METHODOLOGY FOR EVALUATION IN L3PILOT

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L3PILOT - PILOTING AUTOMATED DRIVING ON EUROPEAN ROADS

25TH ITS WORLD CONGRESS COPENHAGEN
17 – 21 SEPTEMBER 2018
Quality of life

- 2017-2021
- 68 M€ budget, 36 M€ funding from H2020
- 34 partner organisations in 12 EU countries
- Coordinator Aria Etemad, Volkswagen

OBJECTIVES OF L3PILOT

- Overall objective to test and study **the viability of automated driving** as a safe and efficient means of transportation
- Large-scale pilots of automated driving with SAE Level 3 functions in 100 vehicles
  - Different user groups, mixed traffic environments, different road networks


Traffic Jam

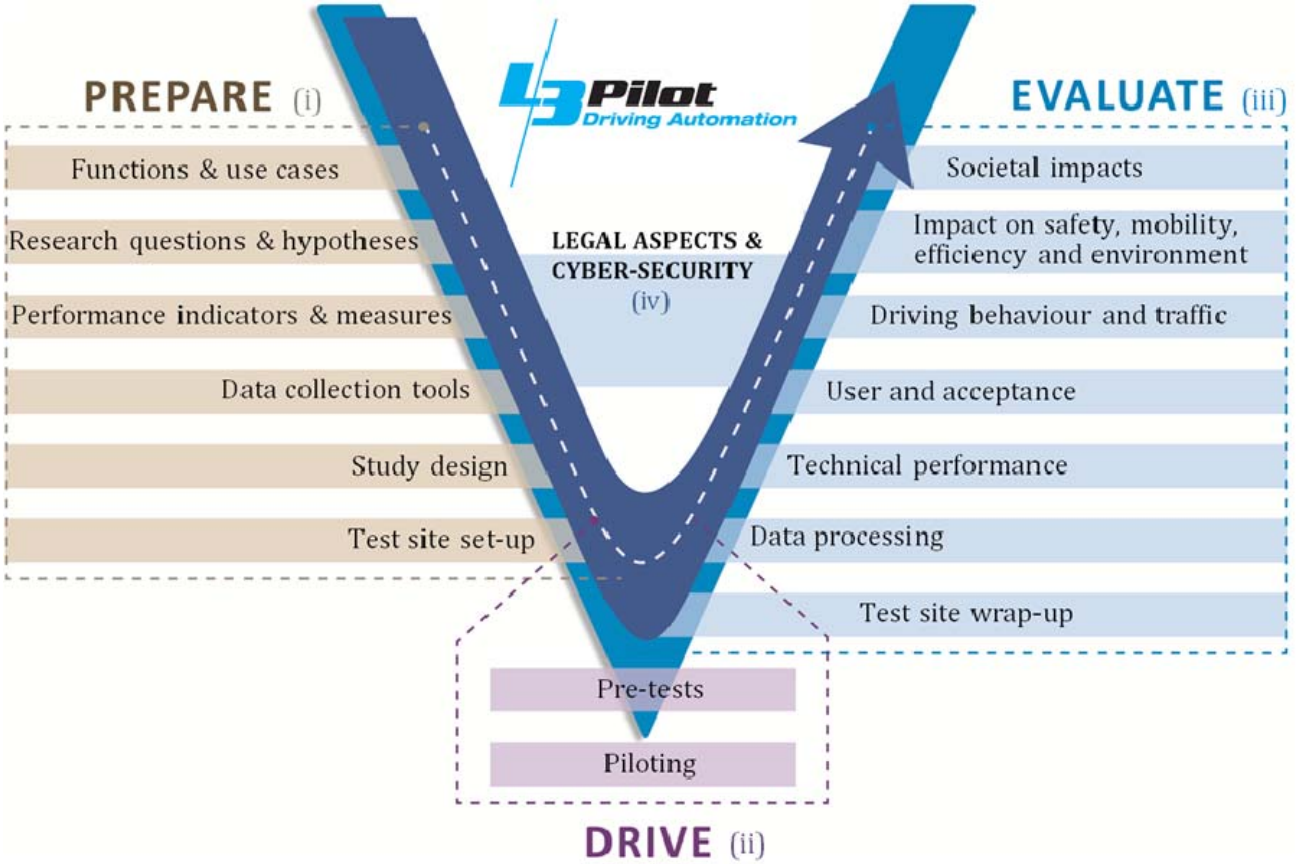

Motorway


Parking


Urban

OVERALL OBJECTIVE FOR METHODOLOGY SETUP

- To cover the steps in '**PREPARE**' to lay the foundations for the successful execution of the '**DRIVE**' and '**EVALUATE**' steps



SETTING THE RESEARCH QUESTIONS AND HYPOTHESES

- The L3Pilot approach adapts the **FESTA methodology** to account for the developing nature of the automated driving functions for testing
- Research question with a **top-down** process, structured around the 4 evaluation areas in which we shall assess impacts in safety, mobility, efficiency, environment, acceptance & awareness, user experience, system performance, and socio-economics

SETTING THE RESEARCH QUESTIONS AND HYPOTHESES

- Work started with **literature review**
- **3 levels of research questions** from high-level ones towards more detailed ones (100+ in total)
  - Specific hypothesis generated for the detailed research questions
- **Bottom-up** check for their **feasibility**
  - Data logging possibilities
  - Suitable experimental procedures at pilot sites
- **Prioritisation** of research questions

DEFINING LOGGING AND INDICATOR NEEDS

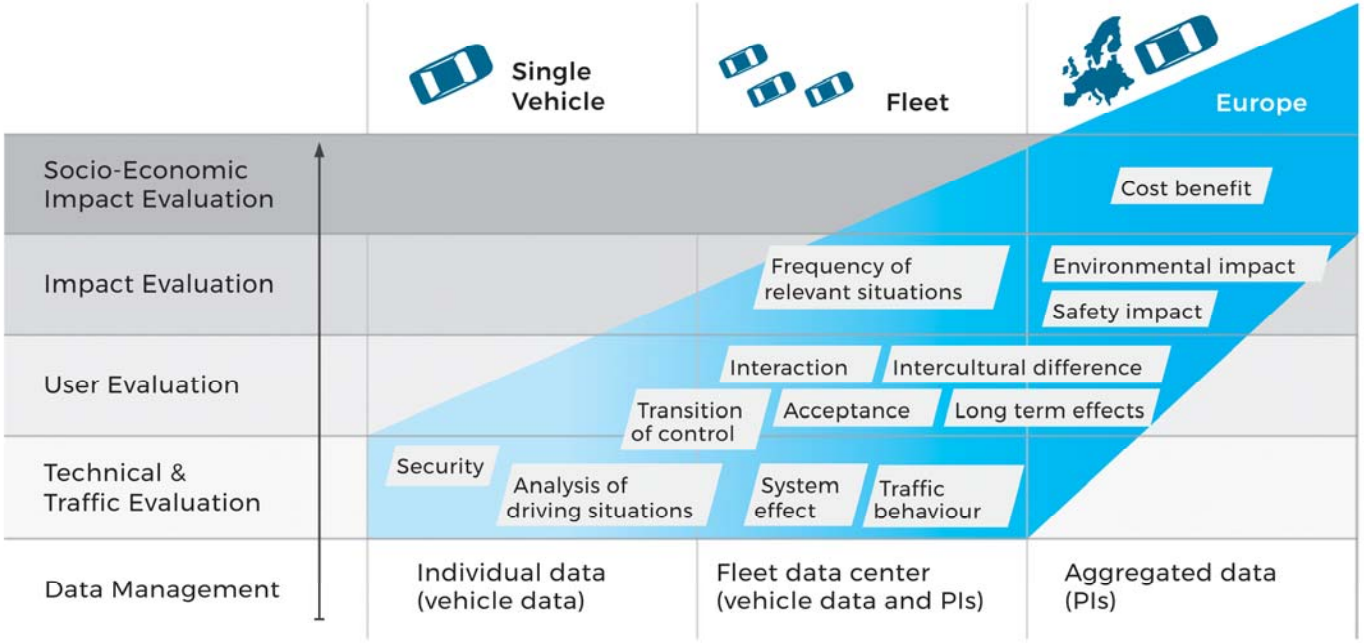
- Data needs differentiated between **subjective and objective data** collected during and of the pilots
  - Subjective collected by questionnaires and surveys
  - Data from the logging systems in the vehicle and cameras
- Lists of signals, derived measures and performance indicators, derived from the research questions and hypotheses
- Video annotations: UDRIVE video annotation code book
- Additional data: statistics and other studies

SETTING THE EXPERIMENTAL PROCEDURES

- Experimental procedures are designed
  - to provide **solid evaluation procedures** based on the general scientific method to be applied throughout L3Pilot pilot sites
  - to enhance **harmonization of the evaluation criteria** by providing detailed suggestions for the pilots in the intention to create holistic evaluation results
- Experimental procedure includes the description of approaches, participant features, study design, experimental environments and scaling up the impacts to ensure holistic evaluation
- The aim is to have a **reliable procedure** for getting a versatile picture of the impacts

DEFINING EVALUATION METHODS

- Methods that cover the whole chain between logged vehicle data and the socio-economic impact assessment
- Includes the scaling up for higher penetration rates and for different areas of Europe



L3PILOT CONTRIBUTIONS FOR EVALUATION METHODOLOGY OF AD

- How to follow FESTA methodology adapting it to suit the project needs of evaluated impacts of automated driving functions
- Process of utilising both top-down and bottom-up approach for setting the research questions and hypotheses
- Process of defining the logging needs from the data needs of the selected hypotheses and methods
- Description of alternatives for experimental procedures
- The toolkit linking methods & tools & frameworks to fulfil the needs of evaluation of impacts on all levels

MORE INFORMATION

Visit L3Pilot website at
L3Pilot.EU

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Outcome of Methodology	Expected
Report D3.1 From research questions to logging requirements Process for data collection	2018
Report D3.2 Experimental procedure Detailed testing plan	2019
Report D3.3 Evaluation methods Evaluation plan for automated driving impacts	2020
Report D3.4 Evaluation plan Detailed evaluation procedures	2020