22nd ITS World Congress
Bordeaux, France
5 to 9 October
2015

Role of evaluation research when moving from lab to production

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TOWARDS INTELLIGENT MOBILITY
Better use of space

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Case

Tomorrow's Elastic Adaptive Mobility

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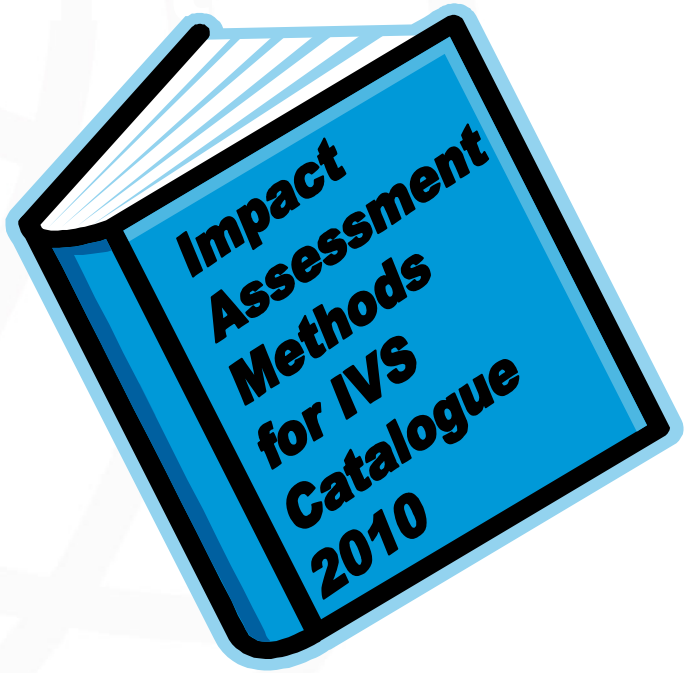
Content

1. Evaluation methods in life cycle of a service

2. Developing applications in TEAM “Tomorrows’ Elastic Adaptive Mobility”

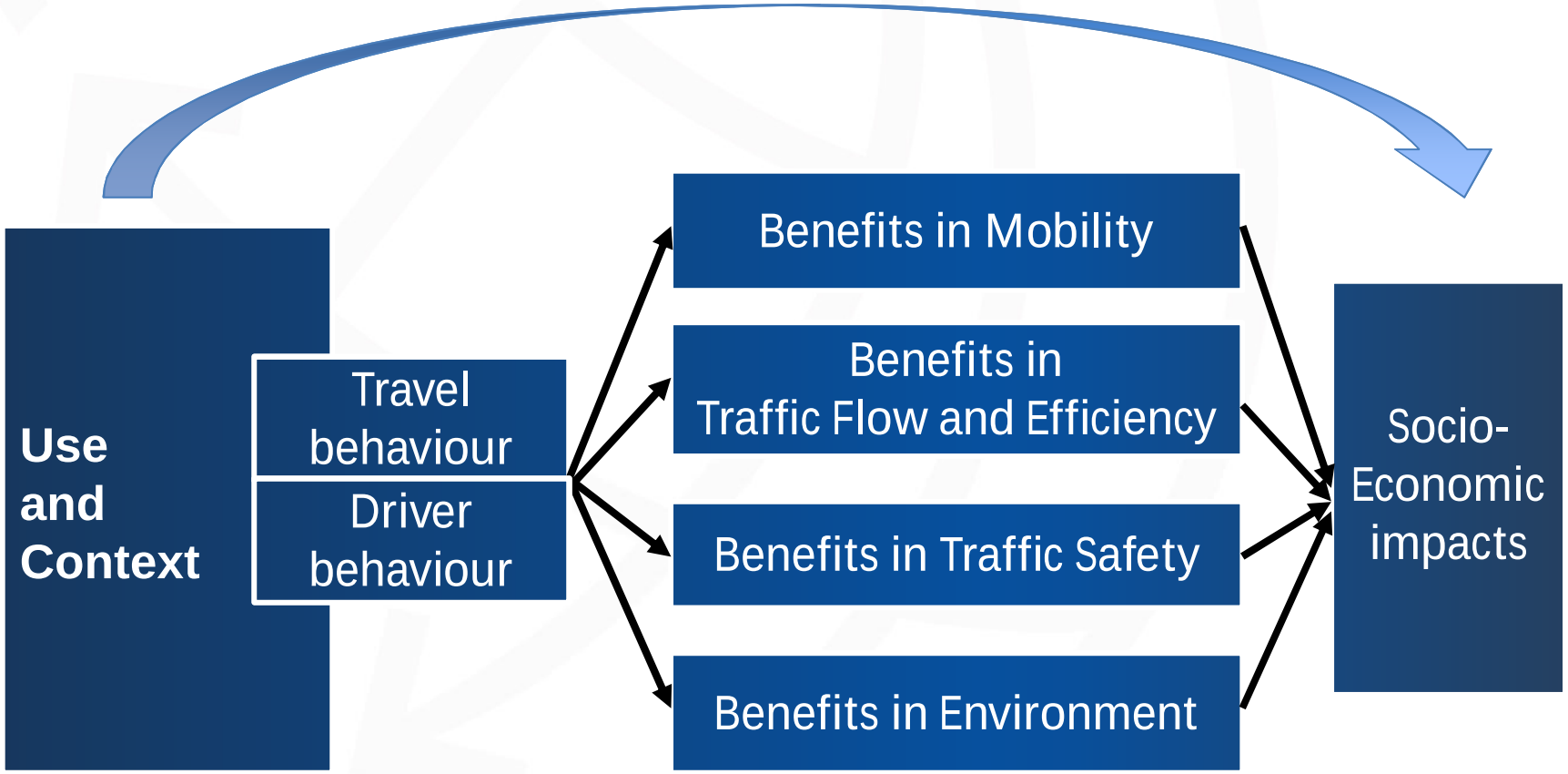
3. Role of evaluation / TEAM apps
   1. Parking
   2. Collaborative ACC

4. Conclusions

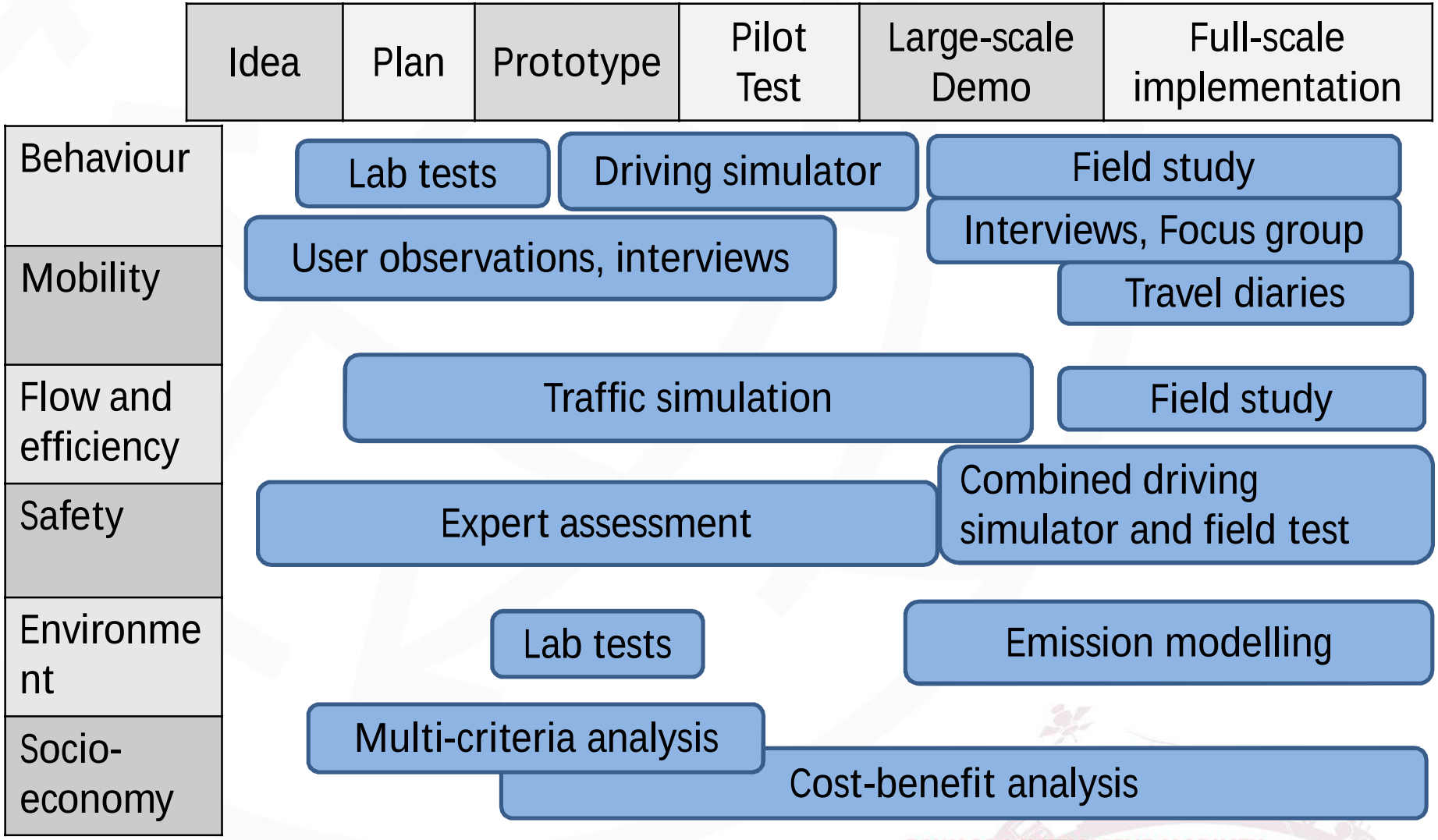


iCars Network

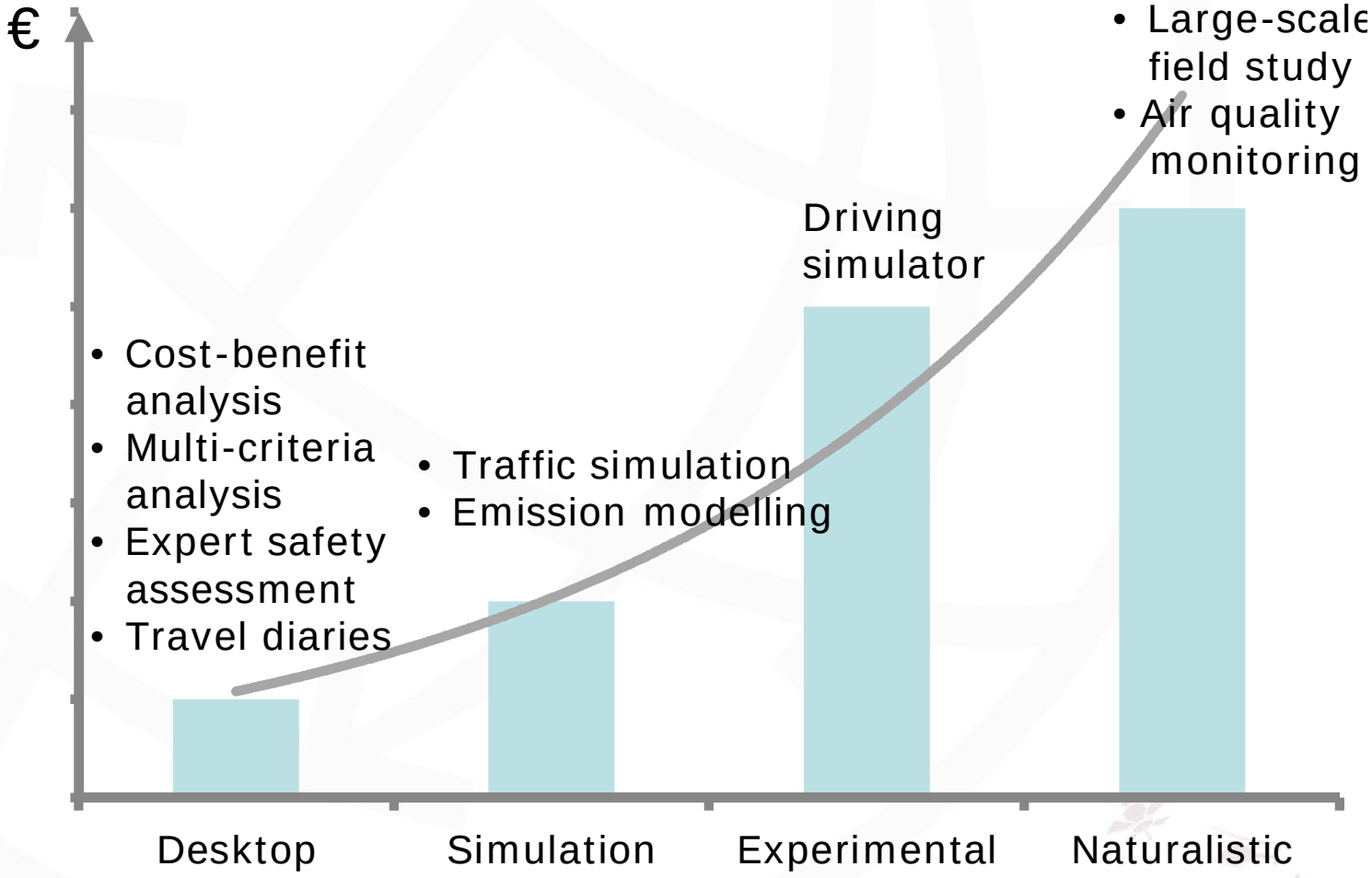
From idea to product



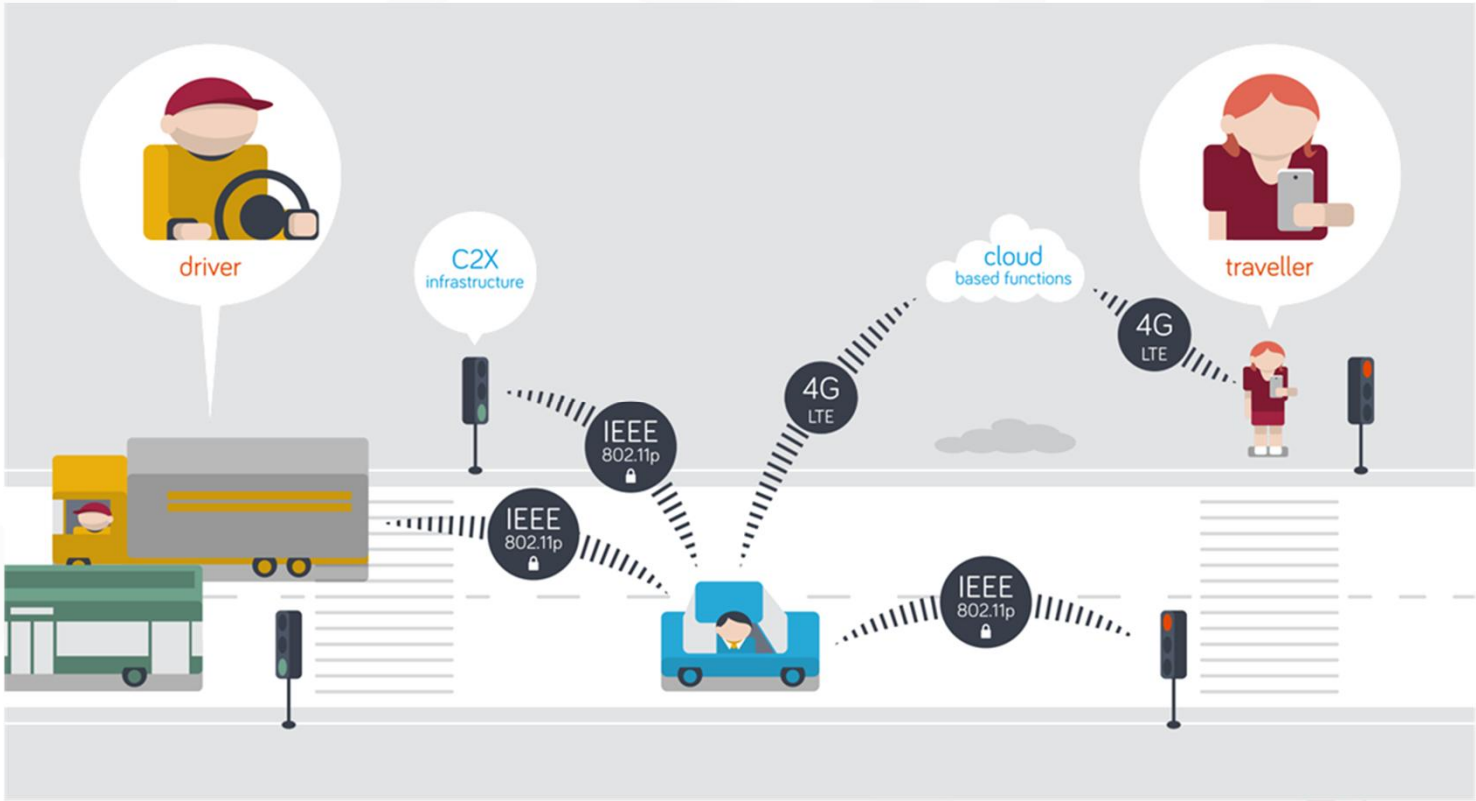
Examples of evaluation studies in life cycle



Method costs



TEAM vision: drivers and travelers are integrated to collaborative transport

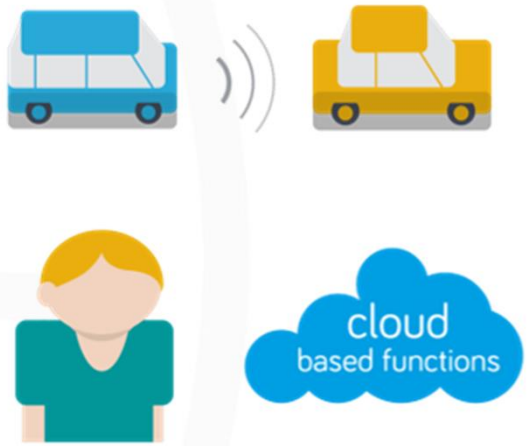


TEAM applications

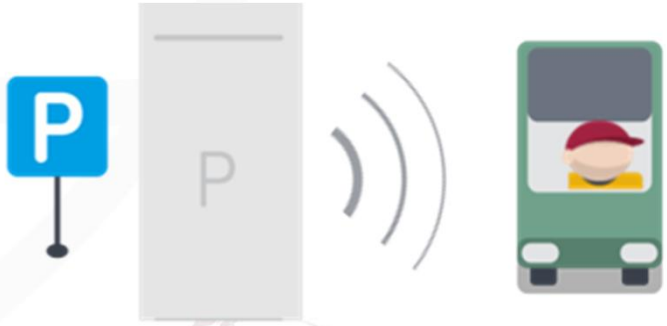
1. Collaborative pro-active urban/inter-urban monitoring and ad-hoc control
2. Collaborative co-modal route planning
3. Co-modal coaching with support from virtual/avatar users
4. Collaborative smart intersections for intelligent priorities
5. Collaborative public transport optimization
6. Collaborative dynamic corridors
7. Collaborative adaptive cruise control
8. Collaborative eco-friendly parking
9. Collaborative driving and merging
10. Green, safe and collaborative driving serious game and community building
11. Collaborative eco-friendly navigation

Short descriptions

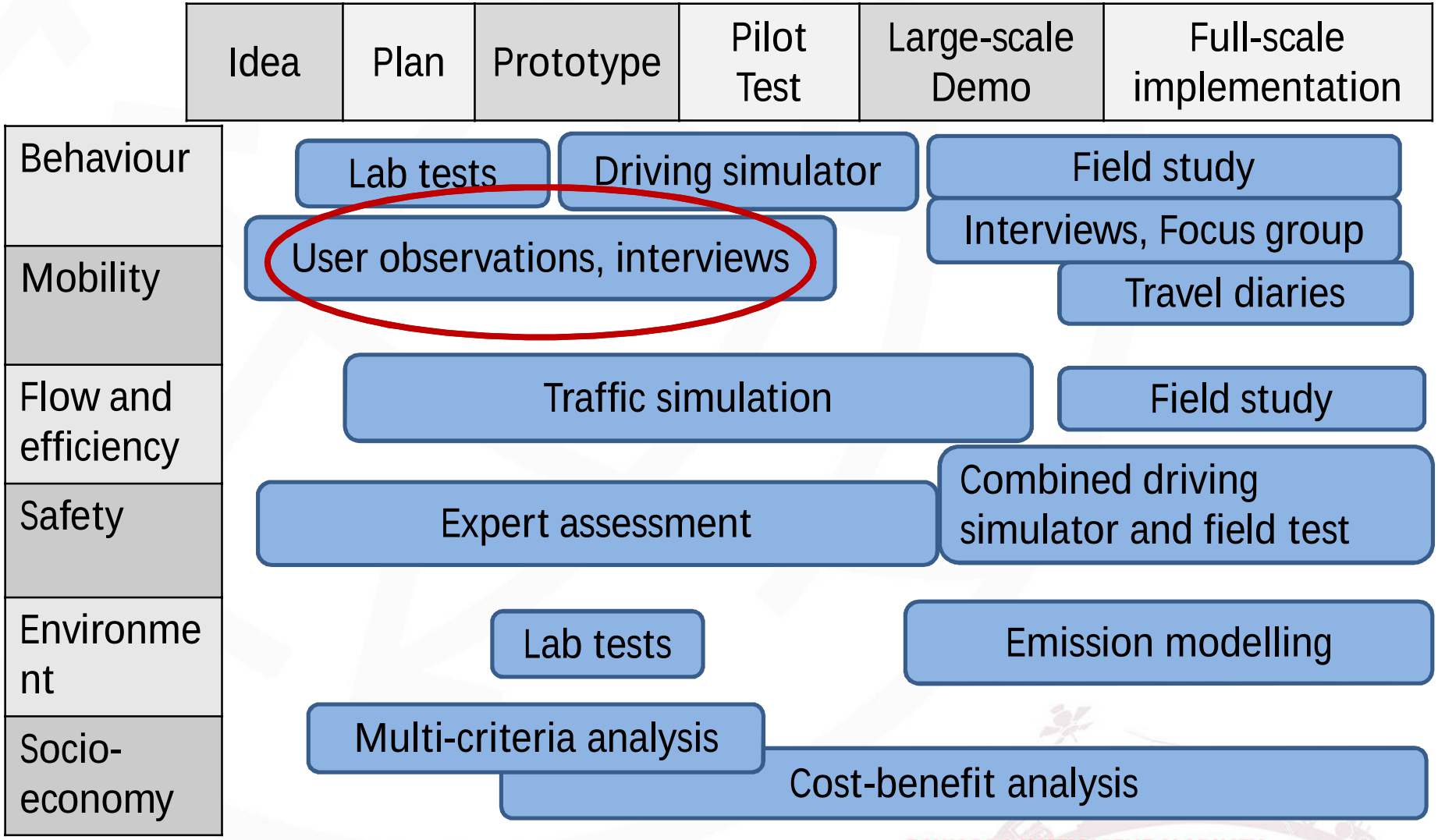
1. Collaborative adaptive cruise control
- Wireless communication V2V and V2I in order to harmonize cruising speed
- Traffic information (incidents, traffic lights, VMS) and user centric information into account
- Improved safety and efficiency



2. Collaborative eco-friendly parking
- Real time information about free parking spaces
- Parking/leaving detection (press a button/automatic)
- Cloud based monitoring about availability
- On street and P-house



Examples of evaluation studies in life cycle



Real users in real life

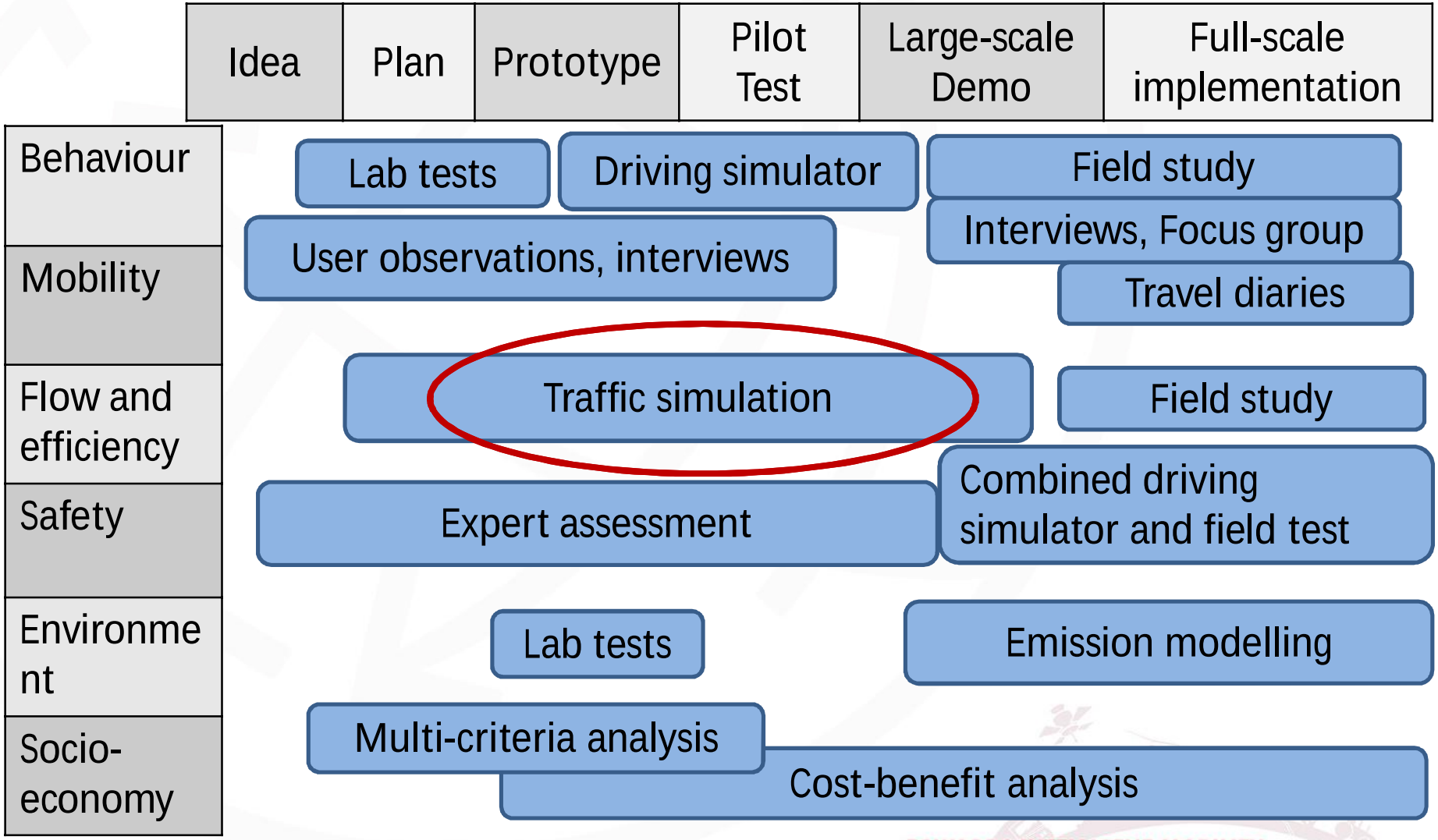
In early phase, understanding user needs, definition of user *demand* and user *benefits*

Different types of users in *transport system*:
Travellers -> Companies -> Operators -> Authorities,

1. Collaborative adaptive cruise control
   - Drivers benefit with an extended foresight range that can better predict density to improve traffic flow
   - Towards automated driving and better management of traffic flow

2. Collaborative eco-friendly parking
   - Drivers can quickly detect optimal parking conditions while cities can allocate parking space more efficiently
   - Traffic management

Examples of evaluation studies in life cycle



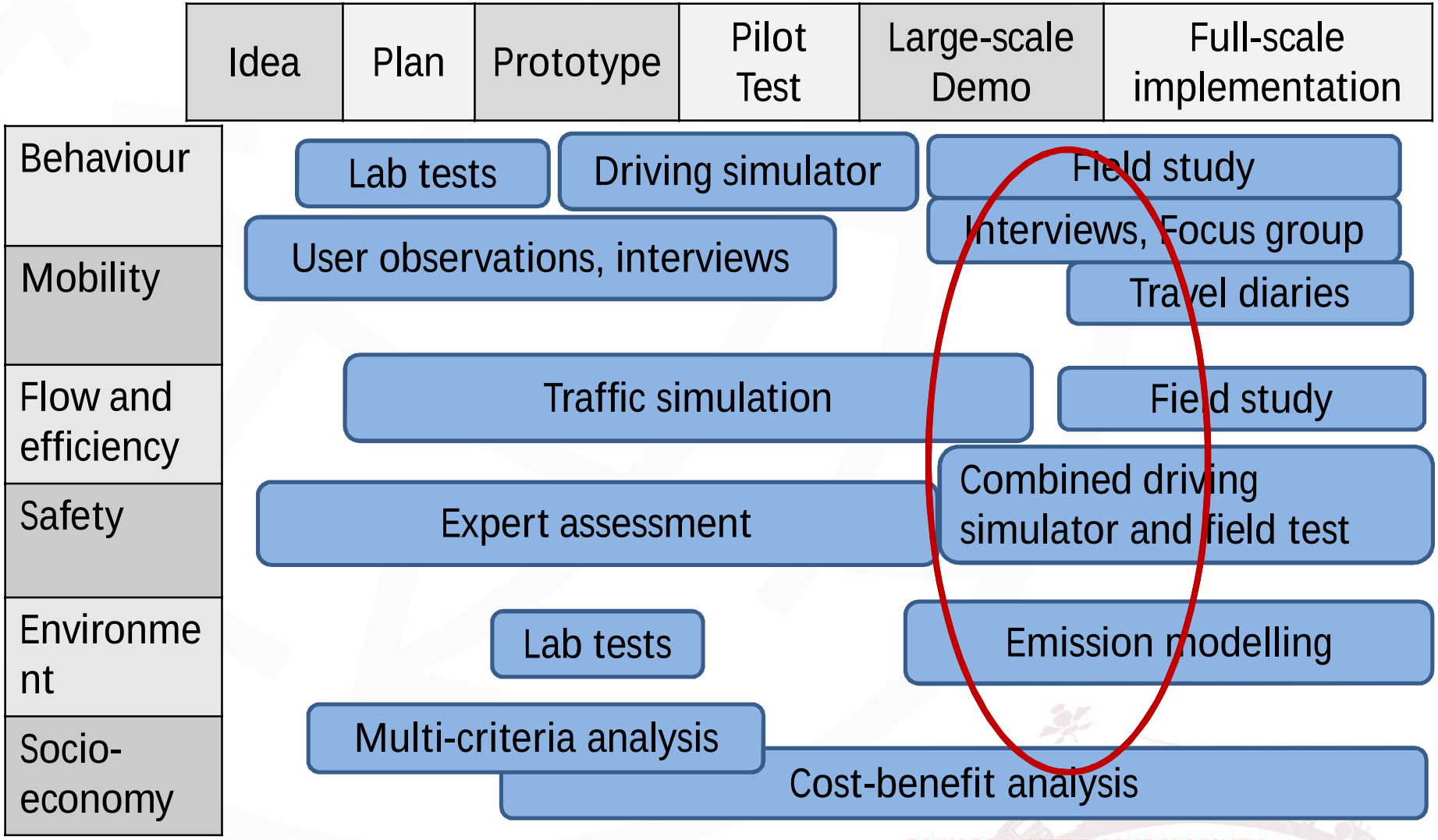
Traffic simulations

Input for simulations from results of earlier studies, expert assessment and results from demos in field
Adaptation of the simulation tools

1. Collaborative adaptive cruise control
   - Impacts in traffic flow when driver/vehicle receives information from vehicles upstream

2. Collaborative eco-friendly parking
   - Searching time for a parking place
   - Emissions in searching time
   - Car exposure in city centres

Examples of evaluation studies in life cycle



Euro Eco Challenge in field

Combination of approaches to get real user experience

- Demos – citizens
- Test drives and passengers in the equipped cars

Technical testing in different locations

Combinations of data collection

- Interview data to assess
- Focus groups to provide new ideas and suggestions how to develop
- Observations to get insight on driver/user reactions
- Inputs and validation of modelling

Workshops to assess the role of Collaborative adaptive cruise control and Collaborative eco-friendly parking in *proactive traffic management*

Conclusions

- Important to start evaluation from the very beginning – identify the demand
- Organize evaluation activities for whole life cycle
- Consider costs and reasoning of evaluation activities
- Different approaches in evaluation to reach common users
- Recognize users in different level of the transport system – get full benefit out of the system
- Provide evidence about impacts of the system – up to cost benefit results
- Convince different stakeholders – from consumers to road authorities