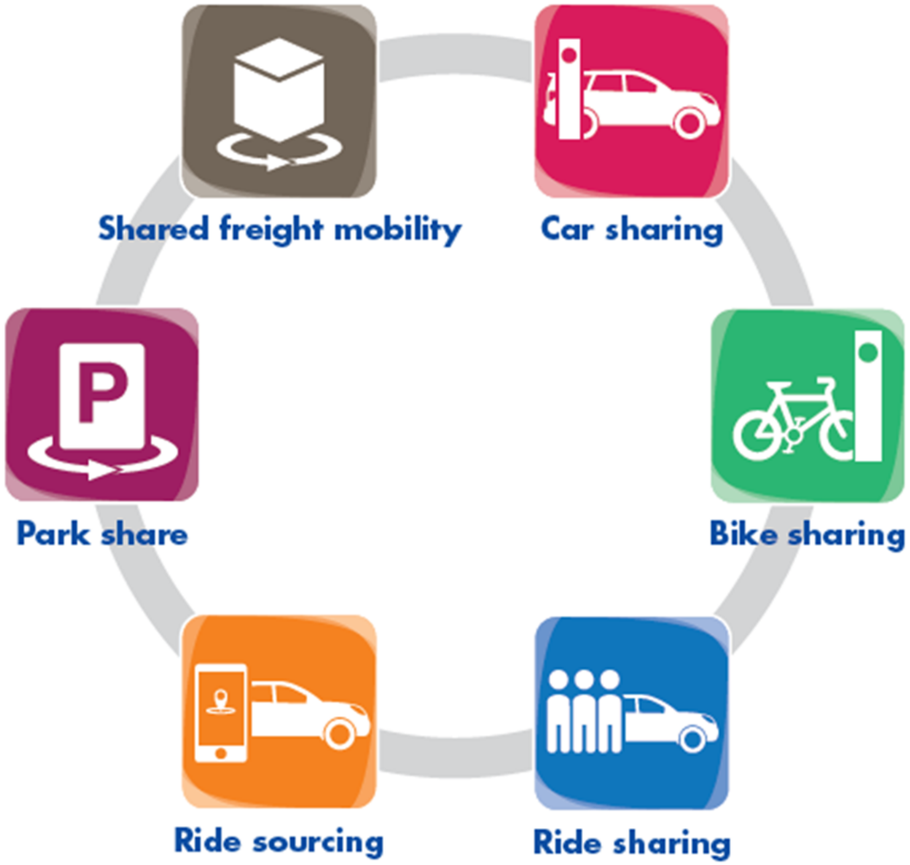
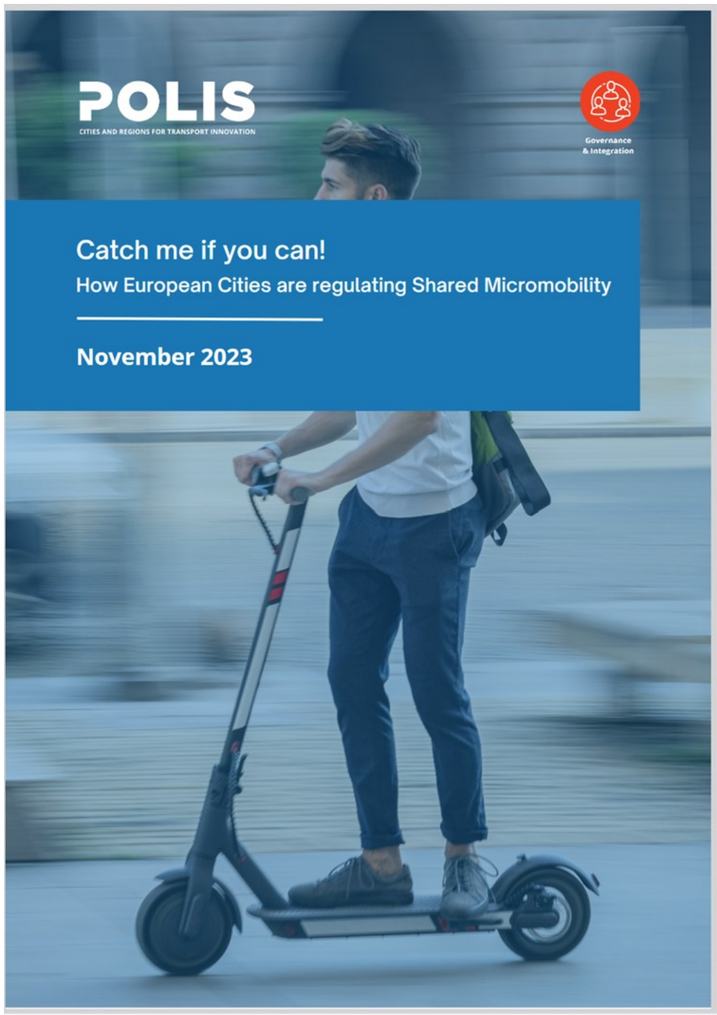
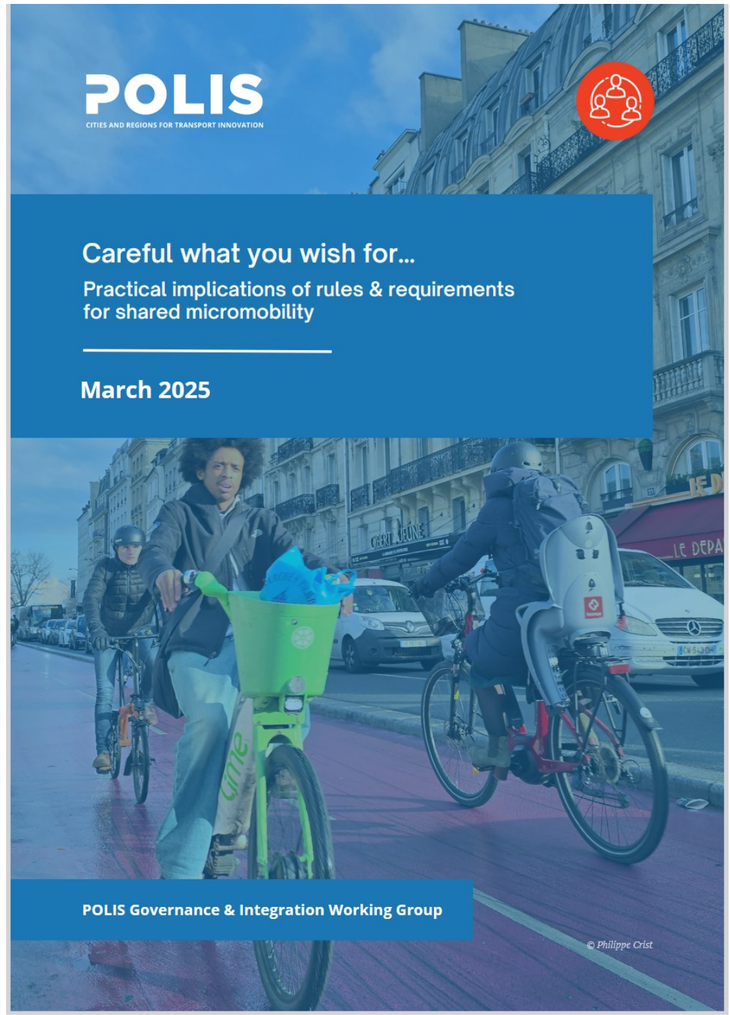
Shared Mobility







Multimodal Integration

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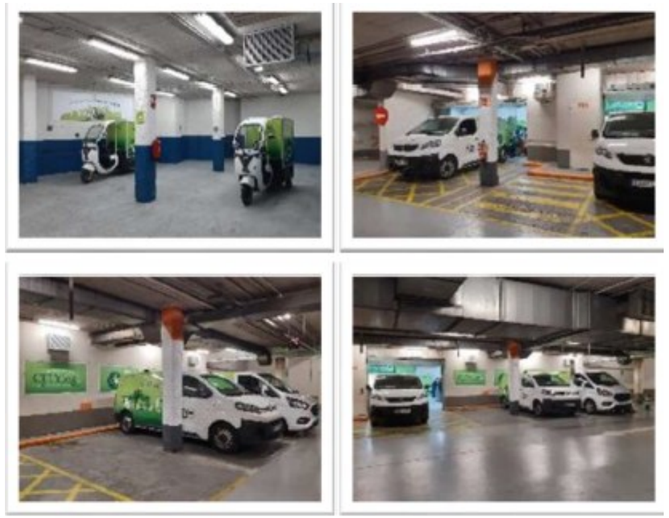
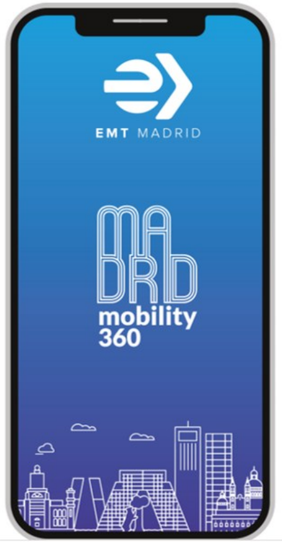
2030-40



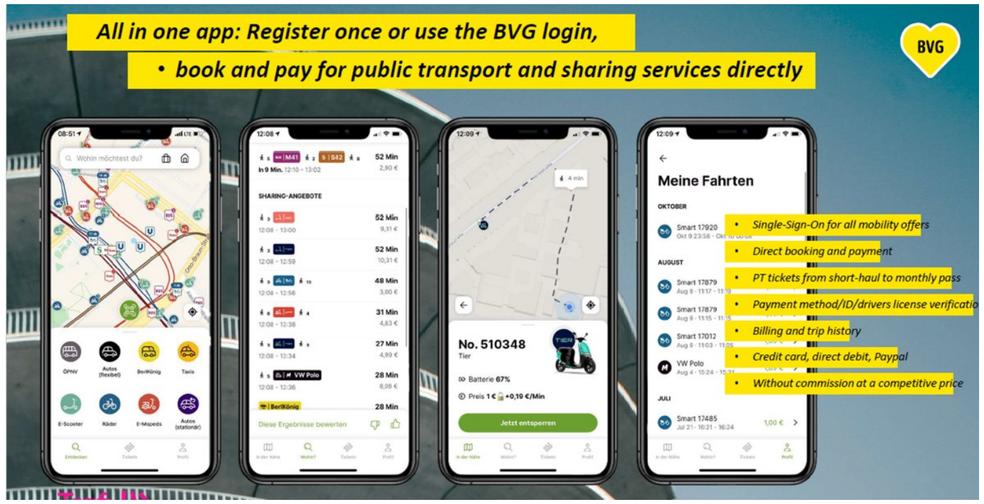












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“AV Readiness”

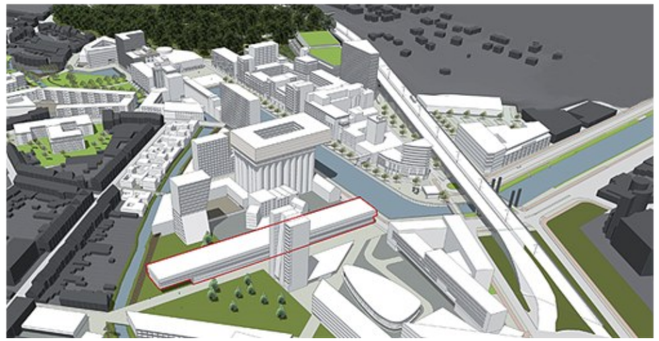
- Travel behaviour
  - Reduction in private car ownership
  - More motorised trips
- Spatial
  - More public space created by redundancy of parking
  - Urban sprawl and longer commuting
- Traffic management/efficiency
  - Richer data for traffic and asset management;
    improved vehicle control and compliance
  - Improved traffic efficiency leads to more vehicles

POLIS
Cities and Regions for Transport Innovation

Managing change



Policy, planning & urban development



Personal security & safety



Holistic approach to AVs



Tackling predicted growth in trips/km driven



POLIS 2026

"AV Readiness"

- Travel behaviour
  - ➢ Reduction in private
  - ➢ More motorised trips
- Spatial
  - ➢ More public space cr parking
  - ➢ Urban sprawl and lor
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  - ➢ Richer data for traffic management; improved vehicle con
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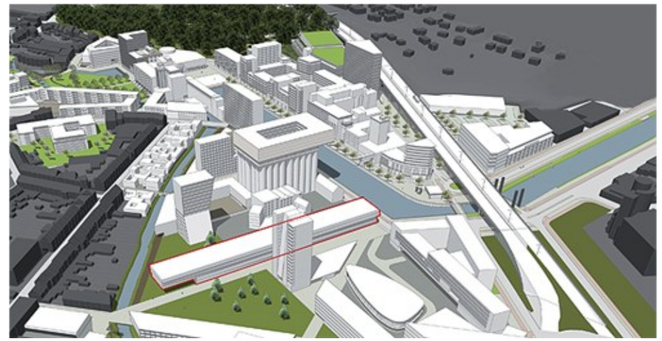
Managing change



Policy, planning & urban development



EUROCITIES

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CITIES AND REGIONS FOR TRANSPORT INNOVATION

Joint Charter/Declaration by Eurocities and POLIS on Automated Mobility in European Cities & Regions

26.05.26

The deployment of automated vehicles (AVs) is entering a decisive phase in Europe. What has until now largely been tested through pilots is increasingly moving towards large-scale deployment, supported by a growing number of European and national initiatives. This transition is further accelerated by evolving policy priorities, including the push for sustainable mobility, the European Industrial Action Plan, and the increasing focus on competitiveness and the scaling up Cooperative, Connected and Automated mobility (CCAM) solutions. Avs are also being addressed in the context of the EU Road Safety Policy Framework and its mid-term review, which highlights both the potential of automation to reduce crashes and the need to carefully manage new safety risks in complex urban environments. This reinforces the importance of ensuring that CCAM deployment delivers real safety improvements for all road users, particularly in mixed traffic conditions.

While these developments create new opportunities, they also raise critical questions about how automated mobility will be rolled out in practice, and whose priorities will shape its deployment. Current discussions are often driven by interests linked to technological readiness and industrial competitiveness. However, **cities and regions are ultimately responsible for delivering public value on the ground, including safe, efficient, inclusive, and sustainable mobility systems.**

European cities strive for clean, multimodal mobility systems, with strong public transport networks and a high share of active mobility. These are not constraints, but core strengths of the European urban mobility model. The deployment of AVs must therefore reinforce these strengths rather than undermine them. At the same time, the transition to automated mobility creates **opportunities within the Just Transition agenda**, including the **potential** to reinvest operational efficiencies into improved services, expand the mobility offer in underserved areas and for target groups with special needs and address transport poverty.

Cities and regions, as managers of public space and orchestrators of local mobility systems, should play a central role in shaping how CCAM technologies are introduced. Local and regional authorities are procurers of CCAM services, and they have a major influence in setting the conditions for publicly operated services. Their responsibilities include ensuring safety, balancing competing uses of public space, integrating new services into existing systems, and maintaining public trust.

This **Joint Charter** by Eurocities and POLIS sets out a **shared vision for the deployment of automated mobility in urban and regional areas**. It builds on the policy work of both networks and reflects a common position on the conditions necessary to ensure that this technology deliver public value, prioritises the right use cases and does not worsen already existing transport challenges[1].

Principles

ity & safety



Holistic approach to AVs



ng predicted growth in trips/km driven



2026

The local & regional authority as public space manager



The city of proximity

Pricing space use

(De-)Prioritising modes through space reallocation

Living streets

Regulating access

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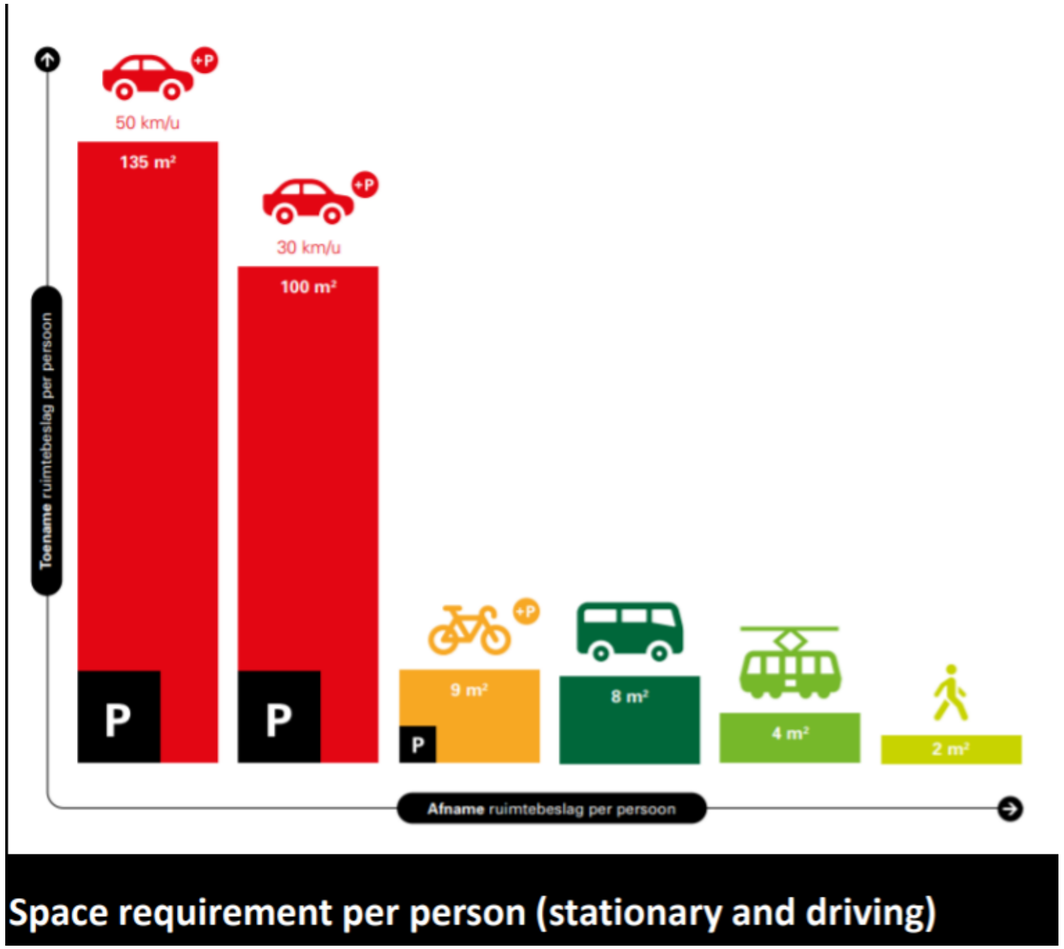
Enabling the 15’ City & Region

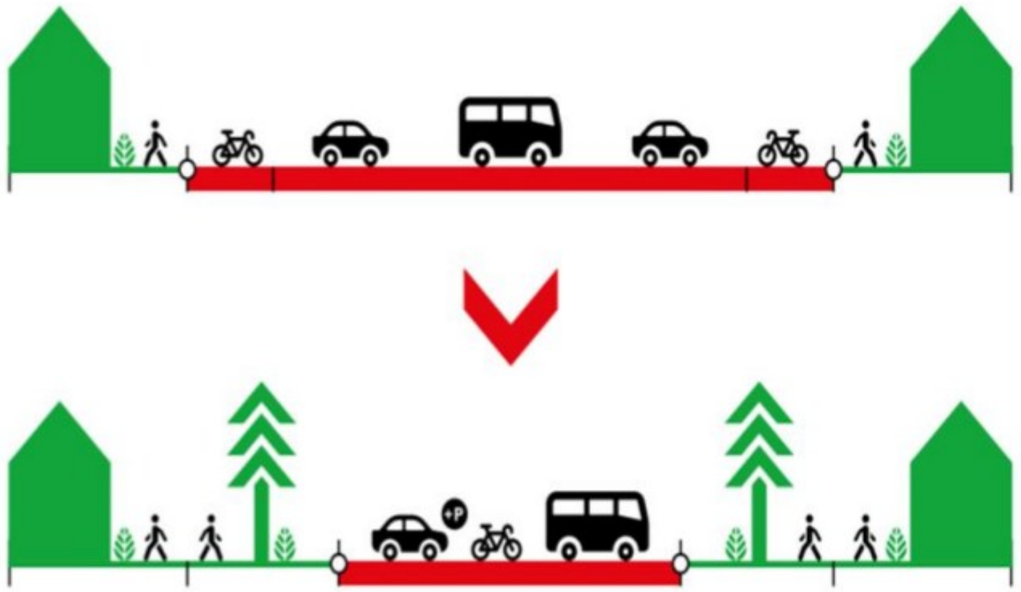




From public space for traffic to public space serving quality of life



Space requirement per person (stationary and driving)



Say goodbye to car-based street design

Source: Terry Albronda, City of Groningen

POLIS 2026

Regulating & Pricing Access

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BRUSSELS WILL TAX HEAVY SUVS EXTRA (AND ELECTRIC EXEMPTIONS) FROM 2027

editors / 5 October 2026 / 2 Comments / climate



Bloomberg CityLab

CITYLAB

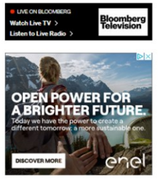
Paris Will Ban Through Traffic in City Center

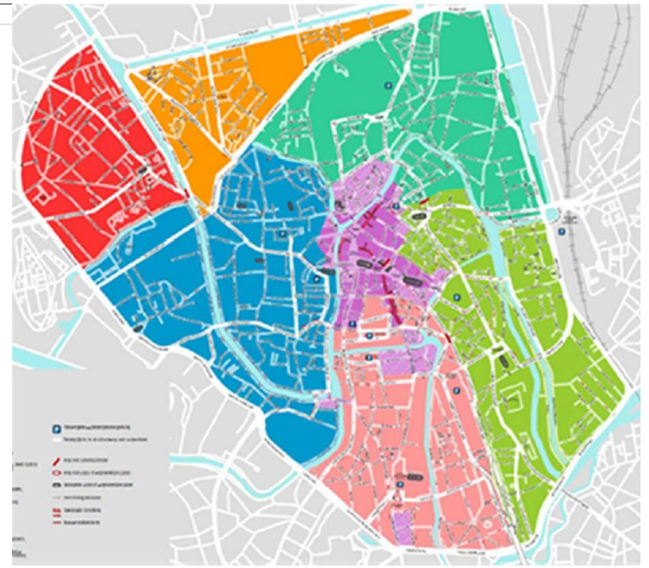
Mayor Anne Hidalgo's latest effort to rein in car use and fight pollution would prevent non-residents from driving across the French capital's historic heart in 2022.

By Feargus O'Sullivan
13 mei 2021 21:38 CEST

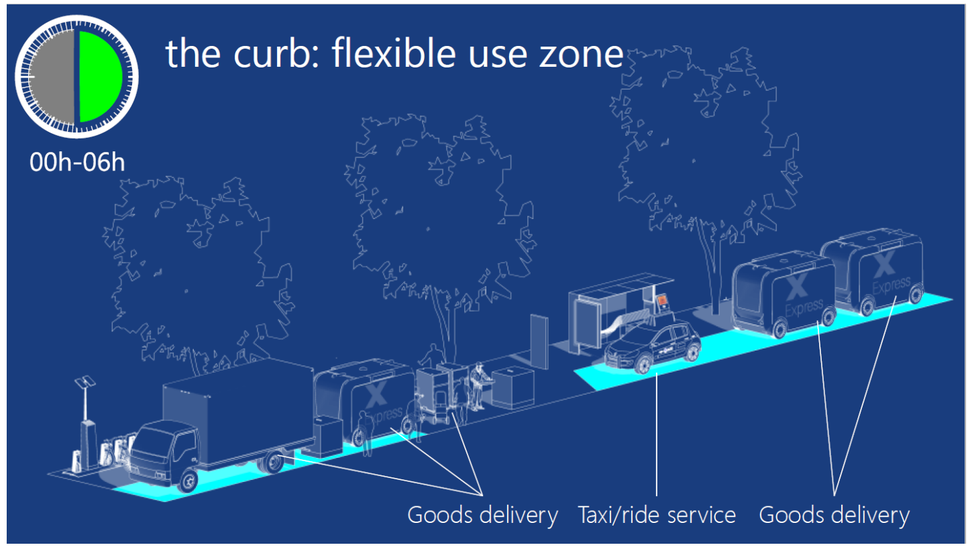


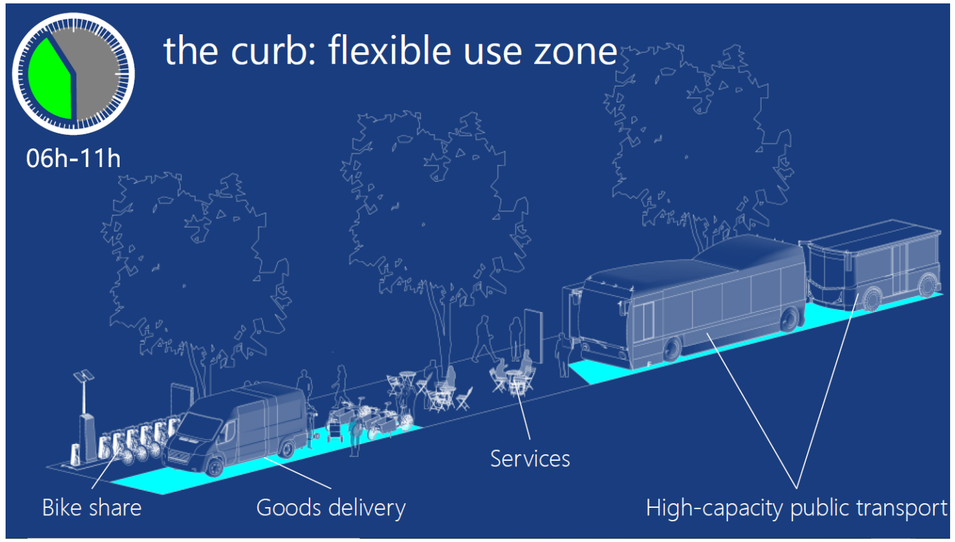
A traffic jam near Place de la Concorde in Paris in 2018 — a pre-pandemic scene that city officials don't want to repeat.
Photographer: Mustafa Yalcin/Anadolu Agency/Getty Images

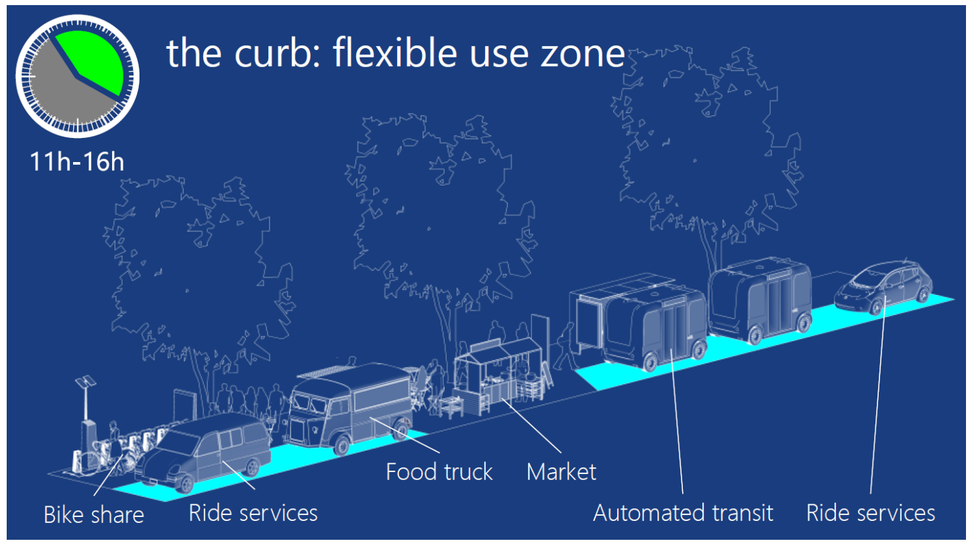


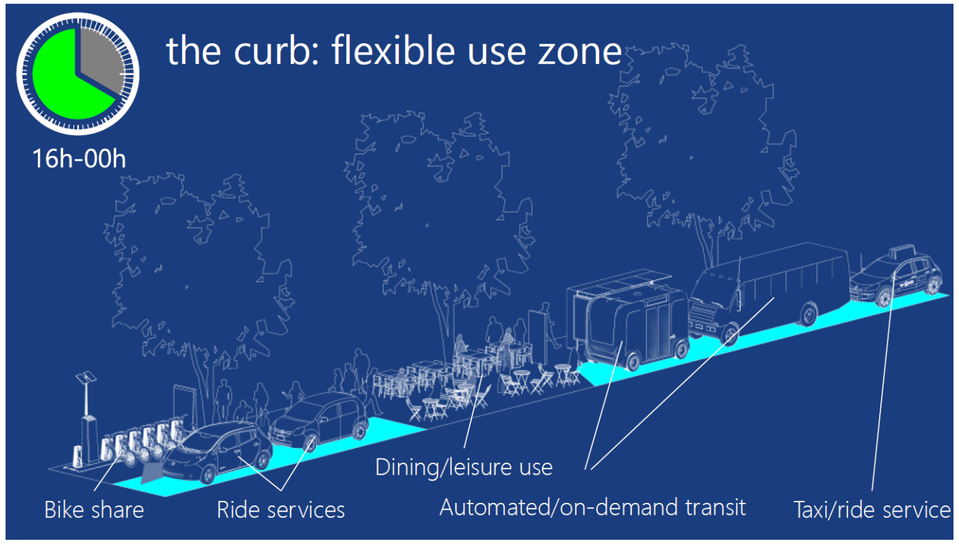


Dynamic space management









Philippe Crist, The Shared-Use City. Managing the Curb, International Transport Forum

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Data

Revision of the ITS Directive
Extension of the scope of priority areas

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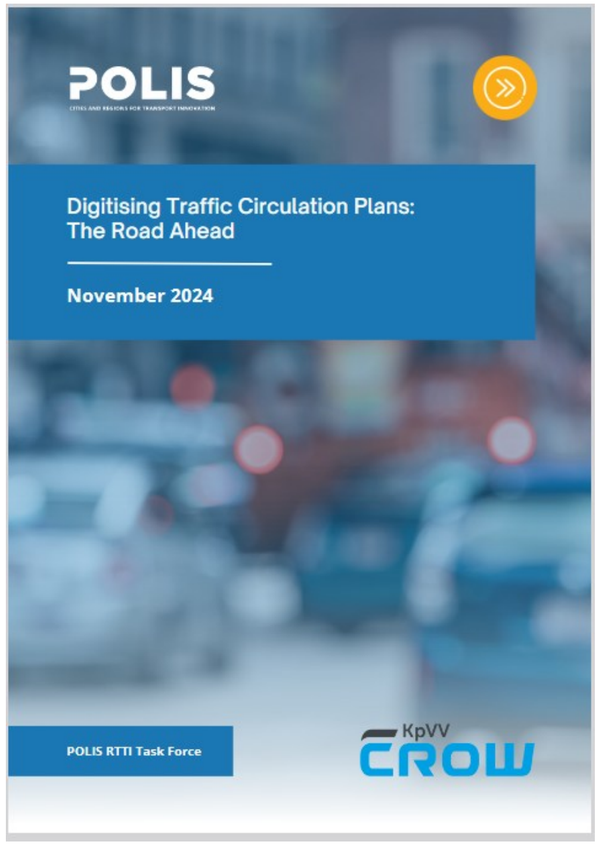
CITIES AND REGIONS FOR TRANSPORT INNOVATION



Priority area 1: Information, booking and payment services

- Multimodal digital mobility services
- Road traffic information & navigation services

Priority area 2: Travel, Transport and Traffic management ITS services

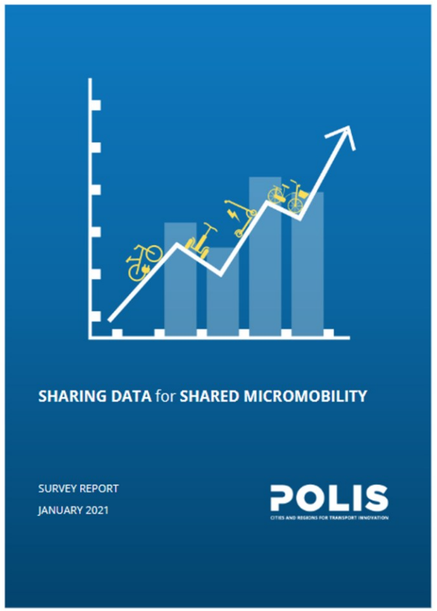
- Enhanced traffic and incident management services
  - Mobility management services
  - EU ITS framework architecture
- ITS applications and freight transport logistics

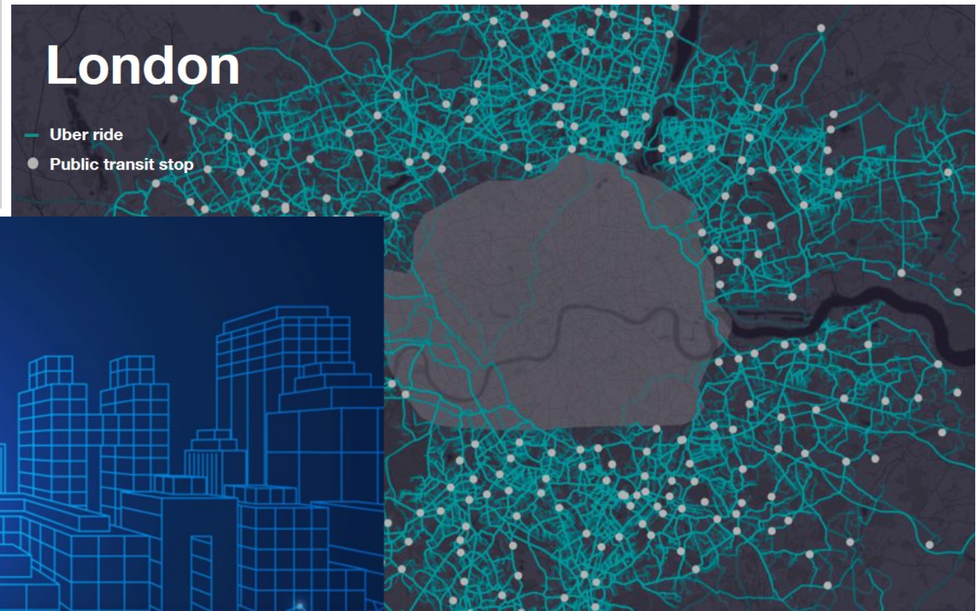
Priority area 3: road safety and security ITS services

- eCall
- Safe & secure truck parking information and reservation
- Road safety related minimum universal traffic information
- HMI & nomadic devices support to road safety (including VRUs)
- ADAS (outside type approval)
- exchange of information between services providers of security ITS applications

Priority area 4: Cooperative, Connected and Automated Mobility services

- C-ITS V2X specifications
- Specifications for CCAM Services
- Specifications for the EU C-ITS security credential management system







NeTEx

Network Timetable Exchange

NETEX

7 MAY 2026 | 15:00-16:30 CET

In partnership with **NAPCORE**, this tutorial explores the **Network Timetable Exchange (NeTEx)** standard as a way to exchange **static data** on public transport.

SIRI

SIRI

11 JUNE 2026 | 15:00-16:30 CET

In partnership with NAPCORE, this tutorial explores the **Service Interface for Real-Time Information (SIRI)** standard as a way to exchange **dynamic data** on public transport.

PAST MODULES

CDS

CDS

30 OCT 2025 | 15:00-16:30 CET

In partnership with OMF, this tutorial will explore **Curbside Data Specification (CDS)**, focusing on curbside management and the digitisation of public space.

FIND OUT MORE

GTFS

4 DEC 2025 | 15:00-16:30 CET

In partnership with MobilityData, this tutorial will explore curbside **General Transit Feed Specification (GTFS)**, focusing on static and real-time public transport information.

FIND OUT MORE

GBFS

3 FEB 2026 | 15:00-16:30 CET

In partnership with MobilityData, this tutorial will explore curbside **General Bikeshare Feed Specification (GBFS)**, focusing on real-time data on shared micromobility services.

FIND OUT MORE

MDS

MDS

5 MAR 2026 | 15:00-16:30 CET

In partnership with OMF, this tutorial will explore **Mobility Data Specification (MDS)**, focusing on micromobility, urban vehicle access, data sharing, and digitising regulations.

FIND OUT MORE

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Data

Revision of the ITS Directive
Extension of the scope of priority areas

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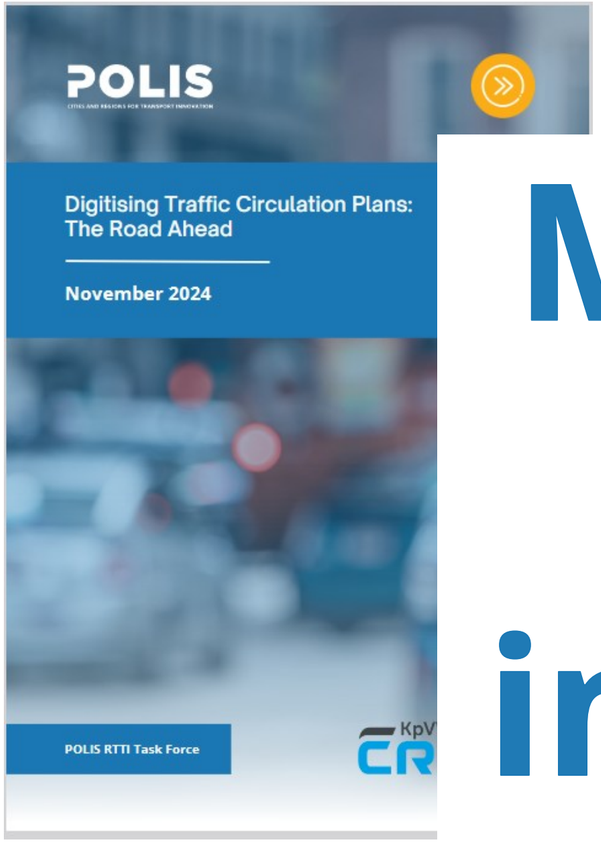
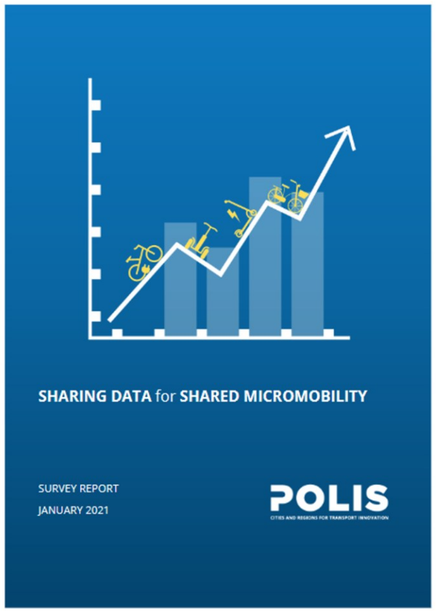


Priority area 1: Information, booking and payment services

Priority area 2: Travel, Transport and Traffic management
ITS services



Mobility Data is infrastructure



SIRI

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FIND OUT MORE

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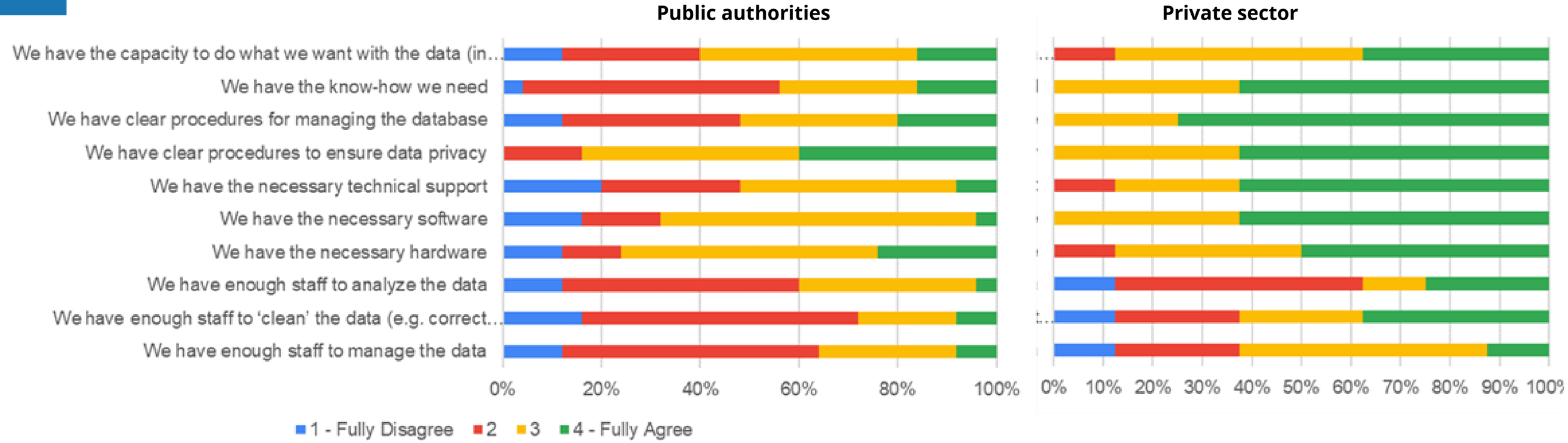
Digitalisation at different speeds



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Digitalisation challenges for local authorities

Cost of digitalisation and **complying** with the different regulations

Navigating and dealing with a **complex and fragmented legal framework** around accessing and sharing data

Ensuring **data quality** (i.e, complete and reliable data)

Limited human resources capacity for data management and use (lack of skills and specialised expertise)

Limited understanding where relevant data can be found and how to access it

Salience bias
Imbalance in data sharing and collection, e.g. micromobility versus connected cars

Integrating legacy systems with new data sharing technologies

Trust issues, including unwillingness to share data of public interest, understanding how to build trust and mitigate trust issues among actors involved in data cooperation



Physical & Digital Infrastructure

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How does CDS work?

CDS uses a set of **APIs (Application Programming Interfaces)** that allow cities to consistently exchange data with curb companies, vendors, and parking users.



Cities
Curb managers

City vendors
APIs

Companies
Curb users

CDS CURB DATA SPEC

Why GTFS matter

- Public transport visibility in digital journey planners, improving passenger information and usability
- Broad support by European National Access Points (NAPs) for public transport data publication
- Low implementation effort with high reuse across multiple apps and platforms
- Support for multimodal travel and modal shift through integration with active travel and shared mobility



GTFS' open, **community-driven governance** allows the data specification to evolve with public authority, policy and operational needs.

MDS application domains

MDS VERSION 2.1

Used freely by over **200 providers** operating in over **1,200 cities** around the world, MDS was developed as a **free and open specification.**

CORE AREAS



Micromobility
Scooters
Bikeshare
Cargo bikes



Passenger
Taxis
AV robotaxis
Buses



Fleet
Car share
Sanitation
City fleets



Delivery
Robots
App delivery
Packages

Core areas



Stops



Routes



Agencies



Calendar



Trips



Stop times



Zone-based DRT



Fixed-stops DRT



Predefined routes with deviation

Use cases



Trip updates



Vehicle localisation



Service alerts

OMF

MobilityData

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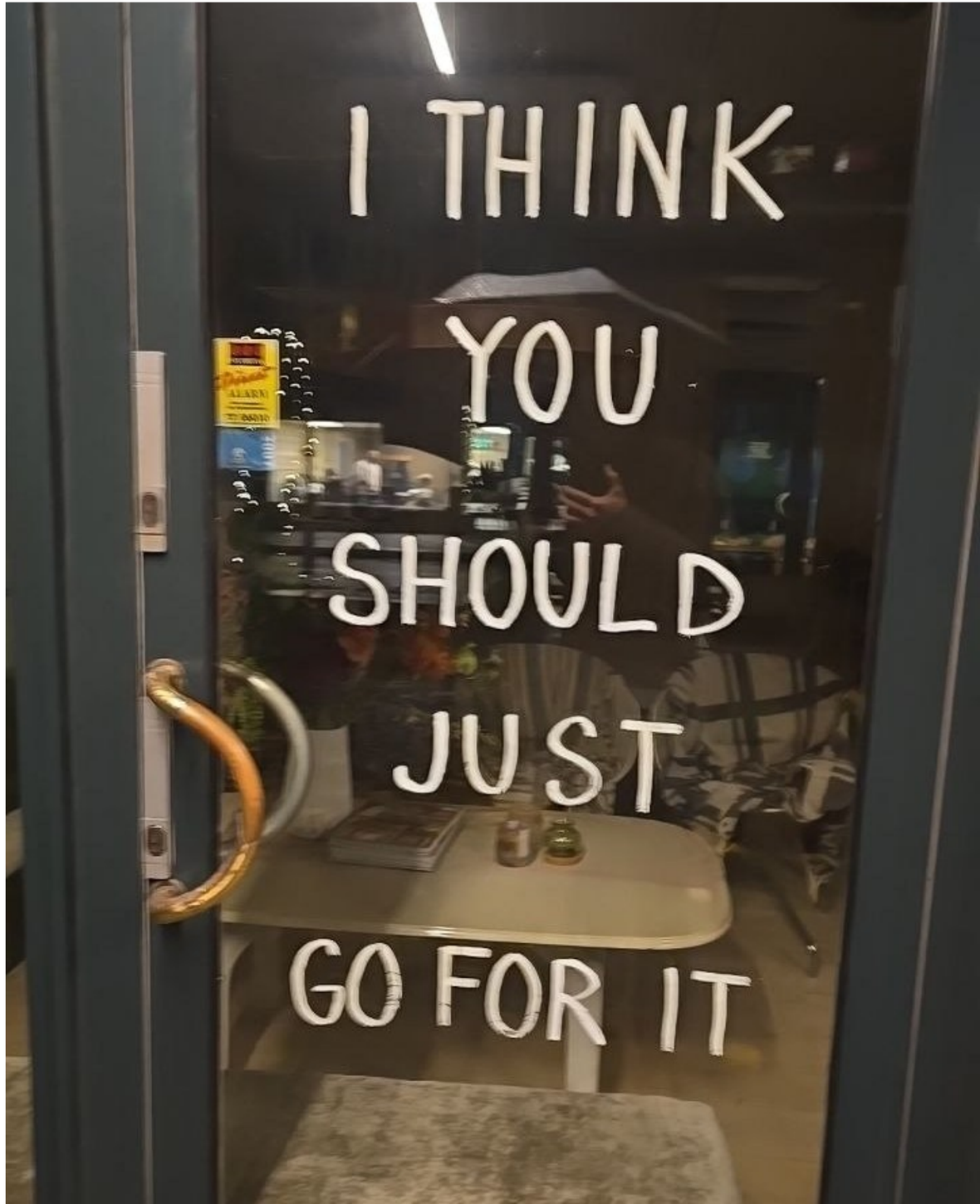
WhAI?

Start with societal value and policy, never with the technology

Can AI contribute to that policy goal?

Is the AI-based solution the best, the tenth-best, or the hundredth-best solution?



Amsterdam's Vision on AI

How do we not want to look at the development of AI?	How do we want to look at the development of AI??
Technology central	Human central
Technology is neutral	Technology is value-loaded
Everything must be done in the most efficient way possible	Public values are central to the city
Technology defines you	Technology in which you decide
With technology, you can solve anything	Systemic problems are amplified by technology
AI getting smarter than humans	AI can never replace human intelligence

Vincent Lau, City of Amsterdam

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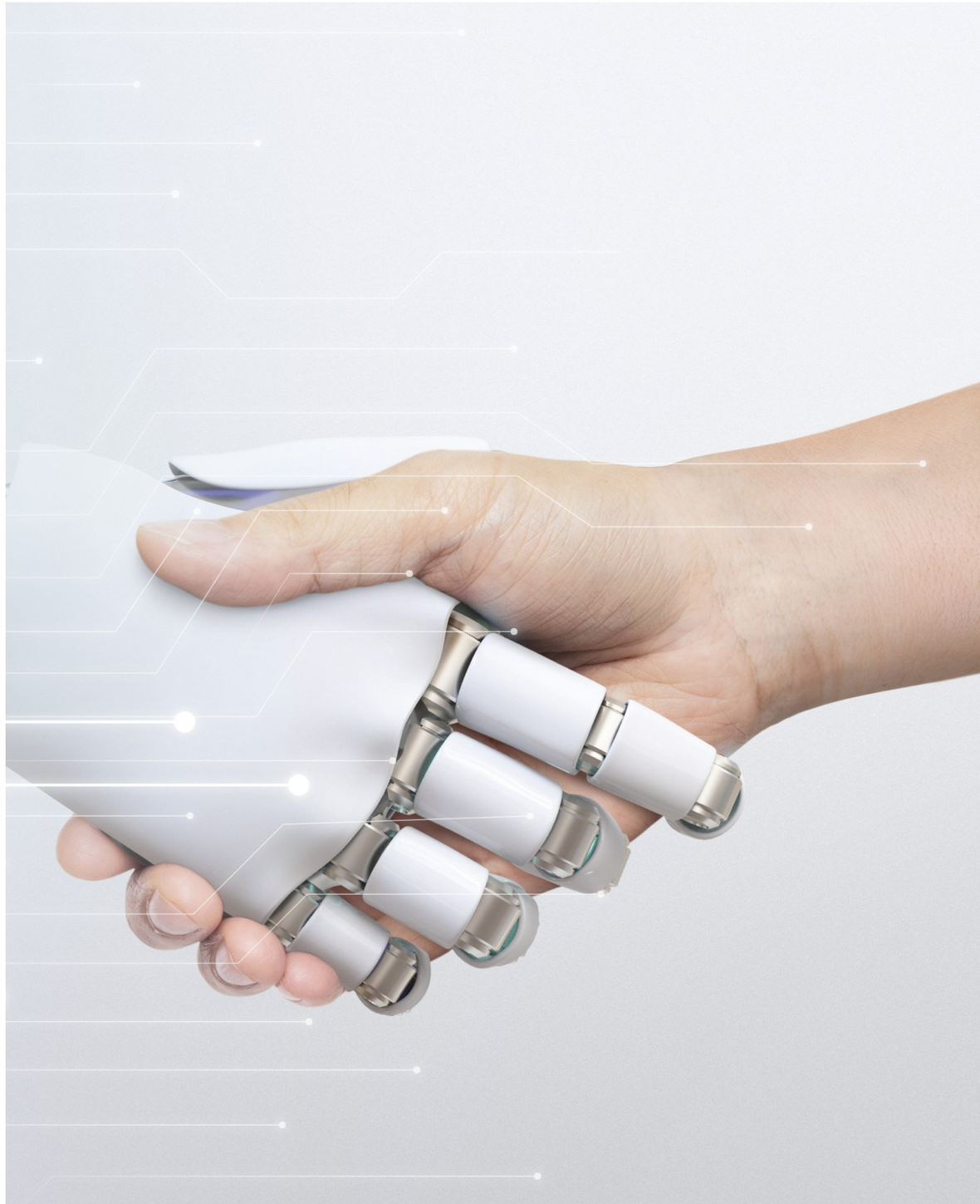
Human or Not?

- Performing any given task requires
  - information and skills
  - entails making decisions and choices
- AI systems and humans do not possess the same **skills** and **knowledge**
  - Some tasks require skills and knowledge where AI systems surpass humans
  - For other tasks, the reverse is true.
- Many tasks are **hybrid** in nature
  - Use AI to flag insights or decisions
  - Keep humans in the loop for value-driven tradeoffs (equity, safety, public trust)
  - For instance: Use AI to flag fare evasion, but allow human review before issuing fines.
- As with any tool, the **human** user must determine the context in which AI is useful and maintain oversight and control



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Dirty Work

- AI as a **supporting tool**
  - ➢ strategically enhance the skills and competencies of government bodies—elevating them to a higher level—by providing insights and predictive capabilities
- Focus on reskilling for **hybrid roles** that centre on human-machine collaboration
- Freeing up time for **human expertise** to focus on high-level strategic planning and policymaking
  - ➢ increased **efficiency** and **proactive** rather than reactive approaches
- Keeping human control also crucial for system **resilience** in the event of unexpected occurrences or system failures



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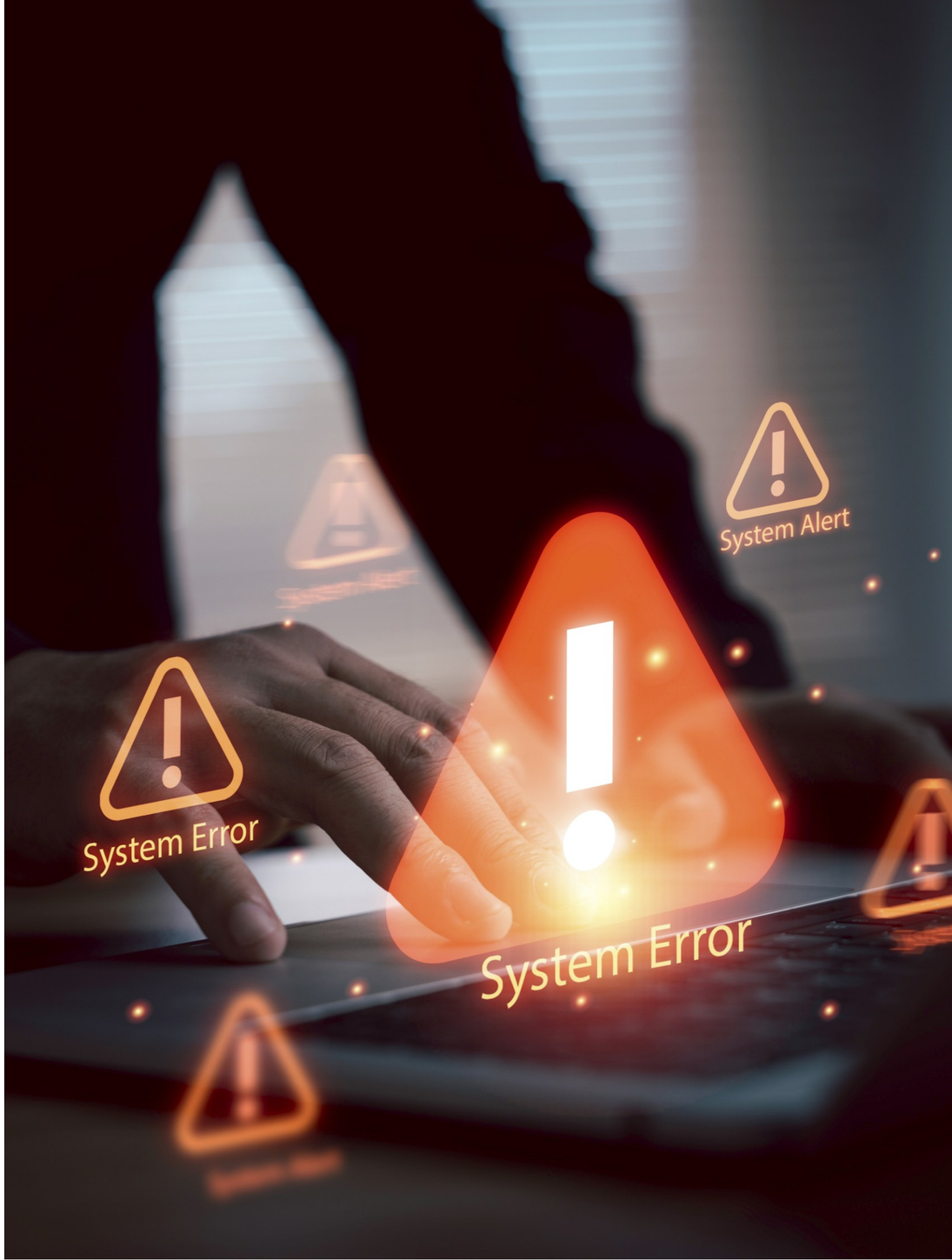
Ruling out Risk

- AI can reinforce **bias**
  - in the decisions it makes or suggests to humans
  - in the data it generates, subsequently used to train AI models
- AI is susceptible to **misuse**
  - algorithms can be fed incorrect data, (un)intentionally
  - AI may be reading the city differently, e.g. algorithms on Waze
- Human presence, **oversight**, and intervention required in:
  - training and curating AI **data**
  - designing **algorithms**
  - determining or evaluating AI objectives, processes, and outcomes
- Avoid having AI systems make **decisions**, instead, have them provide information that humans can use to make decisions themselves



Ruling out Risk

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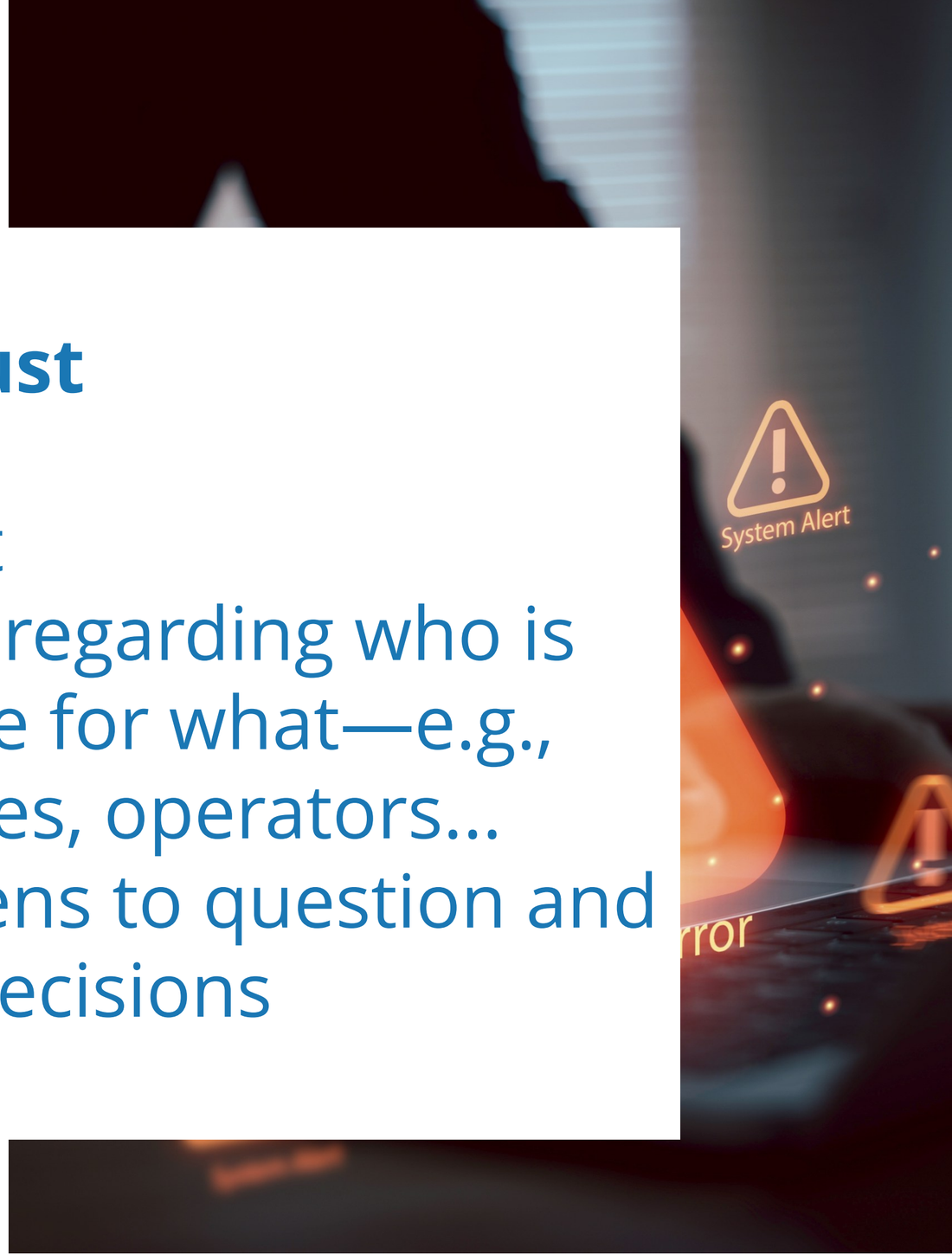
  - designing **algo**
  - determining
    outcomes
- Avoid having AI s
  provide information that humans can use to make decisions themselves

Public authorities must

- build and foster trust
- ensure transparency regarding who is responsible and liable for what—e.g., OEMs, road authorities, operators…
- be prepared for citizens to question and challenge AI-driven decisions



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Challenges

Technological

- Need for shared data platforms and open APIs.

Regulatory

- Compliance with GDPR and the EU AI Act.

Skills

- Lack of in-house expertise in many municipalities, skills gaps in digital literacy and AI strategy.

Social

- Low public trust, especially around surveillance or bias.

Economic

- Limited budgets for experimentation or procurement

Governance

- Data governance in relation to quality, access, sharing between public-private actors, inequities or biases

Environmental

- Computing power, data centre energy use



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Governance Integration

- AI enables detection of **cross-sectoral** patterns, e.g., housing policy's effect on commuting
- Shared digital infrastructure promotes **interdepartmental** coordination
- AI-powered dashboards and simulations support joint **scenario planning**
- Participatory platforms help integrate **public input** across areas.



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Use Cases

- Dynamic **traffic management** using real-time sensors + predictive AI
- AI-based dynamic **traffic signal control**
- Demand-responsive **public transport**, optimised by AI
- Predictive **maintenance** of infrastructure
- **Active mobility** planning (cycling/pedestrian flows from multimodal data)
- Multimodal **journey planning** and booking assistants
- Dynamic **curb space** allocation
- AI-assisted planning: **Scenario** modelling for new mobility policies (e.g., UVARs).



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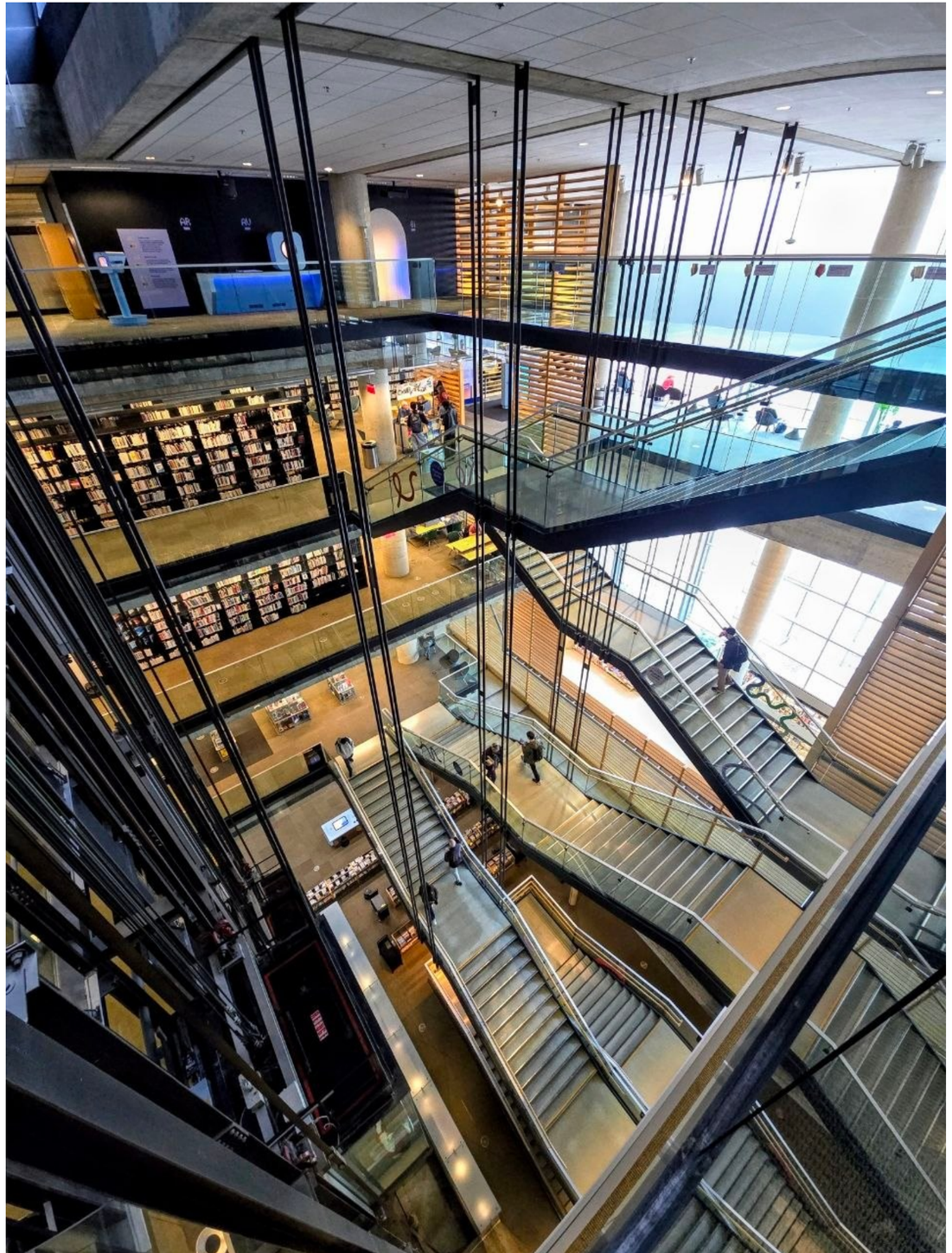
Where are we? What's next?

- Some cities are leading, many just starting
- Most cities need investment in digital infrastructure, data culture, and inter-agency collaboration
- Dependence on external vendors risks black-box systems and vendor lock-in

- Build **internal AI/data teams** and appoint Chief Data/AI Officers
- Train planners and regulators in **digital literacy**
- Foster **partnerships** with universities, civic tech groups, industry, etc
- AI **procurement** literacy: Know what to ask for and shift from "procure-and-deploy" to co-development models
- Acquire **ethical and legal knowledge** specific to algorithmic systems
- Develop **scenario-based thinking** using AI to simulate policy effects



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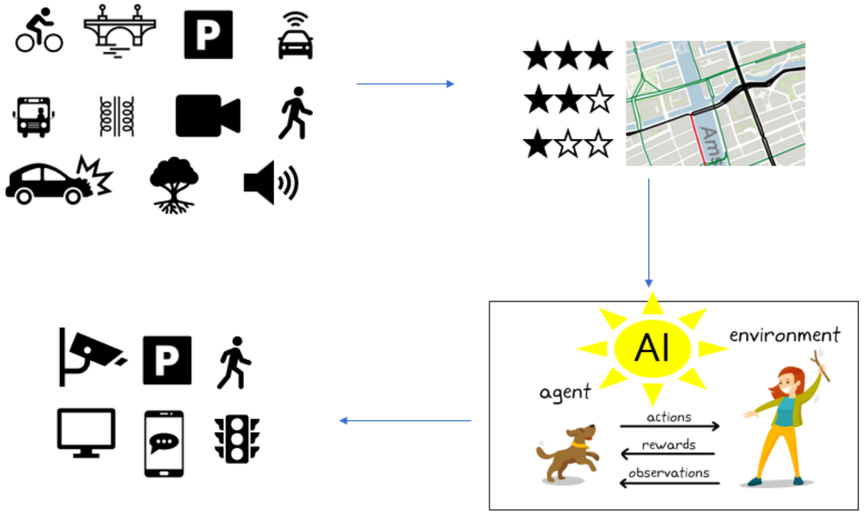
Some examples

2024 – 20xx Digital orchestration



- Simulating policies before rollout
- Public safety & event management
- Real-time traffic & air quality optimization
- Public transit efficiency





Xenomatix | *Xenobike*

- 3D hight model (.laz)
- Evenness coefficient every 5m (.csv)
- Georeferenced images every 5m (.jpg)
- Width of cyclepath derived from hight model (.csv)

50 GigaBytes of data for 50km of cycle data

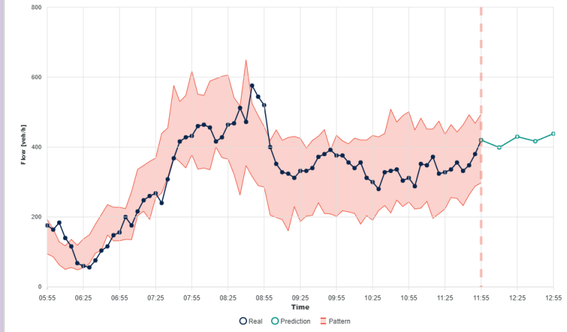
Sentigrate | *bAIcycle*

- Bike quality score every 5m based on vibrations 0 – 100%
- Bike safety score every 5m based on swerves 0 – 100%

2.6 MegaBytes of data for 70km of cycle data

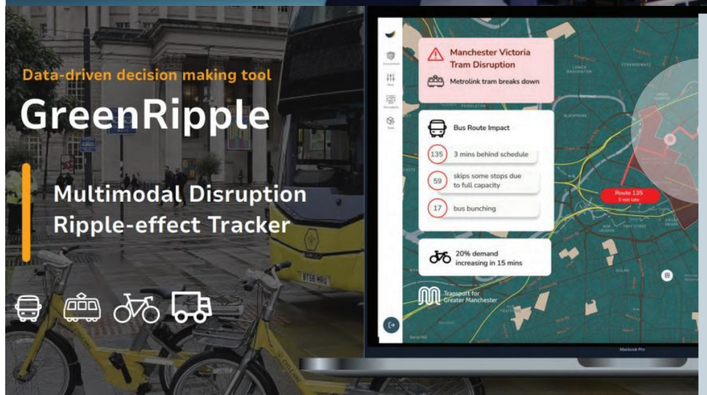
City of Mechelen | *ArcGIS Fieldmaps*

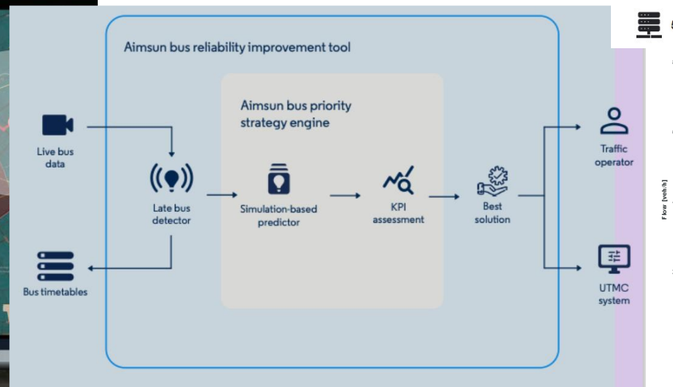
- Weighted 0-100% scores for cycle, walk & driveway on road segment level
- Textual remarks possible by observer
- Attribute-list can be endless and can be linked with all sorts of data internally.











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