Comprehensive methodology for evaluating automated driving in Europe

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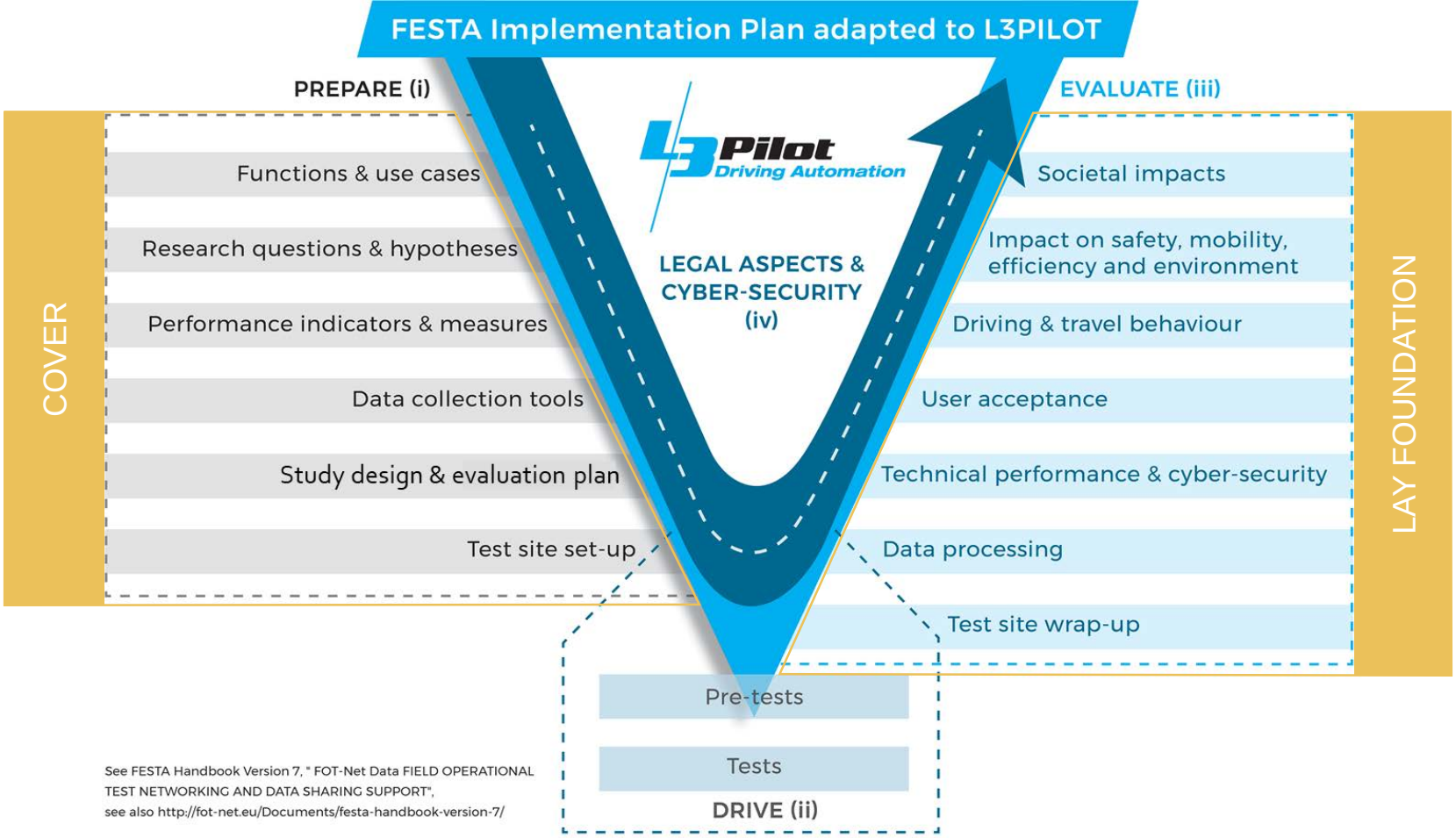

FESTA Implementation Plan adapted to L3PILOT
PREPARE (i)
EVALUATE (iii)
COVER
LAY FOUNDATION
L3Pilot Driving Automation
Functions & use cases
Research questions & hypotheses
Performance indicators & measures
Data collection tools
Study design & evaluation plan
Test site set-up
LEGAL ASPECTS & CYBER-SECURITY (iv)
Societal impacts
Impact on safety, mobility, efficiency and environment
Driving & travel behaviour
User acceptance
Technical performance & cyber-security
Data processing
Test site wrap-up
Pre-tests
Tests
DRIVE (ii)
See FESTA Handbook Version 7, " FOT-Net Data FIELD OPERATIONAL TEST NETWORKING AND DATA SHARING SUPPORT",
see also http://fot-net.eu/Documents/festa-handbook-version-7/

Research question selection

Theories of impact areas

Descriptions of AD functions

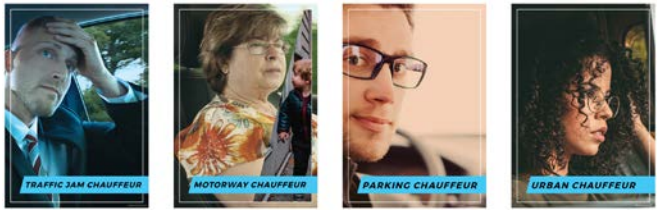
RESEARCH QUESTIONS (3 levels) for all evaluation and impact areas:

- Technical & traffic evaluation: System performance, driving behaviour
- User & acceptance evaluation
- Impact evaluation: Mobility, safety, transport network efficiency, environment
- Socio-economic evaluation

Feasibility in terms of

- study design
- data logging
- evaluation methods

Experimental procedure set-up



Experimental procedures: Participants, test routes, study design (incl. baseline), performing the tests

- **Aim: Sufficient commonalities to be able to make harmonised evaluation**

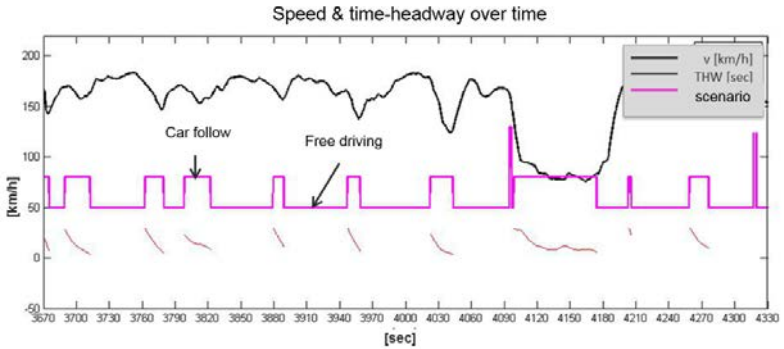
Step 1: Description of alternatives

- Alternatives
- Pros & cons
- Minimum requirements

Step 2: Pilot site consultation

- Support on how to implement the methodology into practice
- Awareness of optimal solution vs. Best practical solution for a pilot study

Method for technical and traffic evaluation



Piloting

Driving with ADF

Manual driving (baseline)

Time series data logs

Common data format

Evaluation

Selected partner

Enriched data set incl. driving scenarios / events

Indicators per scenario / event

Merge of indicators across pilot sites

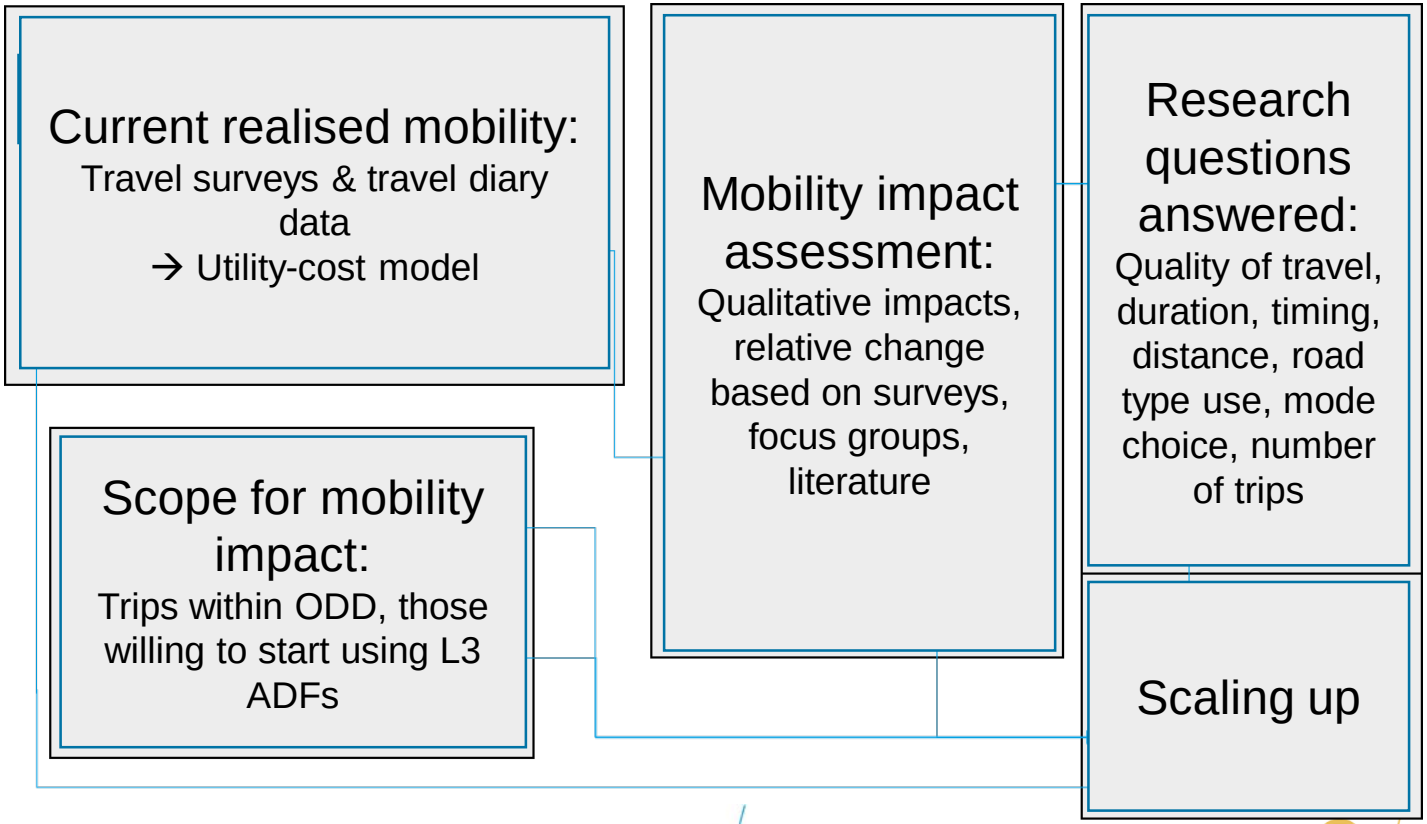
Answer to RQs

Input for impact assess-ment

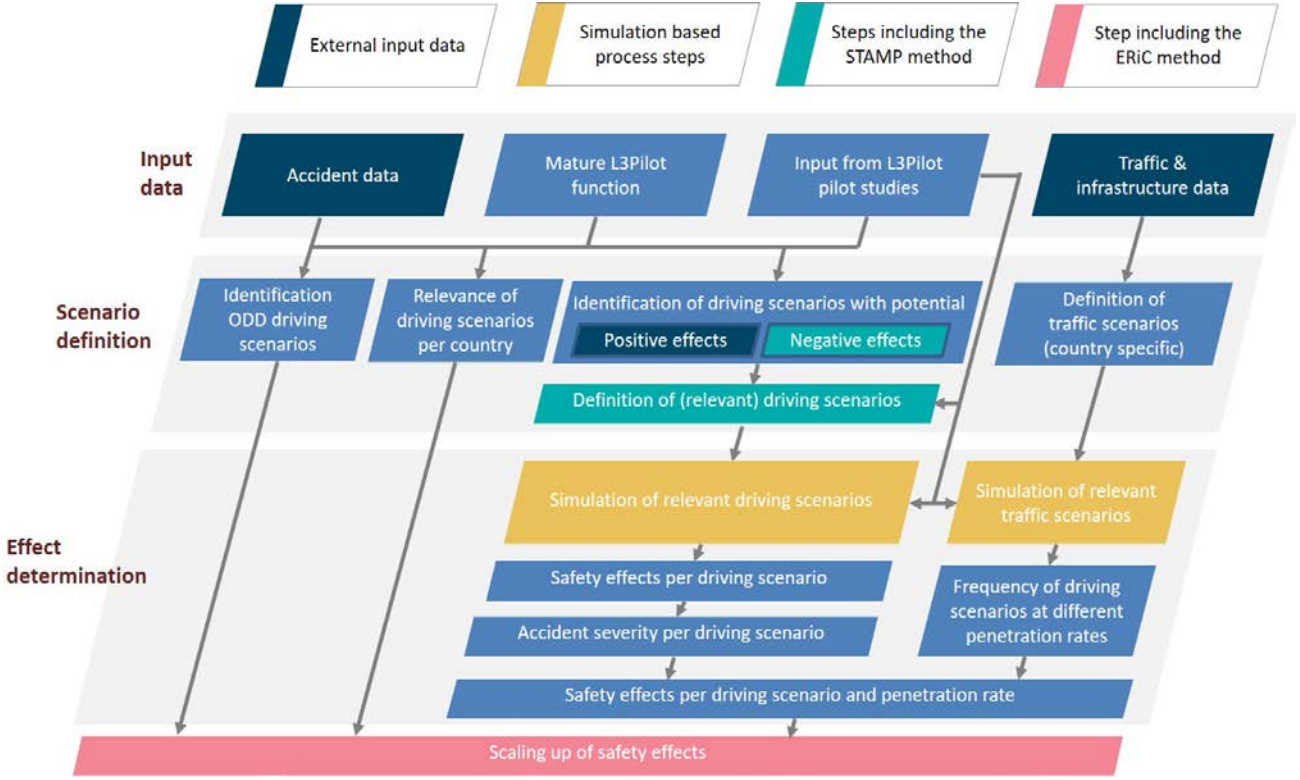
Method for user & acceptance evaluation

- Pilot site questionnaires, completed by participants testing the ADFs at all pilot sites
  - Users impressions on e.g. acceptance, safety and comfort
- International survey, large-scale, representative
  - Acceptance of ADFs and monitor changes over time
- Video- and vehicle-based data
  - Frequency of interactions with the ADF, drivers' posture, their engagement with non-driving related tasks, and their resumption of control from automation
- Interviews and focus groups to assess drivers' views of ADFs, simulator & WoZ studies
  - Situations that cannot be observed or explained by the other methods employed

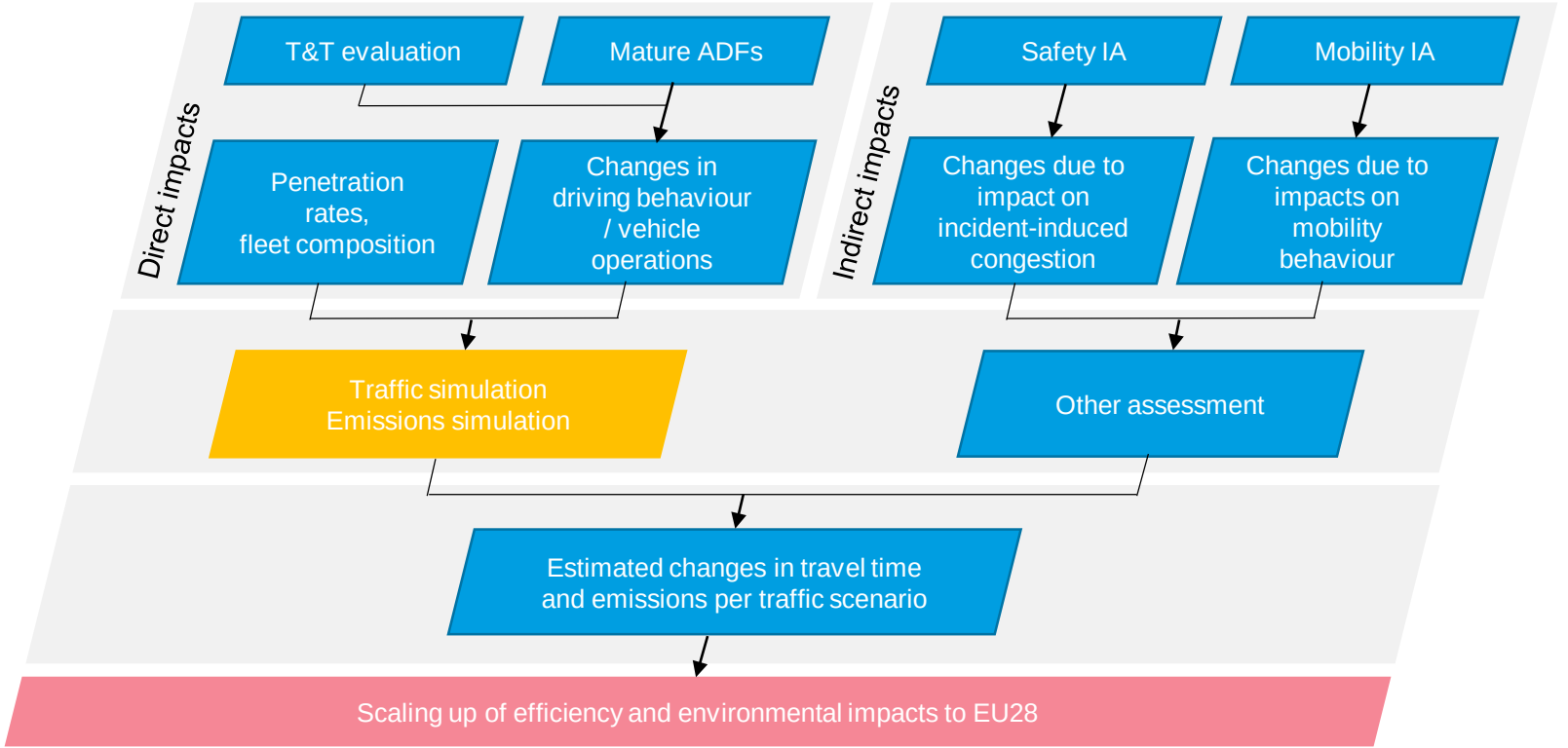
Method for mobility impact assessment



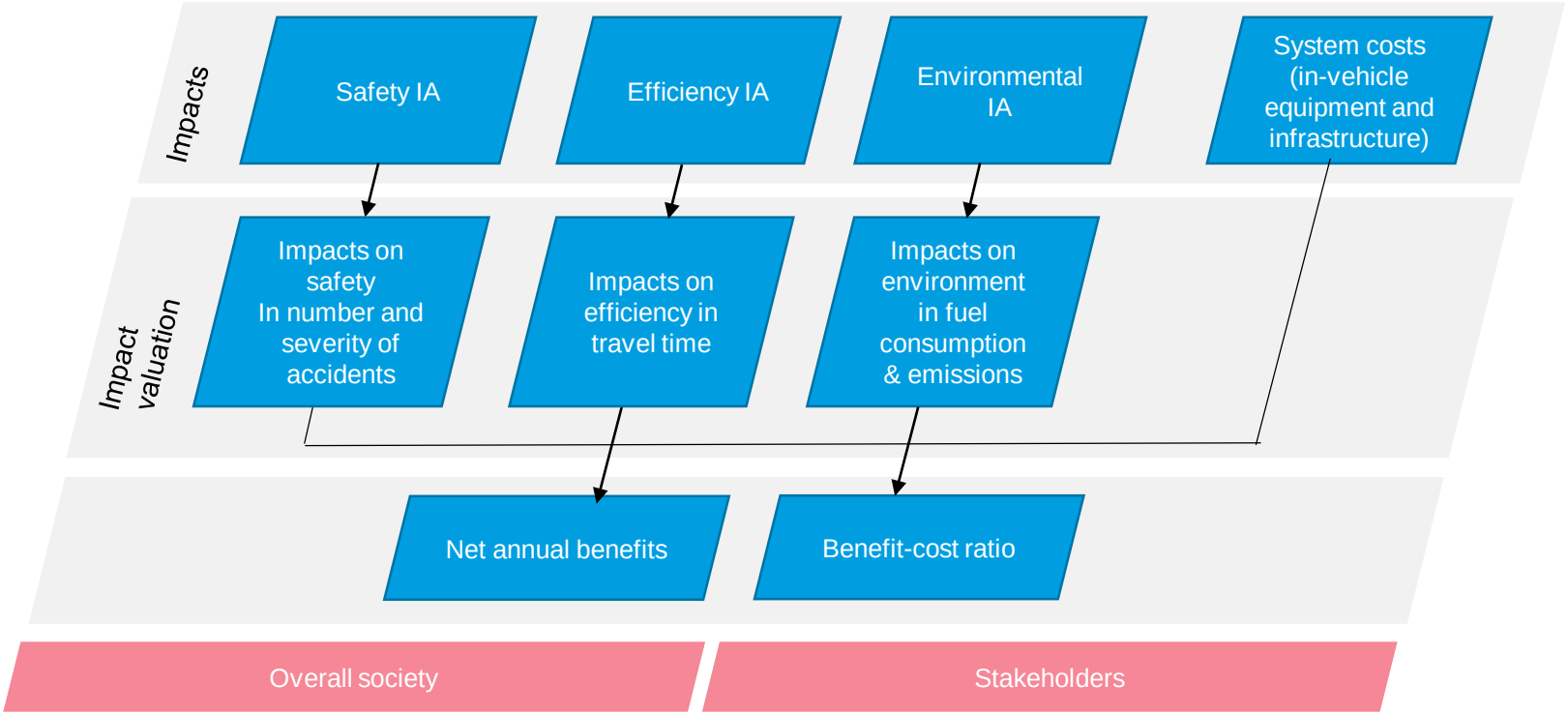
Method for safety impact assessment



Method for efficiency & environmental impact assessment



Method for socio-economic impact assessment



Foundation for successful evaluation

- Harmonised approaches across pilot sites, established partnerships between evaluation and pilots
- Smooth data flow from pilots via tools to all evaluation methods
- Multidisciplinary evaluation methodology
- Well-defined and tested evaluation plan for all research questions

More information on L3Pilot methodology

Deliverables

- D3.1 From research questions to logging needs (2018)
- D3.2 Experimental procedures (2019)
- D3.3 Evaluation methods (2019)
- D3.4 Evaluation plan (2020)

+ multiple papers

Available for download at https://l3pilot.eu/download/

Thank you for your kind attention.

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