



Tomorrow's Elastic  
Adaptive Mobility



# Towards Collaborative Mobility: A Joint Stakeholder Approach

**SIS14 - TEAM project presentation**

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by the European Union



# 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



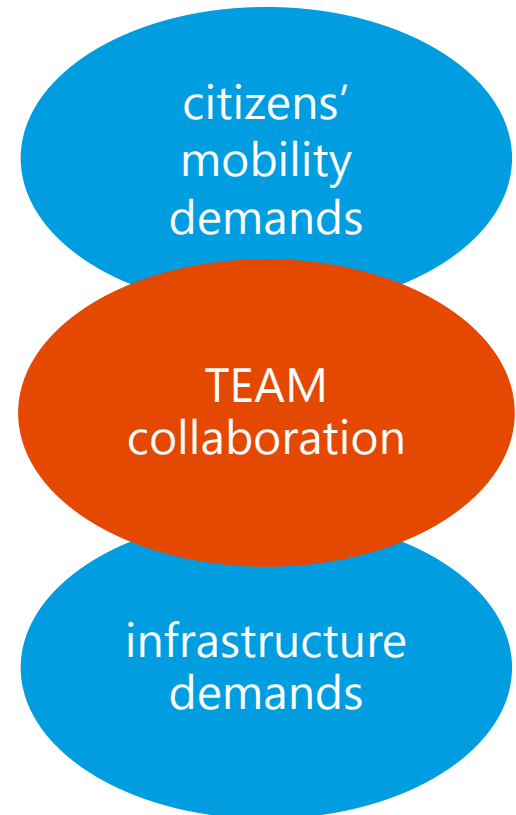
**Turn static into elastic mobility by balancing needs.**

**Collaboration** is the key concept.

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

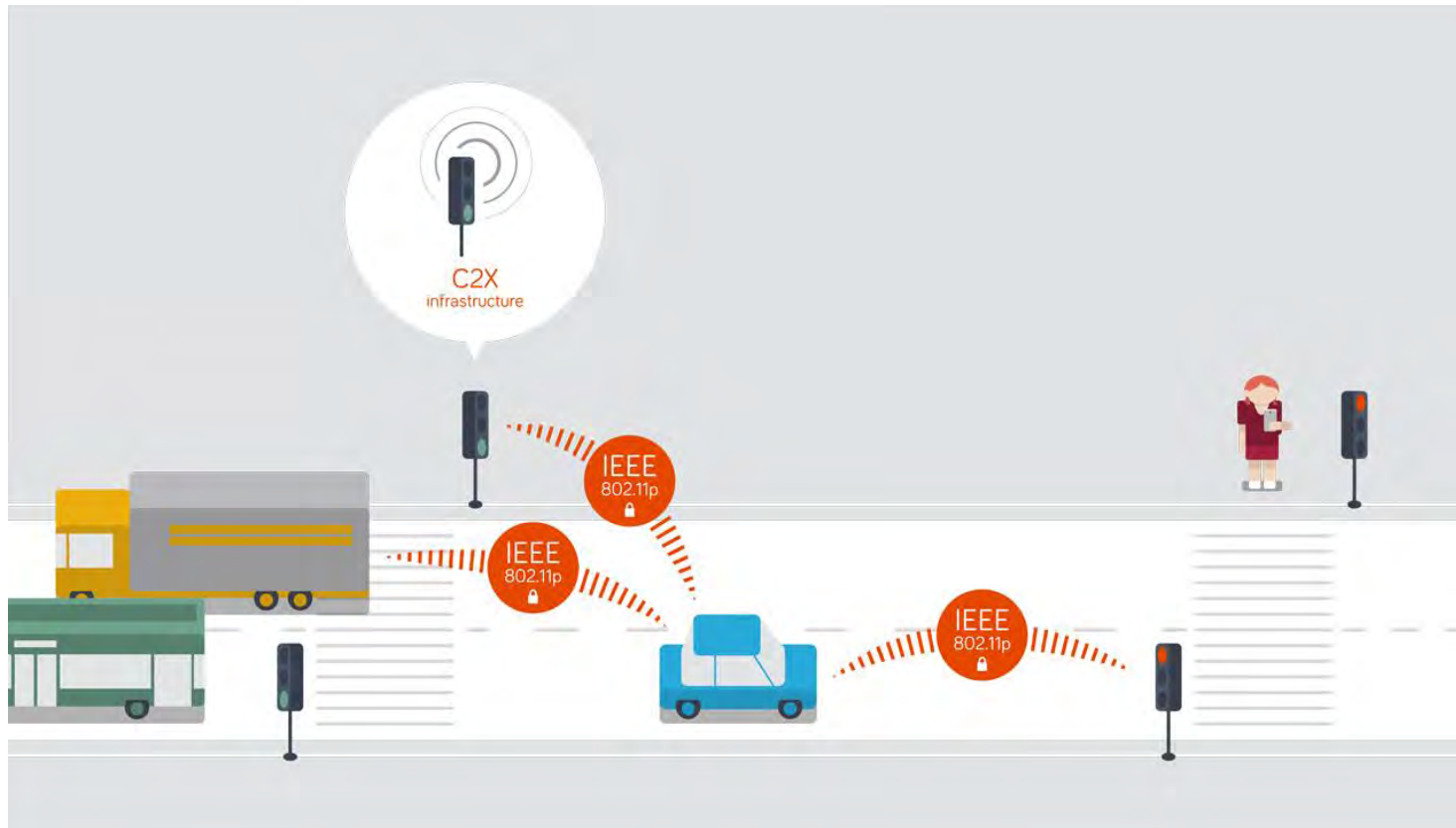
Make travellers and drivers, vehicles and infrastructure act as a **TEAM**

- Adapting to each other
- Adapting to the situation



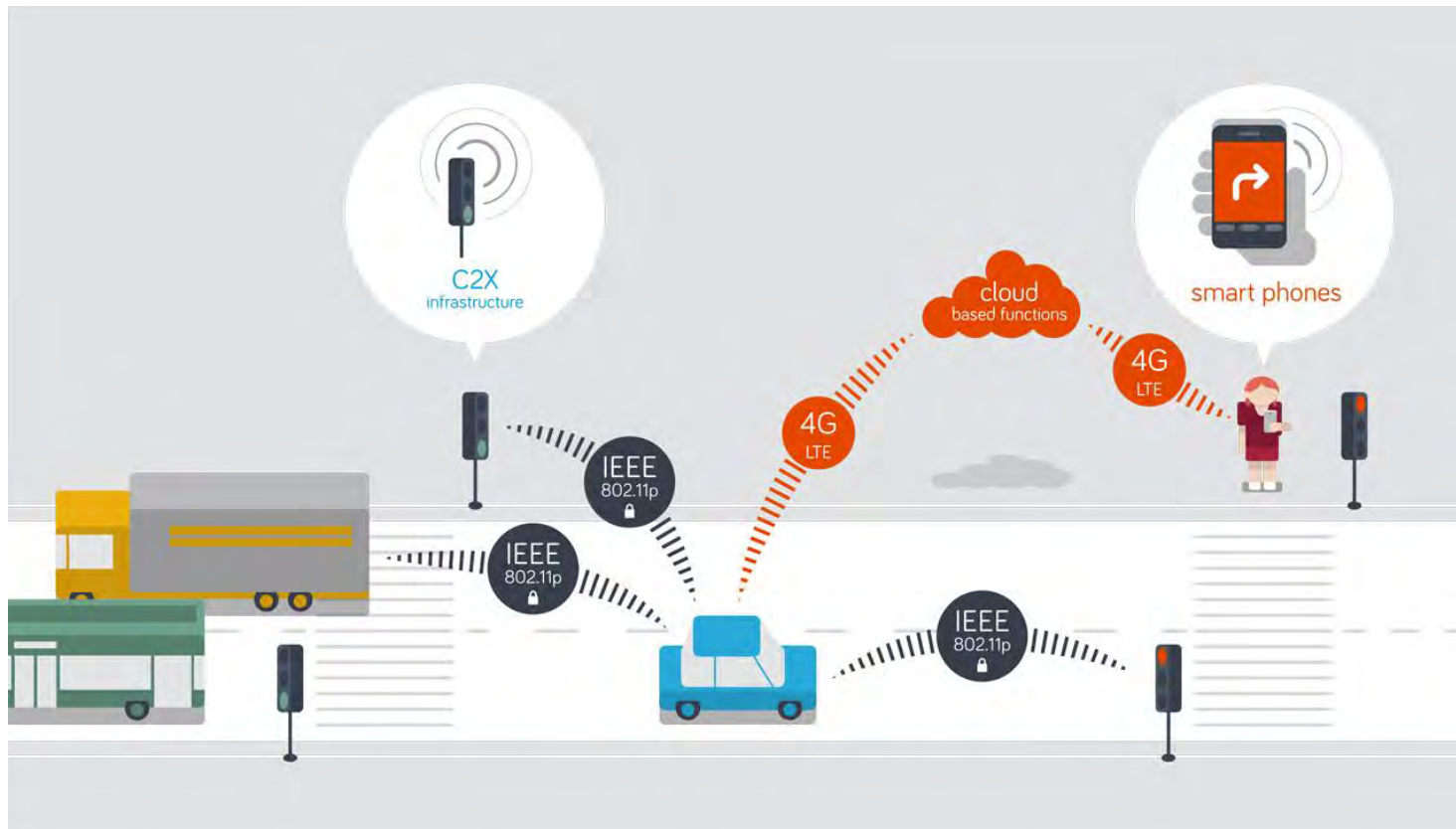
# Motivation

## Vehicles and infrastructure already communicate...



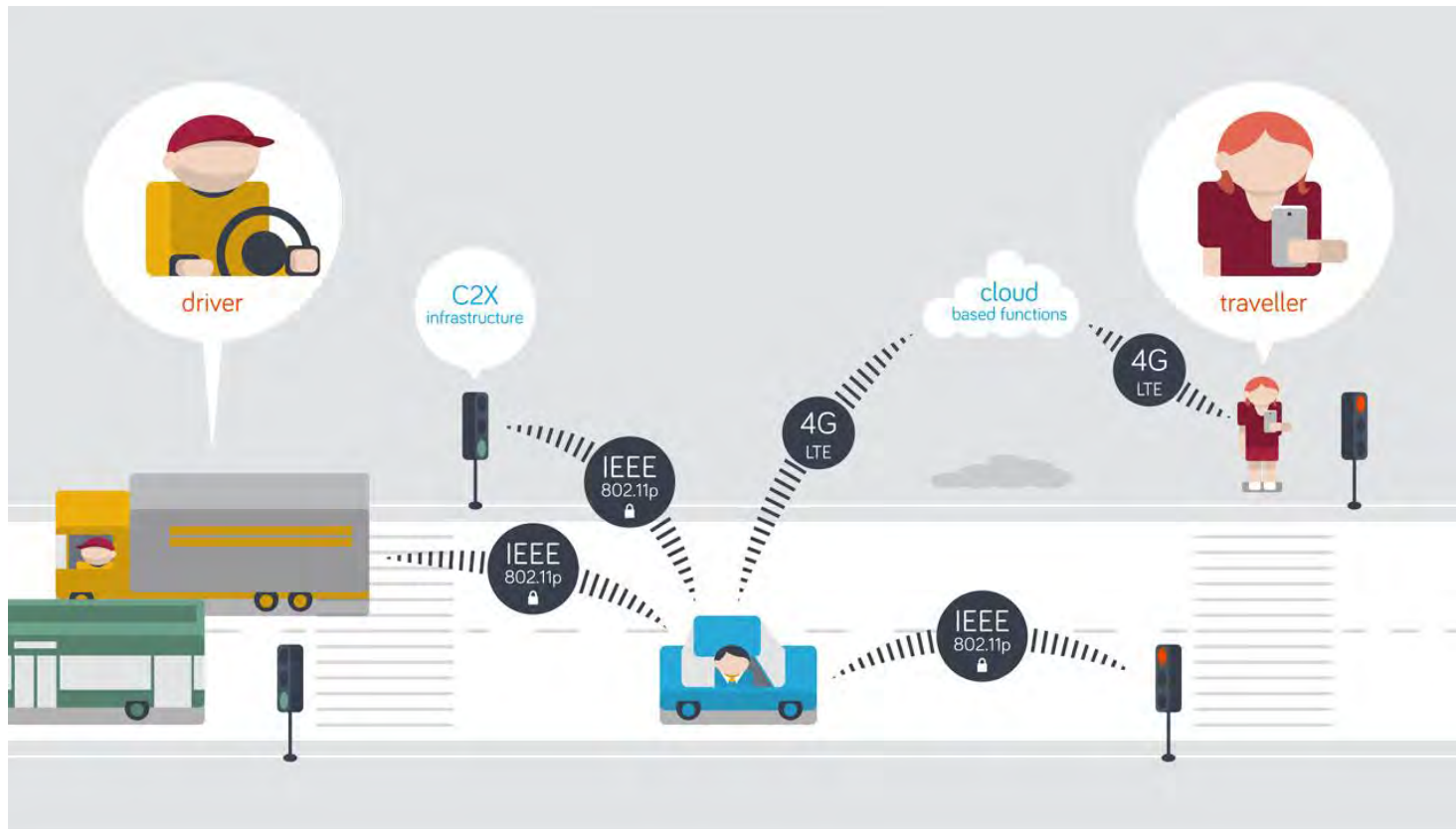
# Motivation

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.



## Building the elastic mobility management system.

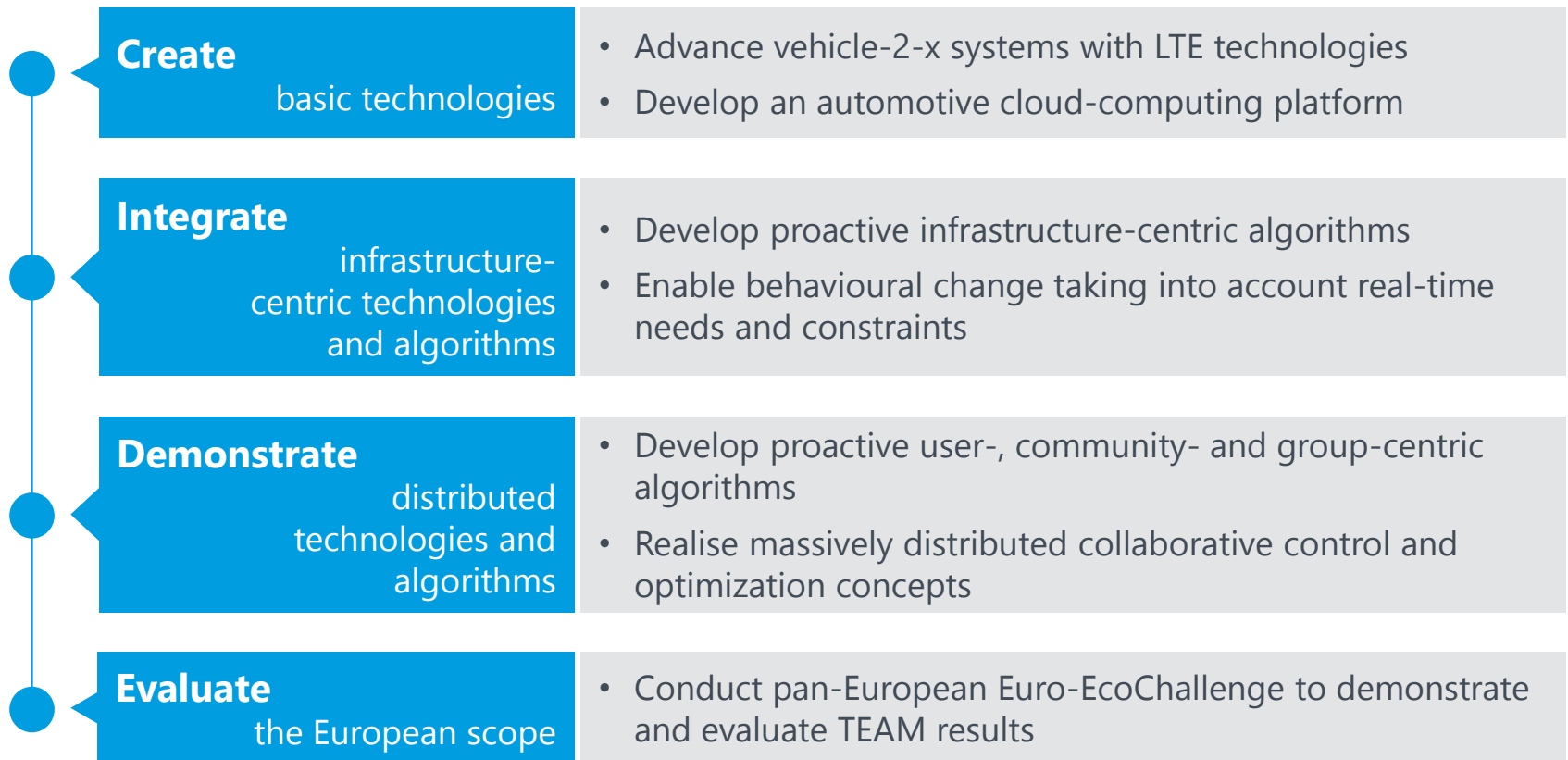
	Communication	Converged communication channels
	Infrastructure	Distributed sensing and “best effort” balancing of needs according to local policies
	Data	Consolidated sensor input available in real-time
	Applications	Novel collaborative applications interconnected through automotive cloud
	Traveller/driver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



# Objectives and work plan



## Technologies and users interlinked.



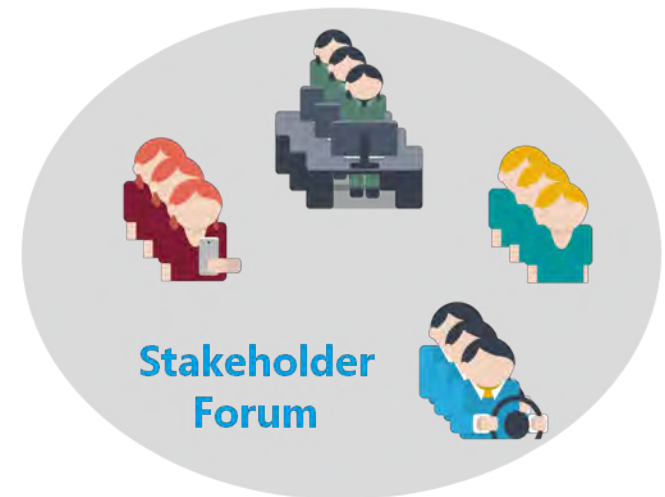
## Stakeholders are essential for the key concept of collaboration.

### 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

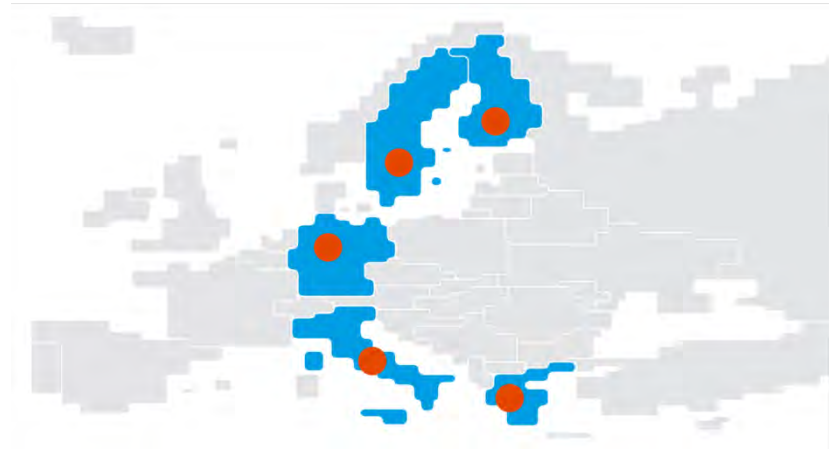
Trials of interurban applications and vehicle to vehicle communication

### **Greece** – Athens and Trikala

Test and demonstration of all FLEX applications

### **Finland** – Tampere and Helsinki

Integration of DIALOGUE applications into real world infrastructure data



## 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



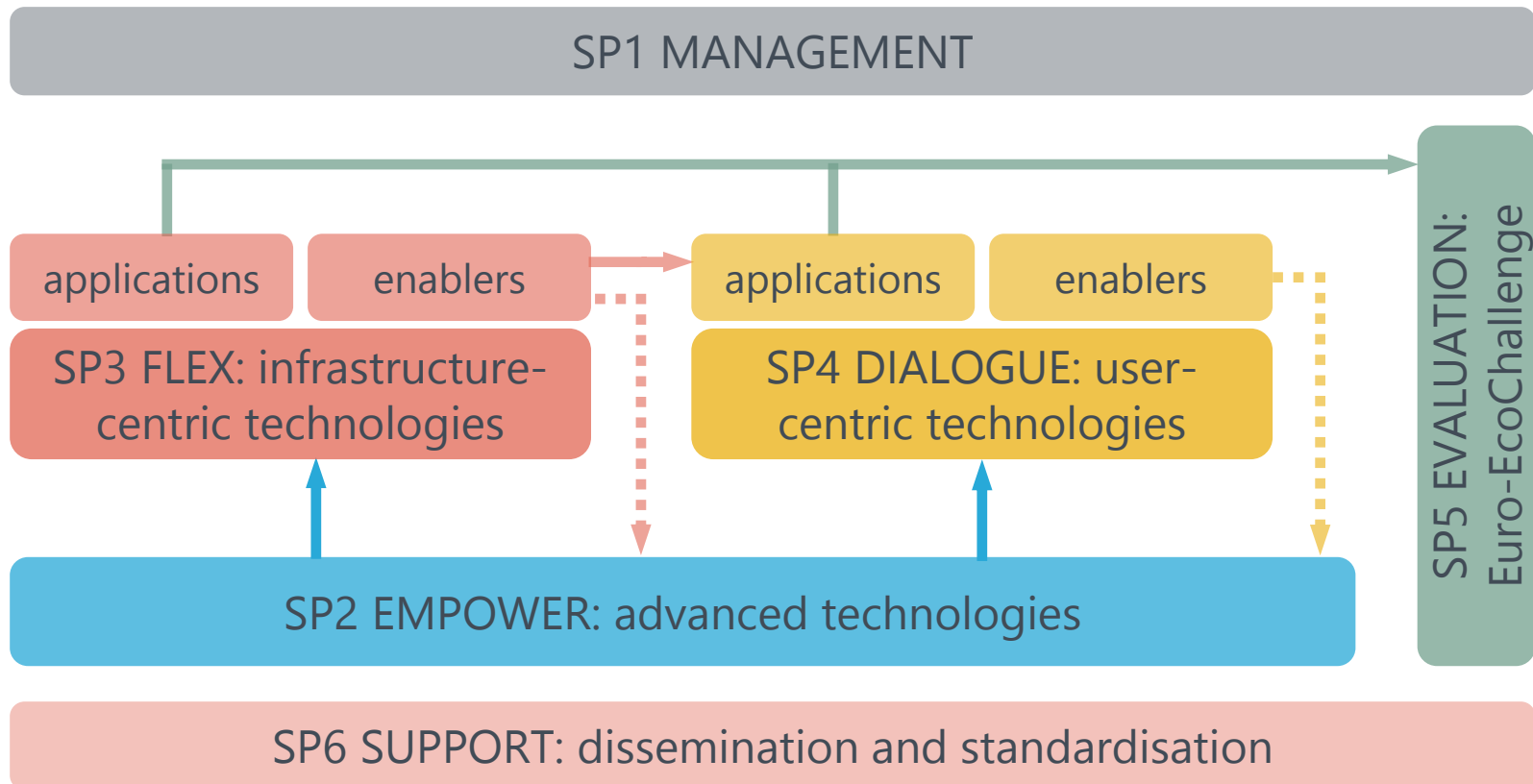


# Work structure

## TEAM



# Workflow



# Milestones and timeline



# 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

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# Consortium



## Automotive



## ICT



Intel Mobile Communications



## Infra-structure



## 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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