MAIA

Multimodal Access for Intelligent Airports

Motivation

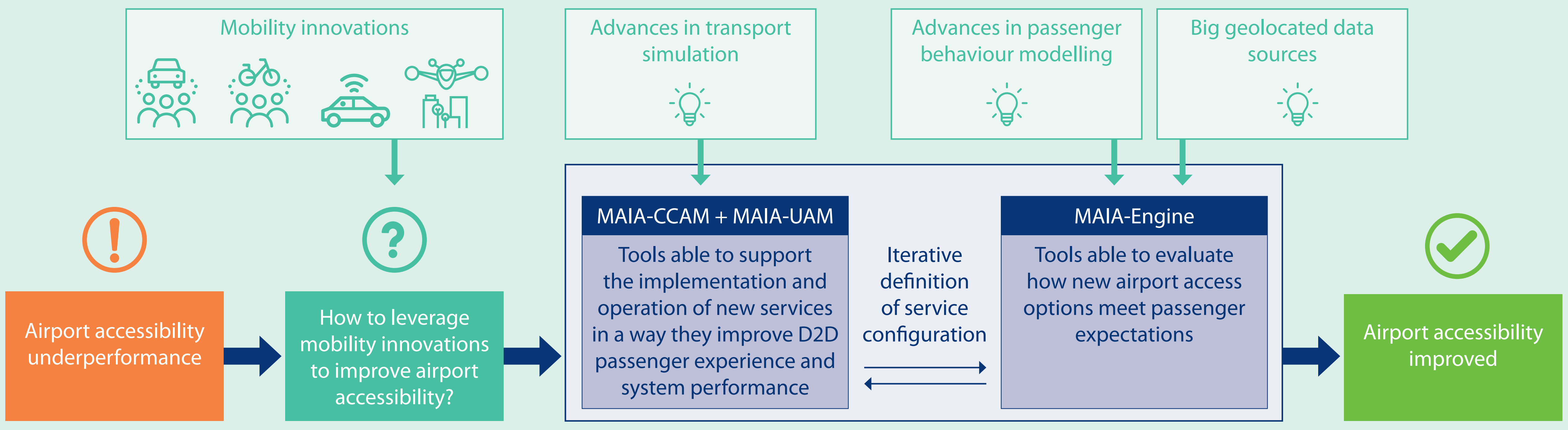
- The aviation sector plays an important role in innovation and early adoption. It needs to leverage cutting-edge data analysis and modelling techniques, to develop tools supporting the implementation of evidence-based innovative airport access services.

- In particular, tools able to guide the implementation of services based on CCAM and UAM concepts are likely to transform airport access. By anticipating their impacts, the aviation sector will better shape the future of airports as multimodal hubs.

MAIA Objective

- Develop a set of data analytics and modelling tools to support the evidence-based design and implementation of multimodal airport access solutions based on two passenger mobility innovations: shared autonomous vehicle fleets and unmanned aerial vehicle fleets.

Methodology



Mobility innovations

Advances in transport simulation

Advances in passenger behaviour modelling

Big geolocated data sources

Airport accessibility underperformance

How to leverage mobility innovations to improve airport accessibility?

MAIA-CCAM + MAIA-UAM

Tools able to support the implementation and operation of new services in a way they improve D2D passenger experience and system performance

Iterative definition of service configuration

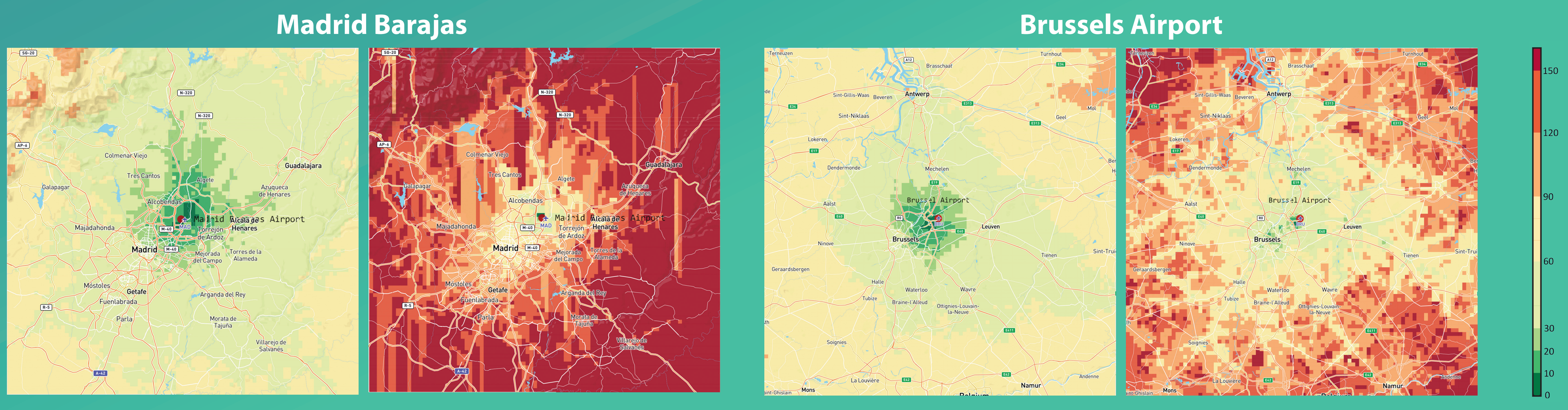
MAIA-Engine

Tools able to evaluate how new airport access options meet passenger expectations

Airport accessibility improved

Performance Framework	Identify the opportunities and risks associated with passenger mobility innovations in a multimodal airport access context.
Solution 1: MAIA-Engine	Toolset for a passenger-centric design and implementation of innovative multimodal airport access services, including new methods and tools to predict passenger behaviour.
Solution 2: MAIA-CCAMM	Vehicle dispatching tool to support the operation of Shared Autonomous Vehicle (SAV) fleets in airport access, able to mitigate multimodal disruption impacts.
Solution 3: MAIA-UAM	Vertiport site selection framework to support Unmanned Aerial Vehicles (UAV) services inclusion in airport access, balancing passenger experience & UAM operational restraints.
Case Studies	Apply MAIA-Engine to a set of case studies among EU airports to demonstrate how MAIA-CCAM & MAIA-UAM concepts improve passenger experience, capacity and sustainability.

Preliminary results: Airport accessibility maps in selected airports



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