Validation and impact assessment

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This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No. 723201-2
Validation and impact assessment
AV-ready microscopic and macroscopic traffic modelling tools
Collect data of two CAV on the public test site for validation of microscopic modelling tool.

following behaviour Prius 2-1, Scenario 1_2

- speed = 120 km/h
- speed = 60 km/h
- speed = 0 km/h

Data points: 11798
Driver logics

• Cautious driver logic:
  – respects the road-code and the safe behavior always
  – brick wall stop distance is always maintained

• Normal driver logic
  – existing average driver

• All knowing driver logic
  – predicts all other road users behavior
EU – US Twinning

US Twinning Partner

- FHWA (Joe Bared); Leidos (Zhitong Huang); Principal Investigator: Steve Shladover (Berkeley PATH)
  - Phase 1: Development of an Analysis/Modelling/Simulation Framework for CAV Systems
  - Phase 2: Developing AMS Tools for CAV Applications

Twinning Objectives:

- Definition of AMS Framework – globally applicable?
- Sharing of Use Cases / Case Studies
- Exchange on modelling tool development

Additional information on twinning project:

Transition to the traffic management of connected and automated vehicles

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Automation Readiness in brief

- **Uncertainties for Local Authorities**
  - Current hype creates unrealistic expectations of the technology (pro-innovation bias)
  - (Connected) Infrastructure requirements are not clearly formulated yet.
  - Long transition phase where conventional vehicles coexist with partially and fully automated vehicles.
  - Result: Automation not mentioned in strategic transport plans

- **Objective:**
  - The mission of the H2020 CoEXist project is to systematically increase the capacity of local authorities and other urban mobility stakeholders to get ready for the transition towards a shared road network with increasing levels of connected and automated vehicles (CAVs)

- **Output of the breakout session:**
  - CoEXist Automation-ready framework
  - SUMP2.0: Automation extension
Automation-ready Local Authorities

The concept of “automation-readiness” is defined as: “The capability of making structured and informed decisions about the comprehensive deployment of CAVs in a mixed road environment. This capability requires:

• A **clear awareness** of the technology underpinning CAVs, the different functional uses and business models for CAVs and a high-level understanding of the impacts different deployment scenarios can have on traffic, quality of life and stakeholders involved in local transport planning.

• The **institutional capacity to plan** for a future with CAVs by using tools that accurately represent CAV behaviour in order to identify the impacts of different CAV deployment scenarios.

• A **strategic approach in deploying a wide range of measures** that will ensure a deployment of CAVs, which supports higher level mobility goals.”
Mapping out uncertainties

• Creating awareness about CAVs?
  – What is a CAV? How do they behave? What can their functionalities do?
  – What do my citizens feel about the technology?
  – Which stakeholders need to be consulted?
  – How to create awareness within the transport authority?
  – How to develop useful scenarios?

• How to plan for CAVs?
  – How to integrate CAVs into an overall mobility vision?
  – How do CAVs align with mobility goals in a city?
  – How to integrate CAVs into a strategic transport plan?
  – What tools to use to test the scenarios and assess impact of CAVs?

• Implementing automation-ready measures?
  – When and how should the organisation structure of my organisation be adjusted?
  – When and how to change public transport operations?
  – When and how to change the digital and physical infrastructure?
Policy screening: Liveability as top priority – how can CAVs contribute to it?

Is there a conflict between people friendly vs. automation friendly?

Engagement with citizens & support testing activities and research

Try out level 1 & 2 functionalities

Road authorities need to engage with OEMs

Reassessment of strategic mobility plans; incorporating new mobility forms

Preparation of physical and digital infrastructure

Update travel demand models and evaluate road capacity needs

Identify new skill requirements – ‘less concrete more bytes’

Back office for data exchange in traffic management

Mobility pricing for “SPAM” roaming cars

Modifications to infrastructure and accompanying traffic code

Assessment of required land use changes based on integrated land use and transport modelling tools

Organisational restructuring for traffic management and public transport operations

Defining data management responsibility with new management schemes

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Management of CAV’s in smart cities

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Demonstration of CoEXist tools in road authorities

- Gothenburg: AVs and Shared Space – does it still work?

- Milton Keynes: Replace parking with drop-off and pick-up areas for passengers and freight.

Management of CAV’s in smart cities

Milton Keynes

Gothenburg (VTI)