

A FLEXIBLE LOCATION PLANNING METHODOLOGY FOR EV CHARGING INFRASTRUCTURE



Quentin De Clerck, Lieselot Vanhaverbeke (MOBI – Vrije Universiteit Brussel)
Tommaso Schettini, Ola Jabali (ICOOR - Politecnico di Milano)
Montserrat Anglès, Stefano Persi (MOSAIC)

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eCharge4Drivers in a Nutshell



<https://echarge4drivers.eu/>

Call identifier: H2020-LC-GV-2018-2019-2020

Topic: GV-10-2017 “Demonstration (pilots) for integration of electrified L-category vehicles in the urban transport system”

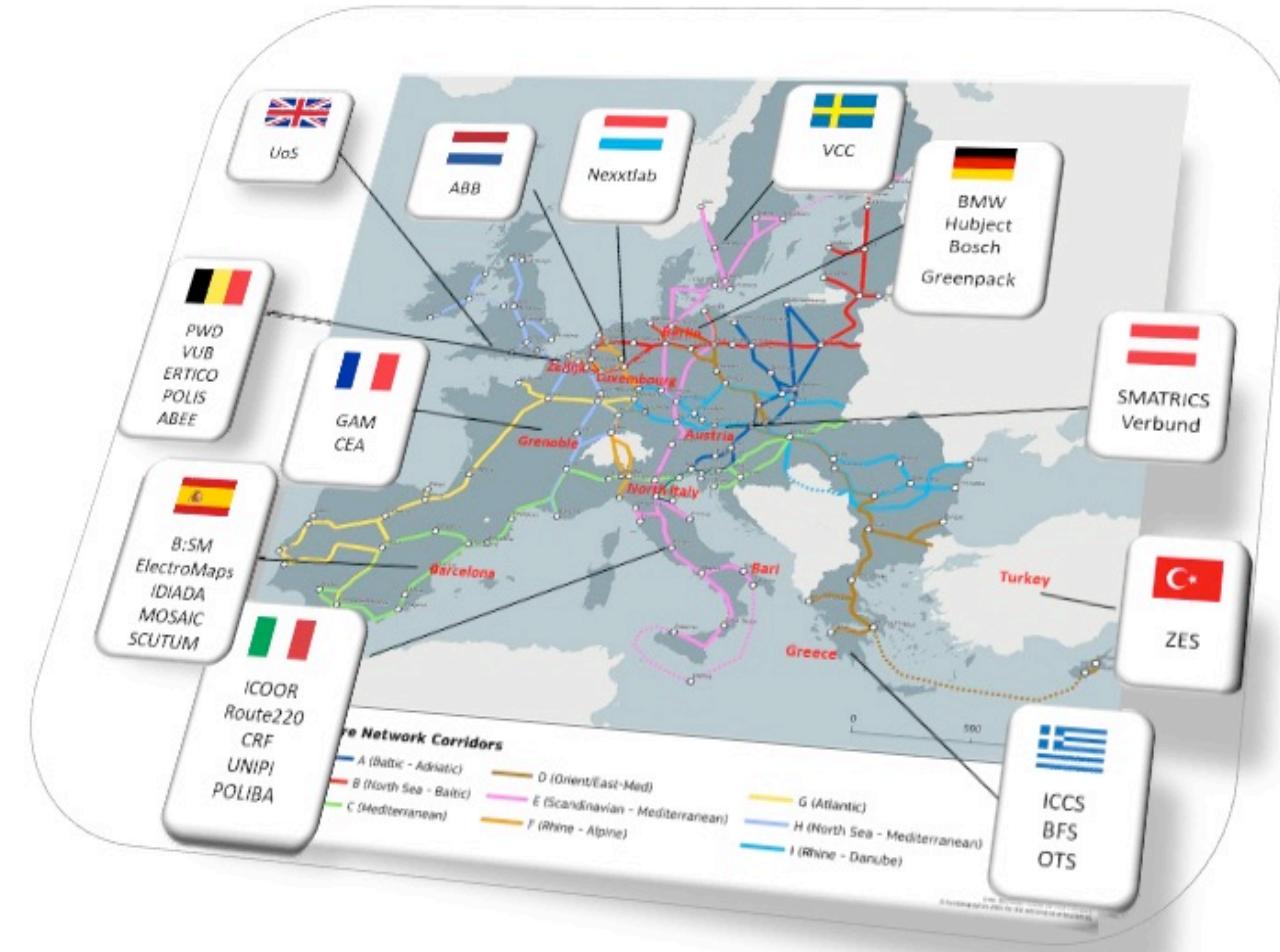
EC funding: 14,424,526.39 €

Duration: June 2020 – May 2024

12 countries - 31 Partners – 10 demonstration areas

SCOPE:

eCharge4Drivers aims to improve the Electric-Vehicle charging experience in urban areas and on interurban corridors towards promoting e-mobility concept and making it more convenient for users to go green by **developing and designing user-centric and interoperable charging solutions**.

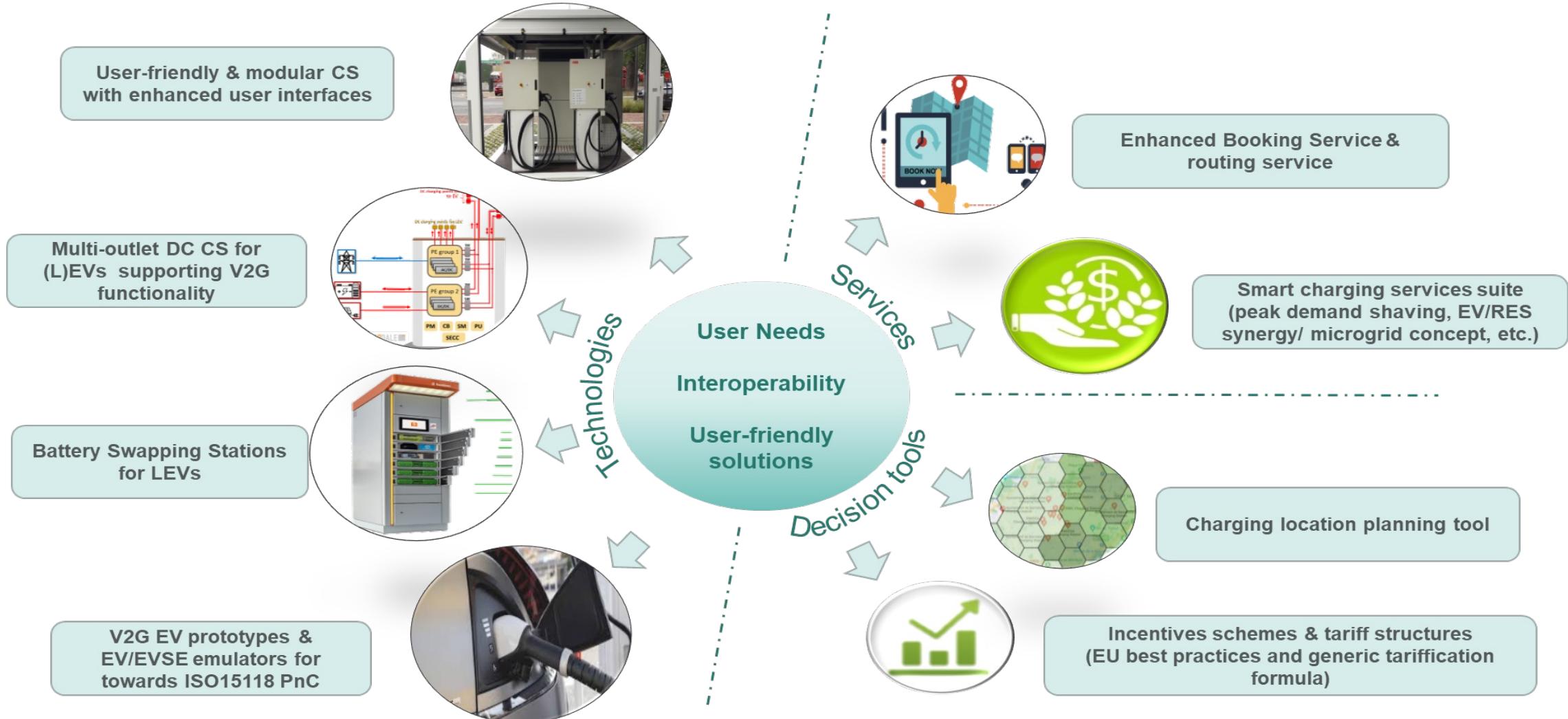


Strategic objectives

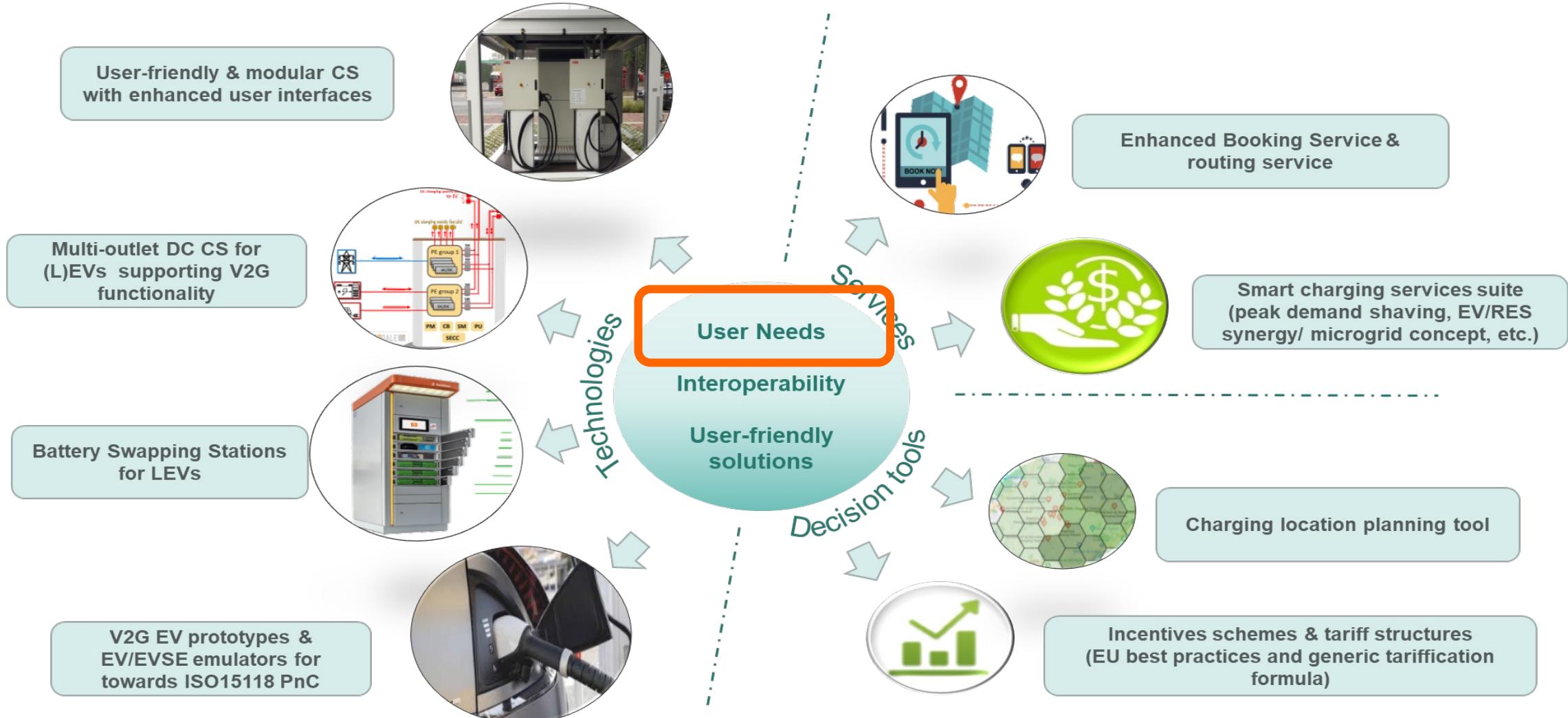


- O-1:** Understand the user needs so that the project charging solutions and services substantially **improve the user charging experience**
- O-2:** Develop and demonstrate **user-friendly and cost-efficient charging stations** for passenger vehicles and LEVs
- O-3:** Design and **demonstrate charging services and systems** serving diverse objectives and unlocking several business opportunities
- O-4:** Enable and demonstrate **interoperability of end-to-end communication** and provision of **enhanced information to the EV users**, before, during and after a charging session
- O-5:** **Propose mechanisms to accelerate the deployment** of charging infrastructure and other charging services in a sustainable and user-centric way (CP location planning tool, tariff/incentive schemes)

eC4D technologies & services



eC4D technologies & services



LARGE-SCALE SURVEY ON CHARGING BEHAVIOUR

- EV users, LEV users and non-EV users
- Austria, Barcelona, Bari, Berlin, Grenoble, Greece, Luxemburg, Northern Italy, Turkey, Zellik
- Q4 2020 – Q1 2021
- 2.966 valid responses (reach 4.703)



QUALITY OF EXPERIENCE PUBLIC CHARGING INFRASTRUCTURE

- Charging Infrastrure Satisfaction-diagnostic
- eMSP/CPO scores: on average 5,5 out of 7 (= 8/10)

Tangability
System Availability
Reliability
Privacy
Responsiveness
Contact
Compensation
Perceived Value
Loyalty
Customer Satisfaction

TAKE-AWAYS OF THE SURVEY

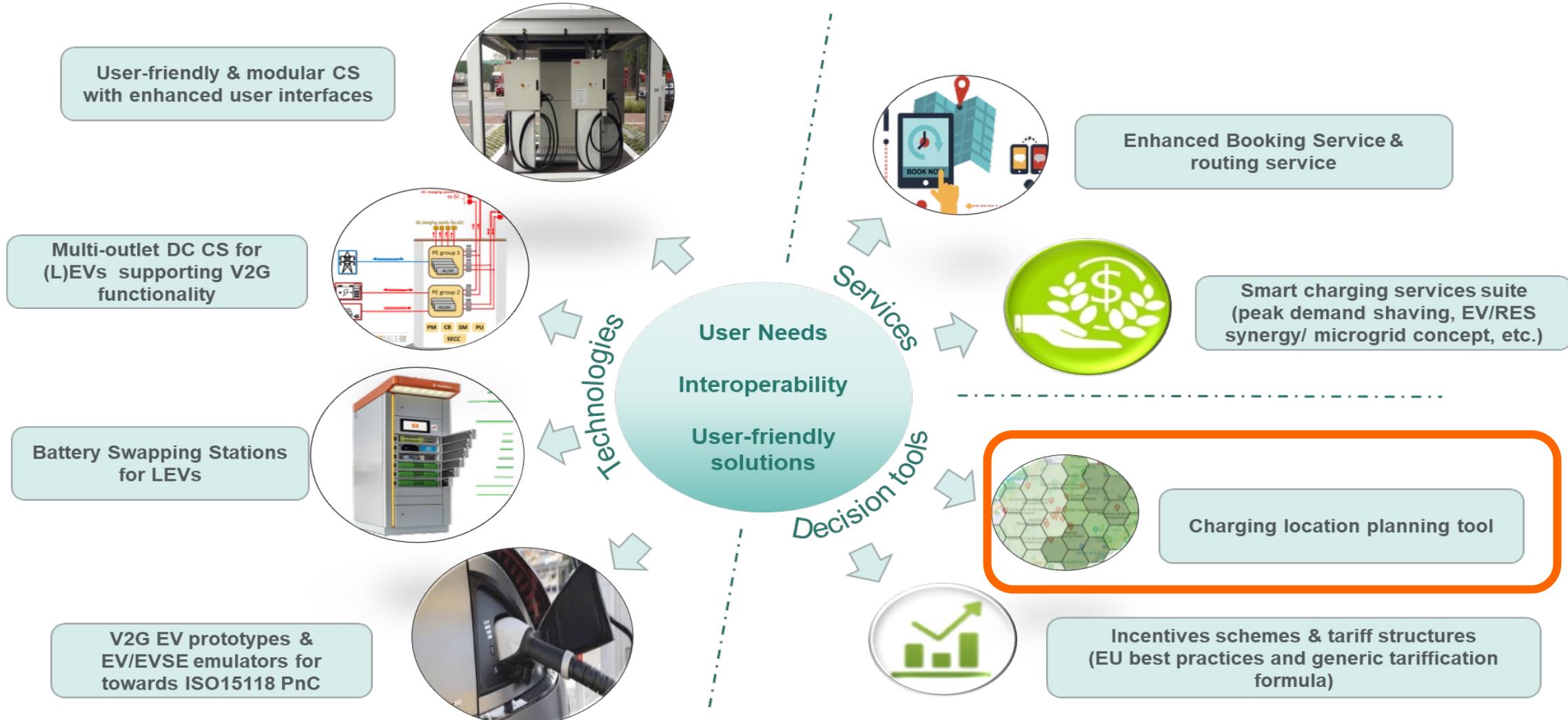
> Ideal charging session features:

- a charging pass that works immediately
- short connection and waiting time

> 70-90% EV drivers have currently acces to private charging point – how to plan for future roll-out of public infrastructure?



eC4D technologies & services



LOCATION PLANNING TOOL

KEY POINTS

- **Objective**

- support municipalities/regions without powerful tools or competencies in formulating charging infrastructure deployment plans

- **Main target users**

- Decision makers: municipalities, regions, transport/energy authorities, CPO's, eMSP's,...

- **Main functions**

- integrated a demand and location model
- a user-friendly webtool

- **Focus**

- public charging
- private cars

LOCATION PLANNING TOOL

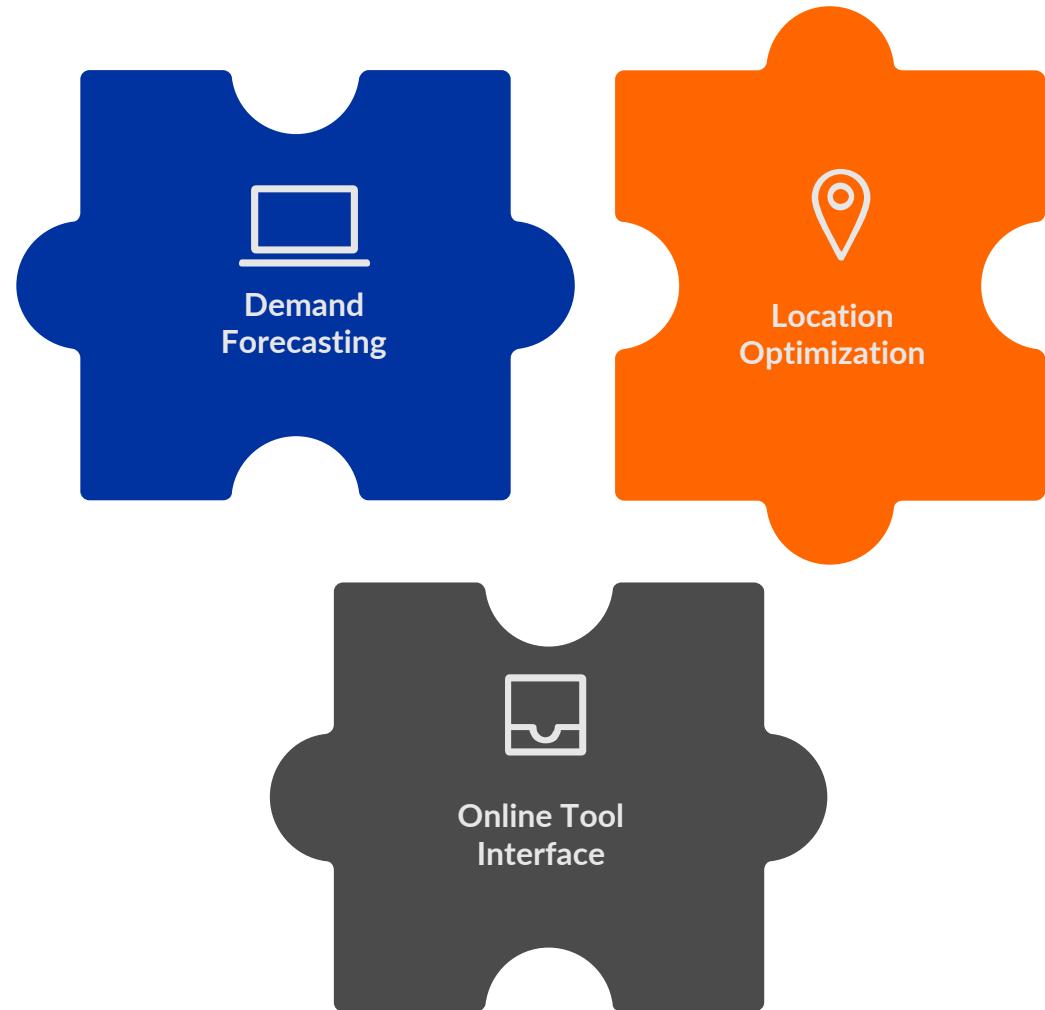
USER REQUIREMENTS

based on interviews and workshops
with future users

- **User-friendly**
 - easy to use and to interpret, user-friendly online GUI
- **Generally applicable**
 - use of generally available data – usually through local/regional geo-information platforms
 - if available – takes into account current charging infrastructure usage
 - tailored to user with input parameters
- **Outcomes**
 - strategic planning insights on the level of zones
 - exact positions to be determined in consultation with all relevant stakeholders
- **Validated in the project**
 - on the pilot sites of Luxembourg, Barcelona, Northern-Italy

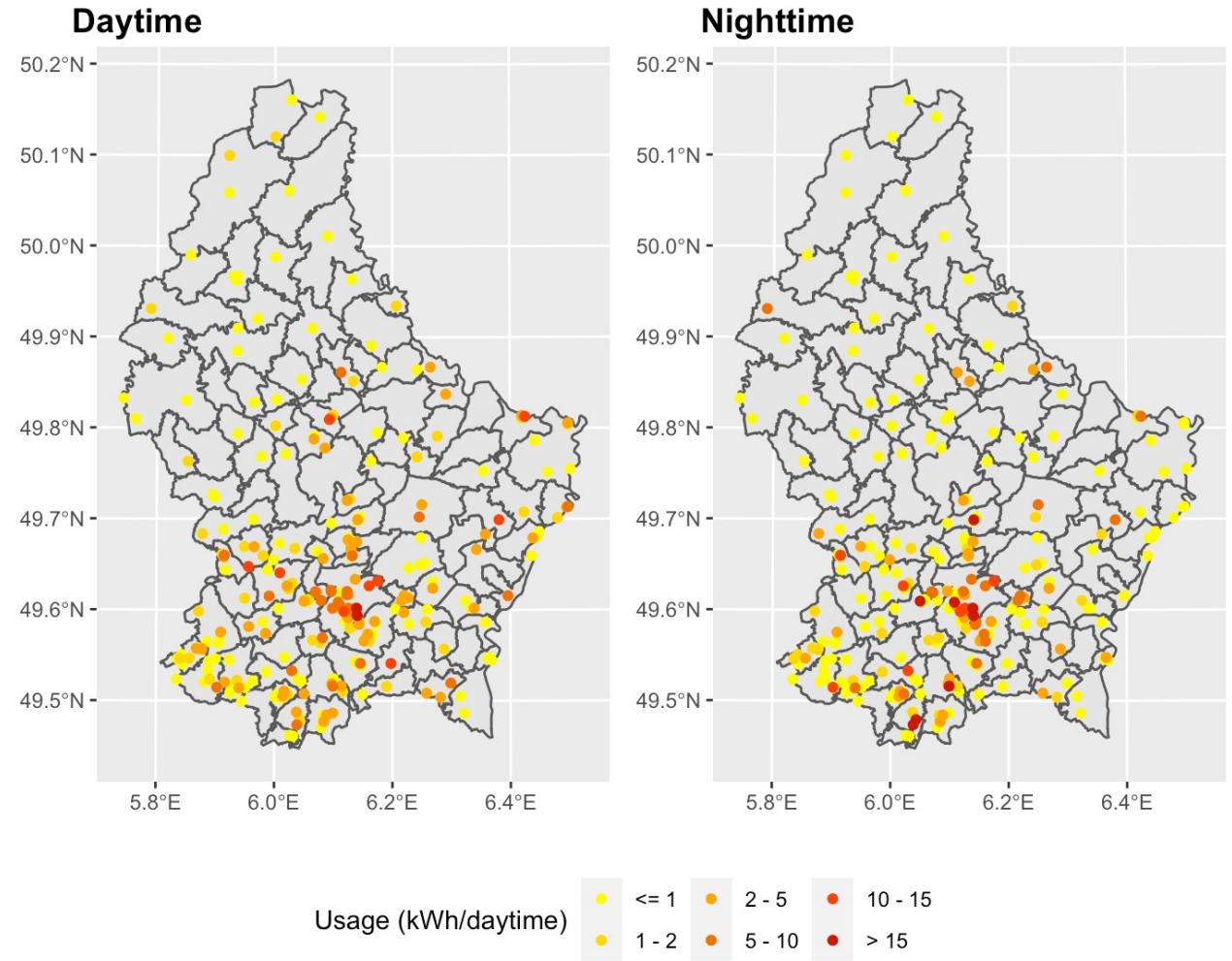
Charging Location Planning Tool:

3 modules



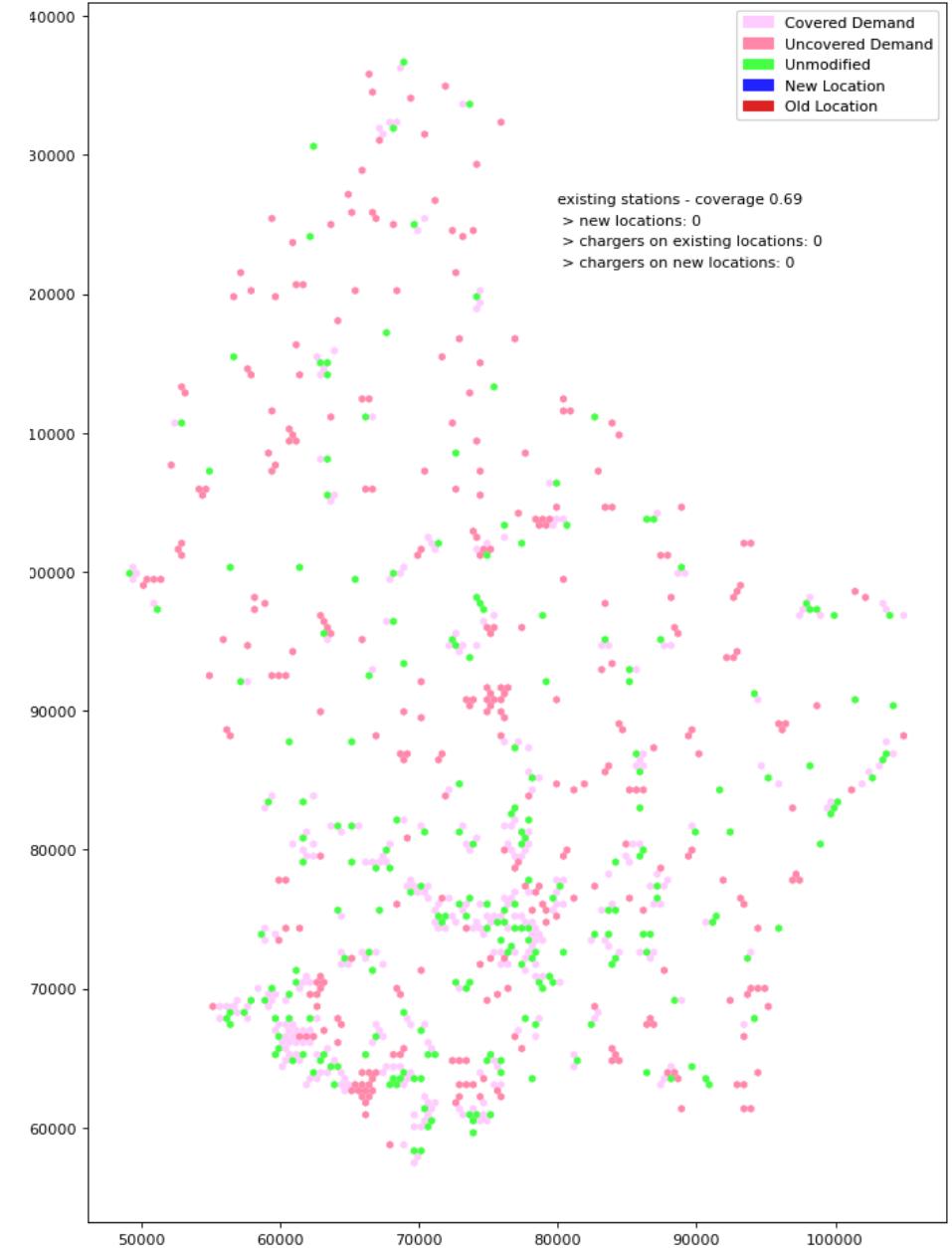
DEMAND FORECASTING MODULE

- > Demand forecasting based on generally available geo-information and socio-demographic data and (if available) charging data
- > Predictive modelling approaches for zones (hexagons)
- > Normal / Fast charging
- > Day / Night



LOCATION OPTIMISATION MODULE

- > based on the demand forecasting model output
- > takes into account – if applicable – existing and planned charging infrastructure and/or candidate locations
- > maximizes overall service level



ONLINE TOOL INTERFACE



LOCATION PLANNING TOOL

Welcome to the location planning tool!



I am XX and I will guide you through the app.

First we will analyse the demand in your zone and later we will recommend you the best places to locate the charging points.

Could you please tell me the area you want to work with?

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Contact details:

Angelos Amditis
Project Coordinator
ICCS
a.amditis@iccs.gr

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ONLINE TOOL INTERFACE

eCHARGE 4DRIVERS

Budget

8 Expected budget euros

OR

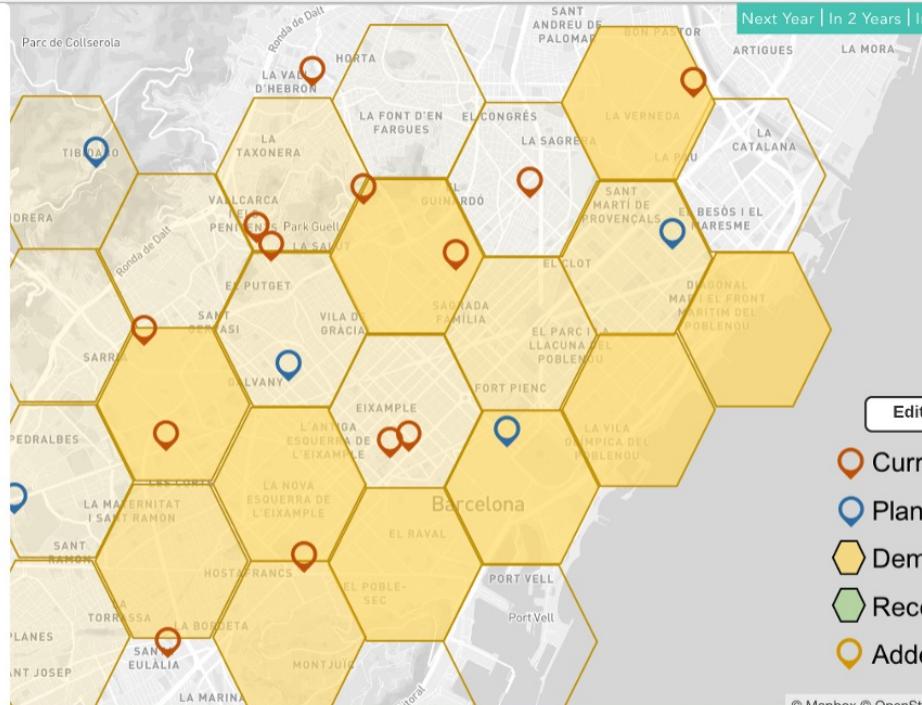
Number of Type 2 charging points

Number of Fast charging points

9 Period of time 5 years

 You can exclude zones by clicking "Edit" on the map

Continue



LOCATION PLANNING TOOL

Next Year | In 2 Years | In 5 Years | In 10 Years

Edit

- Current
- Planned
- Demand
- Recommended
- Added

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Contact details:   Angelos Amditis
Project Coordinator
ICCS
a.amditis@iccs.gr

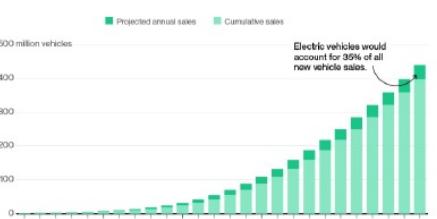
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ONLINE TOOL INTERFACE



LOCATION PLANNING TOOL

Future scenarios



Electric vehicles would account for 95% of all new vehicle sales.

Year	Projected annual sales (000s)	Cumulative sales (000s)
2015	1	1
2020	10	10
2030	100	100
2040	420	420

Choose the demand scenario:

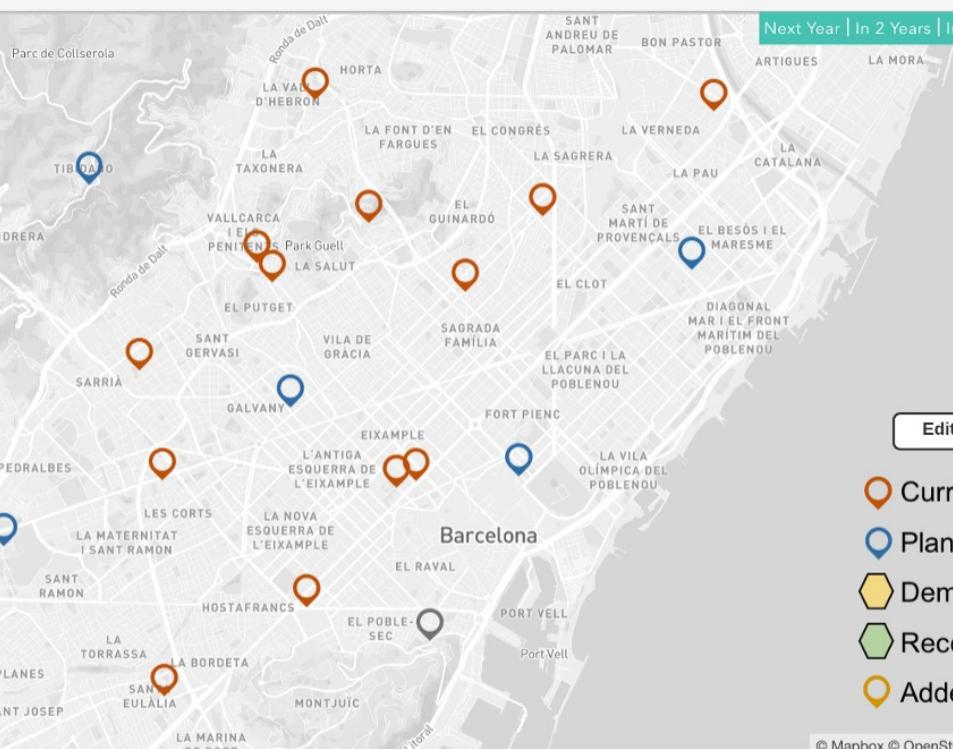
- lower
- BAU
- higher
- Custom [Text](#)



7

Continue

LOCATION PLANNING TOOL



Map of Barcelona showing locations for different vehicle types. The map includes labels for various neighborhoods and landmarks. A legend on the right side identifies the markers:

- Current (Orange pin)
- Planned (Blue pin)
- Demand (Yellow pin)
- Recommended (Green pin)
- Added (Yellow pin)

Legend buttons at the top right: Next Year | In 2 Years | In 5 Years | In 10 Years

Map labels include: Parc de Collserola, Ronda de Dalt, HORTA, LA VALL D'HEBROM, LA TAXONERA, LA FONT D'EN FARGUES, EL CONGRÈS, SANT ANDREU DE PALOMAR, BON PASTOR, ARTIGUES, LA MORA, TIBIDABO, IDRERA, Ronda de Dalt, VALLCARCA, I FES, PENITENTS Park Guell, LA SALUT, EL GUINARDÓ, SANT MARTÍ DE PROVENÇALS, EL BESÓS I EL MARESME, EL CLOT, SAGRADA FAMÍLIA, EL PARC I LA LLACUNA DEL POBLENOU, DIAGONAL MAR I EL FRONT MARÍTIM DEL POBLENOU, SANT GERVASI, VILA DE GRÀCIA, GALVANY, EIXAMPLE, L'ANTIGA ESQUERRA DE L'EIXAMPLE, LA NOVA ESQUERRA DE L'EIXAMPLE, FORT PIENC, LA VILA OLÍMPICA DEL POBLENOU, PEDRALBES, LES CORTS, LA MATERNITAT I SANT RAMON, SANT RAMON, EL RAVAL, PORT VELL, PortVell, L'LANES, LA TORRASSA, SAN EULÀLIA, MONTJUÏC, LA MARINA DE PORT, HOSTAFRANCS, EL POBLE-SEC, Litoral, SANT JOSEP.

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Contact details: Angelos Amditis, Project Coordinator, ICCS, a.amditis@iccs.gr

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THANK YOU!

Contact:
lieselot.vanhaverbeke@vub.be



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info@echarge4drivers.eu



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