#### DIGITAL MANAGEMENT OF PUBLIC SPACE AND MOBILITY IN AMSTERDAM

DIGITAL TOOLS – A RELEVANT CONTRIBUTION TO CLIMATE FRIENDLY TRANSPORT?

Climate resilient cities – challenges for urban mobility and transport

IMPACTS Dublin 8 - 10 June 2022





Digital tools are a relevant contribution to <u>climate friendly</u> transport?

Yes / no / no idea



My city is working on digital transport tools?

Yes/no



The digital transport tools my city is working on are?

= Open question

# Transitions and scarcity











### Transitions

- Urbanization
- Energy
- Climate (climate neutral, climate adaptive)
- Natural resources
- Nature inclusive
- Digitization, IoT
- Mobility
- Socially
- .....

### Scarcity

- Space
- Energy
- Resources
- Infrastructure
- People (labor market)
- Means (financially)
- Time (to 2050)

#### **X X X Transition frame work**



drift for transition

### Smart City, Smart Mobility



#### Less time needed for just transition!

#### Digitization

- Makes visible (real time)
  - Use of infrastructure
  - State of the public space, traffic, ....
  - Mobility chains
- Makes sharing and consolidation possible
- Links supply and demand
  - Better use of infrastructure
  - Better use of space
  - Better use of vehicle
    - Load factor
    - Combining supply
       and return transport
    - → less distance/energy/CO2
  - Better use of energy
  - Better use of resources
- Facilitating, service, traffic/mobility information for road users
- Increases reliability → enhances usage
- Maintance
- Control
- Monitoring
- Adaptive

#### X X 2020: Program set up

# Amsterdam is no.<br/>1 smart mobility<br/>cityAmsterdam is in<br/>charge of the<br/>digital mobility<br/>systemPeople from<br/>Amsterdam,<br/>visitors and<br/>goods travel<br/>cleaner and<br/>smarter















#### Three ambitions

# Introduction strategy project 'Future digital mobility center'

#### Why are we doing this?

- Digital revolution. The impact of data is increasing. Commercial providers are using the data to optimize mobility services for the individual traveler.
- However this is not always beneficial for the society.
- This is the moment to shape the future. Amsterdam wants to be in control and actively shape it in line with city values like livability, accessibility, safety and inclusivity.
- What we would like to have:
  - Realtime insight in the use of the public space, infrastructure and mobility (services)
  - Insights in the desired use of the public space and mobility (services)
  - Insight in the state of the infrastructure
  - Tools / ways to influence behavior or use of public space and mobility (services)

#### What are we doing?

- Creating a vision on future digital mobility management
  - First version created based on internal conversations
  - Enrich based on insights external partners
- Define and developing concepts for the mobility center of the future in the innovation center of Amsterdam.
- Translate it into organizational adjustments and technical and legal products. Some examples:
  - Specifications new traffic control tower
  - 'Amsterdam conditions'

# × × × 2022: Vision 2040 Connected City



## × × 2022: Vision 2040 Connected City



Correct use of public space and the mobility system based on

- socially just well-being of people
  - mobility as a social issue (accesibility of work, education, services) equality of opportunity and minimal participation in society
  - healthy (safe, air quality, noise,...)
  - facilitating interaction between people and place and people
  - based on human size
  - inclusive: financially, physically and cognitively accessible
- Ecological safe supporting the climate goals and targets
  - fitting footprint
  - biodiversity
  - natural resources
  - environment
  - energie
  - water
- responsible digital position in digitazation transition and connecting digital and physical world
  - values
  - facilitating and supporting

### In its current role, Amsterdam mainly focuses on aggregating data from traffic and mobility control system



### Far-reaching digitalization of mobility creates the need for a central data position for the city of Amsterdam

2030

**Reaching residents and visitors** We are building an interaction platform and engaging into public-private partnerships to facilitate inhabitants of Amsterdam and visitors in the use of the city.

#### Integrated management of the mobility system

We enable a seamless journey to, from and throughout the city by stimulating Mobility as a Service (MaaS) platforms. We develop tools for managing MaaS, by which we can facilitate target groups and different types of trips.

#### Focus on network availability and capacity management

We develop an urban geofence, in which policy is translated into KPIs for use of certain areas. We develop an information chain to communicate the rules / terms to mobility providers.

We develop new tools for capacity management: from intelligent access with cameras to geofencing and virtual queuing



#### Organize data usage Amsterdam takes a central data position and organizes data usage in the ecosystem by developing a data platform based on the Tada principles of ethical data use, privacy-bydesign and safe data usage.

#### Dynamic policy and traffic management as ongoing research topics

We develop a common operational picture with real-time insight in how the city is used.

We develop an environment in which policymakers and researchers can develop, visualize and test interventions, and improve management / steering tools in a multidisciplinary way based on real-time data.

We test new forms of data analysis and digital tools.

We work together with knowledge institutions and other external partners in developing new models.

We are building a robust and resilient system for the future generation. We develop stress tests, new adaptive control systems and explore completely new systems.

2050

### Digital Mobility Center of the Future – elaborated in themes

The development of the Mobility Center of the Future requires an innovative approach to themes and the exploration of concepts and challenges:



Theme	Definition
Reaching and facilitating citizens, entrepreneurs, visitors	<ul> <li>(on- &amp; pre-trip) Insight into travel needs and behavior to enable mobility to contribute as a means for interaction, movement, accessibility and social gathering. Focus on the travel experience within the city, where accessibility is also defined in terms of proximity to certain functions. With attention to both physical and digital relocation and the impact on the world in terms of sustainability.</li> </ul>
One integrated mobility ecosystem	<ul> <li>(on- &amp; pre-trip) From controlling car traffic flows to digital regulation of mobility services and MaaS operators. Effective management of the integrated mobility ecosystem: an optimal composition of various modalities in the mobility mix is the main goal, as well as the effective application and integration of various related smart city concepts such as 'smart energy', 'smart parking', 'smart buildings' and its cross-functional and integrated application via platforms.</li> </ul>
Policy / Analysis / Insight	<ul> <li>(on &amp; pre-trip - tactical and strategic) Focus on internal staff (policy and research) and balance in the city. Insight into travel behavior, driving behavior and consequences of capacity management. Making decisions that maintain the balance of the city with various tools, such as dynamic policy making, employer's approach, payment according to use, availability of shared and healthy transport, mobility services and dashboards.</li> </ul>
Network availability / capacity management	• (on-trip operators) Insight into residual capacity / space and availability of physical and digital public space, infrastructure, objects and mobility services and the speed and intensity of all modalities. Furthermore, influence the capacity, intensity and speed through IOT assets and (digital) traffic systems, such as intelligent access, incident management, intelligent use of public space and smart maintenance.
Data aggregation & Lab	<ul> <li>Organize well-considered data usage throughout the whole chain. A central data position: in addition to our own data, the data from mobility providers, infrastructure and other third parties in the ecosystem will also be aggregated whereby supply and demand of this data will be orchestrated; a condition for being allowed to operate in Amsterdam. Furthermore, make data available to external chain partners (such as AMS) and data APIs for research and new solution directions.</li> </ul>
Resilient system	• The uncertain future requires a resilient system. In addition to the current mobility system, there may be events that require an alternative or adaptive system. This resilience lies in central / decentralized management, in other steering principles and in new solutions for completely new systems. Think of non-mobility, digital mobility, everything local or everything mobile.



### **Applications / pilots**

- Parking management and control
- Mobility as a Service (MaaS), in combination with shared mobility, hubs
- Intelligent Access (UVAR)
  - weight (zones, routes, waivers)
  - emission
  - time windows (loading /unloading)
  - time windows access to area's (safety around schools)
- Intelligent Speed Adaptation
- Coding the Kerbs --> sharing and controlling the time and the use of loading/unloading area's, charging spots, parking
- Crowdmanagement
- Logistics (planning, consolidation, circular economy)
- Smart charging

.....







My city should do more on digital tools and digital ecosystem?

Yes?: write your city name



I would like to have more exchange and collaboration between the IMPACTS cities on digitization?

Yes?: write your city name