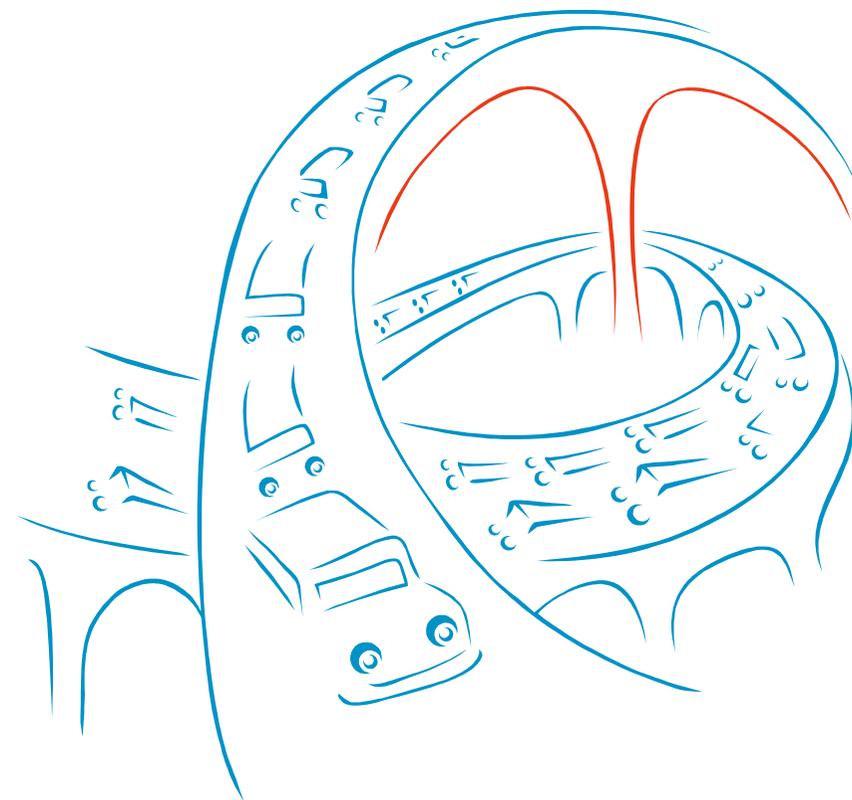


# molecules

mobility based on  
electric connected  
vehicles in urban  
and interurban smart,  
clean environments

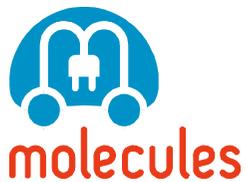


## A Quick Look to MOLECULES



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Pilot Type B / CIP - ICT - PSP - 2011 - 5  
Objective 1.3: Smart Connected Electro-mobility



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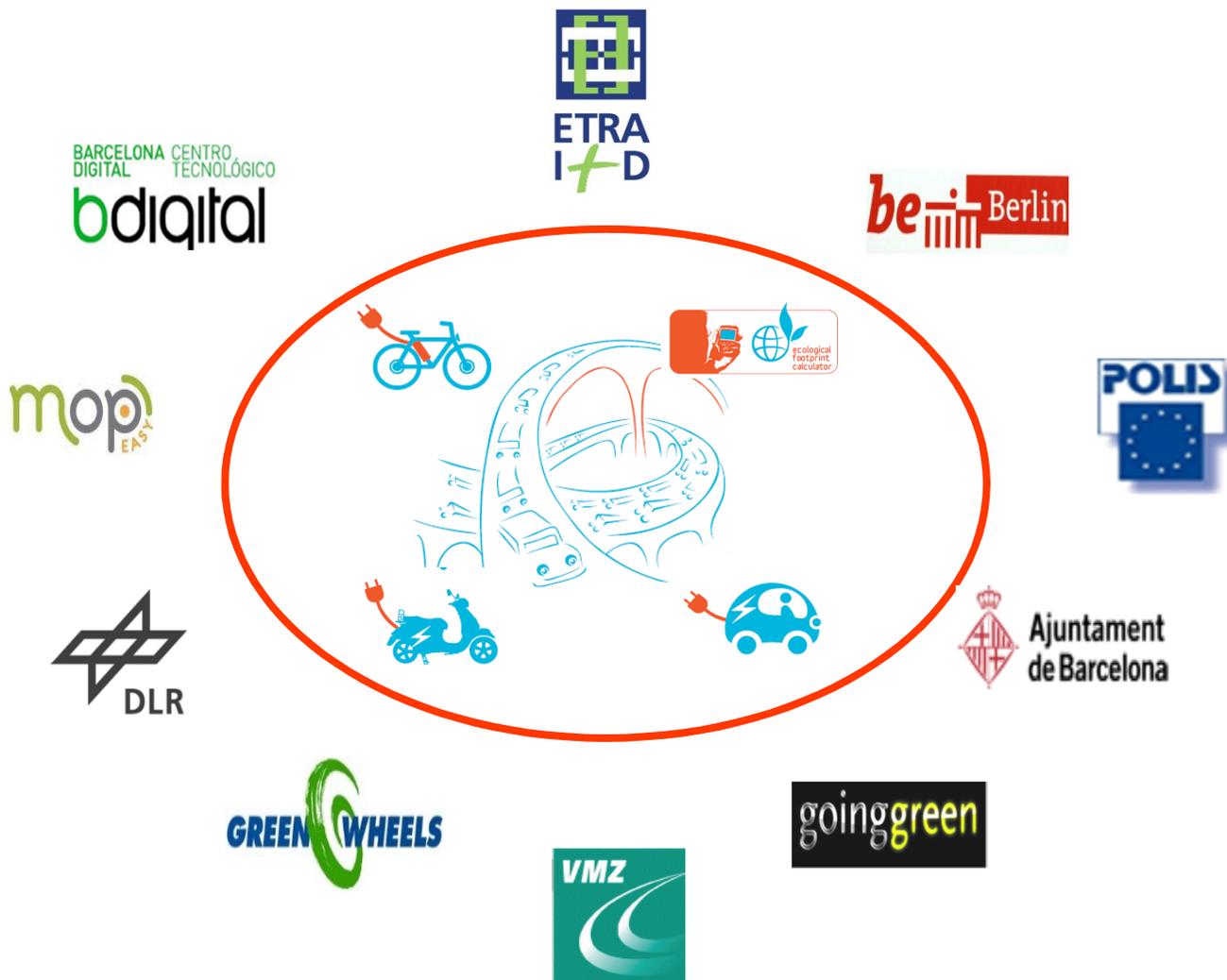
# The Consortium

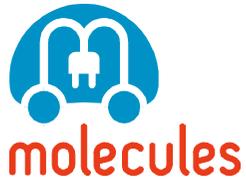


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Extended Consortium





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# The Challenge



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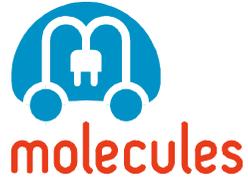


Smooth integration of the EV in the overall mobility system

Optimization of the energy used/emissions generated by passenger transported

Operational new business models for the deployment of EVs

ITS contribution to the long term sustainable success of EVs



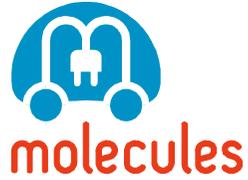
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# Objectives and Results I



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- **Enhance EV user experience through ICT**
- Integration and interoperability with multiple electricity suppliers & associated grid infrastructure
- **Integration/interoperability with other transport modes & ITS infrastructure**
- Promotion of SCE by means of incentives
- **Support and contribution to standards, use of open architecture**
- Three large scale pilots: Berlin, Barcelona and Grand Paris



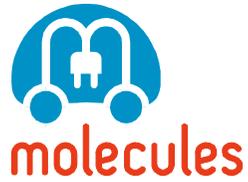
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# Objectives and Results II



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- **Several types of EVs**
- Pilots scalable by design for long term deployment
- **Improve decarbonisation of mobility**
- Improve air quality
- **Reduce EVs total cost of ownership**



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# 7 Service Categories



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## **PTP: Personal Trip Planner**

Multimodal solution integrating electric car sharing and carpooling schemas. Will allow the user to book the electric part of the trip

## **ESS: EV Sharpooling Support**

Combines carsharing with carpooling services at better prices

## **EBIS: Electromobility Billing Support**

Integrates seamless ticket and billing facilities for electro-mobility

## **PECA: Personal Carbon Footprint Advisor**

Registers the user carbon footprint based on his/her behavior when using MOLECULES, and gives advice to enhance it.

## **ITEM: Incentives to Electromobility**

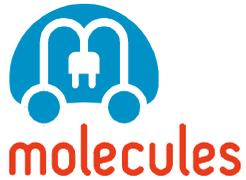
Will integrate two groups of incentives: (i) those applied to any EV user. (ii) those depending on the user carbon footprint

## **PERA: Personal Recharging Advisor**

Offers the user advice on the most energy efficient way of recharging according price, origin of electricity, foreseen trips, battery status, etc.

## **NSE: Network Strategies for Electromobility**

Based on the real-time carbon emissions registered, applies traffic and public transport strategies in order to balance emissions and recover the acceptable values

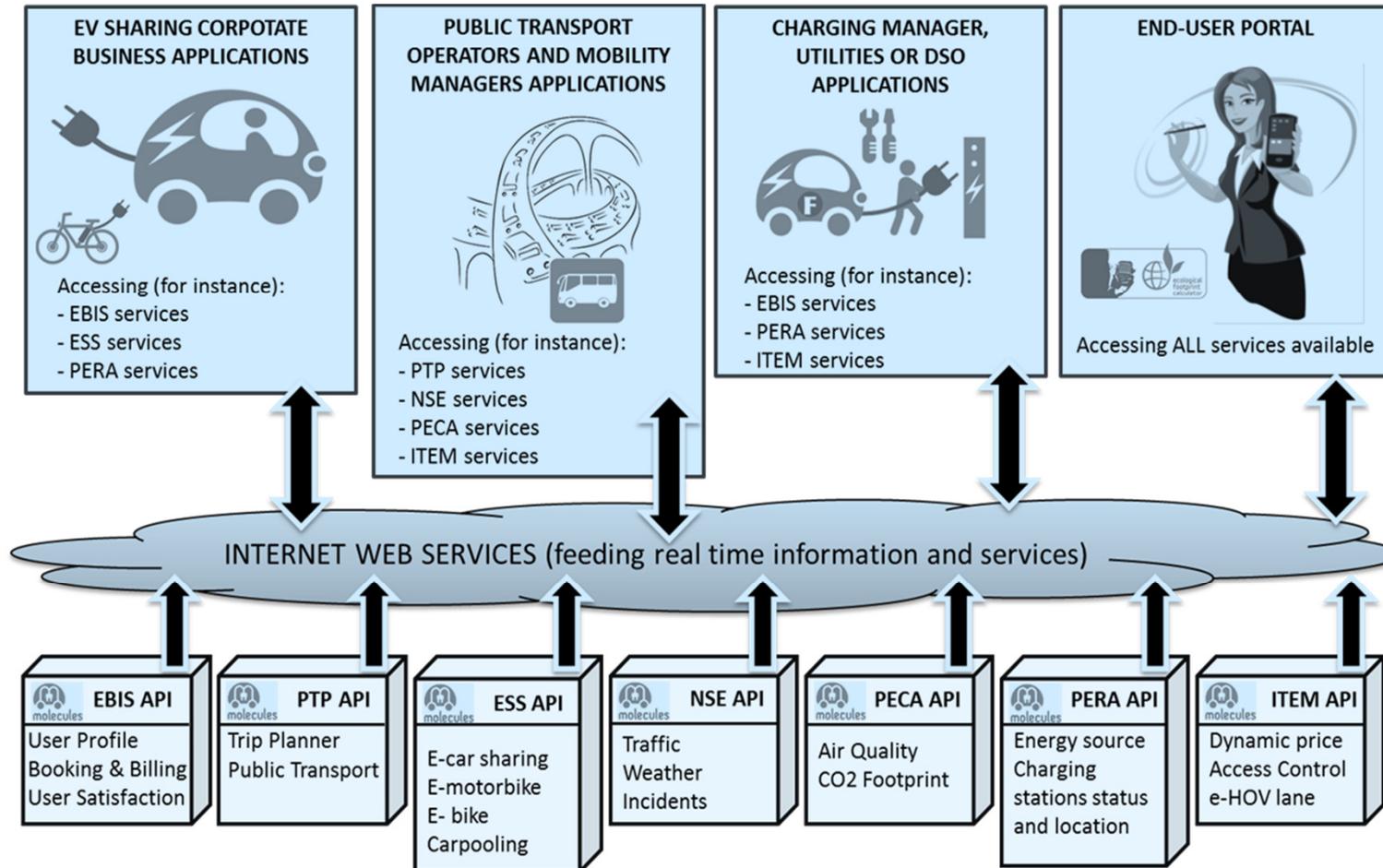


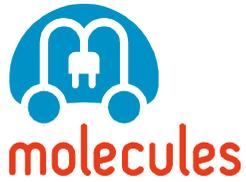
# MOLECULES Architecture



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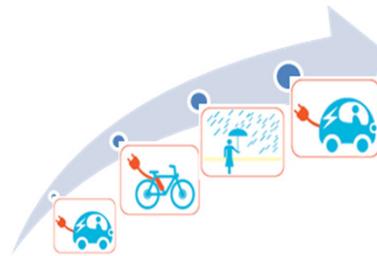
# BERLIN



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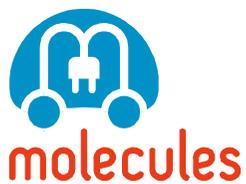


- Renting an apartment combined with EV carsharing service
- Integrated trip planning with EV carsharing options
- EV carpooling



## Before MOLECULES

**Electric cars: 300**  
**Plug-in hybrids: 10**  
**Electric motorbikes: 5**  
**Electric bikes: 1.000**  
**Electric vans: 50**  
**Charging points: 240**  
**Users: 20.475**



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# GRAND PARIS



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- **Company EV hiring**
- **Company EV sharing**
- **Electric carsharing**

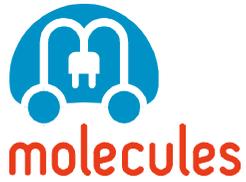


## Before MOLECULES

**Electric cars: 50-100**

**Charging points: 50**

**Users: 1.500**



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# BARCELONA



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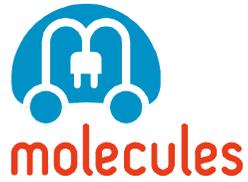
- Three Use Cases in Barcelona
- Fixed ChargingPoints
- Large Scale Cities focus: i.e. Barcelona City fully covered
- Integration with Barcelona Mobility
- Wide deployment already: 200 public EV, 234 charging points available, 5 hotels running Mobechehotel service,...



## Before MOLECULES

**Electric cars: 180**  
**Plug-in hybrids: 20**  
**Electric motorbikes: 30**  
**Charging points: 250**  
**Users: 3.450**





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# Contact Details



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- Thanks for your attention. Any questions?
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ETRA  
I + D