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Interoperable Inductive Charging for Electric Vehicles

Joint EC & EGVIA workshop for advanced automotive batteries research, Brussels

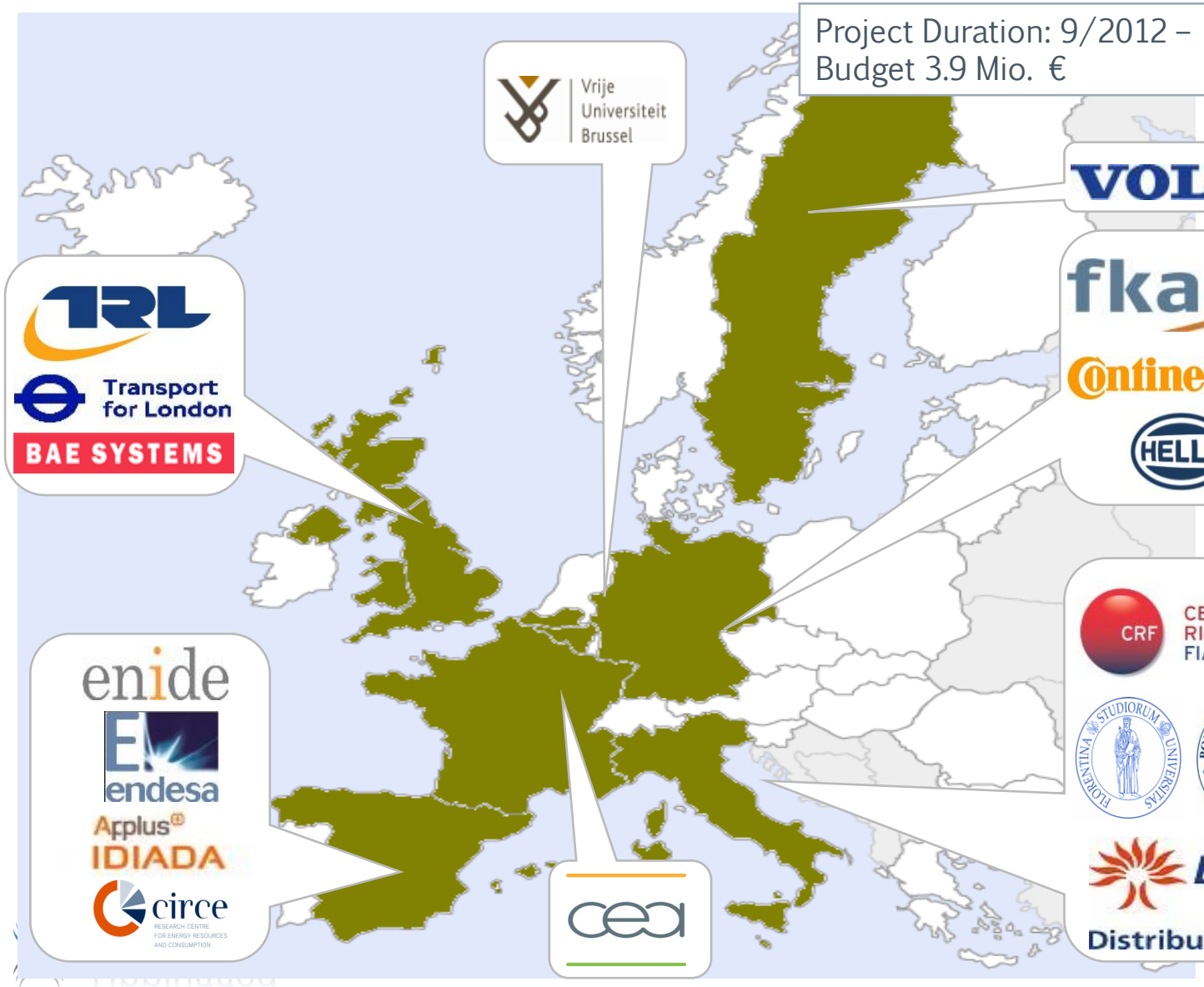
SEVENTH FRAMEWORK PROGRAMME

Project Objectives

- Inductive charging in *different power* classes and *vehicle types*
- *Interoperability* on different levels
- *Technical feasibility* of wireless charging scenarios
- *Socio-economic aspects* of wireless charging
- *Standardization* of wireless charging

Consortium

Project Duration: 9/2012 – 3/2015
Budget 3.9 Mio. €



Vrije Universiteit Brussel

VOLVO

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HELLA

TRL

Transport for London

BAE SYSTEMS

enide

endesa

Applus

IDIADA

circe

cea

CRF CENTRO RICERCHE FIAT

Enel Distribuzione

Advisory Board

BOMBARDIER

APTS Advanced Public Transport Systems bv

TOYOTA

AVERE

TNO innovation for life

POLIS

RENAULT

COMUNE DI FIRENZE

Ajuntament de Barcelona

Charging Scenarios

› STATIC charging

- The vehicle is not moving for a medium/long period of time (>5 minutes)
- The driver does not intend to use the vehicle soon
- Scenarios: Parking at home / the office / the supermarket etc.

› STATIONARY charging

- The vehicle is not moving for a short period of time (<5 minutes)
- The driver is likely still on the vehicle, on the way to his/her target location or intends to use the vehicle again very soon
- Scenarios: Traffic light, Bus stop, Taxi stand, Delivery truck

› DYNAMIC charging

- The vehicle is moving
- The driver is on the way to his/her target location
- Scenarios: Highway, Strategically chosen roads

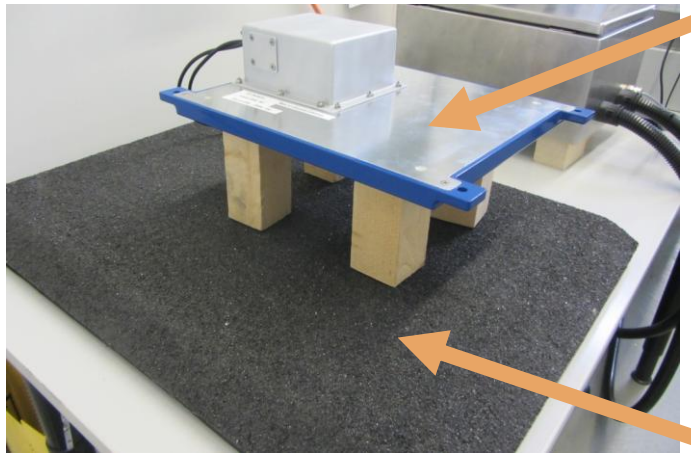
UNPLUGGED and European Research on Wireless Charging

Charging Systems

Passenger Car System @ 3.7kW

Commercial Vehicle System @ 50kW

Vehicle Pickup



Primary Coil

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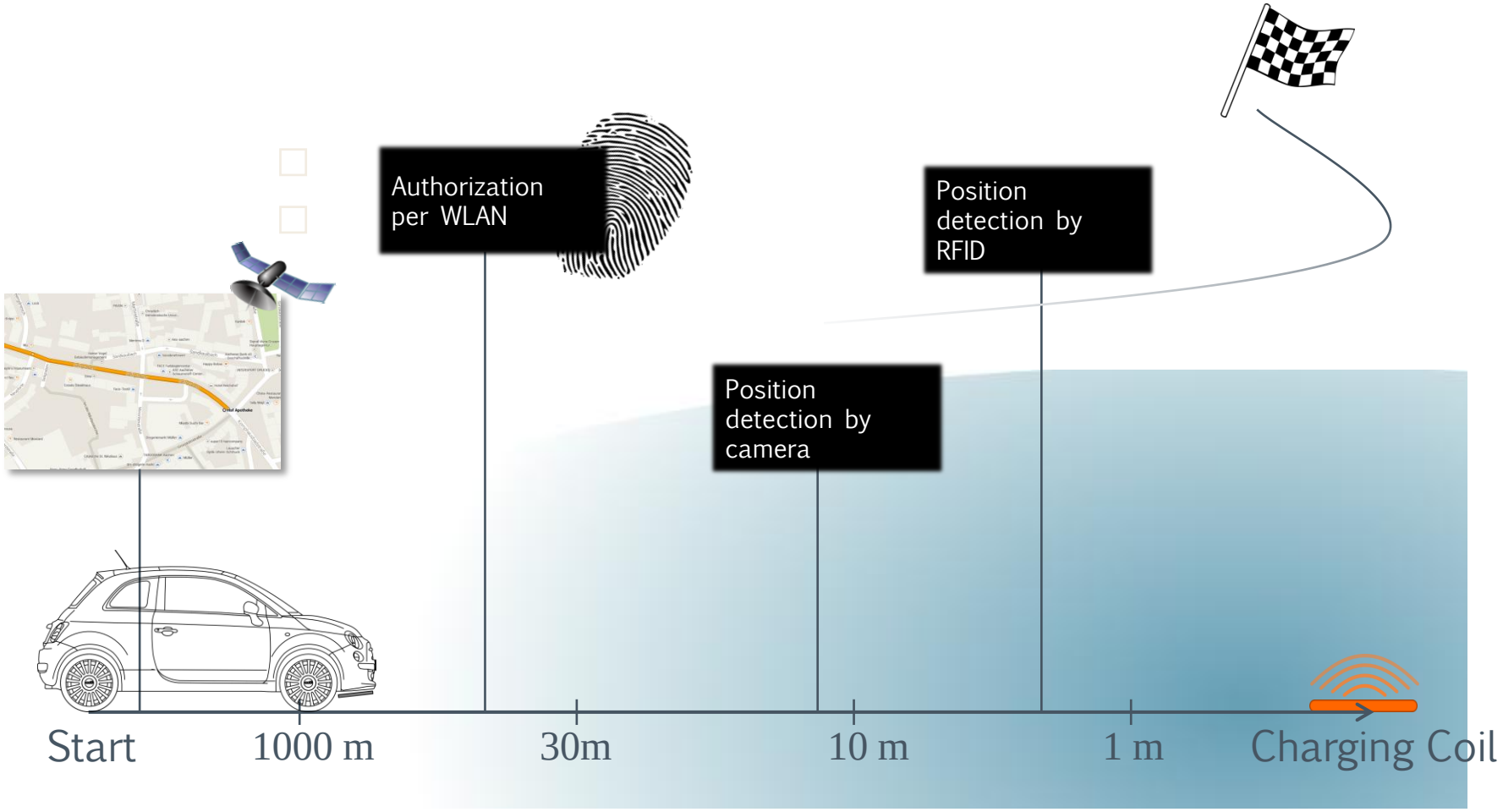
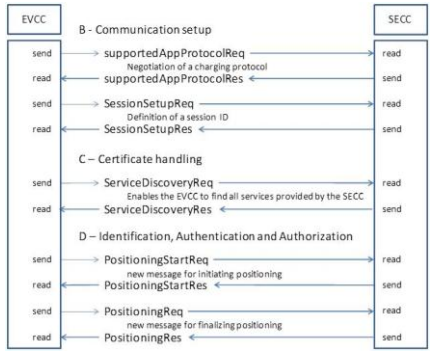
Communication/Positioning





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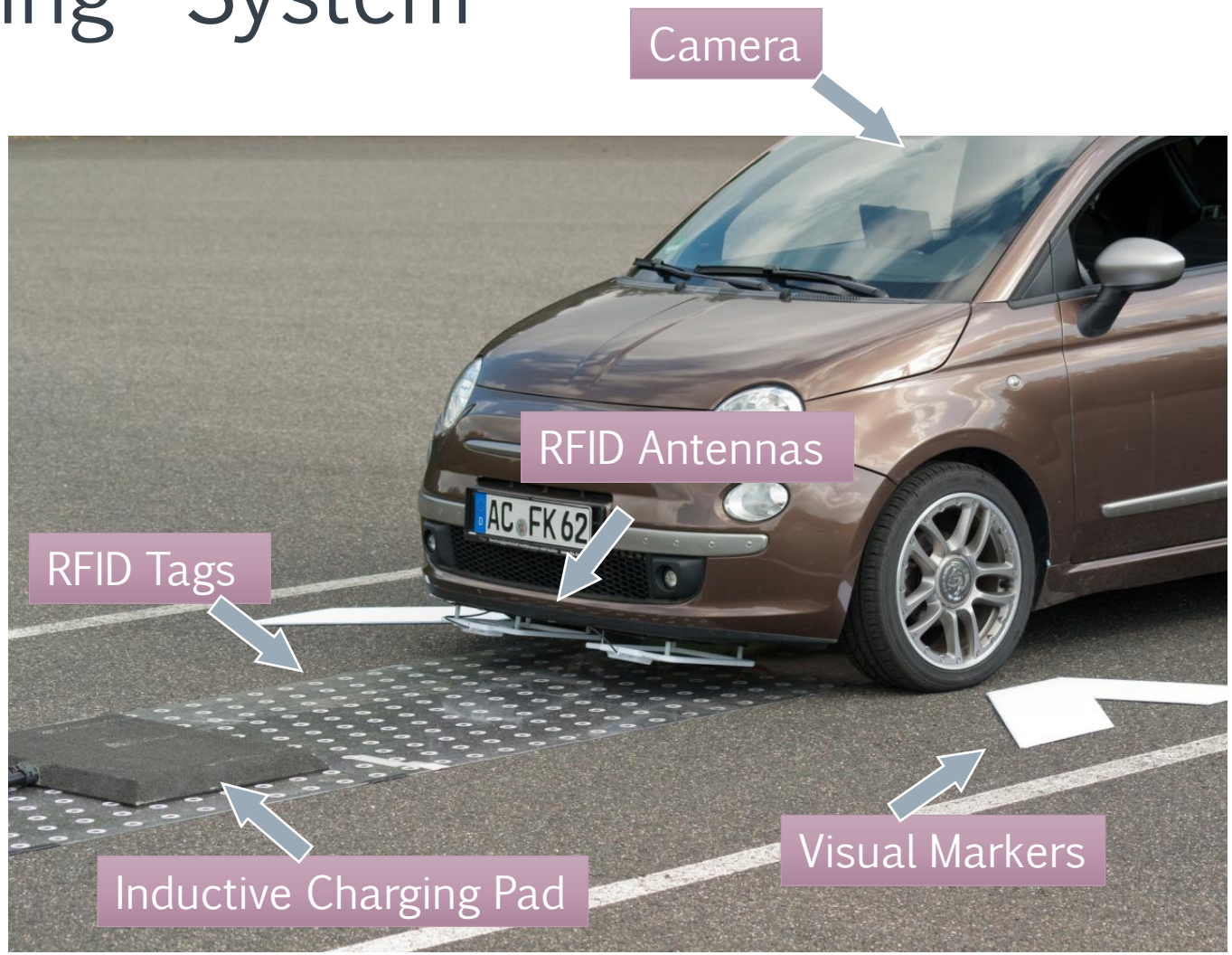
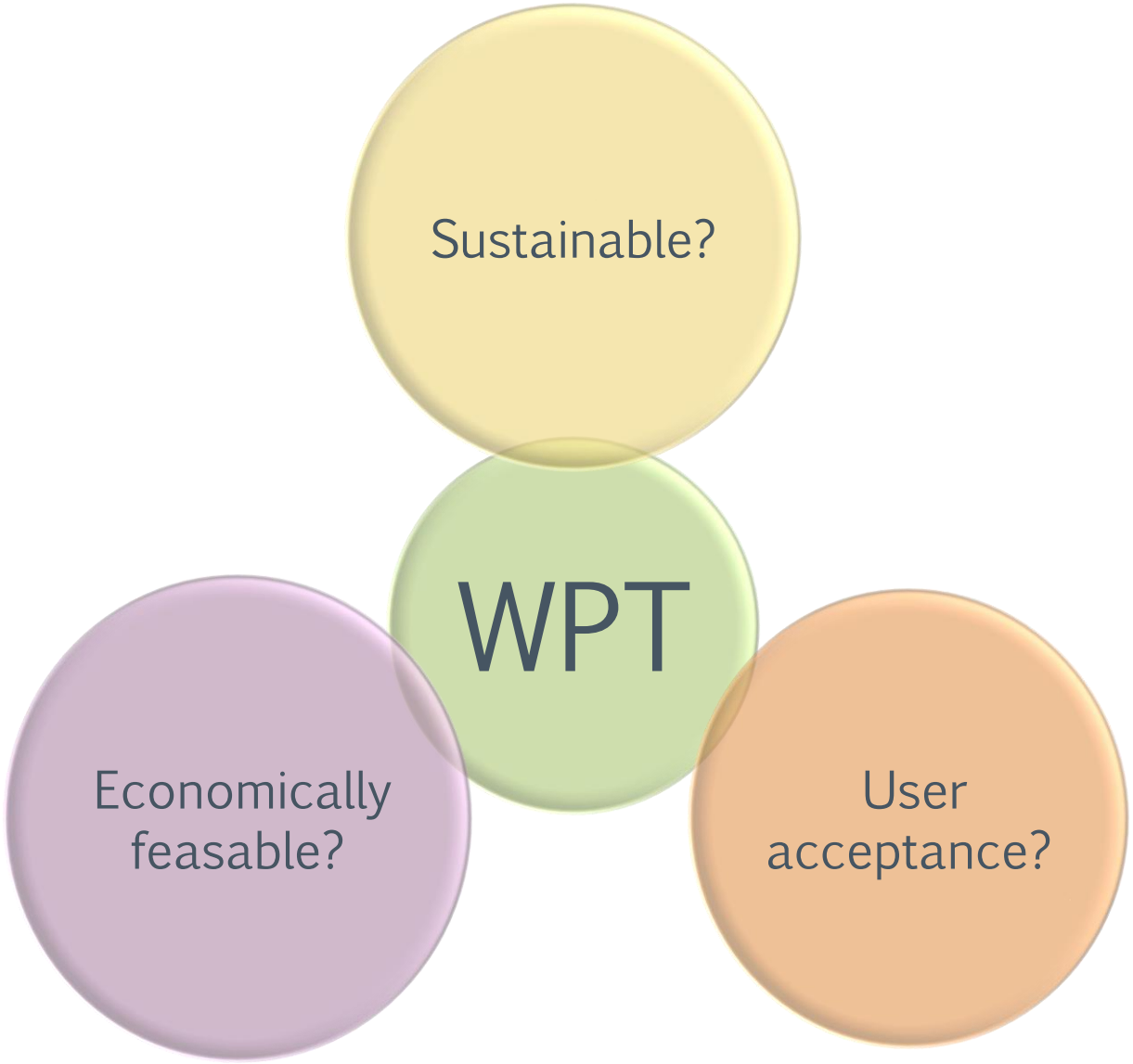
Positioning System



Socio-economic impact



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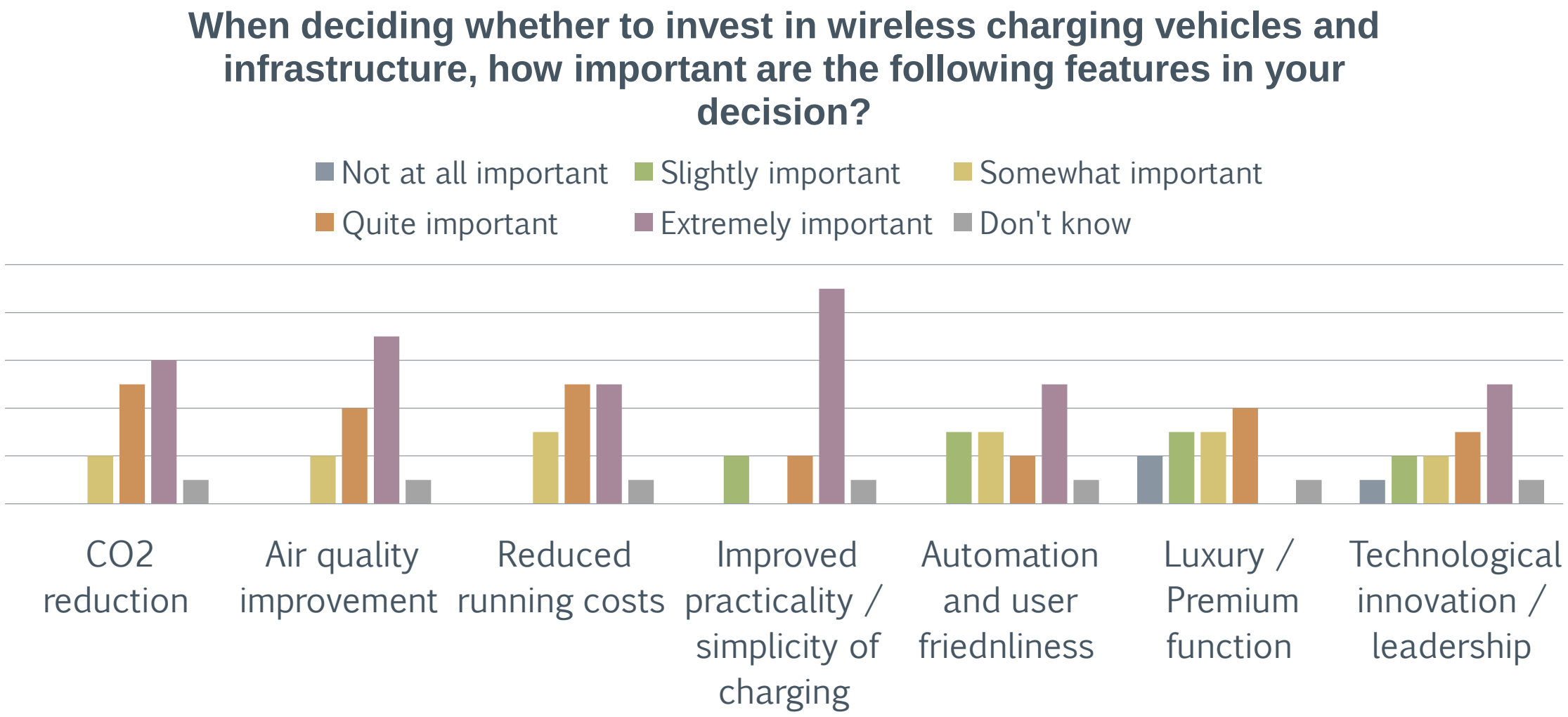
Social Acceptance

Analysis of impact and questionnaire for users/manufacturers/service providers



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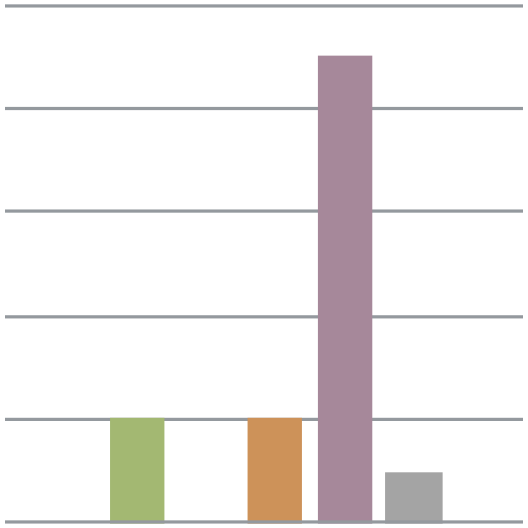
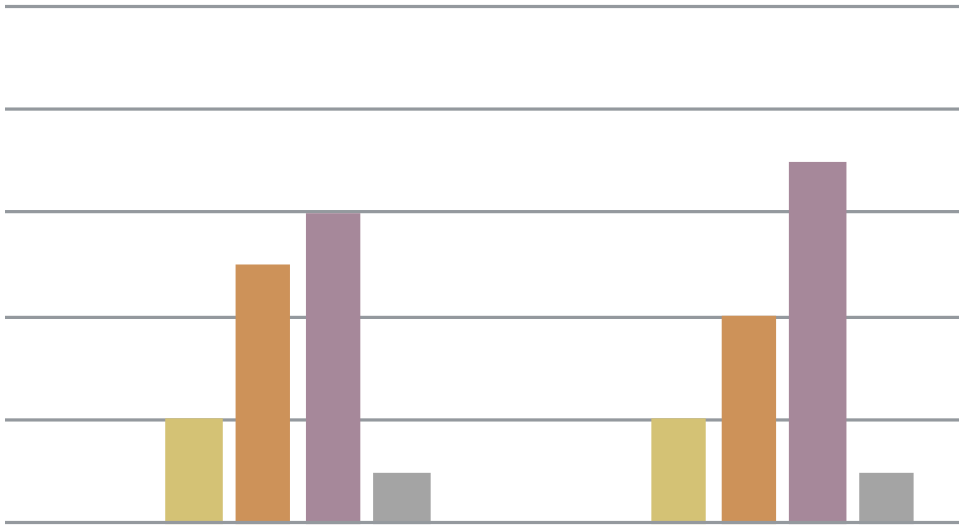


Improved practicality / simplicity of charging

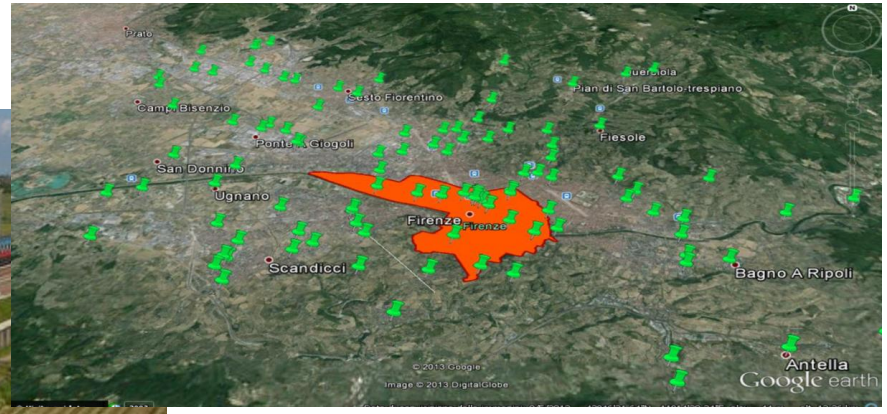


CO2 reduction

Air quality improvement

Socio-economic impact

- Stationary en-route charging
  - For personal vehicles: high number of infrastructure needed in order to satisfy the users needs
  - Public service with terminal stop charging
    - Drastic reduction of battery size for urban busses
    - Reduction of ownership cost
    - Feasable approach elaborated for city of Florence (Italy) for whole city transport



http://unplugged-project.eu/

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