



## Project title

# SIMUSAFE - SIMULator of Behavioural Aspects for SAFEr Transport

## Project description

In the SIMUSAFE project, Aptiv, together with fifteen other partners, conduct research on the behaviour of urban traffic participants – drivers, motorbike riders, cyclists and pedestrians.

The project is divided into three stages:

- In the first research cycle, the simulation environment is calibrated based on the data collected from the real roads. Aptiv is responsible for preparing a smart data acquisition system capturing driver's behavior, vehicle state and current road conditions. The system is used in private vehicles of volunteers: citizens of Rome, Italy and Burgos, Spain. Traffic in Rome can be characterized as highly interactive, whereas the road network in Burgos features a large number of roundabouts.
- In the second stage, Aptiv's engineers prepare and execute tests during which volunteers will perform exactly the same scenarios on a test track and in virtual reality.
- The tests in the third cycle only involve volunteers operating simulators. During these experiments, factors altering driving conditions, such as fatigue and stress, are examined.

## Project objectives

The goal of SIMUSAFE is to make use of state-of-art simulation technology to develop accurate behavioural models in a transit environment where researchers are able to monitor and introduce changes in every aspect and gather data not available in the real world conditions.

From the developed model and collected data, impacting factors causing an event (crash, near-collision, infractions) from the environment and road users are identified and quantified. Such knowledge is the base for the development of more effective and pro-active measures for the prevention and mitigation of such factors, with subsequent impact in the safety devices market.

## Innovative elements

SIMUSAFE project has its efforts concentrated in the development of a multi-driver Driving Simulator and Multi-Agent Simulator (MAS) providing realistic interactions by a Distributed Artificial Intelligence (DAI) system able to incorporate and reproduce the Actor Model behaviour.



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## Project value

Consortium: **7 991 600.00 EUR**

APTIV: **910 375.00 EUR**

## Co-financing

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