



Towards Collaborative Mobility: A Joint Stakeholder Approach

SIS14 - TEAM project presentation

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Vision



Achieving always optimal mobility conditions.

Targeting

- Users: Encouraging collaborative behaviour of travellers and drivers.
- Infrastructure: Making infrastructures adapt pro-actively and in real-time based on user needs.
- Communication technologies: Combining automotive communication systems with cloud technologies.

Mission



Turn static into elastic mobility by balancing needs.

Collaboration is the key concept.

It extends the cooperative concept of vehicle-2-x systems to include interaction and participation.

Make travellers and drivers, vehicles and infrastructure act as a **TEAM**

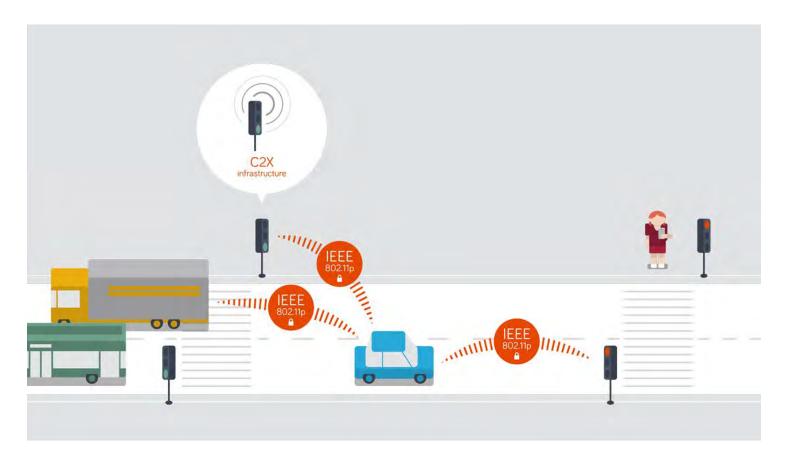
- Adapting to each other
- Adapting to the situation

citizens' mobility demands **TFAM** collaboration infrastructure demands

Motivation



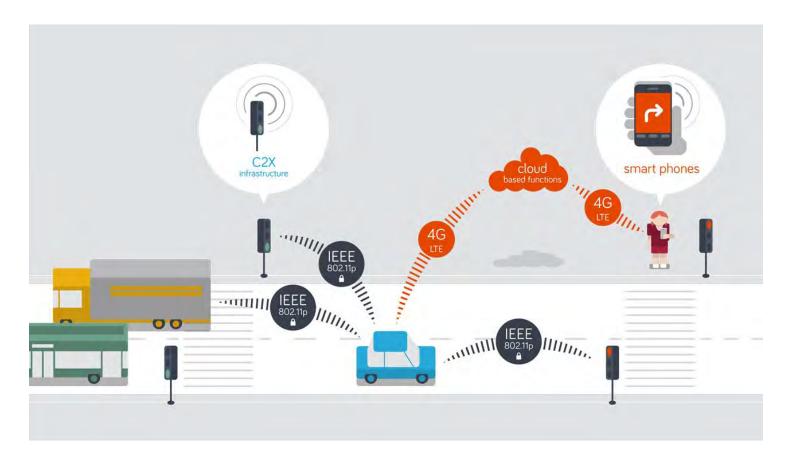
Vehicles and infrastructure already communicate...



Motivation



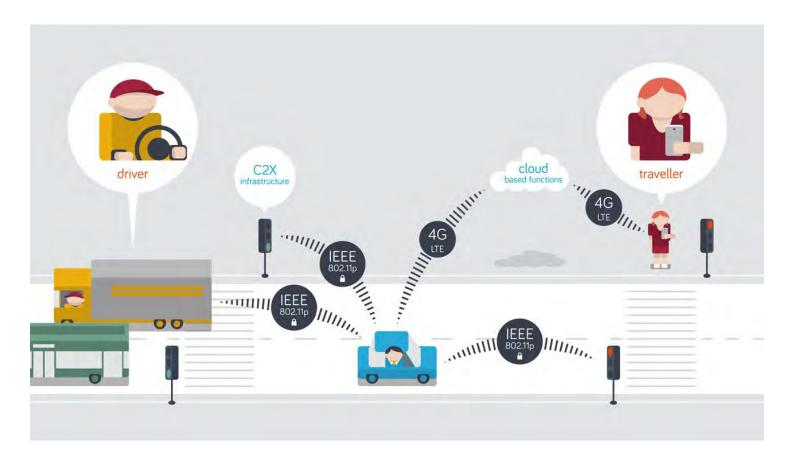
Smart phones and cloud services will be connected, too.



Motivation



Next: Collaboration integrates and balances all stakeholder needs.



Approach



Four paradigms define the research concept.

(1) Elastic mobility

means a shift from a reactive traffic management to an permanent adaptive and collaborative traffic management.

(2) Window of interaction

refers to the real time needs of human decision making process between 5 seconds and 5 minutes.

(3) Participation

considers the needs and behaviours of road users in the technical systems of intelligent transport solutions.

(4) Collaboration

extends the cooperative concept of vehicle-2-x systems by integrating the user into a highly interactive and participatory network.

Innovations



Building the elastic mobility management system.

Communication	Converged communication channels
Infrastructure	Distributed sensing and "best effort" balancing of needs according to local policies
Data	Consolidated sensor input available in real-time
Applications	Novel collaborative applications interconnected through automotive cloud
Traveller/driver	Active participation and collaboration

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Objectives and work plan



Technologies and users interlinked.

Create

basic technologies

- Advance vehicle-2-x systems with LTE technologies
- Develop an automotive cloud-computing platform

Integrate

infrastructurecentric technologies and algorithms

- Develop proactive infrastructure-centric algorithms
- Enable behavioural change taking into account real-time needs and constraints

Demonstrate

distributed technologies and algorithms

- Develop proactive user-, community- and group-centric algorithms
- Realise massively distributed collaborative control and optimization concepts

Evaluate

the European scope

 Conduct pan-European Euro-EcoChallenge to demonstrate and evaluate TEAM results

Stakeholders



Stakeholders are essential for the key concept of collaboration.

TEAM uses stakeholders

- to detail use case identification, requirements and state-of-the-art analysis
- to establish a continuous dialogue to validate and improve designs and development
- to support the final evaluation
- to support deployment and exploitation

The stakeholders are

- car manufacturers
- suppliers
- telecommunication providers
- road infrastructure operators



Expected results



Improving the mobility network.

- Novel distributed sensing and "best-effort" balancing algorithms
 - Cloud-based local dynamic map services and associated communication technologies
- Off-board telematics services and in-vehicle smart phone integration
- Coaching mechanisms for safe and green driving and travelling

Applications



Infrastructure.

- (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 intersection for intelligent priorities
- (5) Collaborative public transport optimization
- (6) Collaborative dynamic corridors



Applications



Travellers & drivers.

- (1) Collaborative adaptive cruise control
- (2) Collaborative eco-friendly parking
- (3) Collaborative driving and merging
- (4) Green, safe and collaborative driving serious game and community building
- (5) Collaborative eco-friendly navigation



Infrastructure stakeholders' involvement



Including major municipalities from the beginning.

Germany – Berlin

Co-modality test in the large scale public transport system and urban traffic management applications

Italy – Turin and Trento province

Verification of the TEAM service continuity for the travellers and drivers community

Sweden – Gothenburg

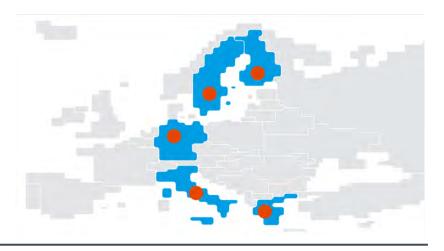
Trials of interurban applications and vehicle to vehicle communication

Greece – Athens and Trikala

Test and demonstration of all FLEX applications

Finland – Tampere and Helsinki

Integration of DIALOGUE applications into real world infrastructure data



Euro-EcoChallenge



The test set-up for components.

- Technology and performance test of all components and applications
- Instructed users will test the TEAM developments
- Challenges for TEAM application users (mainly drivers and travellers) to demonstrate the behavioral changes
- Demonstration of results in public events



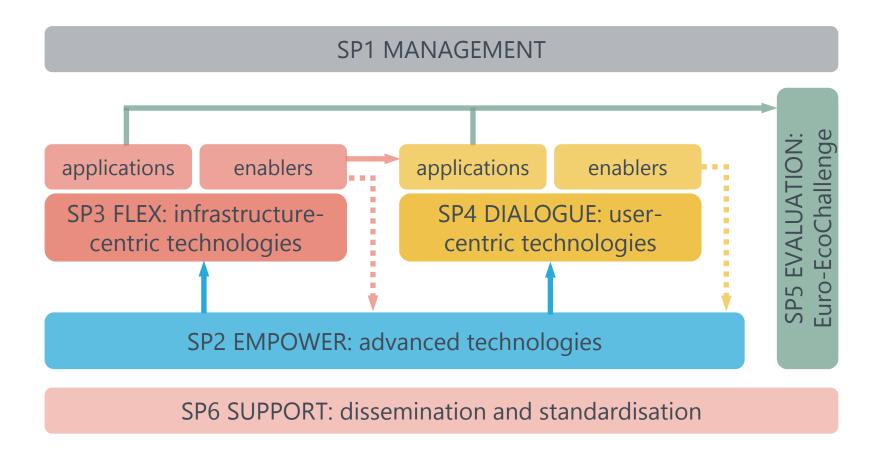
Work structure



	Adaptive Moditity				
SP1 MANAGEMENT	SP2 EMPOWER	SP3 FLEX	SP4 DIALOGUE	SP5 EVALUATION	SP6 SUPPORT
WP 1.1 — Project coordination	WP 2.1 — Technical management	WP 3.1 — Technical management	WP 4.1 — Technical management	WP 5.1 Technical management	WP 6.1 Technical management
WP 1.2 — Operational management	WP 2.2 Users, stakeholders and use cases	WP 3.2 Users, stakeholders and use cases	WP 4.2 Users, stakeholders and use cases	WP 5.2 Specification of evaluation methodology	WP 6.2 — Dissemination activities
WP 1.3 — Technical management	WP 2.3 Requirements and specification	WP 3.3 Requirements and specification	WP 4.3 Requirements and specification	WP 5.3 — Pilot sites integration	WP 6.3 Euro-EcoChallenge dissem. activities and final event
	WP 2.4 — Architecture and design	WP 3.4 — Architecture and design	WP 4.4 — Architecture and design	WP 5.4 — Performing the Euro-EcoChallenge	WP 6.4 Liaison and interaction activities
	WP 2.5 Development and integration	WP 3.5 Development and integration of applications	WP 4.5 Development and integration of core applications	WP 5.5 Impact on travel and energy efficiency	WP 6.5 Standardisation activities
	WP 2.6 Technical verification	WP 3.6 — Technical verification	WP 4.6 Technical verification	WP 5.6 User acceptance and conditions for collabor. travelling	WP 6.6 Exploitation activities

Workflow





Milestones and timeline



M1.0	M2.0	M3.0	M4.0	M5.0		M6.0	M7.0)
Use cases	System	System	Basic system	TEAM	Eur	o-EcoChallenge	Exploitation	1
defined	requirements	specification	and enablers	applications		conducted	measures	5
		defined	integrated	integrated			agreed	ŀ
				_				
Apr 13		Dec 13	Oct 14	Oct 15		May 16	Oct 1	6

Duration 48 months, November 2012 – October 2016

Team facts



Duration: 48 months

November 2012 – October 2016

Total budget: 17.1 m€

EU funding: 11.1 m€

Coordinator: Fraunhofer FOKUS, Dr. Ilja Radusch

Consortium: 27 partners

7 support partners



This project is co-funded by the European Union

Consortium



Automotive







ICT











Intel Mobile Communications









Infrastructure













Research























Other



Support partners



BERLIN Senate

City of Tampere

EUCAR

Finnish Transport Agency

POLIS

Swedish Transport Administration

VMZ Berlin

The end

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