ROM_07 'Use of advanced technology to increase the efficiency and reliability of PT'

Objectives of the measure

- **At measure level:**
  - Implementing new features in the MMC (Mobility Management Centre) of Rome (managed by RSM).
  - Enhance traffic forecasting and the management of near-real time information to support PT operators and PT users in their choices.
  - Improve the efficiency in transport operations
  - Guaranteeing management and use of the information coming from all the actors involved in mobility and from different ITS systems present on the territory.

- **Contributing to city level objectives of**:
  - Equipping the city of Rome with technologically advanced tools in a Smart City perspective.
  - Reduce traffic congestion and pollution
  - Reduce travel times
  - Increase the efficiency of PT

Description of the measure

- **Situation before**:

The SUMP of Rome considers ITS a pillar in the implementation of its mobility policies. Rome MMC was implemented in 2000, in the occasion of the Jubilee. It was enhanced to manage the traffic systems present in the city (cameras, traffic lights, speed control, metering stations, VMS, UTT, safety tutor, electronic PT poles) amongst these, the LTZ (Limited Traffic Zone) could be finally controlled remotely.

- **General description:**

The Traffic Management Centre has evolved during the years to be up to date with the technological developments. The MMC ensures the technological oversight- spanning from the design to management of mobility services, of systems for traffic monitoring, regulation and control, infomobility and automatic sanctioning of traffic violations.

The renewed MMC will support the whole metropolitan area of Rome to unify, manage and take advantage of the information coming from all the actors involved in mobility and from the different ITS systems in the territory, to provide:

- Management and Monitoring: Near real-time reconstruction of the mobility of the Metropolitan City of Rome
- Regulation and control: Real time information to guide traffic for example in case of unexpected events.
- Forecasting: Using Artificial Intelligence and Machine Learning technologies to make short-term traffic forecast estimates
- Infomobility: Information to users (though the MaaS, at the poles, and through journey planners) on the current and projected status of mobility.

Through the implementation of this measure, citizens will have more reliable information to make travel choices, PT operators will take advantage of more reliable information on traffic for the planning and adaptation of the service, and the City and RSM will have more reliable data to control the service level provided by PT operators (compliance with the SLA). The renewed features of the TMC will be fundamental for the development of the MaaS as well.

- **Sub-measures description:**
  - **ROM_07_01:** improved PT operations and forecasting thanks to the design and implementation of new ITS systems and revamping of obsolete ones
  - **ROM_07_02:** better information for users thanks to specialized Predictive models, integrated with the MaaS

- **Measure outputs:**

The upgrade of the TMC will provide mobility and TP operators with services for operators and citizens thanks to a platform that integrates:

- The technological systems installed in the territory.
- A Data Lake for information exchange processes.
- A fully integrated technology platform: GPS systems, digital sensors, cameras, wi-fi hot spots, internet of things, big data and data processing software.

- **Supporting activities**:

New Data Centre: virtualization and cloud, Disaster Recovery, networking, GDPR, security, services, DB etc.)

- **Interaction with other city measures: UPPER and non-UPPER measures**

This measure is related to other measures in the city ROME aimed at achieving sustainable, safe, and highly intermodal and accessible mobility in Rome.

- **ROM_01:** To reduce private vehicles by implementing a "pollution charge" scheme in the core part of Rome Zone 2
- **ROM_02:** Promoting modal shift towards PT with the implementation of a LEZ in Rome Zone 3
- **ROM_06:** Innovative features into the MDMS system according to the mobility patterns and needs of users' groups
- **ROM_08:** (Re)Designing the urban space to promote active travel modes, PT and environmental "30 zones"

Target groups and/or geographical impact areas

- **Target groups:**

  - Citizens
  - Tourists
  - Operators of the TMC
  - Sharing mobility operators
  - PT operators
  - Municipal police
  - Railways operator
  - Airports

- **Geographic impact area:** Metropolitan area of Rome

Stakeholders

The following stakeholders will be required for the implementation of this measure.

- **The city of Rome:** owner of the MMC
- **RSM:** systems integrator
- **TTS Italia**
- **Metropolitan area of Rome authority**: that will support with data exchange
- **Lazio Region authority**: that funds and supports with data exchange
- **Urban Police**: uses the system for its activities of control

- **PT operators**: to optimise their service and exchange data
- **Mobility operators**: to optimise their service and exchange data

U-tools support

The implementation of this measure can be supported by two IT tools from the UPPER toolkit:

- **U-SIM.live** to test a different forecasting tool
- **U-TWIN** to test a different forecasting tool, to monitor in real-time different mobility assets (buses location, traffic, roadworks, incidents,

Link to other UPPER measures

This measure is similar to UPPER measures implemented in other cities, especially:

- **VAL_03**: To optimise public transport offer based on advanced technology
- **IDF_06**: Advanced technologies to optimise the PT offer in line with users' needs and patterns
- **LEU_01:** To exploit the existing mobility data to enhance the evolution of public transport policies
- **VAL_07:** To provide the citizens with clear and accessible information before and during the trip
- **IDF_02:** Setting-up of a dynamic Digital Twin of the territory to enrich the data collected and evaluate future measures, policies and solutions
- **LEU_07:** Increase the quality of the PT services through traffic management and dedicated lanes for PT

Process of implementation of the measure

Stages	Description	Intermediate milestones
Design	Data Lake	- This platform constitutes the application layer on which the new Central Mobility will be based.
Preparation	Traffic Management Software	- Timely and real-time analysis of traffic in the urban area using the most advanced AI technologies and analytical models.
Implementation	System integration and creation of the new MMC	- The integration of the above two systems with the relevant installations and customizations.

Sub-measures and preliminary indicators

Measure	Sub-measure *(if applicable)*	Impact indicators
ROM_07	N/A	- Core network served by ITS and development of ITS functions for control, monitoring and infomobility. - % of PT poles equipped with real time travel times - % of LTZ equipped with electronic access systems