

Supporting the decision-making in urban transformation with the use of disruptive technologies

URBANITE H2020

Project Overview

URBANITE at a glance



1st April 2020 – 31th March 2023



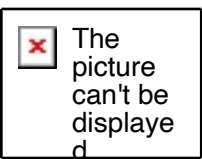
3.954.062 €



11 partners from 6 European countries

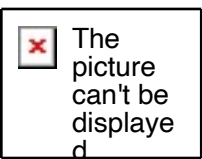


H2020-SC6-TRANSFORMATIONS-2019



URBANITE Partners





Project Goal

- To provide, by means of a co-creation strategy, a **long-term sustainable ecosystem** model that articulates the **expectations, trust and attitude from civil servants, citizens and other stakeholders in the use of disruptive technologies**. This model will be supported with the **provision of a data management platform and algorithms for data – driven decision – making** in the field of urban transformation and validated by piloting mobility use-cases in the context of the proliferation of sharing services.



Project Objectives



Create an **in-depth knowledge on the different implications of the use of the disruptive technologies** in the public sector context



Provide **automatic mechanisms to harvest, curate, fusion and visualization of existing open and proprietary data** coming from different sources



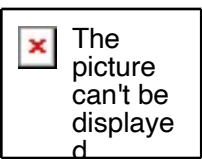
Facilitate the policy decision-making processes in the context of mobility and urban transformation



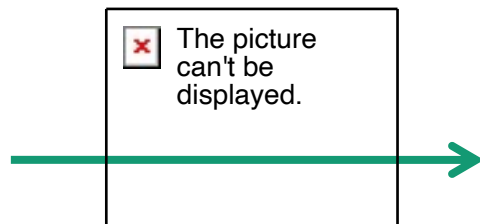
Validate URBANITE Key Results in 4 real use cases



Develop a **viable business model** to ensure the sustainability



Approach



WHAT

- ✓ Use data for better decision making (analysis, simulation and prediction)
- ✓ Engage citizens and civil servants in the policy making process increasing trust and capturing the vision of all actors
- ✓ Get careful guidance on the adoption and implementation of disruptive technologies (i.e. big data, artificial intelligence, cloud computing, algorithms)

Approach

URBANITE Solution



SoPoLab

a digital co-creation environment and a set of approaches to help co-design and co-create policy guidelines with all involved actors.



Data Management Platform

a platform supporting the entire data processing chain from collection, aggregation, provisioning to using the data.



Decision-Support System

powerful analytics tools that combine multiple data sources with advanced algorithms, simulation, recommendation and visualization.



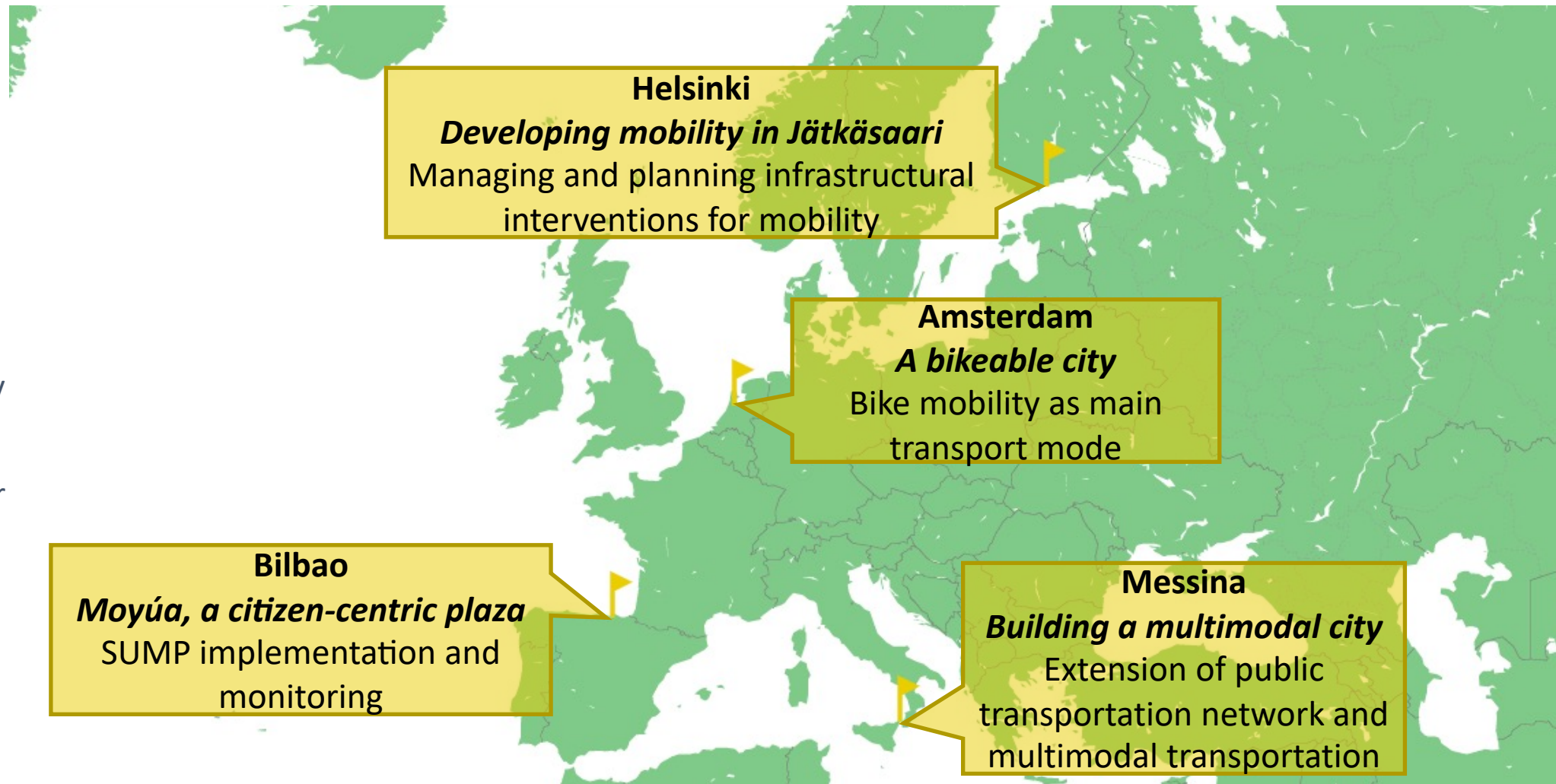
Recommendations and pathways

Pathways to provide public administrations guidance on the adoption of disruptive technologies and data in their policy making processes.

Use cases

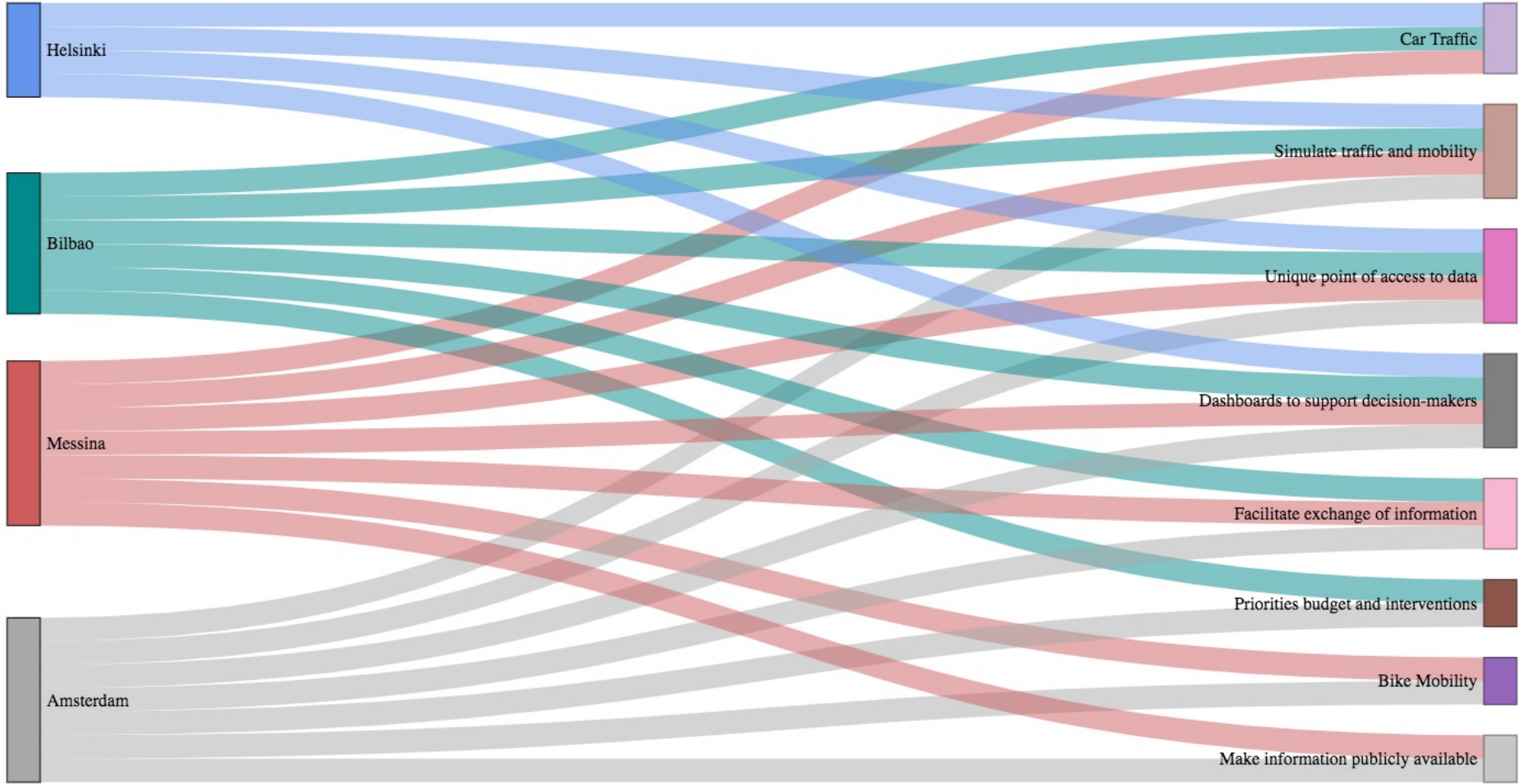
Use cases objectives

- Guidance for the development of the URBANITE ecosystem
- Validate applicability of social and technical results
- Provide feedback for steering the project activities



Achievements, Innovations, Challenges & Lessons Learnt

- Common topics identified among the use cases



Achievements, Innovations, Challenges & Lessons Learnt

- Commonalities in terms of potential application of disruptive technologies to support decision-makers
 - Data access
 - Data analysis and simulation
 - Data visualisation



Data Access

Easiness of accessing the data, that many times is scattered, or represented using different data structures and non-uniform standards. tools facilitating the connection to data sources and the integration with existing IT systems can offer a valuable solution to overcome information silos and to build a unique data-access point to available data, allowing also the harmonisation of the data according to common and well-defined data models and highlight the relevant information reducing the time to find it



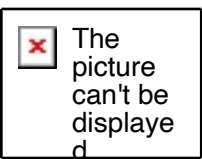
Analysis & Simulation

Possibilities offered by data analysis and simulation to forecast and predict the impact of decisions. Beyond the possibility to perform analysis and simulation, the availability of tools that simplify and reduce the time needed to set them up play a key role.



Visualisation

Accessed data and results obtained from simulations and data analysis must be visualised in an easy-to-understand manner; this includes also the possibility of creating customisable dashboards in which the decision-makers can arrange the information they need and represent it according to their needs. Tools (e.g. Wizards) guiding the users in the creation of charts, graphs, map layers, etc. give the opportunity to speed up the decision-making process by reducing the time of interpreting and understating the information



Main research topics and challenges

The real potential **impact** of these technologies and the **ways** in which they can **disrupt** the existing landscape of public services and legal procedures and can replace present solutions and processes are largely **unknown**.

- Big data analytics management platform (data acquisition and aggregation + AI algorithms, simulation models and predictive algorithms) to support policy decision-makers
- Target users of the URBANITE ecosystem -> civil servants
- End beneficiaries of the policies -> citizens.
- Citizens, private sector and civil servants will be brought together, in all stages of the project (+ Social Policy Labs)
- 4 pilots. Each pilot will involve at least two departments within each municipality to demonstrate the cross-sectorial and multidisciplinary vision of the URBANITE solution.

Main research topics and challenges

Assess the **potential benefits and risks** of using **disruptive technologies** in **public administrations** as well as the **social impact** of using them for **government processes** and governance.

In addition, the **political**, socioeconomic, legal and **cultural implications of disruptive technologies and their acceptance** (public administrations + citizens).

- Analyse benefits, risks, success stories and lessons learnt in other domains: Industry 4.0, health, energy, smart cities
- Baseline disruptive technologies: Big data analytics and simulations, artificial intelligence and cloud computing
- Cocreation sessions through the SoPoLab: to analyse trust, attitude, social impact, etc from relevant stakeholders

URBANITE Approach

Based on 3 pillars:

- 'Ask' phase:

- civil servants, citizens and other stakeholders define actual challenges in mobility.
 - focus on gathering data from the different sources, its aggregation and storage
 - and trying to understand the challenges that both the technologies and the domain pose, the attitude and trust towards disruptive technologies, fears or hunches.

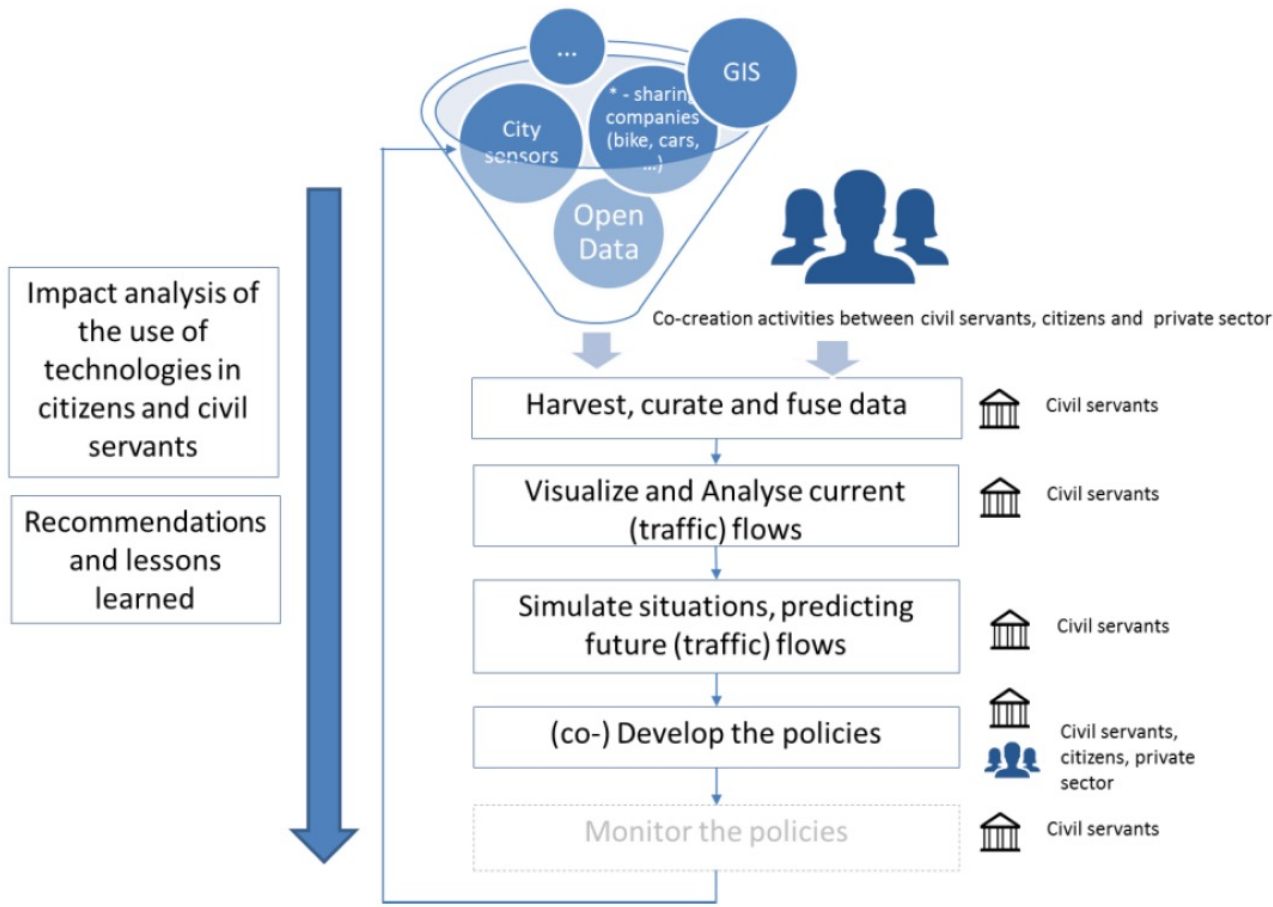
- 'Create' phase:

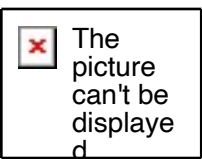
- development of algorithms and models to extract knowledge, predict situations and simulate them with the main aim of providing policy makers with tools to decide based on data.
 - Design of roadmaps for the prioritized challenges

- 'Policy' phase:

- translation of simulations and predictions into practical policy and requirements, complemented with a set of lessons learned and pathways for recommendations.

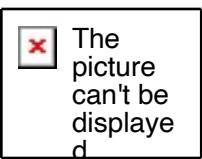
URBANITE Approach





Citizen participation and engagement, and trust in disruptive technologies

- Open and integrating approach to capture the vision of all the agents involved in the provision of public services, not only the vision of the public servants.
- Apply the **Social Policy Lab methodology**
- **Provision of a SoPoLab Digital Space:**
 - a repository with publications, internal reports and documentation
 - a virtual space that will act as a forum where all participants can exchange their point of view and experiences



Data Management System

To **support the entire processing chain** from collecting, aggregating, provisioning to using the data.

Compliant with EU vocabularies and the European metadata standard DCATP-AP and profiles.

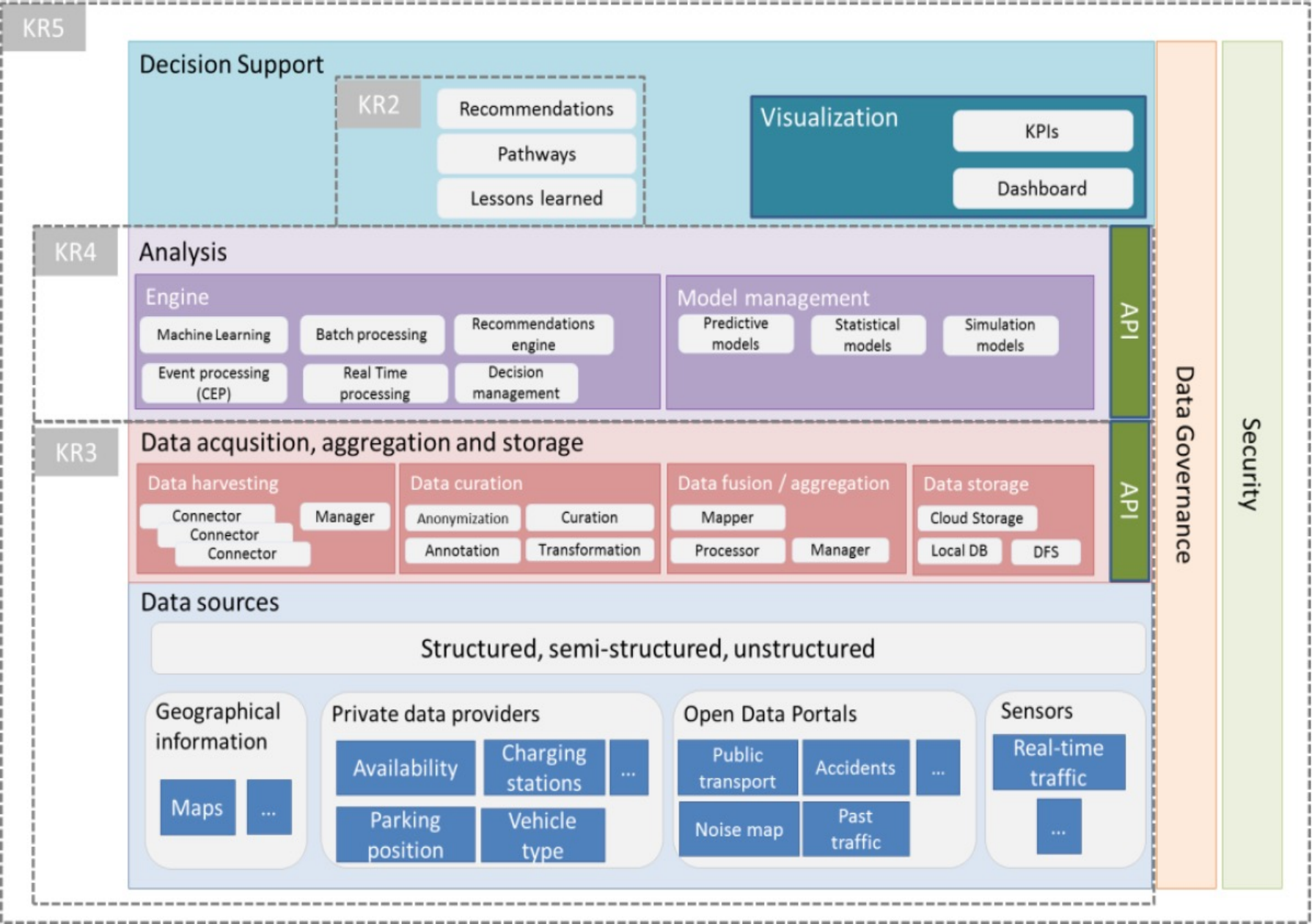
Modules:

- **Data preparation:** to ensure interoperability for further use of the data.
- **Data harvesting:** collect data from heterogenous sources and transform them into adequate formats for further use.
- **Data hub:** lightweight data catalog for managing and delivering metadata (support for the European metadata standard DCAT-AP and related profiles).
- **Anonymisation:** to ensure the protection of the privacy, but retaining the statistical validity of the data.
- **Metadata and data quality checks:** high-quality data that is easy to find and process
- **Licensing support:** check the data licenses of the individual data sets and makes them understandable to the owners and users.
- **Charts:** creation of meaningful visualizations
- **UI:** a modern and customizable web interface for the use and management of extensive data catalogs.
- **Added value services:** tools for data mapping, data processing and data management for creating added value services.

Predictive algorithms and modelling for mobility

- There are no projects that directly address sustainable urban planning for mobility in cities by **combining DSS and dynamically generated decision models**.
- Select and combine predictive models that are most suitable under the given conditions and apply them to **provide support during policy creation**
- Most of the current systems are use case specific. URBANITE: first, construct **generic models** and then, provide **adaptation mechanisms** to apply these models to different domains and use cases.
- Reasoning methods for extraction of knowledge from different / heterogeneous and compound data streams and formats originating from diverse data sources.
- Tools to perform a dynamic analysis of large quantities of data
- Deploy advanced techniques for data visualization

KR's



KR's

	KR1	KR2	KR3	KR4	KR5	Departments involved – cross sectorial aspect	Existing data needed identified at this stage
Amsterdam	•	•	•	○	•	<ul style="list-style-type: none"> ✓ Vervoersregio Amsterdam (mobility region Amsterdam)¹⁴ ✓ CTO department of the Amsterdam municipality¹⁵ 	<ul style="list-style-type: none"> ✓ Open data on mobility ✓ Commercial shared mobility services
Helsinki	•	•	•	•	•	<ul style="list-style-type: none"> ✓ City of Helsinki Group¹⁶, among others, Forum Virium Helsinki, City Urban Environment Division: Environment services, City Urban Environment Division: Traffic and Street planning (see complete list in footnote), Port of Helsinki, Social Services and Health Care Division: Management and development 	<ul style="list-style-type: none"> ✓ Helsinki West Harbour Data and Interfaces ✓ Data sets from private sources ✓ Other sectors' data (like social data).
Messina	•	•		•	•	<ul style="list-style-type: none"> ✓ Urban mobility department¹⁷ ✓ Municipal police department¹⁸ ✓ Department of Cultural and Educational policies and economic development¹⁹ 	<ul style="list-style-type: none"> ✓ Open and closed coming from the municipal services, cameras²⁰, public transports.
Bilbao		•	•	•	•	<ul style="list-style-type: none"> ✓ Traffic and mobility area ✓ Environment area ✓ ICT departments (BilbaoTIK) 	<ul style="list-style-type: none"> ✓ Open and closed data coming from urban buses, bike-sharing, traffic, car-sharing...

Summary of challenges (Y3)

Analyse the attitudes of civil servants in the engagement with citizens and the reasons for exit and non-take up

Develop more the recommendations for the uptake of digital public services

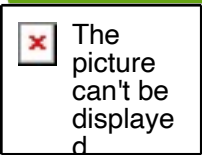
Release the second versions of the ecosystem

(Further) Develop the co-creation methodology and the customization rules

Validate the second versions of the ecosystem in the use cases

Create a sustainable exploitable model for CITADEL

Increase the awareness of the project



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Thank you!

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