

**TELVENT**



Smart Information for a Sustainable World

# Electric Vehicle

## Telvent's Value Added Proposal

*Carlos III University, Madrid*

*November 10, 2010*

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## The Company



## Introduction to the EV



## Our Proposal for the EV



## What are we involved in ?



# A Technology Company

Telvent is the global technology and information services company that contributes to the improvement of the efficiency and security of operational and business processes in the world's premier organizations, through innovative solutions that enable real-time decision making. Telvent serves markets critical to the sustainability of the planet, including the energy, transportation, agriculture and environmental sectors.

- 2005-2009 CAGR of 20% in revenues and 30% in net income
- Firm commitment to Innovation: more than 100 M€ in 2007-2010
- +6000 highly qualified professionals
- Deep Market Knowledge and large recurrent customer base
- Operating in attractive growing markets with low seasonality, which provides recurrence and resilience to the company

## A Global Business Well Diversified

### A Diversified Business by Verticals



**28%**  
Transportation



**32%**  
Energy



**8%**  
Environment

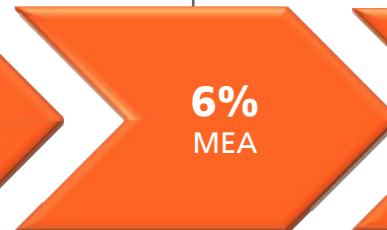
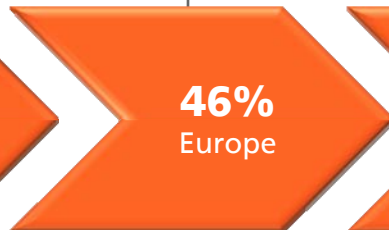


**10%**  
Agriculture



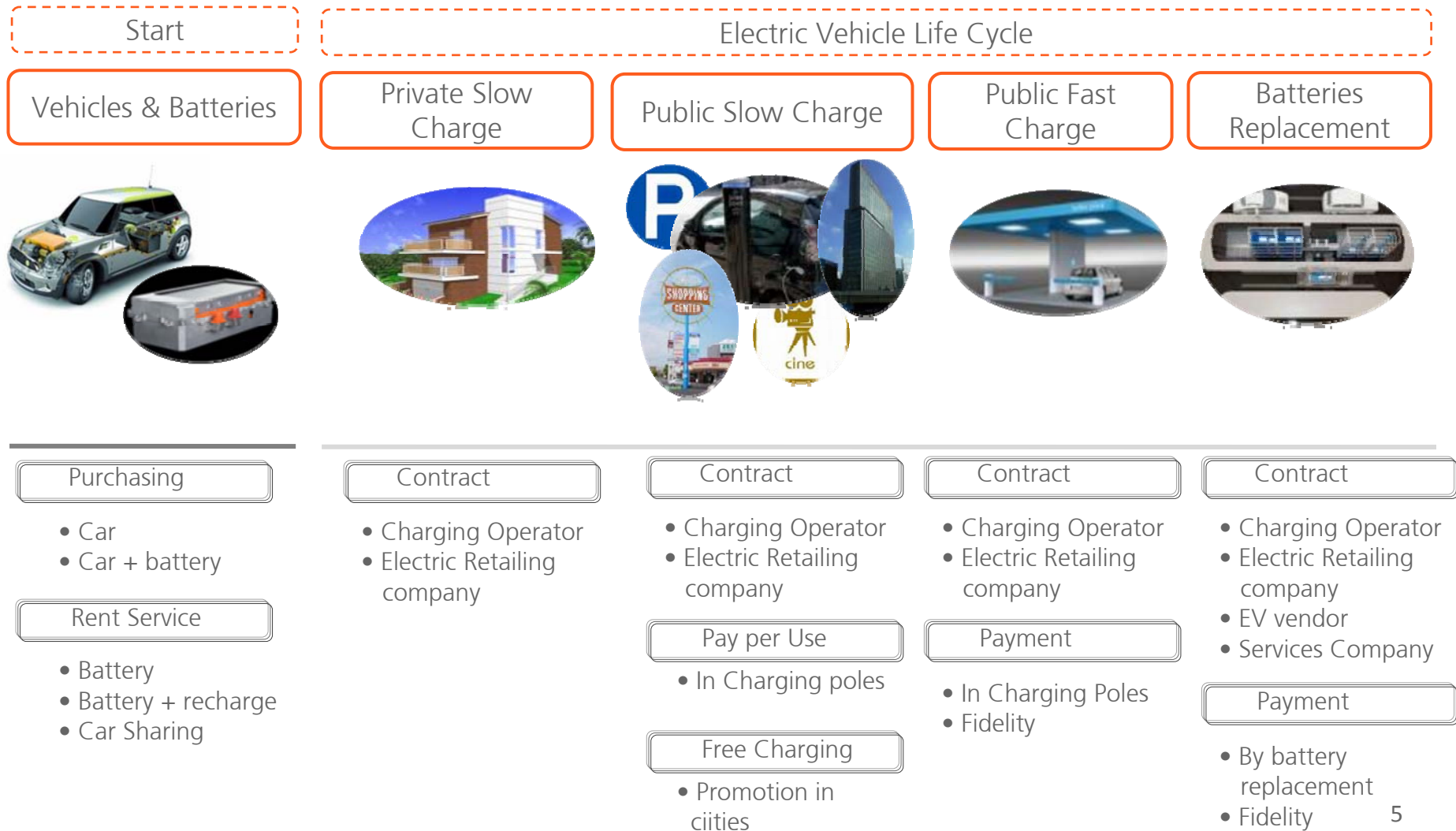
**22%**  
Global Services

### A Global Business Balanced by Geography



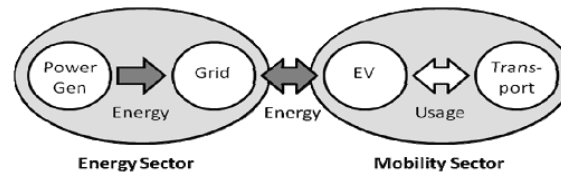
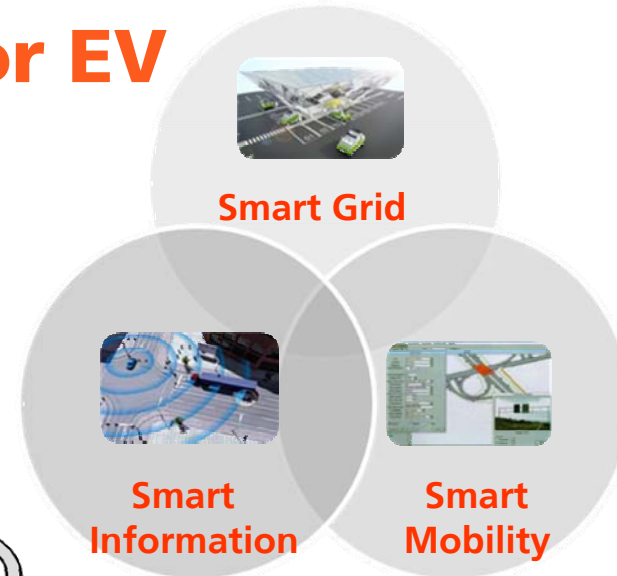
Telvent Energy, Telvent Transportation and Telvent Global Services are the three Telvent's societies involved in the Electric Vehicle solution, including Projects and R&D

## Electric Vehicle Business Model - General Frame

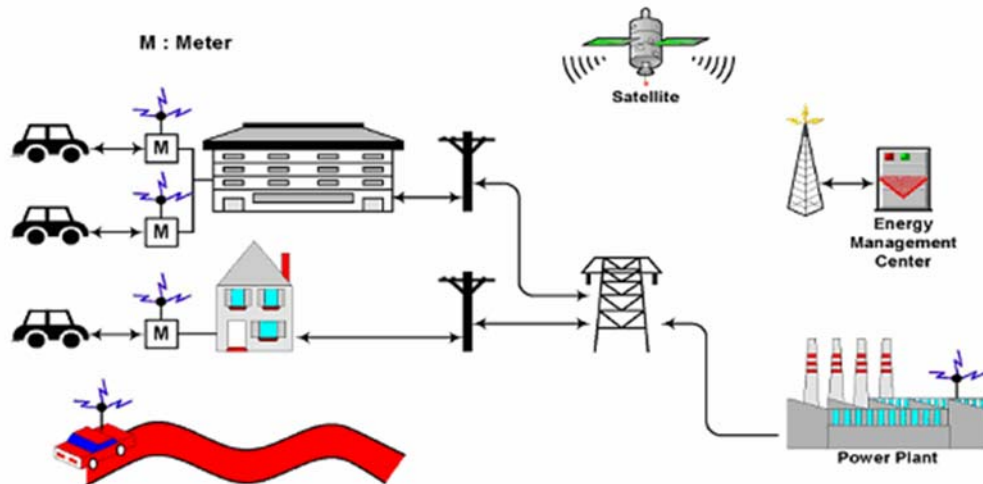


## ICT Will Play a Key Role for EV

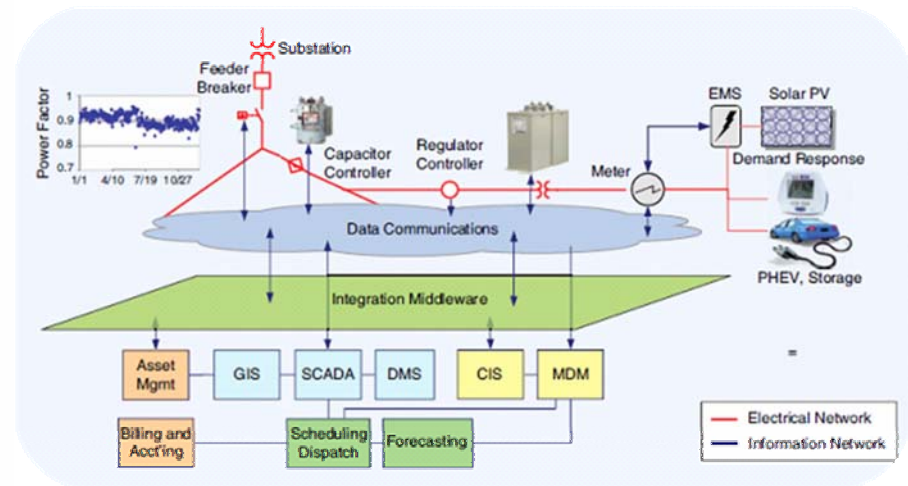
- ✓ Inside the vehicles
- ✓ To enable the telecommunications
- ✓ Interaction with the electric networks



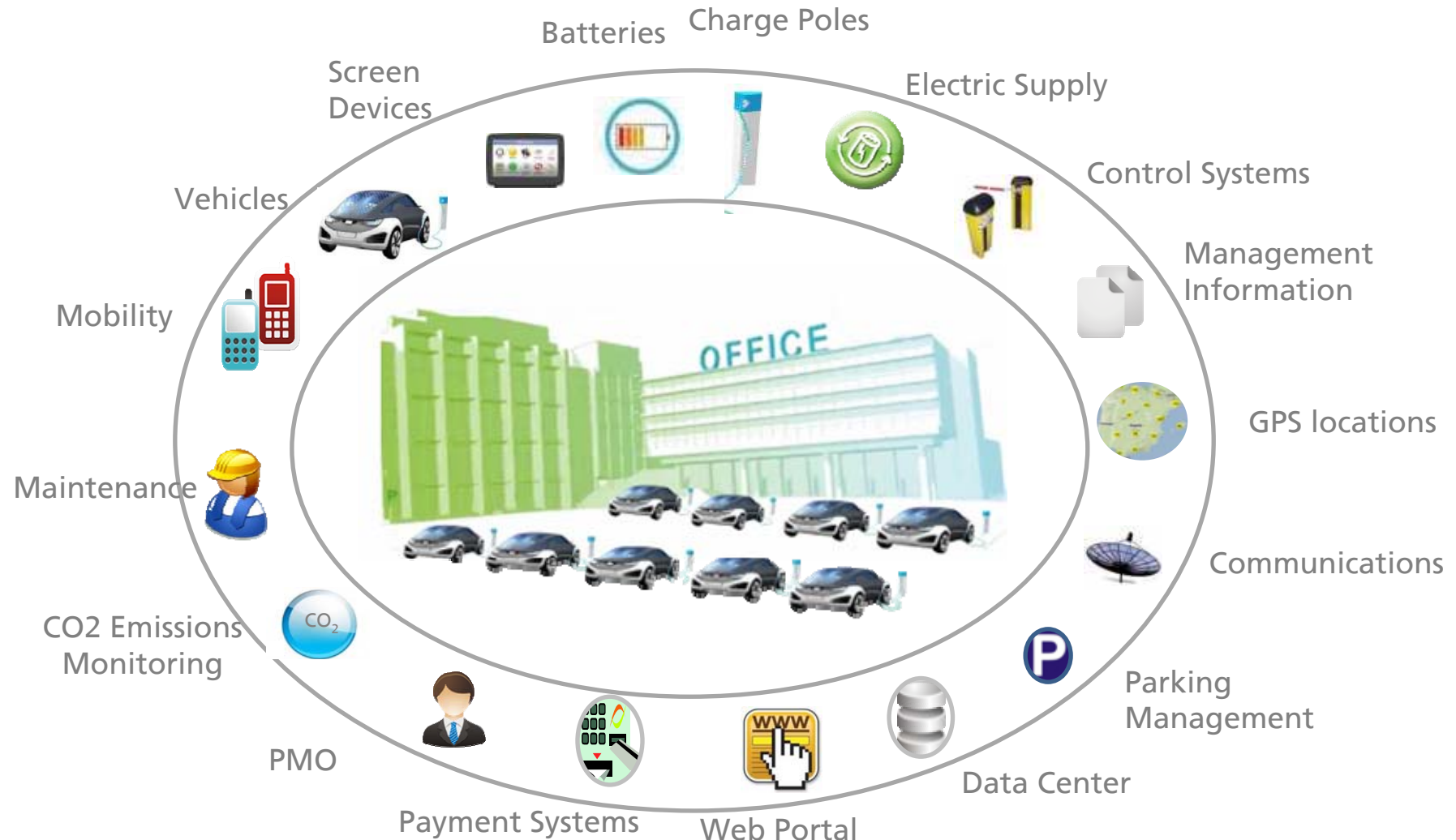
### EV- Smart Grid Connection : V2G



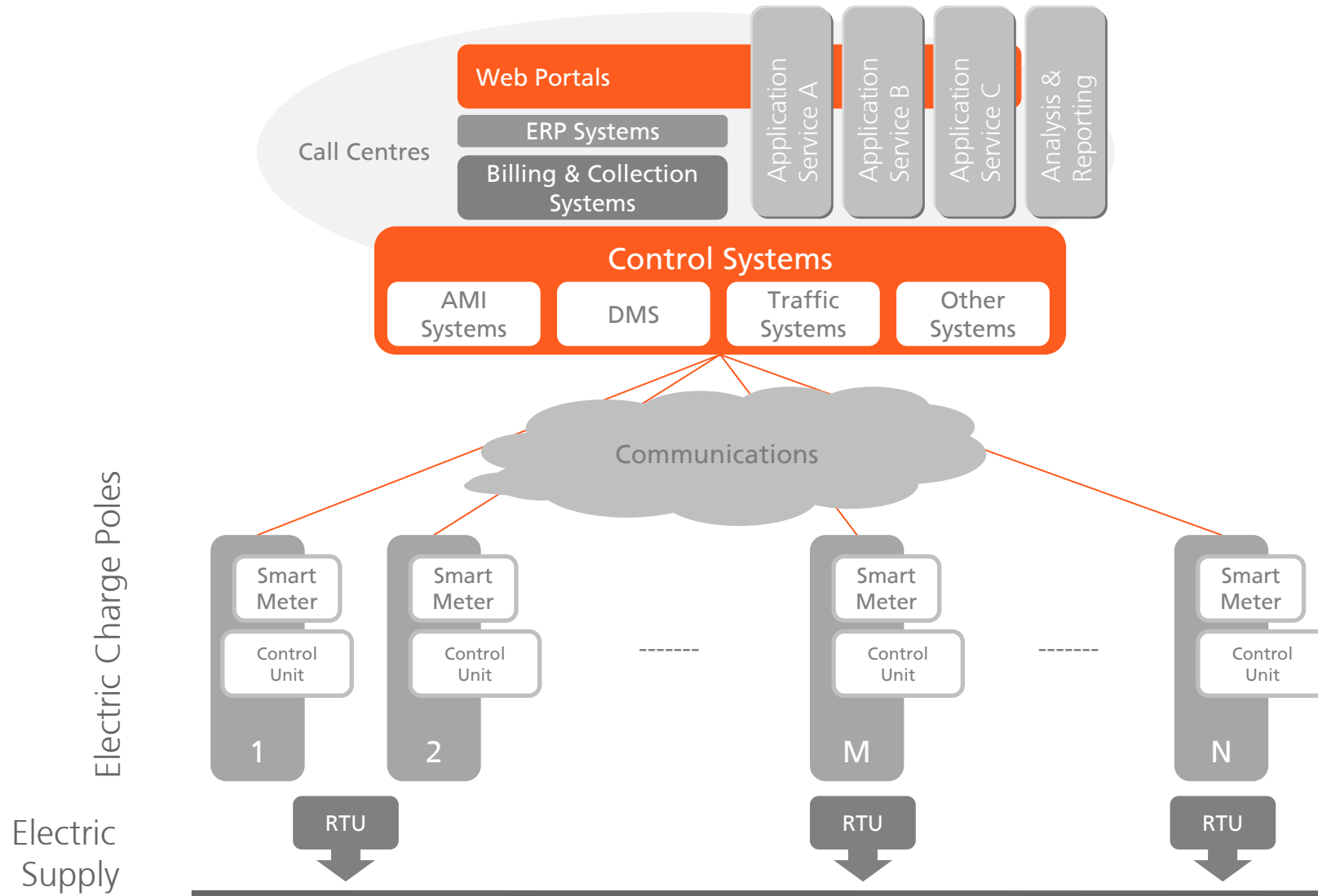
### ICT for Smart Grids



## Global Solution for EV



## Information Systems for EV





## Charge Poles



- Working in this area as technology integrators and enabling the maintenance services. Experience in Madrid, in Barcelona Mobility LOT2, in Movele Plan and promoting EV in Amsterdam



## Screen Devices

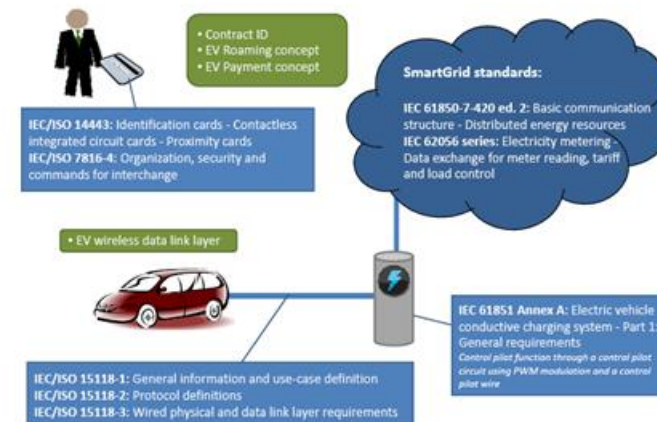


- Working in projects to adapt car screen devices

Vehicles must highlight the battery % load, average mileage pending autonomy and any other information of interest



Overview diagram for EV communication standards



## Some Key IT Systems



- AMI systems to take electric readings remotely and to be integrated with different payment systems
- Distribution Management Systems to facilitate Energy Management

### Titanium AMI



### Conductor MDM



### DMS



## Transportation Control Systems



- Urban Control Systems: Mobility Management (Movistar), Traffic Control System (ITACA), Advanced Transportation Management (MIST) and Traveller Information System ( SmartNet)
- Inter-urban Control Systems: Automatic Vehicles Identification (Visitraf), Scada (OASyS), Highway Toll Control System (SmartTOLL), Weather Road System (TERWIS)

- Urban Control Systems
  - Synchronized Intersections
  - Centralizations
  - Priority Management for Public Transportation
    - Tram preference
    - Buses priority



- Inter -Urban Control Systems
  - Information panels management
  - Variable Roadsigns
  - Road Traffic data capture for Public Transportation
  - Weather conditions data capture
  - Tunnels control



## GPS Locations



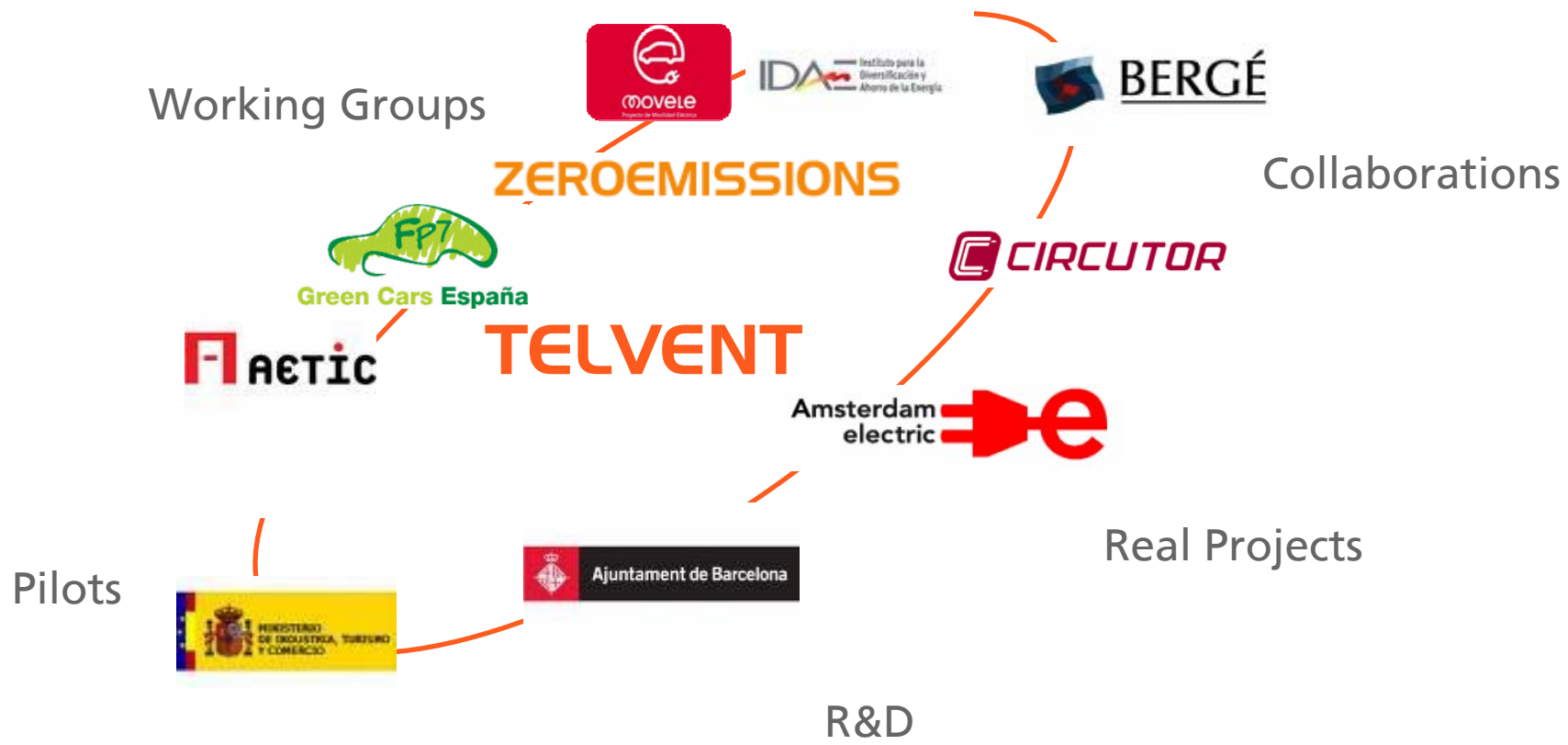
- Deep experience handling GIS information to enhance assets management
- Where to locate fast charge stations, closer station, parking locations, .....

The image displays a composite of three elements related to GIS and location services:

- Map of Spain:** A map of the Iberian Peninsula with numerous blue location pins placed across various regions, indicating specific points of interest or data locations.
- Smartphone:** A mobile device showing a map application interface with a red location pin and a blue location pin, demonstrating the use of GPS on a handheld device.
- Web Application:** A screenshot of a web interface titled "TELVENT Seguimiento Iniciativas del Sector". It features a map of Europe with several blue location pins. Below the map, there are search filters for "Año" (Year) with options for 2007, 2008, and 2009, and dropdown menus for "Comunidad" (Community) and "Provincia" (Province). A legend in the bottom right corner identifies three categories: "Presupuesto" (Budget), "Realizada" (Completed), and "En proceso" (In progress).



## EV Activities and Collaborations



## Project: Charging Poles for Electric Motorcycles –Barcelona-



### Scope

Installation and maintenance of 10 Charging Poles –Barcelona LOT2-, Including the Control Center

### Budget

2,96 million euros

### Promoted by

IDAE

### Customer

Dirección del Servei de Movilidad de Barcelona

### Extensions

Up to new 48 Charging Poles in the same zone and future integration with the control center

## Project: Movele Plan Implementation at Barcelona

### Scope

Replacement current vehicles for traffic lights maintenance by electric motorcycles

### Budget

3 million euros

### Promoted by

Movele

### Customer

Ayuntamiento de Barcelona y Dirección de Medio Ambiente.

### Extensions

Not forecasted.





## Project: Promotion EV in Amsterdam

### Scope

Electric Charging Poles and reinforce electric networks to support 10.000 EV in 2015.

Control Center. Navigators. Mobility web for the townhall. User Information. Integration with the Amsterdam's "Mobility Card". Development of applications and multiple payment alternatives.

### Budget

291 million euros

### Customer

Amsterdam Townhall

### Extensions

Not totally defined yet



## R&D Project: To create SmartMobility Suite for EV

### Alcance

To integrate EV's specific functionalities into Telvent's SmartMobility Suite as regards:

- Operation
- Information
- Payment alternatives and transactions
- BPO and Back Office

### Budget

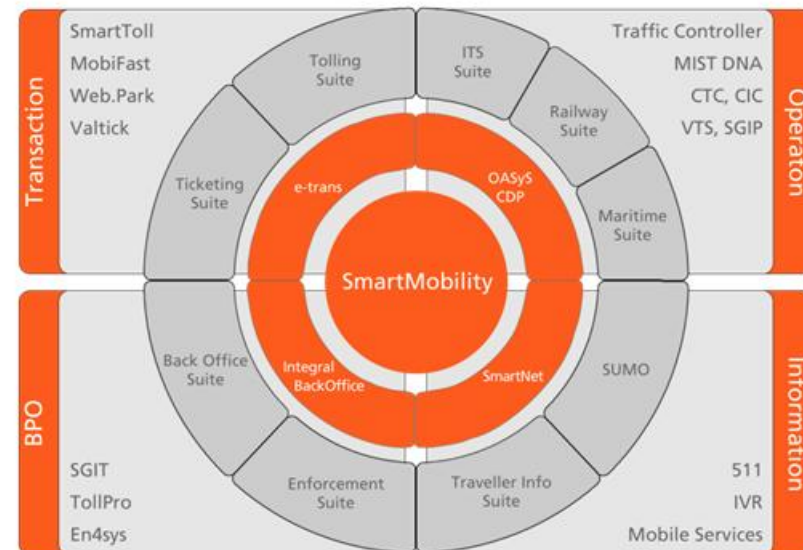
1,5 million euros

### Customer

Telvent

### Ampliaciones

Based on SmartMobility Suite Road Map



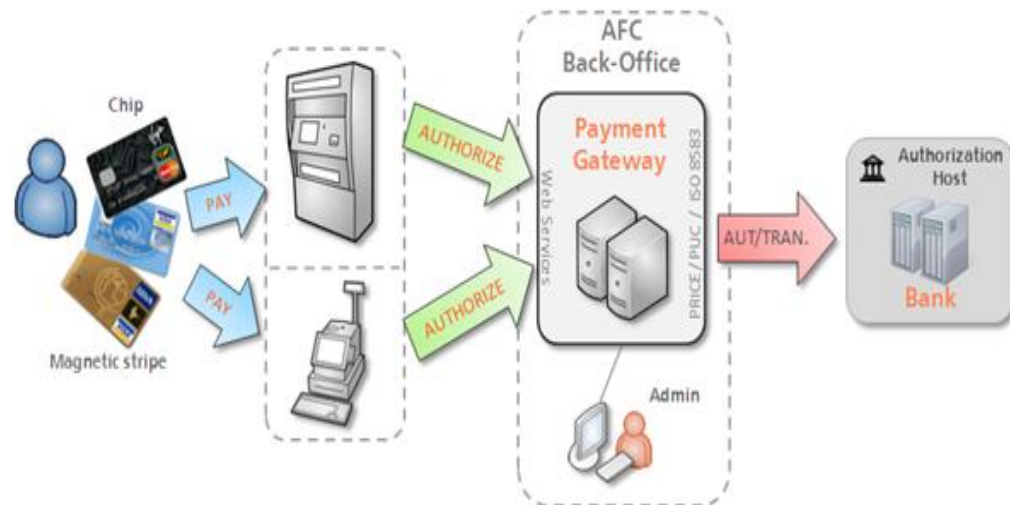
## R&D Project: Management of Payment alternatives

### Scope

Integration of payments by “citizen card”

SGIT (Sistema de Gestión de la Integración Tarifaria) development:

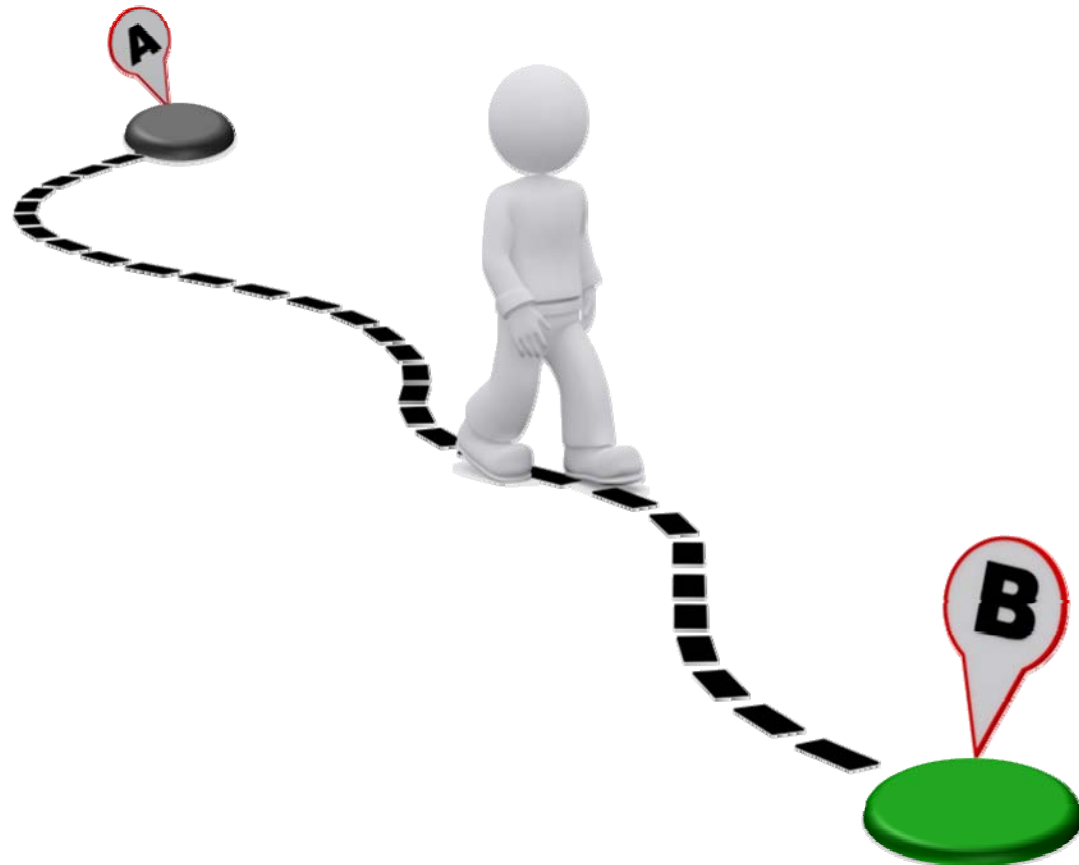
- Tariff management
- Configuration
- Supervision and telecontrol
- Cards management
- Users management
- Financial management
- Fraud management
- Electronic payment means
- Maintenance
- Reports



### Budget

0,5 million euros

## Smart Information for a Sustainable World



Thank you