EUROPEAN CITIES AND REGIONS NETWORKING
FOR INNOVATIVE TRANSPORT SOLUTIONS

Today's Urban Mobility Innovation Challenges, Policies and Solutions

Trondheim, 22 May, 2017

Ivo Cré, Deputy Director

What is Polis ?

Network

Exchange of experiences

70 European cities & regions

European research

Innovation

European Institutions

Sustainable urban mobility

INDUSTRY / OPERATORS

RESEARCH

NGOs

EU INSTITUTIONS

DG MOVE | DG RTD | DG CONNECT | TRAN

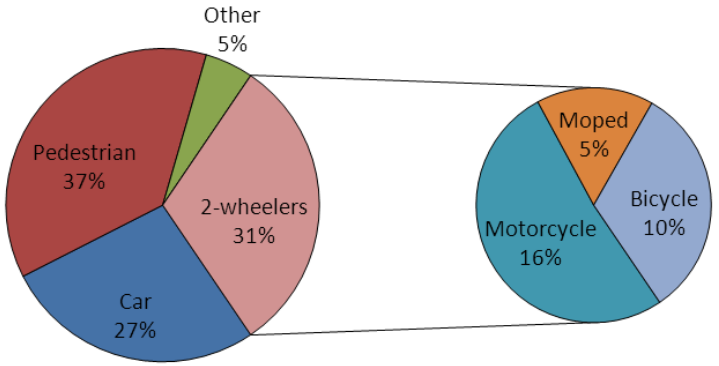
INTERNATIONAL ORGANISATIONS

EUROPEAN CITIES AND REGIONS NETWORKING
FOR INNOVATIVE TRANSPORT SOLUTIONS

What we talk about when we talk about urban mobility innovation

Urban mobility – key challenges & policies

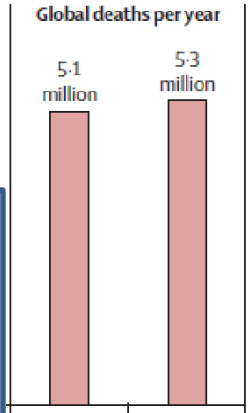
- **Congestion**
  - Costs Europe about 1% of Gross Domestic Product (GDP) every year
- **Journey time reliability (all modes)**
- **Road safety**
  - In urban areas, 68% road fatalities are VRUs (2011/12)
- **Air pollution and climate change**
  - 70% of pollutant emissions caused by urban traffic
- **Physical inactivity**



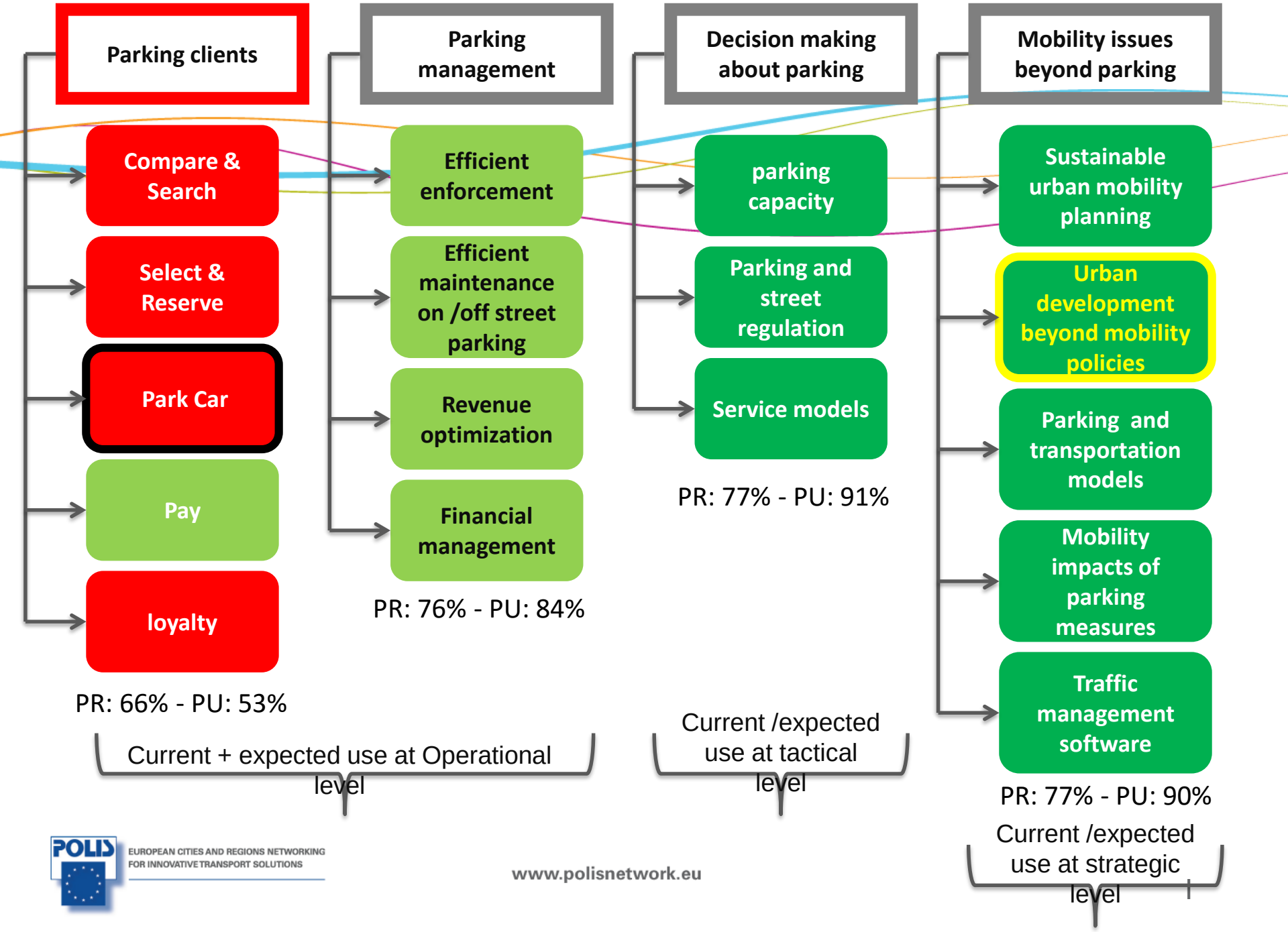
In urban areas, 68% road fatalities are vulnerable road users (VRUs)
(2011/12) - EC Road Safety Vademecum

Around 600.000 EU citizens die prematurely every year, hundreds of thousands of other people suffer from illness due to preventable causes, such as pollution from exhausts of diesel vehicles, and nitrogen dioxide (WHO 2015)

Physical inactivity was responsible for twice as many deaths in Europe (676 000) than obesity (337 000) in 2008 (according to medical research project EPIC)
The Guardian, 16/1/15



The Lancet 2012


Parking clients
Parking management
Decision making about parking
Mobility issues beyond parking
Compare & Search
Select & Reserve
Park Car
Pay
loyalty
PR: 66% - PU: 53%
Efficient enforcement
Efficient maintenance on /off street parking
Revenue optimization
Financial management
PR: 76% - PU: 84%
parking capacity
Parking and street regulation
Service models
PR: 77% - PU: 91%
Sustainable urban mobility planning
Urban development beyond mobility policies
Parking and transportation models
Mobility impacts of parking measures
Traffic management software
PR: 77% - PU: 90%
Current + expected use at Operational level
Current /expected use at tactical level
Current /expected use at strategic level

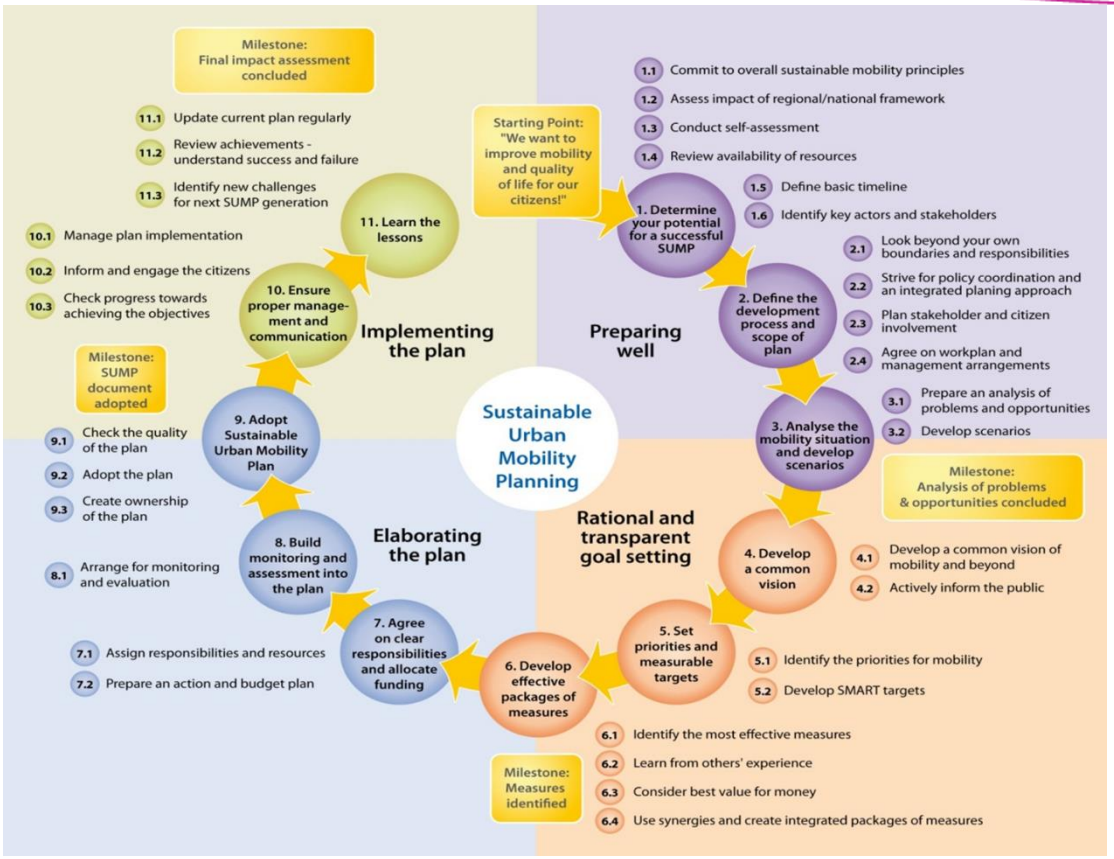

STOP

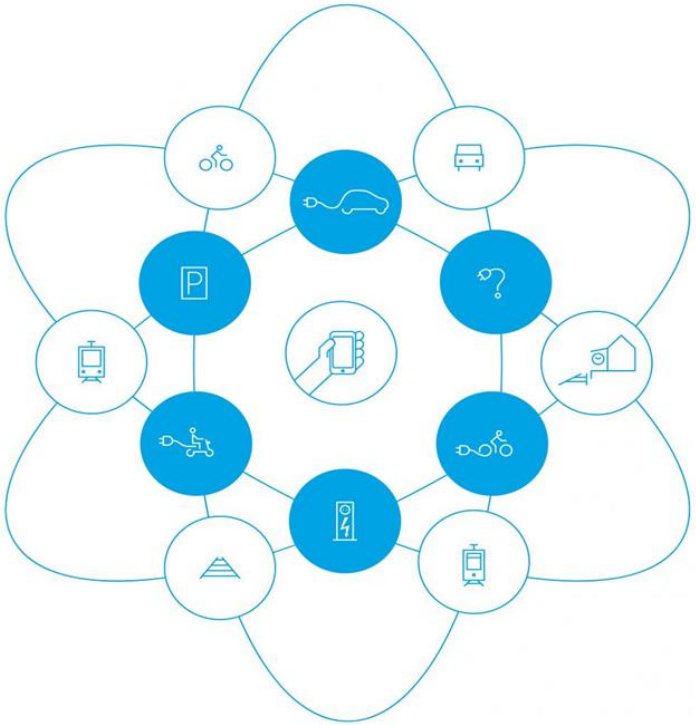
EUROPEAN CITIES AND REGIONS NETWORKING
FOR INNOVATIVE TRANSPORT SOLUTIONS

Solution 1
Plan! (or perish)

GHENT
Korenmarkt in the 1980's and today

Integrated Sustainable Urban Mobility Planning





Integrated Sustainable Urban Mobility Policy

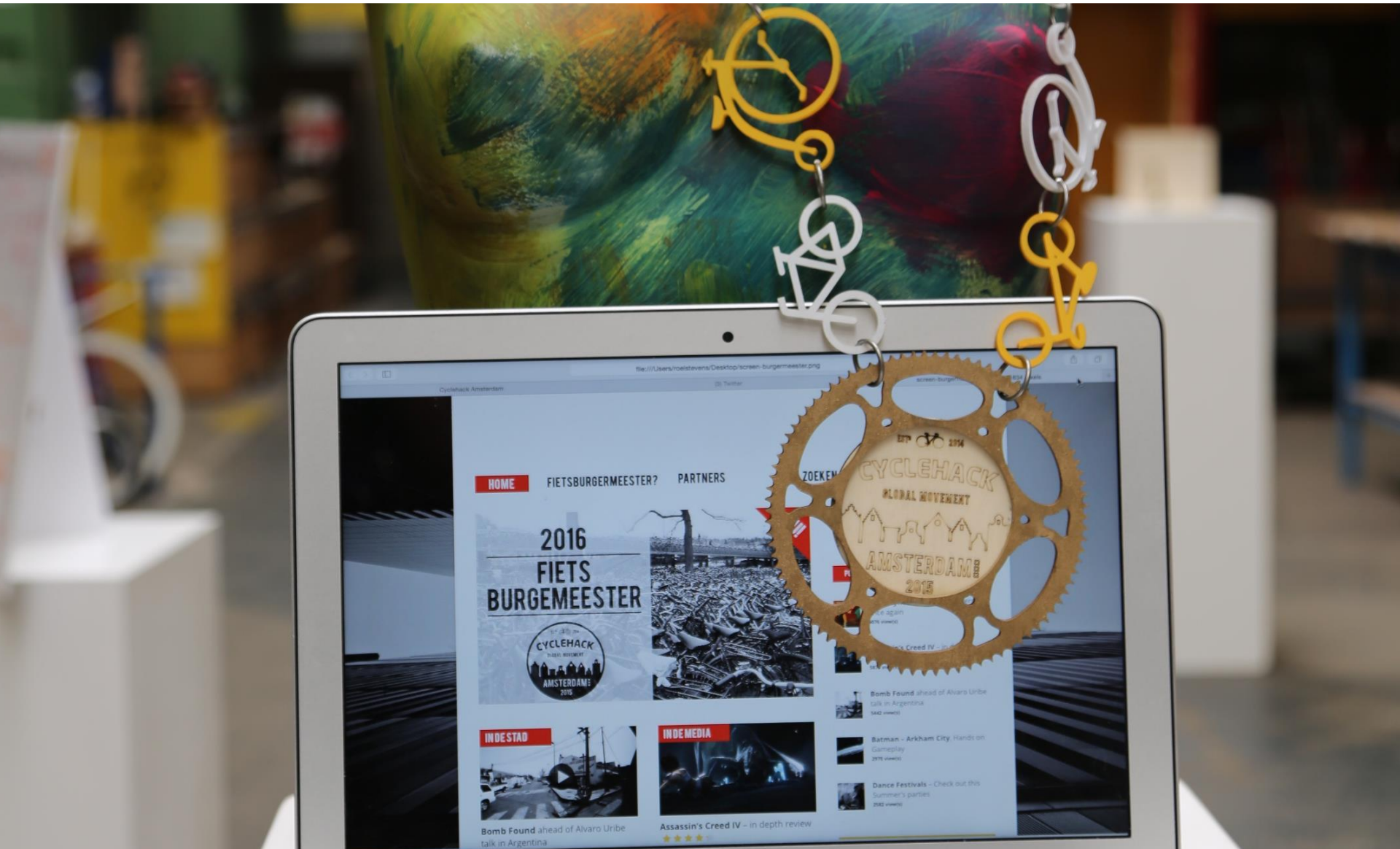
Multimodal – Intermodal – Clean – Safe – Flexible – Affordable - Connected - User-centric – Inclusive - Shared…

Rotterdam City Lounge

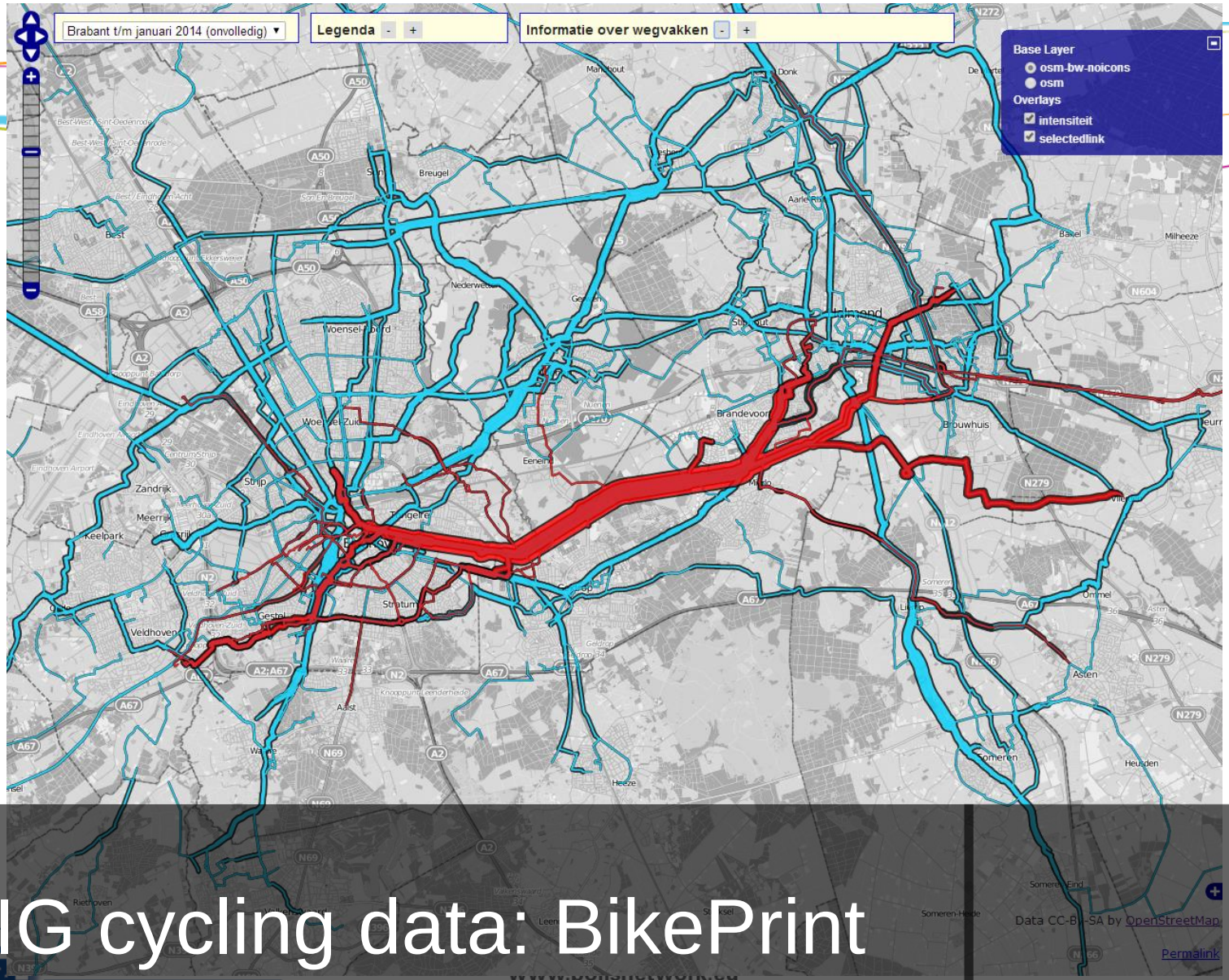
EUROPEAN CITIES AND REGIONS NETWORKING
FOR INNOVATIVE TRANSPORT SOLUTIONS

Solution 2
Active travel

Bicycle Mayor Program

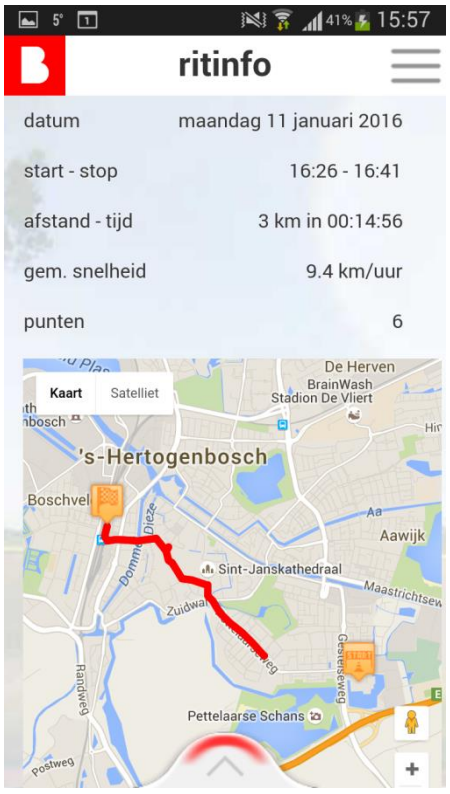


Inititatives in the City – Uit de stad



BIG cycling data: BikePrint

Digital cycling coach

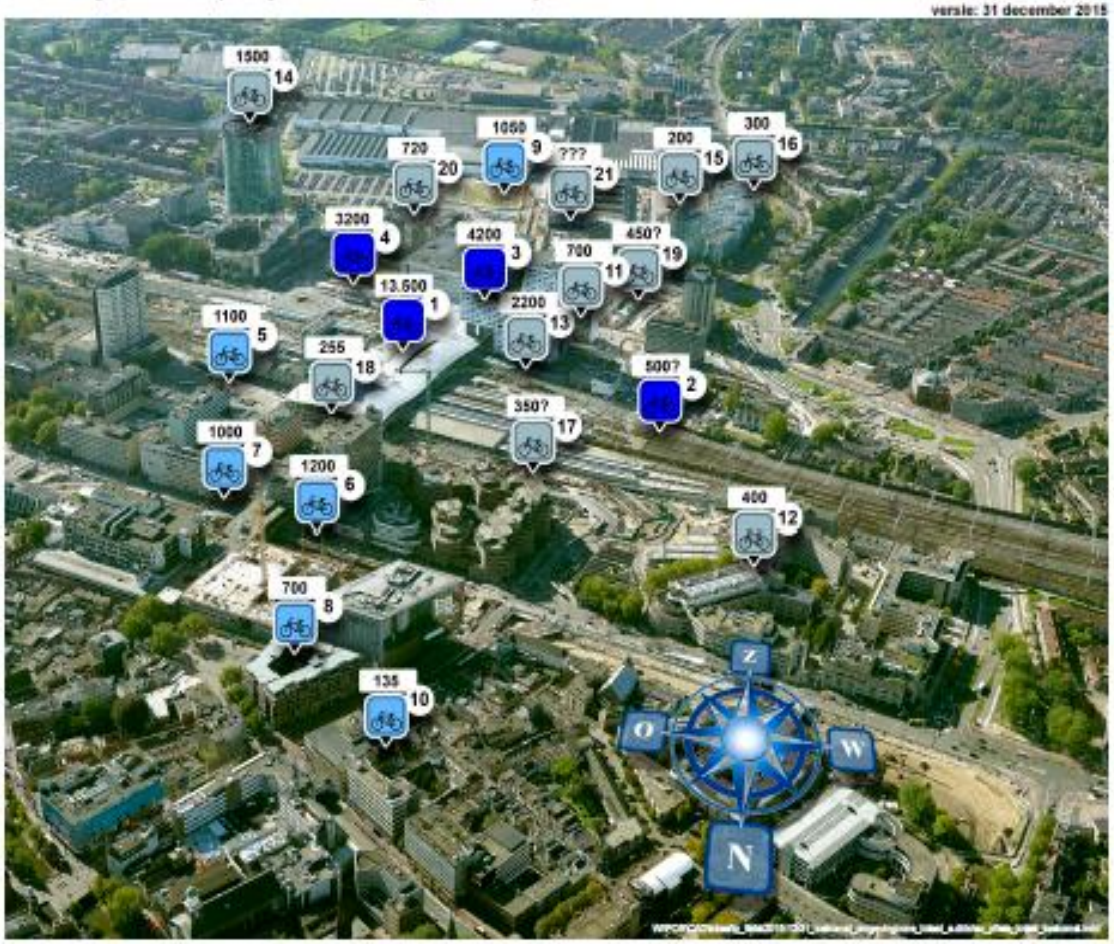


Work in progress, projects o accommodate the rising number of commuters at our Central Train station

Overzichtskaart fietsenstallingen Stationsgebied Utrecht toekomstige situatie

Dit kaartje geeft de stallingen aan in de toekomstige situatie. Een deel van deze stallingen bestaat nu al of volgt binnen enkele jaren. Daarnaast volgt nog een aantal stallingen, behorende bij de nog te contracteren vastgoedontwikkelingen.

versie: 31 december 2015



OVT gerelateerd 21.200 plaatsen

1. Stationspleinstalling 2018 Inc. Noorderstalling 2016
2. Stijpesteinstalling 2016
3. Jaarbeurspleinstalling Inc. 200 plaatsen sku
4. Knoopkazernestalling 2016

Openbaar, deels betaald 5185 plaatsen

5. Hoog Catharijne Stationsplein
6. Laag Catharijne Singelborch
7. Laag Catharijne Poortgebouw n.n.b.
8. Vredenburg Utrecht
9. Megabioscoop 2016
10. Lange Koestraat

Niet openbaar minimaal 7075 plaatsen

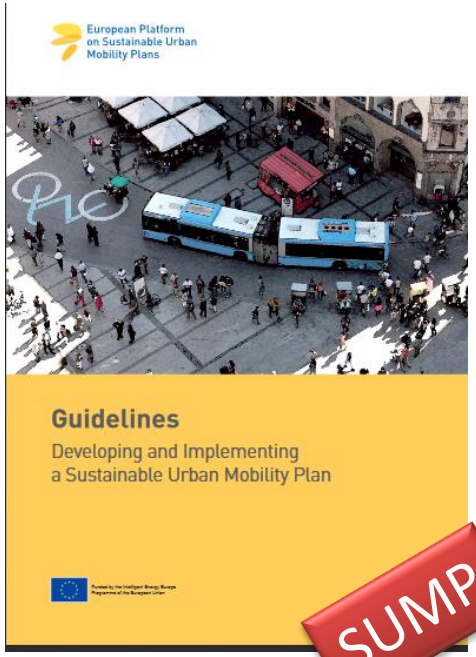
11. Stalling wtc, gecombineerd met jaarbeurspleinstalling
12. Movares / FGH
13. Stadskantoor
14. Rabobank
15. Hojel
16. SNS Reaal / Belastingdienst kantoren
17. Noordgebouw 2019
18. Het platform 2018
19. Jaarbeurspleingebouw 2020??

EUROPEAN CITIES AND REGIONS NETWORKING
FOR INNOVATIVE TRANSPORT SOLUTIONS

Solution 3
Go electric!

Air quality policy is a key driver

1 euro: 3 impacts



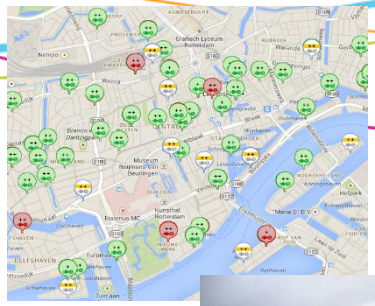
SUMP

SEAP

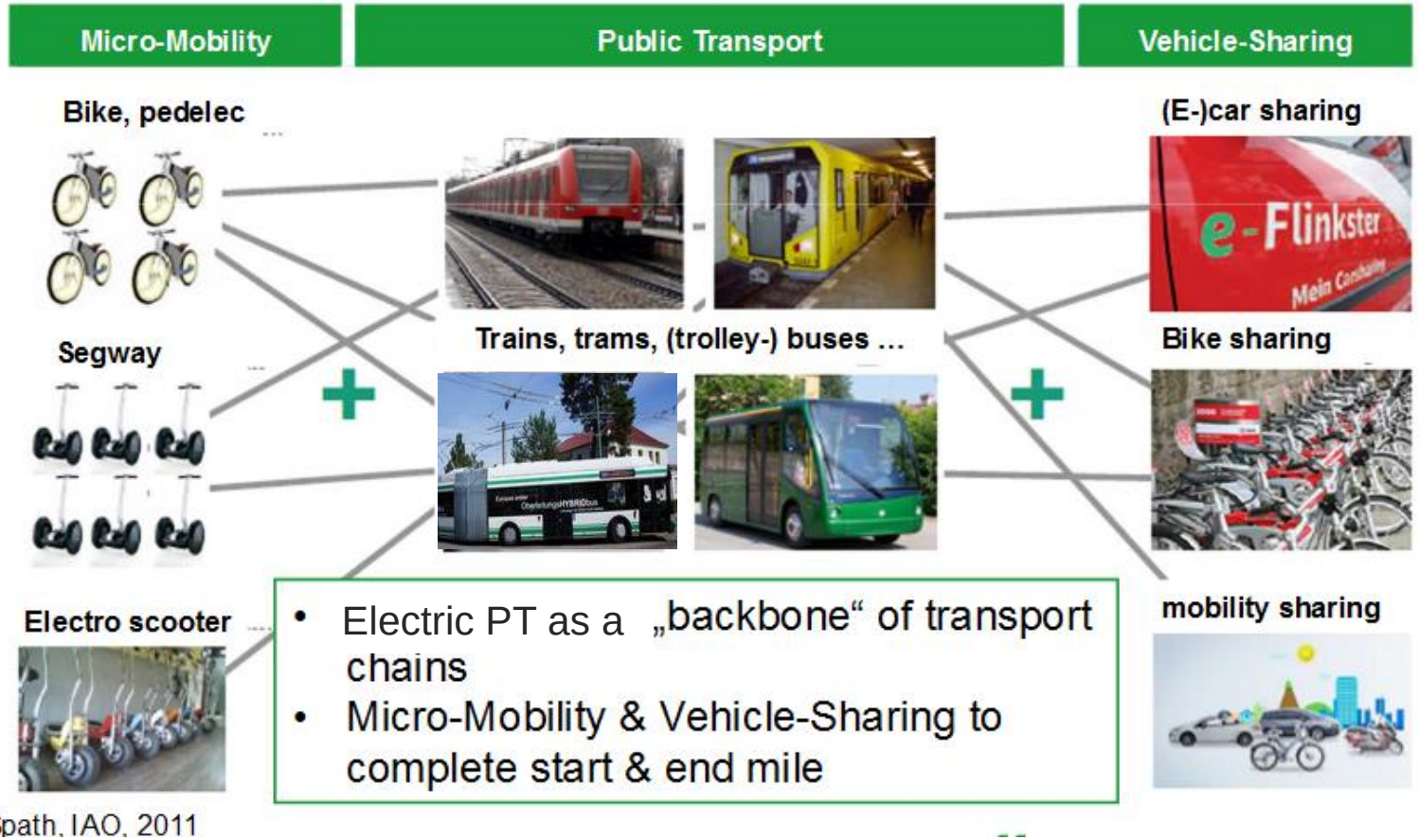
Air Quality Action Plan

Rotterdam elektrisch

EV-transition is multi-faceted

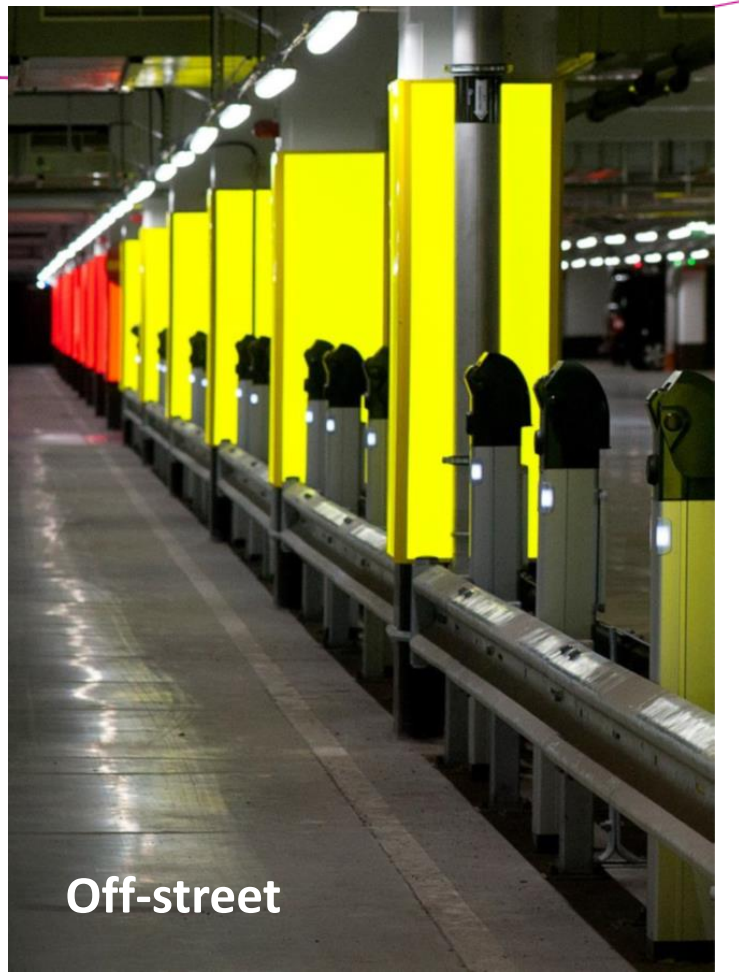


Using existing electric public transport infrastructure as backbone for EV strategies



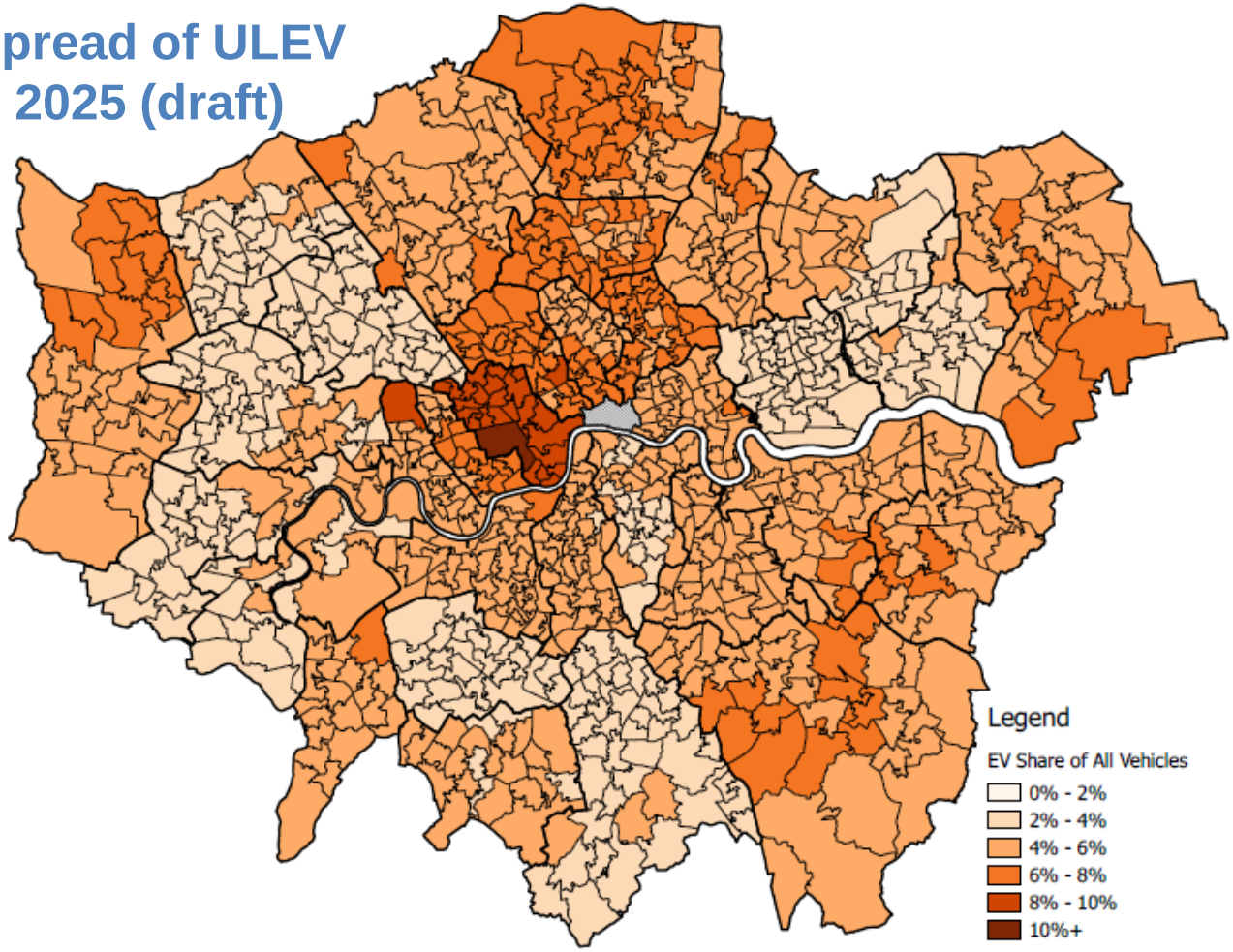
Source: Spath, IAO, 2011

Complex relation with parking policy



Understanding the geography of EVs

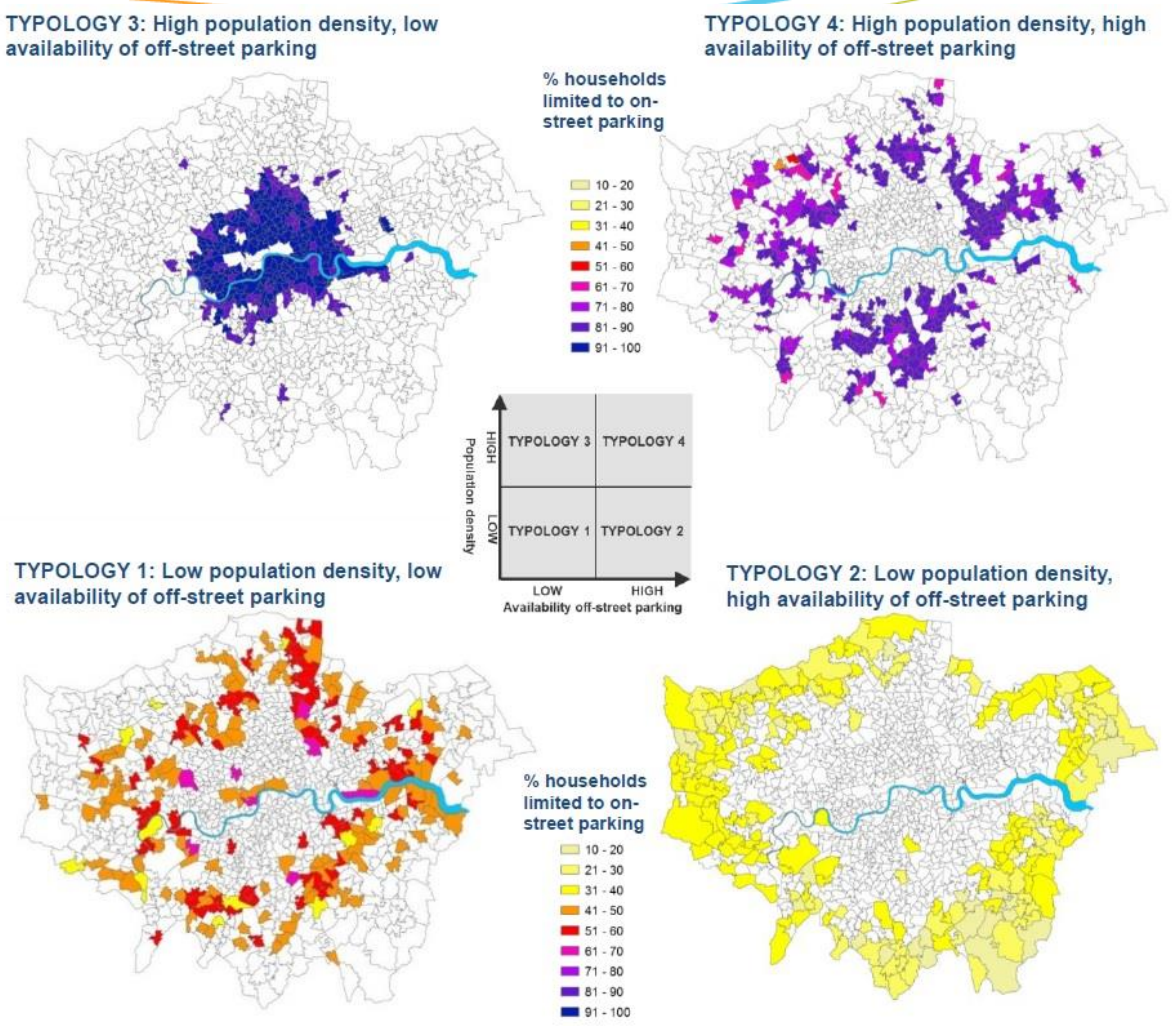
Estimated spread of ULEV uptake in 2025 (draft)



Source: TfL

Parking/Population typologies

Population Density High



Population Density Low

Low off-street Capacity

High off-street Capacity

Evs for Urban Freight

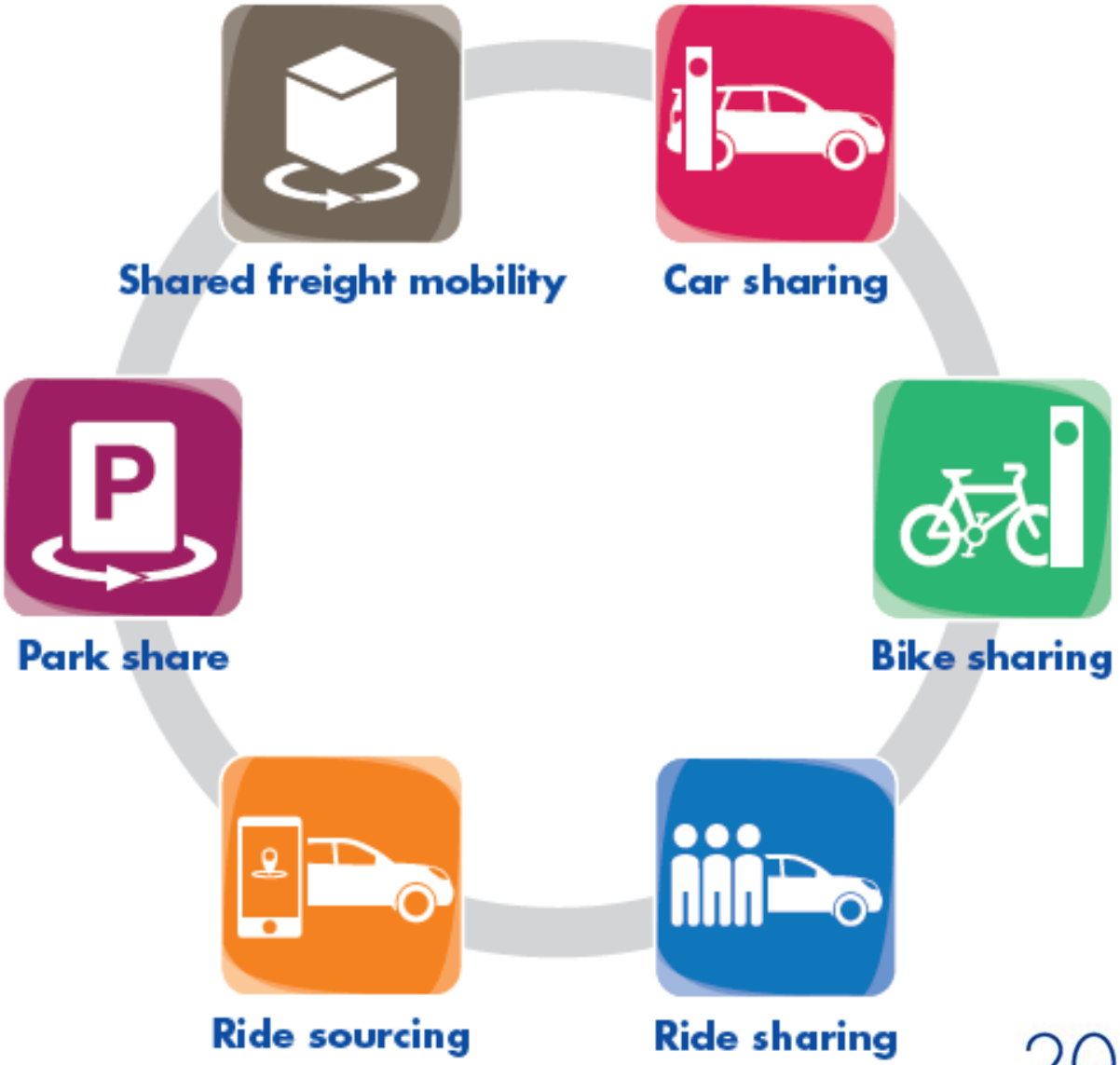
- Lack of vehicle supply: particularly in medium goods category and above (> 3.5t)
- Warranty/maintenance issues
- Financing: higher costs vehicles, infrastructure
- Electricity supply: increasing constraints on grid capacity

EVs are reshaping our cities...

EUROPEAN CITIES AND REGIONS NETWORKING
FOR INNOVATIVE TRANSPORT SOLUTIONS

Solution 4
Sharing economy

Shared Space



THE CIVITAS INITIATIVE
IS CO-FINANCED BY THE
EUROPEAN UNION

Velib' in Paris and in the inner suburbs

Innovative features

- Intelligent and communicating bikes with direct acces (terminal)
- Sign in via a smartphone
- A safer locking mechanism (against vandalism)
- Portable and modular stations to ease installation and flexibility
- Full free-floating functionalities

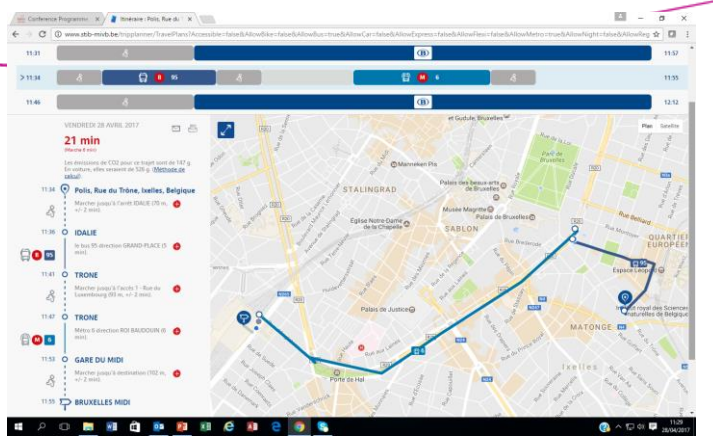
Sharing Cities: Carsharing in Milan

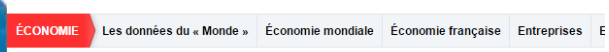
- **Strong municipal commitment**
- **5 carsharing operators**
  - City, metropolitarea, wider region
  - From round-trip to free-floating
  - Residents, commuters, tourists
  - E-car sharing
- **Congestion charge**
  - Promotion of shared mobility services as alternative to private car use
  - Clear and efficient regulations and incentives
- **Also: scooter and bike sharing**

EUROPEAN CITIES AND REGIONS NETWORKING
FOR INNOVATIVE TRANSPORT SOLUTIONS

Solution 5
Mobility as a Service

Delivering integrated mobility services is not new to local government





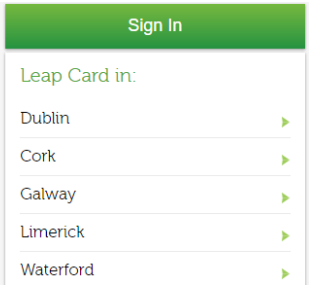
Ile-de-France : le passe Navigo donnera accès à Autolib' à partir de mi-avril

La région Ile-de-France souhaite pouvoir cumuler tous les services de transports sur la carte Navigo.

Get the new Leap Top-Up App

Hold your Leap Card to your NFC enabled Android phone to Top-Up, check balance and collect tickets.

Learn More



Open data is happening

- **Growing momentum for opening up transport data**

Transparency	Outreach
Innovation	Economic benefit
Reduce costs	Optimal use of network

- **More and more local authorities are committing to open transport data where technically, legally and financially feasible**
  - Local authority is not always owner of data
  - Systems not designed for publishing data
  - Limited resources and skills – local authorities are not data managers

So then, what is MaaS and what is its added value?

- **MaaS is a brokerage platform not a transport service**
- **What is needed to make MaaS happen?**
  - Transport services
  - Access to data
  - Commercial agreements
  - Users
- **What can MaaS deliver above and beyond current (integrated) transport information and payment services?**
  - Private transport service providers, eg, taxis, private car-share
  - Different mobility packages

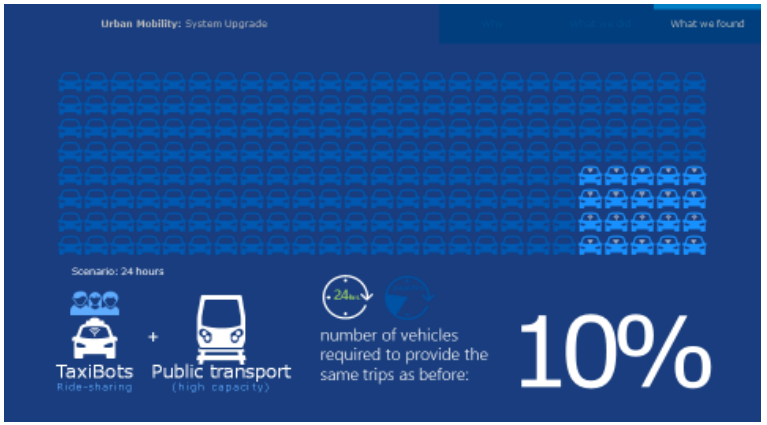
Some preliminary Polis views on MaaS

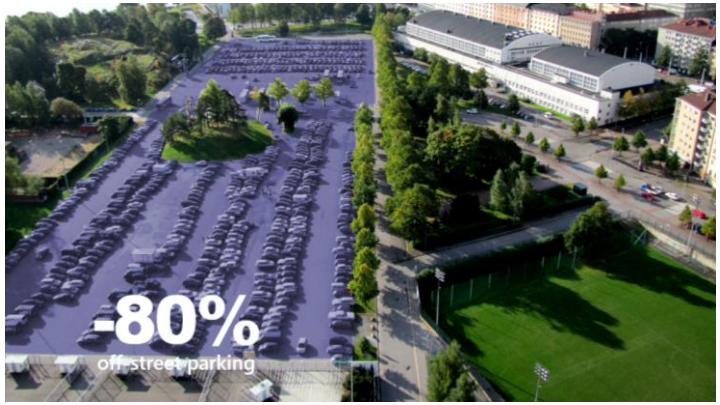
- **Positive where MaaS can support sustainable transport practice:**
  - prevent and reduce car ownership and car trips, increase vehicle occupancy, maintain/increase public transport patronage, promote active travel
  - Enable improved accessibility and a more efficient service than traditional public transport in specific circumstances, such as where demand is low and dispersed (rural areas)
- **Concerns that MaaS may lead to:**
  - Greater number of trips that are less sustainable
  - Higher costs for the user or the transport provider
  - Disconnect between the user and the transport provider

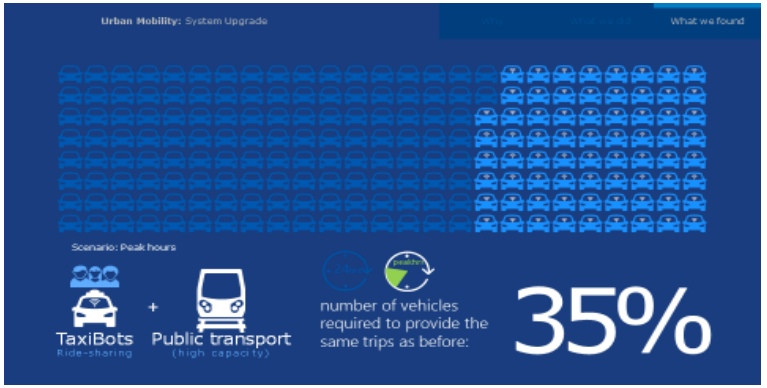
EUROPEAN CITIES AND REGIONS NETWORKING
FOR INNOVATIVE TRANSPORT SOLUTIONS

Solution 6
Connected and Automated Vehicles

Automated vehicles – opportunities





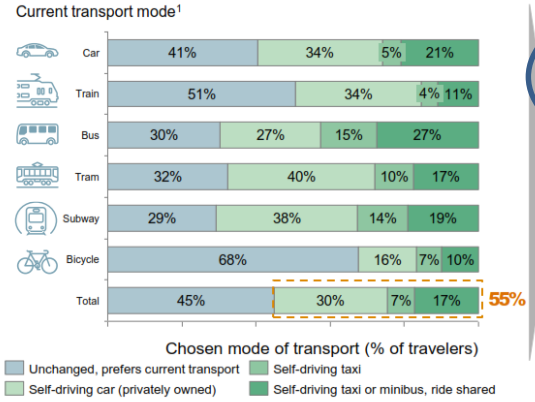


Source: ITF study *Urban Mobility: System Upgrade*

Automated vehicles – threats

Survey indicates that ~55% of all car, public transport and bicycle users prefers a form of SDV in scenario 3

Question: Which mode of transport would you choose if self-driving vehicles were available today?



~55% of travelers already indicates that they would switch to a SDV

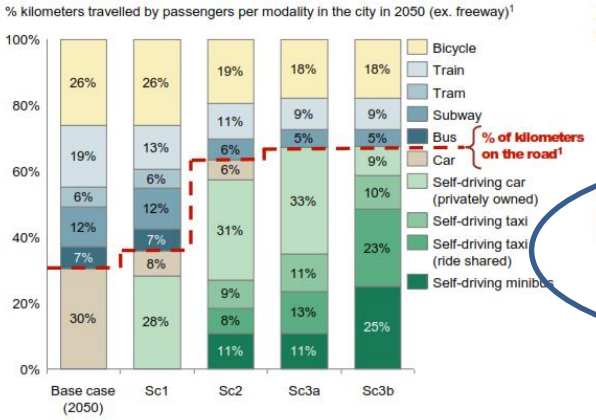
More than half of trav would switch to a forr
- Among car users, t
- Among rail passeng
- Among bus, tram a figure is ~70%
Among cyclists, this

The preference of self about 50% for a privat car, and 50% for some or ride-sharing

These conversion rate underestimate than ar conversions to new te underestimated by co
- We took this into ac various scenarios

The transport mix in the city changes drastically in scenarios 2 and 3, where passenger-kilometers on the road doubles

The transport mix in the city changes drastically in scenarios 2 and 3



Passenger kilometers on the road doubles in these scenarios

In scenario 1, the passenger kilometers on the road increases from 30% (base case) to 36%
- Almost all current car travelers switch to a private self-driving car (which still have to be driven manually in the city).
- Additionally, around 30% of rail passengers switch from the train to a private self-driving car

In scenarios 2 and 3, the passenger kilometers on the road increase from 30% (base case) to ~70%
- All current car users switch to SDV
- A large share of public transport (train, bus, tram and subway) travelers also switch to SDV
- Around 30% of cyclists switch to SDV

Source: City of Amsterdam commissioned study *Impact of self-driving vehicles on Amsterdam*

Does automation really mean automation?

Volvo plans autonomous cars by 2021, USA CEO says

By Thomas Lee, San Francisco Chronicle | September 29, 2016 | Updated: September 30, 2016 10:24am

Join IEEE | IEEE.org | IEEE *Xplore* Digital Library

IEEE SPECTRUM

Follow on:

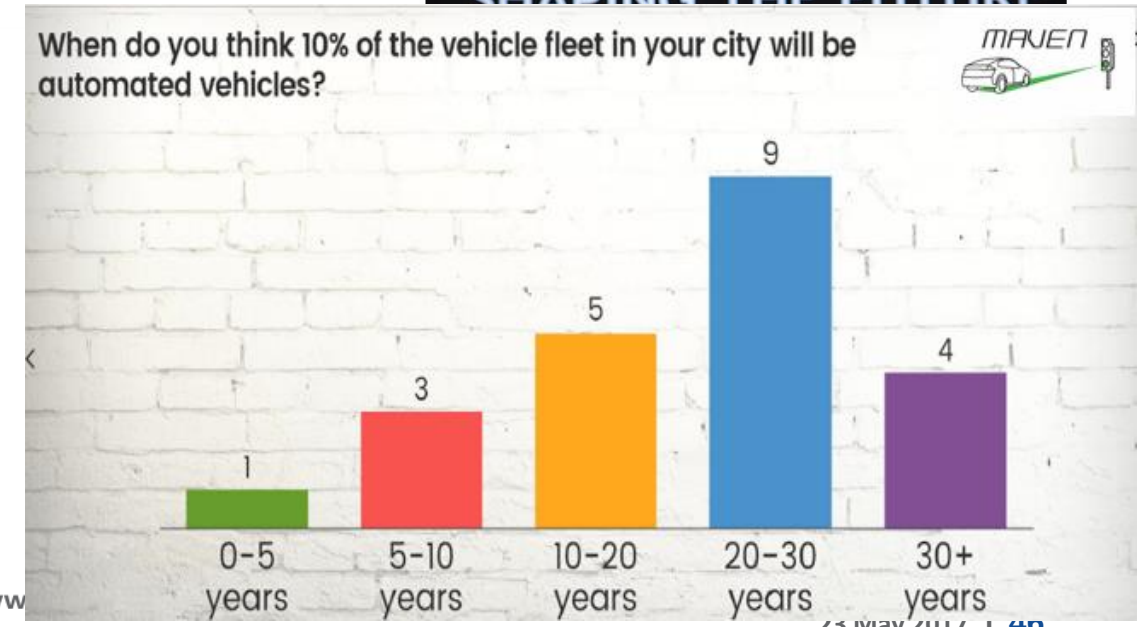
Engineering Topics | Special Reports | Blogs | Multime

Cars That Think | Transportation | Self-Driving

CES 2017: Nvidia and Audi Say They'll Field a Level 4 Autonomous Car in Three Years

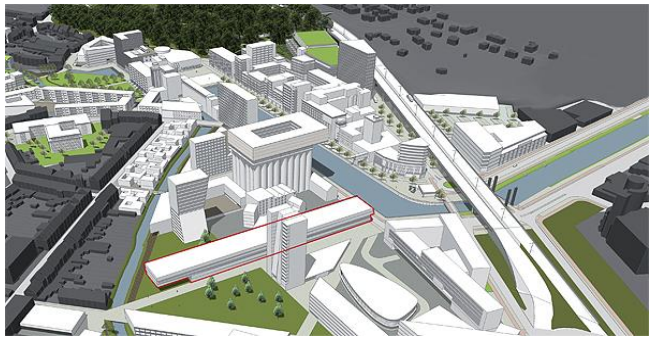
By Philip E. Ross
Posted 5 Jan 2017 | 14:30 GMT

SHARING THE FUTURE



Automated vehicles – aspects cities need to explore

Urban planning & development

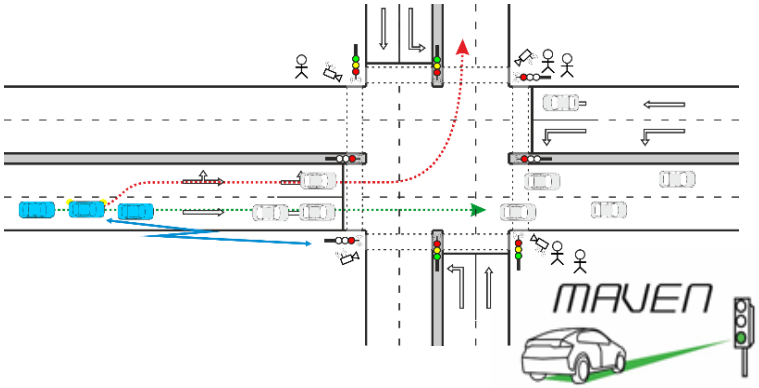


Vehicle use rather than tech.

VRU safety

Tackling predicted growth in trips/km driven

Traffic management implications



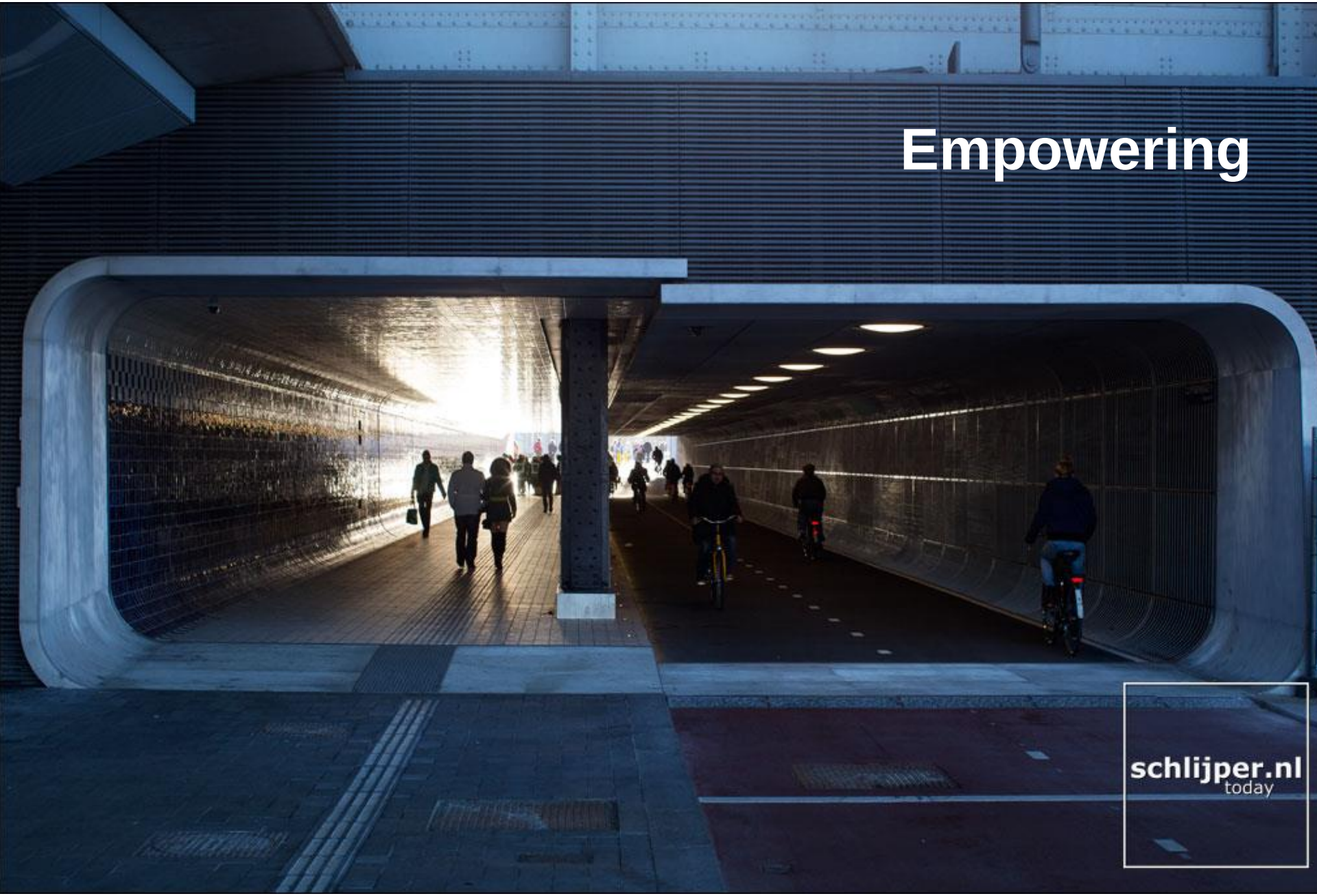
EUROPEAN CITIES AND REGIONS NETWORKING
FOR INNOVATIVE TRANSPORT SOLUTIONS

Conclusions
Are you good at innovation?

Source: Siemens AG

Engaging

http://atlantisgames.nl/cycle-spaces-breda/


Empowering
schlijper.nl
today


Expanding

Polis annual conference