



TAPCOP

A one-stop solution for multi-modal mobility management

The ITEA project TAPCOP (Traffic AI Prediction of Common Operational Picture) will use AI-based sensors and data aggregation to realise situational awareness and data-driven management of visitor flows to proactively manage congestion in cities.

Addressing the challenge

Congestion is the breakdown of traffic flow and increase in travel time and crowding that occurs when the capacity of public spaces is exceeded. In the USA alone, USD 186 billion is expected to be lost in economic opportunity costs related to traffic gridlock by 2030. Besides the economic costs, side effects include damage caused by pollutants directly introduced by idling vehicles. Authorities lack efficient solutions to mitigate problems related to urbanisation and therefore continuously struggle to manage and control traffic and crowds to prevent safety incidents and discomfort. Current solutions to influence the behaviour of visitors and traffic flows are mainly used in the physical space, such as variable message signs with instructions, closing or opening certain routes or deploying employees on-site.

Proposed solutions

These existing solutions require effort regarding planning and the deployment of materials and people; they are only possible when it is clear in advance where many people will gather in public hotspots. There are many situations where this is unknown or where it is unclear in which direction visitor flows will spread. Using a system comprised of a chain of information processing modules, the TAPCOP project aims to solve these problems by providing insight, predictions and control mechanisms to prevent mobility issues and overcrowding. Multi-modal traffic data will be collected on vehicles, pedestrians, bicycles, public transportation and parking occupations,

among other things. This data will then be aggregated into information to predict the situation ahead. The system will present a common operational picture of this mobility situation via a single dashboard, including suggestions for intervention. Various communication

rather than separate management of crowds and traffic without considering multi-modal travel journeys. Secondly, predictions will allow authorities to start controlling and influencing the travelling public, thereby proactively preventing overcrowding and traffic congestion instead of performing reactive damage control. Thirdly, the capacity to influence travellers pre-trip, on-trip and on-site will give people the opportunity to travel in different directions, at different times and with different transportation modes



^ Passenger occupancy measurement

means will also be used to influence the travelling public via targeted social media.

Projected results and impact

The potential customers of TAPCOP are road authorities, municipalities, police, crowd management and event organisers of football matches, concerts and festivals. Each of the system's modules shall introduce innovations with clear market value. Firstly, a system that gives an overview of all transportation modalities will enable a holistic approach

to improve the comfort and efficiency of travelling. Finally, all modules will be equipped with AI technology, allowing the system to learn and improve over time and adapt to new situations and use-cases. These unique selling propositions cover the complete value chain and are therefore expected to disrupt the smart mobility domain. As a result, the consortium can play an influential role in the predicted growth of the global Mobility-as-a-Service (MaaS) market from USD 3.3 billion in 2021 to 40.1 billion by 2030.

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Project leader
Geert Vanstraelen, Macq

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<https://itea4.org/project/tapcop.html>

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Project email
geert.vanstraelen@macq.eu



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