

CASE STUDIES

RENNES

Fostering intermodal cooperation of passenger and freight transport in urban areas

It has a wide digital infrastructure to provide information on traffic and transport network use. In TANGENT, Rennes aims at gathering and process data from different stakeholders (public and private) and provide various schemes for data-sharing among them based on current standards (e.g., NeTEx, DATEXII) and extensions to guarantee interoperability and improve intermodality.

LISBON

Integrated urban and interurban transport management with C-ITS
TANGENT aims to integrate data sources from multiple stakeholders, process them and disseminate current and future status of the network, incidents, speed, route, and park & ride recommendations to users through different channels.

It will do so by (i) optimizing interurban flows on highways by speed and route recommendations through C-ITS for connected vehicles, (ii) direct vehicles to unoccupied off-street and on-street parking places, (iii) improve synchronization of urban public transport with incoming inter-urban traffic flows from highways.

GREATER MANCHESTER

Optimisation of transport flows both in urban and in rural / semi-rural region

TANGENT contributes to optimising transport both in urban areas and rural/semi-rural regions from Greater Manchester by balance demand and supply across different modes by suggesting different strategies and measures to transport authorities and transport operators (e.g., alternative traffic signal timings, variable speed limits, re-routing, pricing, incentives, etc.) with a particular interest on promoting sustainable modes.

ATHENS

Future transport management with Connected and Automated Vehicles (CAVs) – virtual

Athens faces severe congestion problems due to the rising demand for car trips. **TANGENT** aims to provide strategies to improve network connectivity and operation through a better information system that connects all modes. It aims also to significantly reduce congestion levels through the balance of the demand and supply in real-time scenarios. The effectiveness of **TANGENT** strategies is tested for various future mobility scenarios including CAVs and ride sharing services.

START DATE
September 2021

36 months
13 partners
7 European countries

MORE INFORMATION

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PARTNERSHIP

TANGENT is a collaboration between **13 partners**, including universities, research laboratories and innovation hubs, consultancies, city authorities, a software provider, a public transport company and a network organisation. The project is funded by the **European Union's H2020 Programme**, has a duration of three years and a budget of almost 4.8 million euros. **TANGENT** is coordinated by the University of Deusto, based in Bilbao, Spain.



TANGENT

Enhanced Data Processing Techniques for Dynamic Management of Multimodal Traffic



TANGENT has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 955273

WHAT

TANGENT aims to **develop new complementary tools for optimising traffic operations from a multimodal perspective, both for passenger and freight transport**. The project allows the precise knowledge and management of the mobility flows among the transport modes and enables the implementation and integration of innovative mobility solutions, services, and business models.

TECHNOLOGIES

- **Data gathering and harmonisation** from the intermodal mobility, sensors, enabling semantic data interoperability across modes and stakeholders.
- **Travel behaviour modelling**, describing how individual needs, preferences and sentiments affect decisions under different circumstances, unexpected events and system disruptions.
- **Traffic Network prediction & simulation models** to infer the network's future traffic state by predicting multimodal travel demand and supply, and the mobility parameters for different time-horizons.
- **Transport network optimisation**, by using the traffic's current and future status and based on artificial intelligence, the system determines the best actions to improve traffic operations.

BACKGROUND

European transport is at a crossroads and faces major challenges, such as road traffic accidents, greenhouse gas emissions, traffic congestion costs.

The development of disruptive technologies, micro mobility solutions and the trend towards a more human-centric approach are changing mobility and traffic management, bringing both new opportunities (e.g. new business models, improved safety) and challenges (exchange of data, response to sudden events).

Transport system managers demand new tools dealing with **connected & automated vehicles** and **new services to improve traffic management operations**, involving both **private and public stakeholders**.

SERVICES

Creating a framework for coordinated traffic and transport network management, **TANGENT** delivers the following services for decision-making support:

- **Enhanced information for multimodal transport management** to integrate information from all transport modes (public and private stakeholders). This information is provided in a single dashboard and via APIs to transport operators, service providers and transport users.
- **Real-time traffic management**. Based on the above, **TANGENT** provides recommendations at operational/tactical level to transport agents, optimising the overall transport network operations on a day-to-day basis.
- **Transport network optimisation** to support decision-makers in producing policies or response plans to optimise the performance of the network, including dynamic transport network management and transport supply optimisation.

EXPECTED IMPACTS

- Accelerate the transition towards **connected and automated mobility** and the development of **new services**
- Facilitate the **integration of transport modes** into a **multimodal network** for **passengers and freight**
- **Reduce pollutant emissions**, capacity bottlenecks, traffic jams, thereby **saving time**
- Improve **safety and security** in all transport modes, in line with the **Transport White Paper** (e.g. Vision Zero)
- **Reduce the cost of mobility** for all (incl. industry, public authorities, and citizens)

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TANGENT
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www.tangent-h2020.eu

