

# smartCEM

## Smart connected electro mobility



**The smartCEM pilot aims to demonstrate the potential for electric vehicles (EVs) in urban and interurban contexts and to encourage their uptake through advanced and heterogeneous mobility services (EV navigation, EV efficient driving, EV trip management, EV charging station management, EV sharing management). Through the integration of information and communication technologies and electro mobility, smartCEM intends to increase the awareness of electro mobility and encourage the use of EVs as part of everyday life.**

### At a glance

#### Project:

smartCEM – Smart connected electro mobility

#### Programme:

CIP – ICT PSP objective identifier: 1.3: Smart connected electro mobility – ICT policy support programme)

#### Project coordinator:

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#### Partners:

ERTICO – ITS Europe (Belgium); Ajuntament de Barcelona; Gipuzkoako Foru Aldundia; Ayuntamiento de Donostia-San Sebastián (all Spain); Citta di Torino; Pluservice srl (both Italy); University of Newcastle (United Kingdom); Deutsches Zentrum für Luft- und Raumfahrt (Germany); Fédération Internationale de l'Automobile (Belgium); Centro Recherche FIAT SCPA (Italy);; Fundación Tecnalia Research & Innovation (both Spain); TeamNet International S. A. (Romania); IDIADA Automotive Technology S.A; Ennera Energy and Mobility S. L.; Compañía del Tranvía de San Sebastián (all Spain); NEC Europe Ltd (United Kingdom); Grecav Auto Srl; Energy Resources SpA (both Italy); Robert Bosch GmbH (Germany); Gateshead College (United Kingdom); Creafutur (Spain); ICOOR (Italy); AVID; Affiliated Computer Services B. V. (both United Kingdom); PTV (Germany); Fomento de San Sebastián (Spain); Università degli Studi di Modena e Reggio Emilia (Italy); Reial Automòbil Club de Catalunya (Spain); Automòbil Club Assistència, S.AU. (Spain).

**Start date:** 1 January 2012

**End date:** 31 December 2014

**Total cost:** EUR 4 920 000

**Project website:** [www.smartcem-project.eu](http://www.smartcem-project.eu)

### OBJECTIVES

smartCEM aims to achieve the following objectives:

1. prove that user acceptance of electric vehicles can be increased by at least 15 % thanks to smartCEM services;
2. evaluate to what extent transport efficiency can be optimised;
3. develop tools for assessment and evaluation of the impact on CO<sub>2</sub> and improve acceptance of electro mobility;
4. identify barriers and address all deployment elements;
5. support pan-European interoperability;
6. increase adoption of electro mobility in all types of road transport;
7. support integration of new schemes and development of business models;
8. provide information about the smartCEM services experiences.

### SERVICES

The smartCEM project aims to achieve the abovementioned objectives through five complementary services:

- **EV navigation** starts from eco-navigation and integrates EV-related points of interest (POIs) such as charging points or charging stations.
- **EV efficiency driving** is intended to support energy-efficient driving styles.

- **EV trip management** starts from existing multimodal journey planning systems and provides a new management system that includes EV sharing as a transport option.
- **EV charging station management** will include station operation, station energy management, power supply status, range estimator, charging point booking, payments and scheduling.
- **EV sharing management** starts from existing online and off-line systems for vehicles

### TECHNOLOGY CONCEPT

smartCEM uses a combination of technologies. The hardware architecture will be based on the following components:

- **on-boards units:** a bidirectional on-board system, which is connected to the vehicle CAN bus and manages all internal and external data (from the back office);
- **back office platform:** general management system that controls all vehicles, charging spots, energy and commercial transactions;
- **web interface:** to give users access to electro mobility management and booking systems;
- **nomadic devices:** whose use will also be studied and proposed as an alternative flexible media.

The software architecture will be based on standards like web services (SOA, XML, WSDL, SOAP protocol). Standard communication channels such as GSM/UMTS will also be used and technologies like 5.9 GHz-M5 will be studied and proposals made for their use.

### SUSTAINABILITY

Each pilot site has a balanced consortium, in which private companies are already running electro mobility services or commercialising management systems. These companies will integrate the services in their solutions and provide their facilities and channels for commercialisation, which will ensure the future sustainability of the solutions.

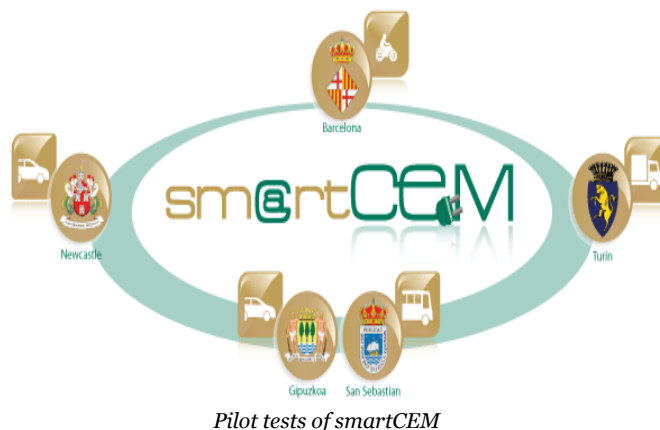
### IMPLEMENTATION

The smartCEM services will be implemented and operated in four European pilot sites using different types of vehicles and practices:

1. **Barcelona** will focus on motorcycles.
2. **Gipuzkoa** will combine urban and interurban car-sharing facilities and a

hybrid bus in the capital (San Sebastian)

3. **Newcastle** will develop the use of existing EVs assigned to the public.
4. **Turin** will combine delivery vehicles and car-sharing practices.



### IMPACT

smartCEM will seek to facilitate smart, sustainable and inclusive growth by accelerating the wider uptake of smart connected electro mobility in the form of electric cars, powered two-wheelers, delivery vans and road-based public transport.

Specifically, smartCEM will develop electro mobility ICT services that facilitate and enhance the user experience of electric vehicles. In doing so, it will address the relatively slow uptake of ICT in the public sector and the lack of interoperability of ICT solutions across Europe.

smartCEM particularly focuses on a key societal challenge — that is, sustainable mobility — and will help society achieve a radical departure from today's internal combustion engine (ICE)-based transport system towards a more sustainable future with lower carbon emissions from the transport sector.

#### Further general information:

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