



ICT SERVICES FOR ELECTRIC VEHICLE  
Enhancing the user experience

**CIP-ICT-PSP: 5<sup>th</sup> Call for Proposals 2011**  
**Objective identifier: Objective 1.3 Smart Connected Electro Mobility**

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## OBJETIVES

The general objective of **ICT4EVEU** is to **deploy a set of ICT-based services for electric vehicles** (EVs), focused on the integration of innovative technologies, aimed at improving practical arrangements for users by increasing the geographical areas in the pilot schemes: urban, regional and transnational.

Furthermore, the project will contribute to the European goal of **creating a sustainable transport system** with lower carbon emissions.

# SERVICES

The services will focus on the **integration of heterogeneous technologies** into a common and **general management system**, managed by a designated party and then accessed by users to receive information concerning the charging network across the cities or areas.

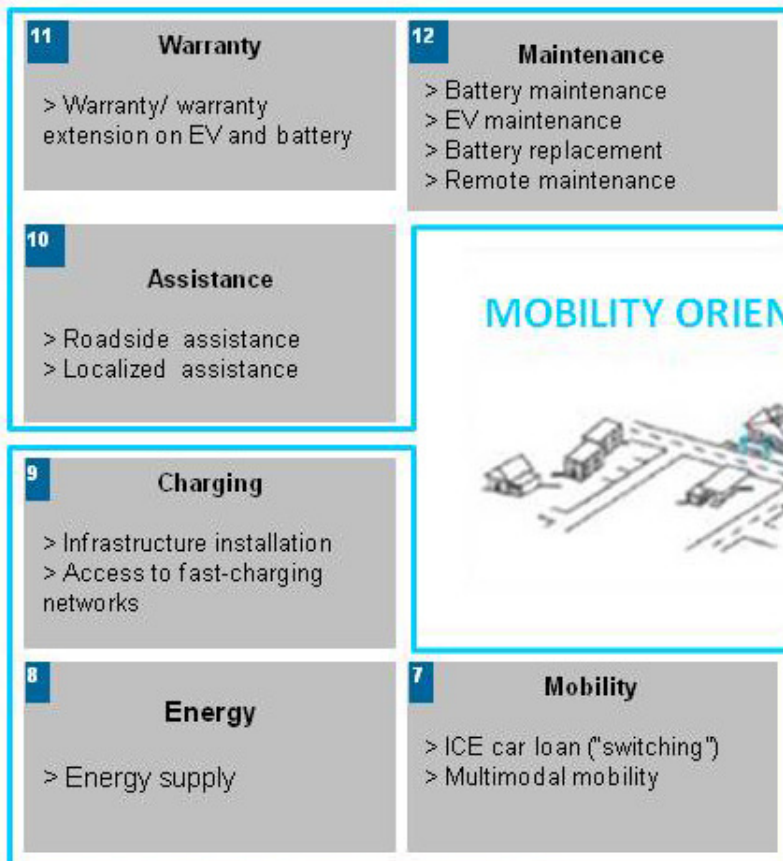
The specific objectives of the project have been classified according to the technologies involved in the pilots.

Those from **ICT solutions** and **smart systems integration** as enablers for the electric vehicle in the pilots can be summarised as follows:

# TEHCNICAL CONCEPT

## Mobility & Energy Services

### TECHNICAL SERVICES



### MOBILITY & ENERGY SERVICES

### FINANCIAL & INSURANCE SERVICES



### TELEMATIC SERVICES

# SERVICES 1

- To make drivers aware of the **remaining energy** and of the resulting restrictions in terms of range and comfort.
- To recommend and guide drivers to the **most suitable recharging station**, according to the battery status and the grid availability.
- To conveniently **book a charging point in advance** at the suggested station simplifying the payment procedure with different charging point managers and receiving notifications (email, SMS, other) when the EV is conveniently charged.
- To guarantee the **access to reviews** including information about the charging history, events, charging stations utilized.

## SERVICES 2

Those arising from the **type of vehicle and type of energy** require:

- To make use of **innovative tools for communication** vehicle-infrastructure-control centre. This involves real-time management of large amounts of information from different system actors: clients, infrastructure, vehicles and operators as well as its processing and distribution using optimized communication channels.

Some specific **challenges** to be accomplished are:

- 1.** To manage new control and data models oriented to energy efficiency: reliable real time information from both the EV fleet and the grid accessible from anywhere.
- 2.** To provide **cooperative systems**, robust and reliable **V2I** (vehicle-to-infrastructure) communications between the vehicles, the grid and the service providers. The vehicles and infrastructures as sources of information.
- 3.** To integrate on **real time information** in the on board navigation facilities in order to assist the driver.

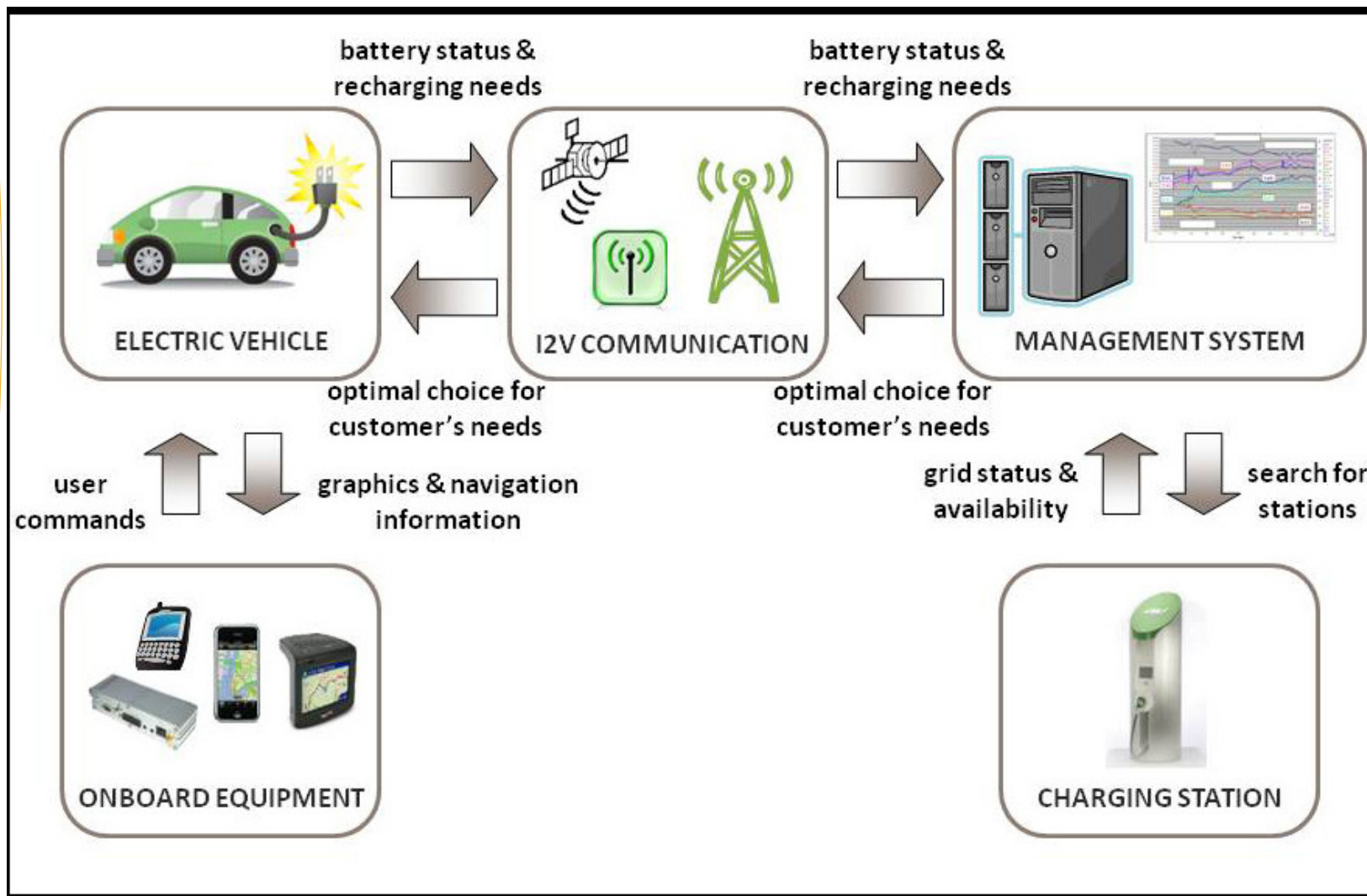
## SERVICES 3

- While cooperative systems onboard are still in a preliminary phase of adoption, the ever increasing penetration of smartphones and mobile devices among consumers sets an outstanding opportunity **to deliver these value added services directly to the drivers and encourage them to start using fully electric road transport solutions.**

Next it is shown the **general map of technologies** and their intercommunication scheme for the pilots.



# Technologies included in the project



# Pilots

- Bristol (UK)
- Pamplona – Vitoria (Spain)
- Ljubljana – Maribor (Slovenia) with Austrian partners as observers

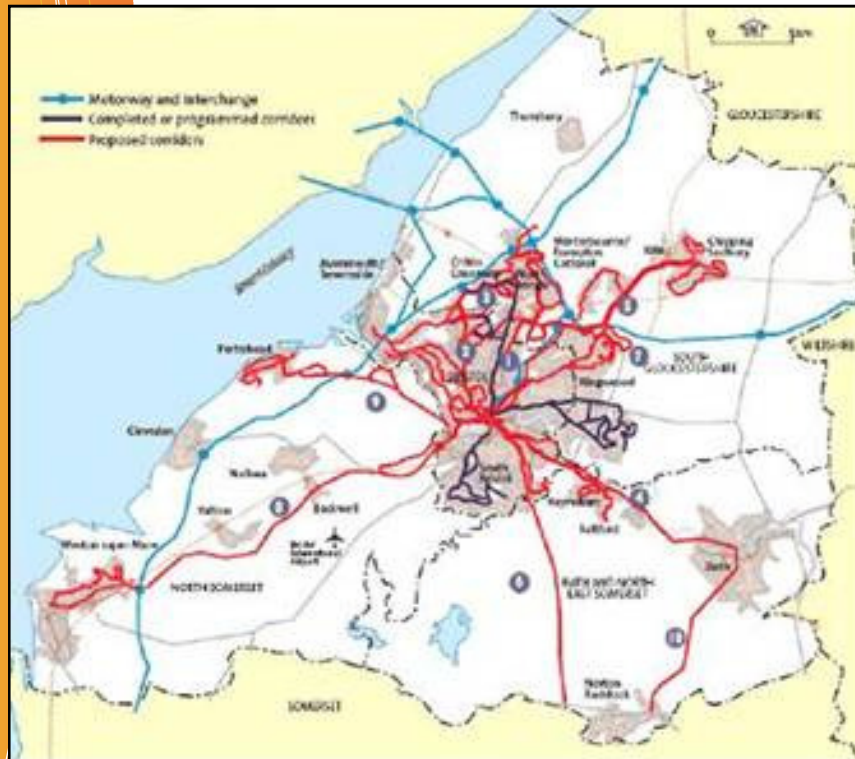


## Pilot 1. Bristol (UK)

This pilot will be focused in the **integration of commuters** in the **urban area** of Bristol, reaching a population up to 500.000 and with a high movement from locations nearby.

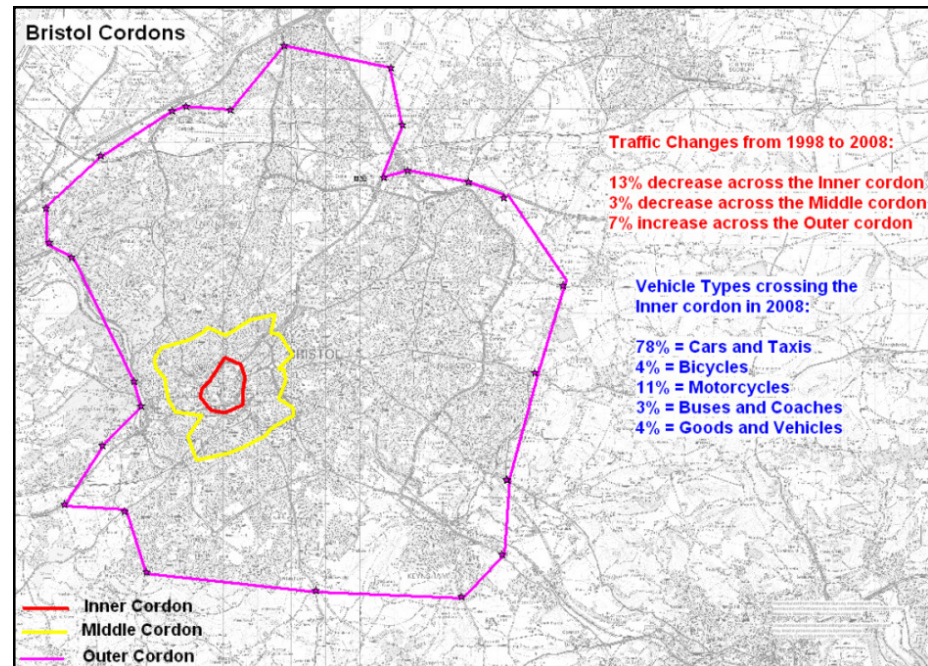
It is important to explain that the city has been really concerned in transportation within its commute area during the last years. Below there are some facts revealing some info about the habits of transportation among the population:

- Since 1990 traffic volumes have generally declined in Inner Bristol. Since 2003 the total decline has been around 6%.
- Total number of vehicles crossing Bristol's Middle Cordon averages some 390,000 per day. In the Outer Cordon the average is some 410,000 vehicles per day, Traffic volumes are less in school holidays but other than at Christmas.
- Cars and taxis account for the largest proportion of vehicles (79% of the total)
- Numbers of cycle trips increased by approximately 30% between 2004 and 2008.



**Main commuter routes into the city of Bristol**

### Bristol cordons



## **Pilot 2.**

### **Pamplona and Vitoria-Gasteiz (Spain)**

**To develop a general management system of electric vehicle infrastructures assuring mobility in an area of 100 Km** among the cities of Vitoria and Pamplona.

It will consist on the development of value added E-energy services for the EV drivers. A double approach will be included in the pilot: urban and interurban. The services will be deployed taking into account both of them.





**Pamplona charging points map by May 2011**

## **Pilot 3. Ljubljana and Maribor (Slovenia) Externally observed by Austria**

The main idea for Ljubljana and Maribor is **to develop services on top of the present charging infrastructure already developed in the cities and to share** some of them with the **neighbouring cities in the region.**

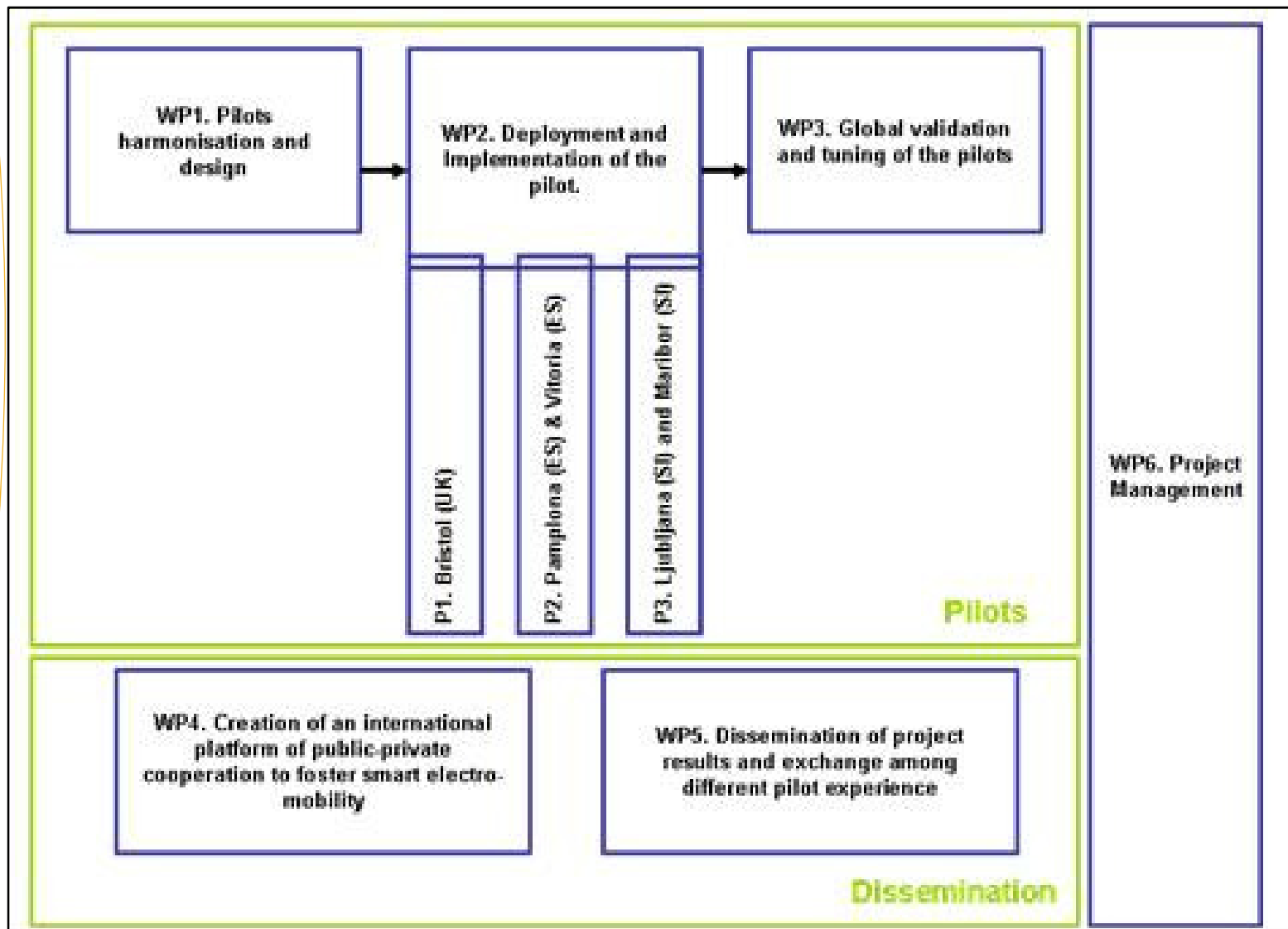
Project outcomes should enable citizens to travel through the project area without the problem of not being able to use the entire available charging infrastructure. Local/national systems should be prepared in advance to cope with the expected development of electro mobility



**Charging points map in the area of Ljubljana and charging points in Maribor**



# APPROACH



# WORK PLAN

	DURATION / CRITICAL PATH																																		
	YEAR 1												YEAR 2												YEAR 3										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
<b>Pilots harmonisation and design</b>	[Gantt bar from month 1 to 6]																																		
1.1 Analysis of the infrastructures in the cities	[Gantt bar from month 1 to 2]																																		
1.2 Architecture design for the pilots	[Gantt bar from month 3 to 4]																																		
1.3 Standardisation of technologies	[Gantt bar from month 5 to 6]																																		
1.4 Evaluation of design documents	[Gantt bar from month 7 to 8]																																		
<b>Deployment and implementation of the pilots</b>	[Gantt bar from month 9 to 24]																																		
2.1 Smart charging points conversion	[Gantt bar from month 9 to 12]																																		
2.2 Integration of a Global Management System	[Gantt bar from month 13 to 16]																																		
2.3 Technologies and services for the drivers	[Gantt bar from month 17 to 20]																																		
2.4 Integration of technologies	[Gantt bar from month 21 to 24]																																		
2.5 Monitoring of pilots data	[Gantt bar from month 25 to 28]																																		
<b>Global validation and tuning of the pilots</b>	[Gantt bar from month 29 to 32]																																		
3.1 Validation of results	[Gantt bar from month 29 to 30]																																		
3.2 Identification of gaps and improvements	[Gantt bar from month 31 to 32]																																		
3.3 Tuning of pilots	[Gantt bar from month 33 to 34]																																		
<b>Creation of an international platform of public-private cooperation</b>	[Gantt bar from month 35 to 36]																																		
4.1 Creation of a cooperation plan	[Gantt bar from month 37 to 38]																																		
4.2 Creation of work groups	[Gantt bar from month 39 to 40]																																		
4.3 Mobilisation of stakeholders	[Gantt bar from month 41 to 42]																																		
<b>Dissemination of project results and exchange of pilots</b>	[Gantt bar from month 43 to 44]																																		
5.1 Elaboration of a dissemination plan	[Gantt bar from month 45 to 46]																																		
5.2 Engagement campaigns for the pilots	[Gantt bar from month 47 to 48]																																		
5.3 Creation of dissemination material	[Gantt bar from month 49 to 50]																																		
5.4 Exchange of pilot experiences	[Gantt bar from month 51 to 52]																																		
5.5 Priority dissemination region of Syria	[Gantt bar from month 53 to 54]																																		
5.5 Internet dissemination activities	[Gantt bar from month 55 to 56]																																		
5.6 Elaboration of an exploitation plan	[Gantt bar from month 57 to 58]																																		
5.7 IPR Management	[Gantt bar from month 59 to 60]																																		
<b>Project management</b>	[Gantt bar from month 61 to 62]																																		
6.1 Consortium operating procedures definition	[Gantt bar from month 63 to 64]																																		
6.2 Administrative and financial management	[Gantt bar from month 65 to 66]																																		
6.3 Technical coordination	[Gantt bar from month 67 to 68]																																		
6.4 Consortium meetings	[Gantt bar from month 69 to 70]																																		

# CONSORTIUM



## MAIN CONTACTS

- **Carlos López** (project coordinator)  
clopezru@cfnavarra.es  
Tel: +34 848 427736
- **Raúl Sanz de Acedo** (project cooperation coordinator)  
rsanz@cein.es  
Tel: +34 848 425 501
- **Javier Iriarte** (project cooperation coordinator)  
jiriarte@zabala.es  
Tel: +34 948 198 000

creating sustainable **transport**



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