Impact Evaluation Methodology for Collaborative Transport Applications

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Content

Tomorrow's Elastic Adaptive Mobility

TEAM - overview

Tomorrow's Elastic Adaptive Mobility

The TEAM project is developing new collaborative transport solutions and thus addressing two major challenges at the same time: the need to design an infrastructure for increasing traffic, and the need to reduce environmental pollution from transport.

TEAM introduces the new concept of **collaborative and elastic mobility**, which should be understood as extension of cooperative systems, moving to a concept of elastic infrastructures and collaborative behavior of travelers and drivers, meaning that information is exchanged and also transferred into decisions and behavior that enhances the quality, comfort, safety and efficiency for mobility of the TEAM community

TEAM – collaborative transport network

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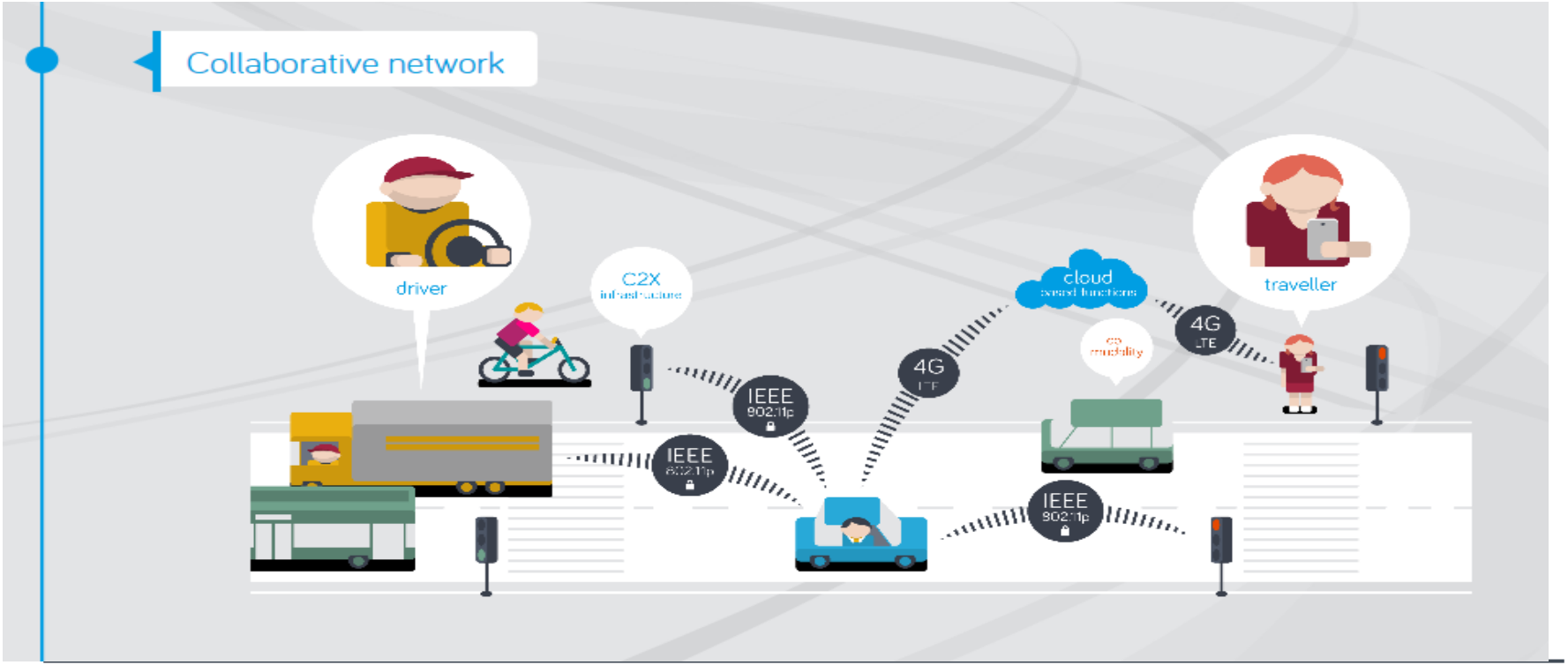

Objective of TEAM evaluation

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The overall objective of the evaluation is to assess the impacts of various collaborative functions into **mobility, safety, efficiency and environment**.

Due to the new collaboration paradigm, the **user acceptance and behaviour** will be central part of the evaluation.

Technical performance is the third part of the evaluation.

The scope of the evaluation is not limited to drivers, and hence private cars, but will cover travelling by various modes, including **multimodality**.

TEAM applications

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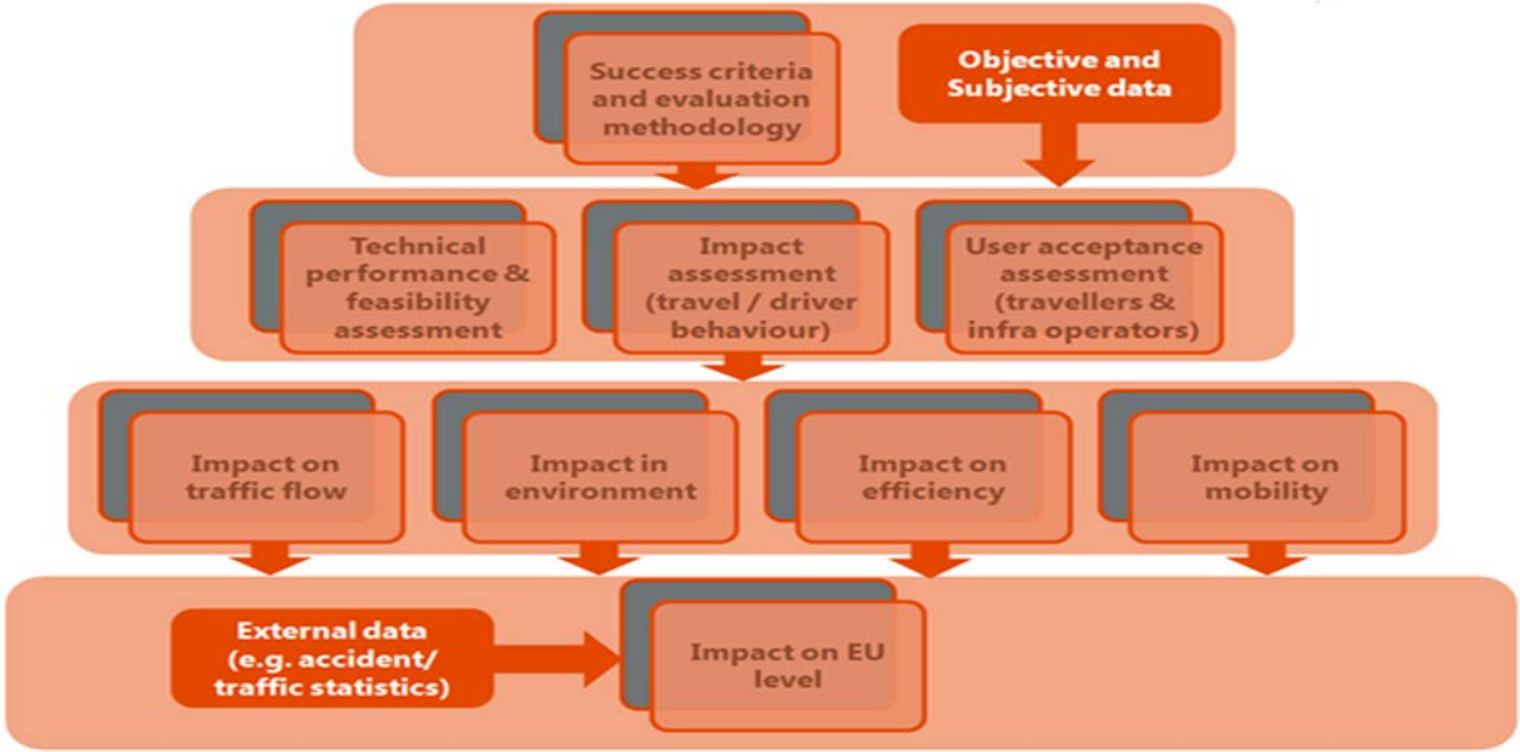
1. Collaborative pro-active urban/inter-urban monitoring and ad-hoc control
2. Collaborative co-modal route planning
3. Co-modal coaching with support from virtual/avatar users
4. Collaborative smart intersections for intelligent priorities
5. Collaborative public transport optimization
6. Collaborative 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

Evaluation approach



Methodology towards TEAM evaluation

1) High Level Objectives
2) High Level Research Questions
3) Detailed research questions
4) Hypotheses
5) Potential research methods to be used

6) Detailed evaluation plan for each test site

Results – Technical Evaluation

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High Level Research Questions

1. Does the application support (in a first level) and achieve it (in a second level) the dynamic adaptation of the infrastructure?
2. Does the user receive a dynamically adapted output from the application?
3. Does the application support the interaction of multiple and different types of users?

Results – User acceptance

High Level Research Questions

1. Does the user agree to be and is an active input to the application?
2. Does the user act according to the application output?
3. Is willingness to use high?
4. Is willingness to pay high?
5. Do the users consider usability/ user experience to be good/high?

Results – Impact evaluation

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High Level Research Questions

1. Does the application have impact on individual behavior (of users and stakeholders)?
2. Does the application have (a positive) impact on traffic safety?
3. Does the application have (a positive) impact on traffic efficiency?
4. Does the application have (a positive) impact on environmental load from traffic?
5. Does the application have (a positive) impact on mobility?
6. Do users themselves see positive community effect of TEAM applications?
7. Which impact can be expected on future applications and use cases due to the new collaborative and social networking based TEAM approach?

Example of expected impacts

Eco-friendly parking

The main expected impacts on the individual behaviour are in strategic level, i.e. mode choice, time allocated to the trip, and route choice. In addition, in tactical level, the EFP is expected to mainly reduce stress and hence increase comfort. In network level the impacts of efficiency and environment can be bi-fold: on one hand, the application reduces unnecessary search (and related driving around) of the parking slots, and hence have positive effect. In, of the other hand, the application has impact on mode choice, increasing the use of cars, then the impact can also be negative, increasing the driven mileage by personal vehicles, and hence increasing the emissions, and having negative impact on efficiency.

Next steps

- Implementation of applications continues

- Detailed evaluation plan for each test site
    * applications
    * test procedures
    * participants
    * detailed research questions and methods

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Thank you!

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