



The 27th **INTERNATIONAL
ELECTRIC VEHICLE
SYMPOSIUM & EXHIBITION.**

Barcelona, Spain
17th-20th November 2013

Added Value Services for EV charging management

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tecnalia  Inspiring
Business

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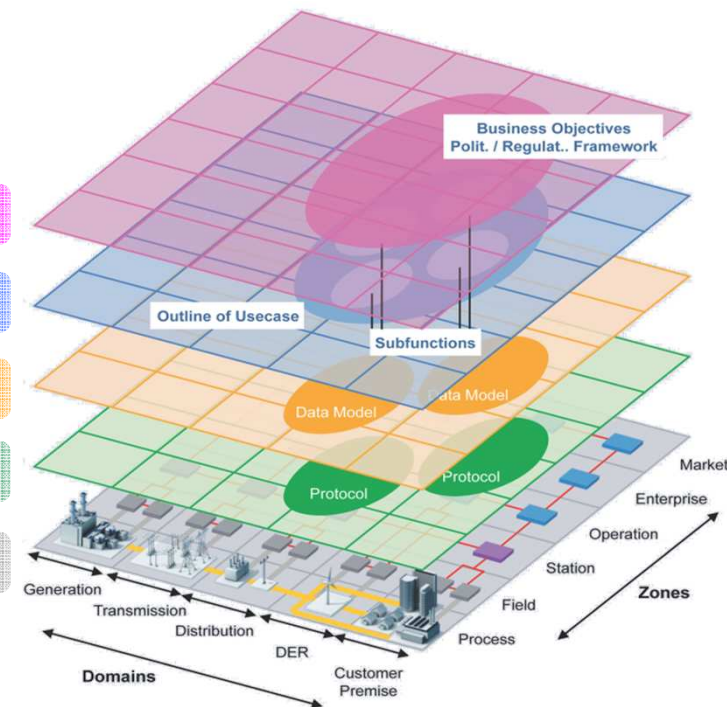
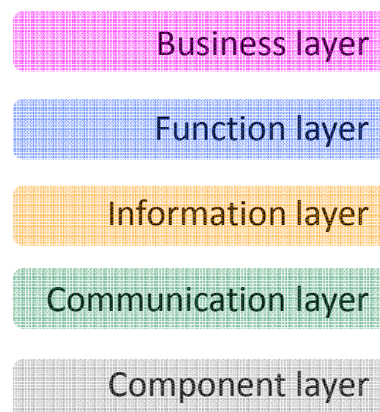
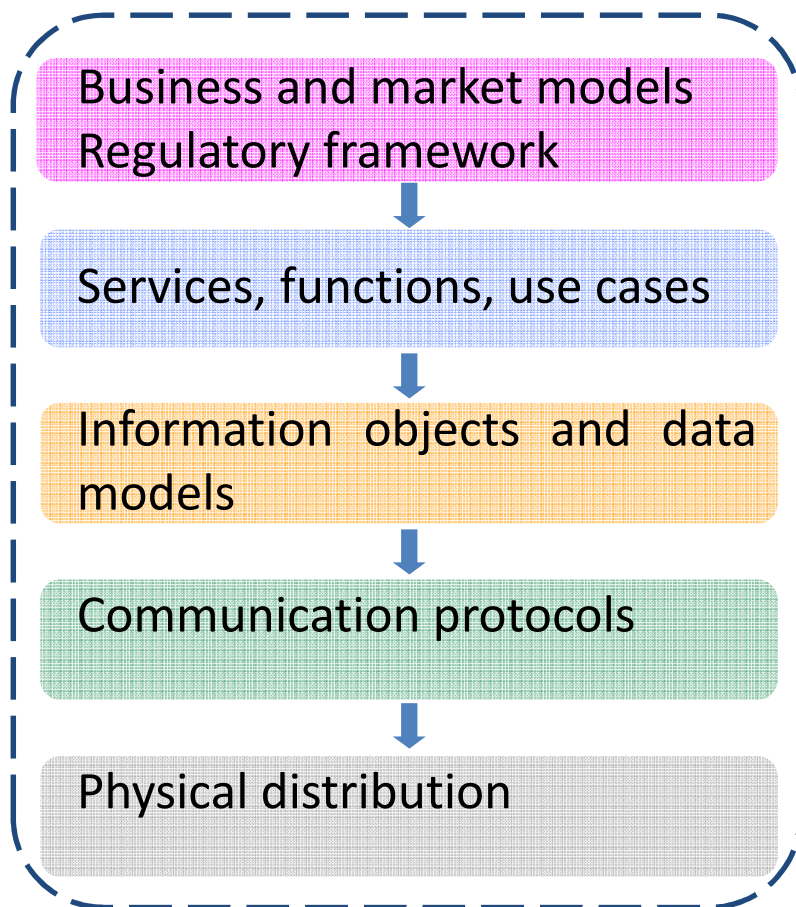
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Layers of SGAM framework
CENELEC – Reference Architecture for the Smart Grid

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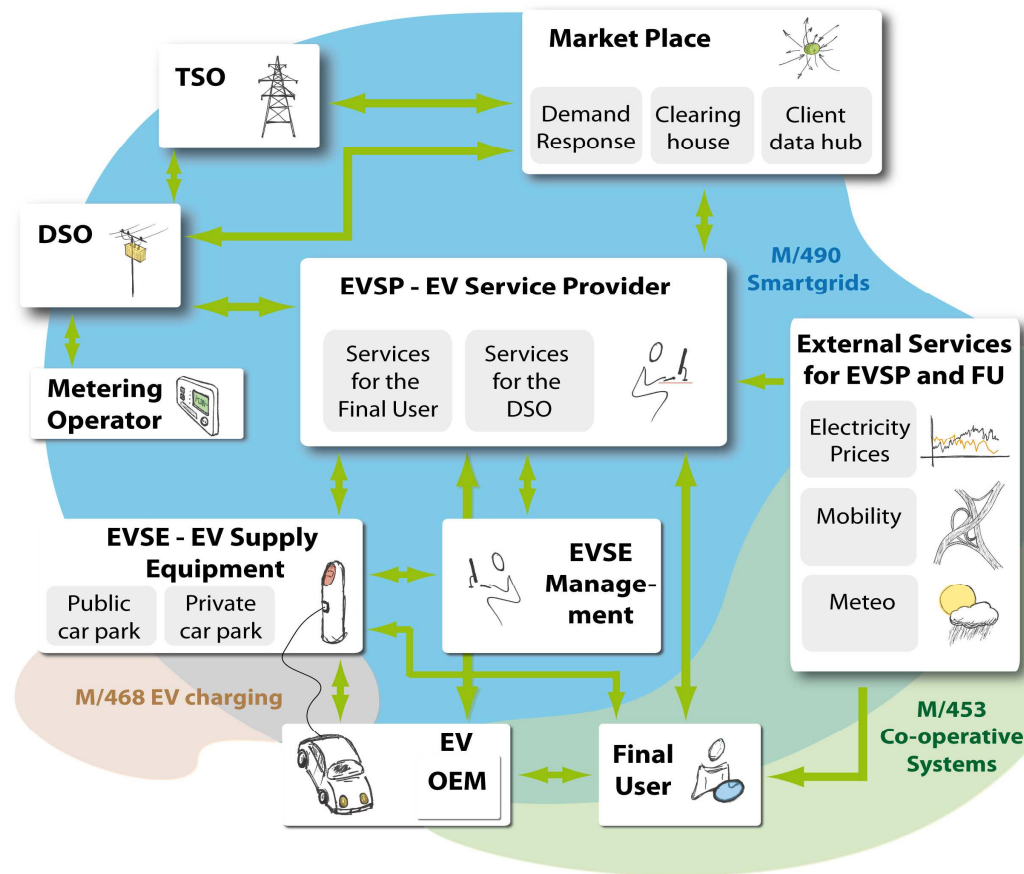
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COTEVOS EU project Scheme

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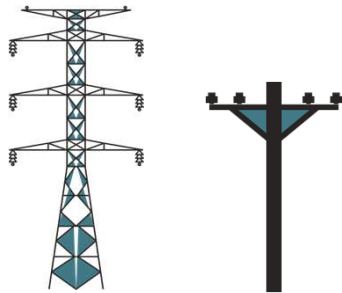
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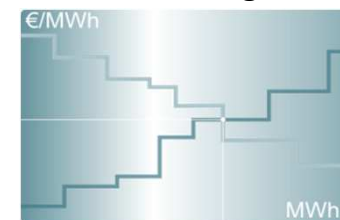
Network regulation

- Demand response (tariffs, d/i control...)
- Network operation procedures
- Low voltage code (infrastructure)
- Distribution activity economic compensation
- New actors definition

Aggregator

- Wholesale electricity market
- Balancing markets
- Ancillary services markets
- Demand markets

Market Design



- Support schemes, benefits for EV drivers
- Competence protection
- Administrative requirements, taxes

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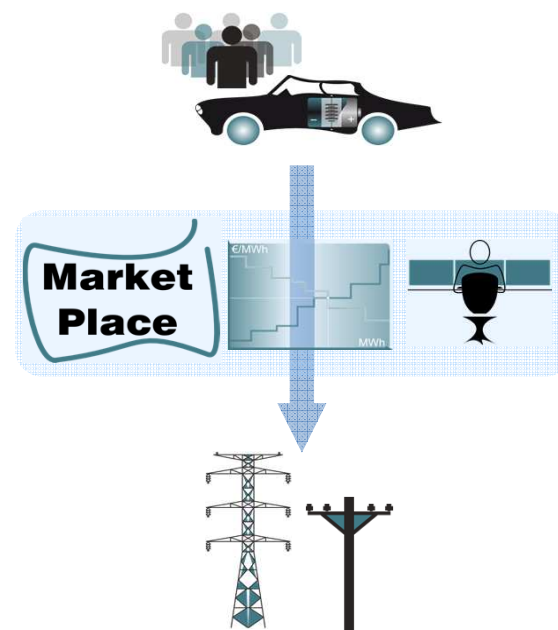
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For EV users



For the network



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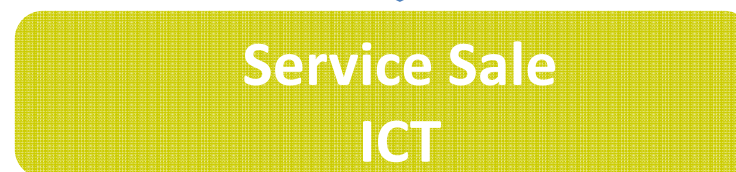
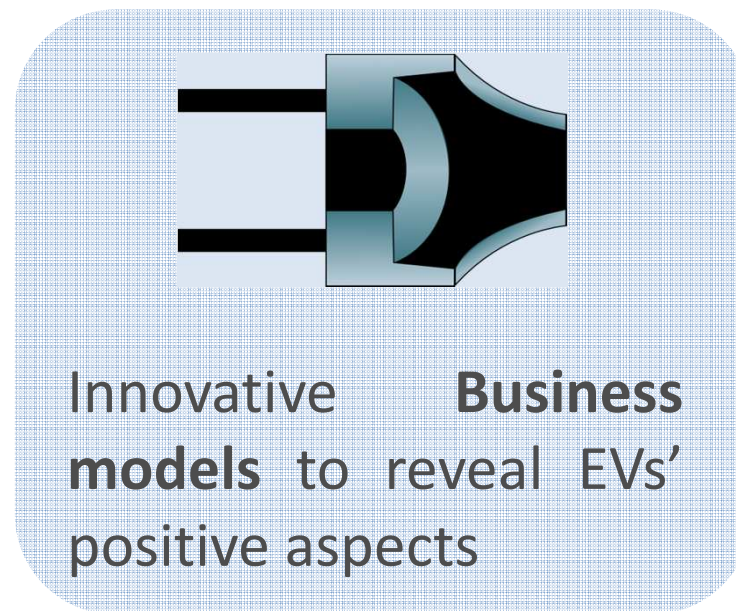
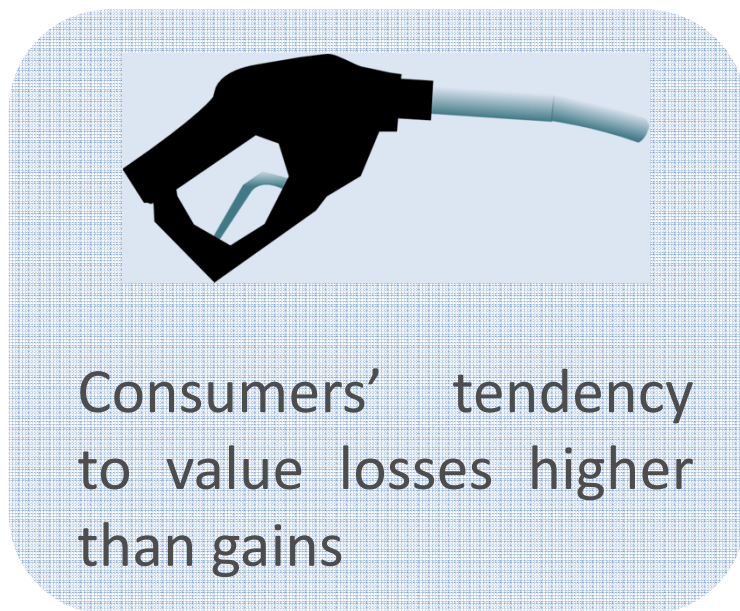
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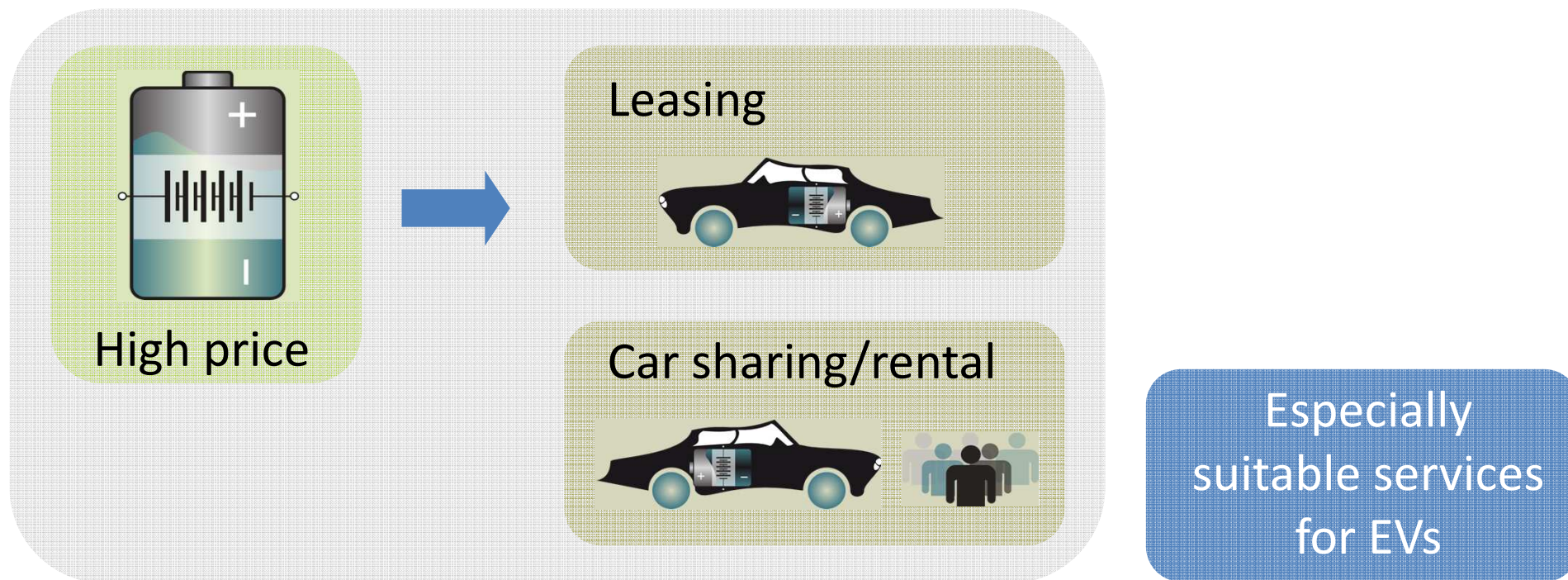
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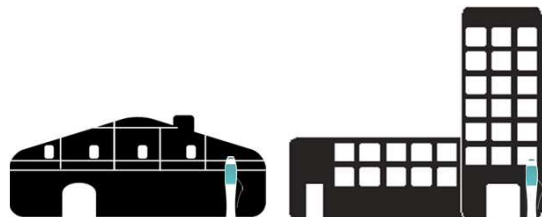
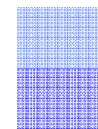
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Private

Semi-public

Public

Cost



Competition



Smartness



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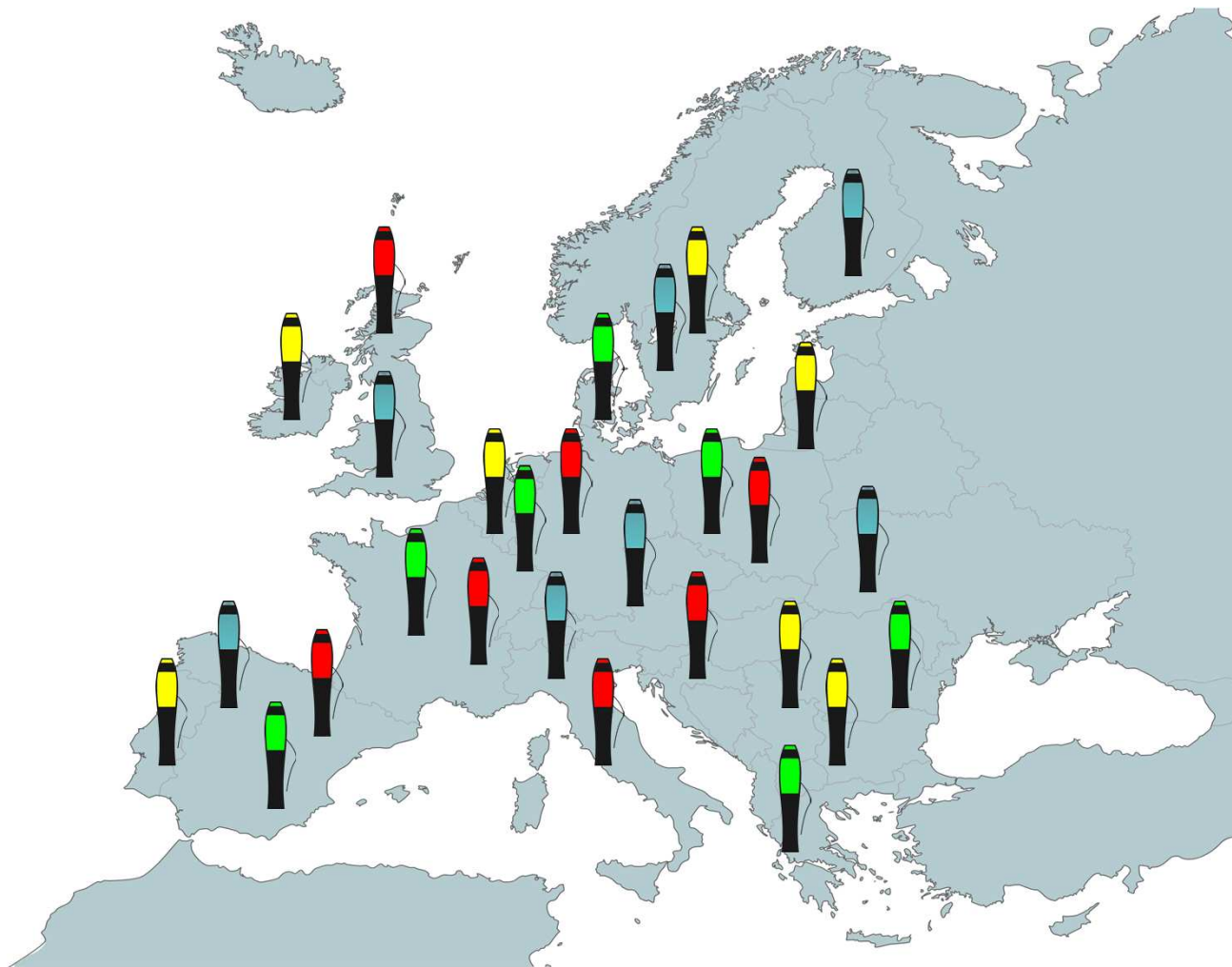
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Big companies able
to cover wide areas

Standard solutions
adopted by markets



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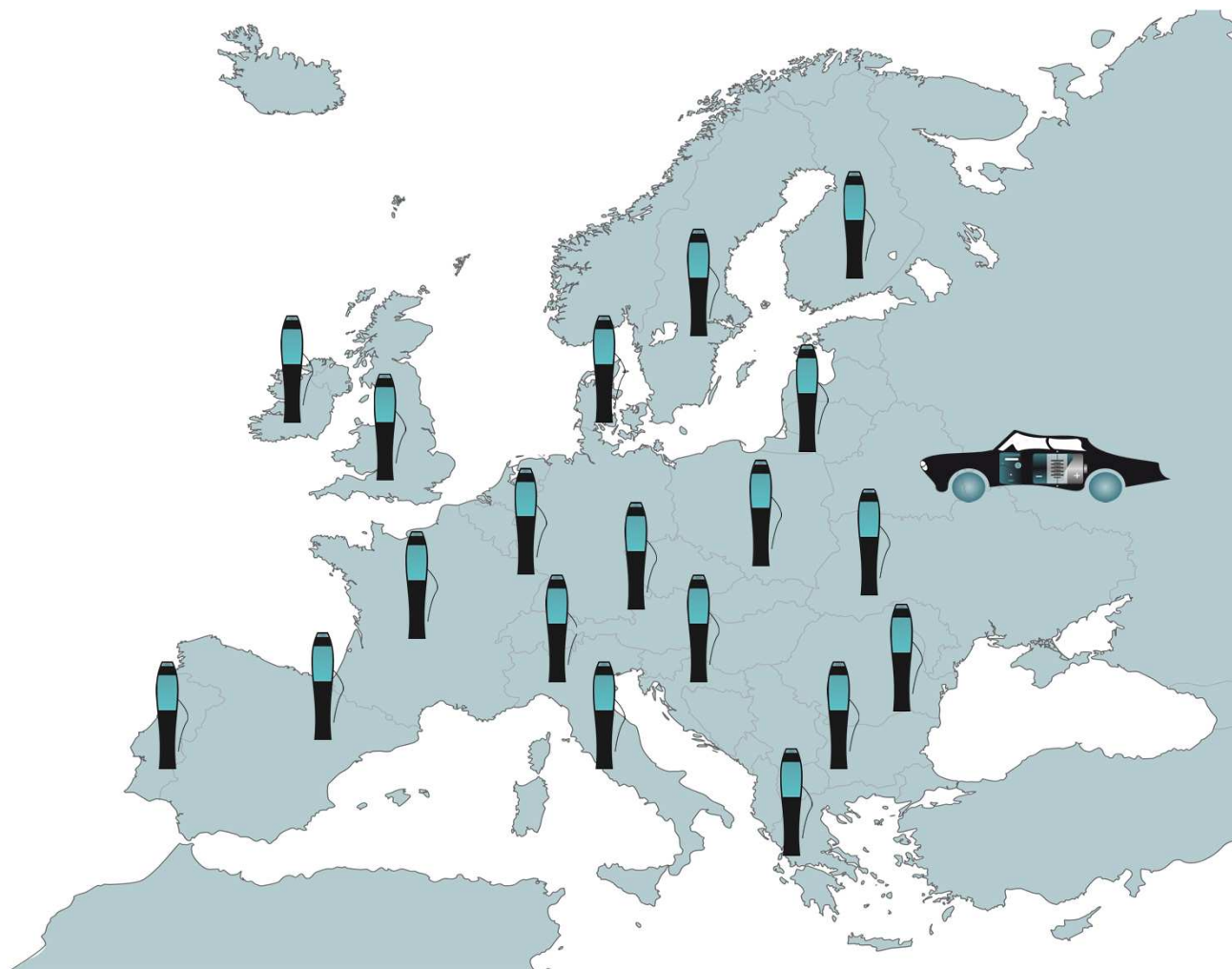
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Interoperability of services providing:

- Transparent and efficient services
- Comfort in long trips
- Expected overall lower costs



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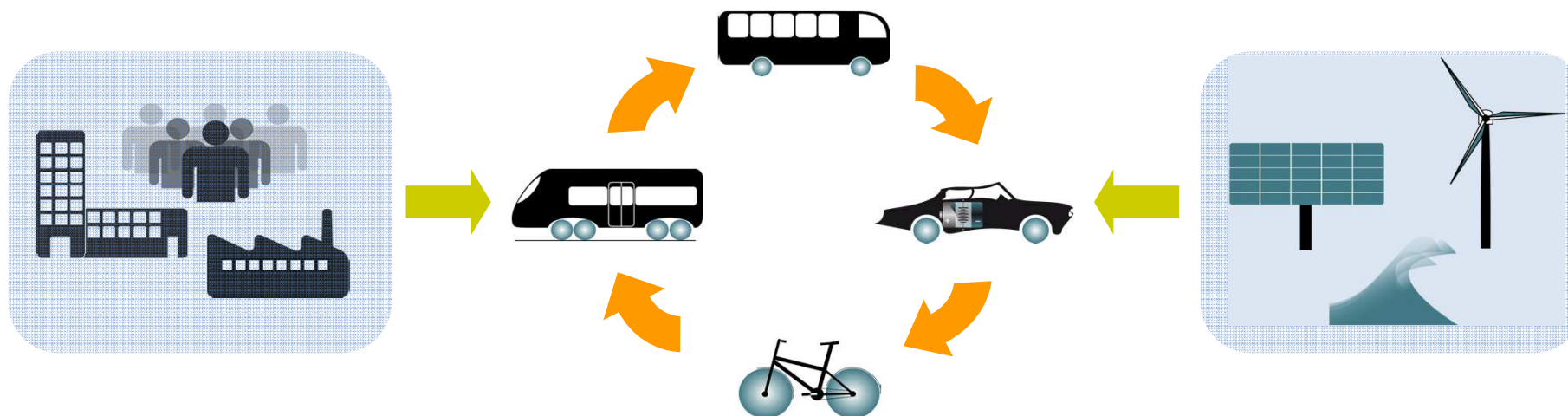
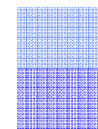
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EV as part of a global sustainable approach

Solutions offering new mobility concepts

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Billing and sustainability report access
EV interior preconditioning, SOC monitoring
Charging station location and reservation

EV specific

Vehicle diagnostics
Real time traffic information, meteo
Emergency assistance

Navigation
& Tele.

Vehicle locator
Vehicle access (smart phone as a key)

Access &
Security

Car sharing vehicle location and reservation
Multimodal transport information

Mobility

News
Social networking
Internet purchases

Entertainm
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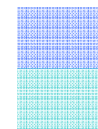
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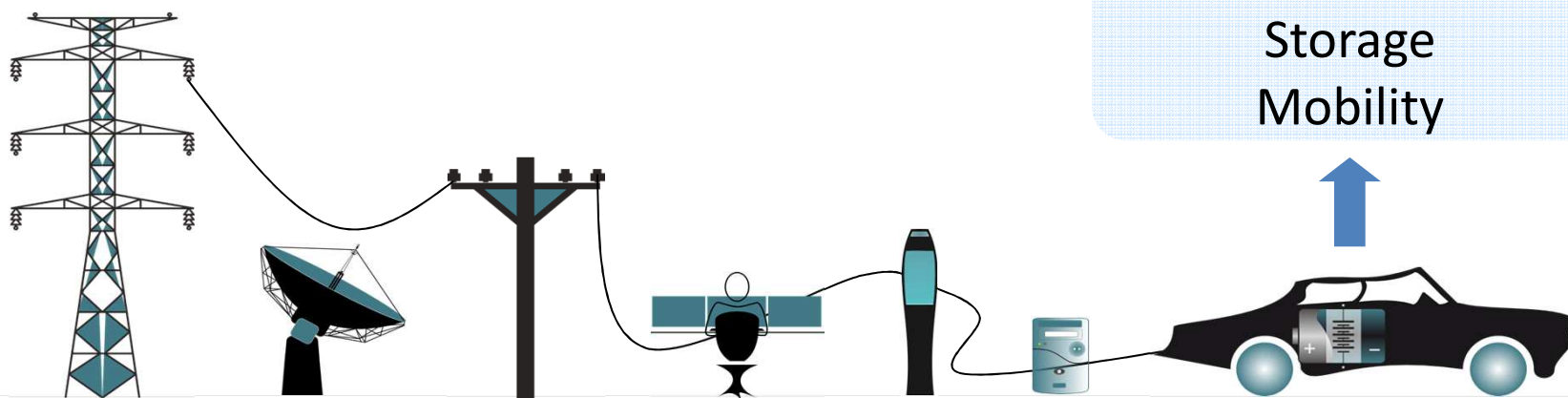


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Operation
Planning
Service Provision
vs.
Negative Impact

Charge Flexibility
Storage
Mobility



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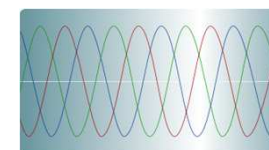
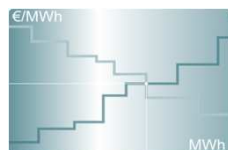
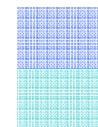
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Wholesale market

V2G and aggregation necessary
Energy sale
Storage to compensate generation forecast

Ancillary Services

Primary and Secondary regulation
Deviation management
V2G: Q power, voltage control, ride through capability

Demand Response

Tariff strategies: ToU, CPP, RTP
Indirect & direct control: Negotiated Charging schedule
Demand markets

Power Quality

Phase balancing
V2G: harmonic, flicker and voltage dip compensation
UPS, V2H

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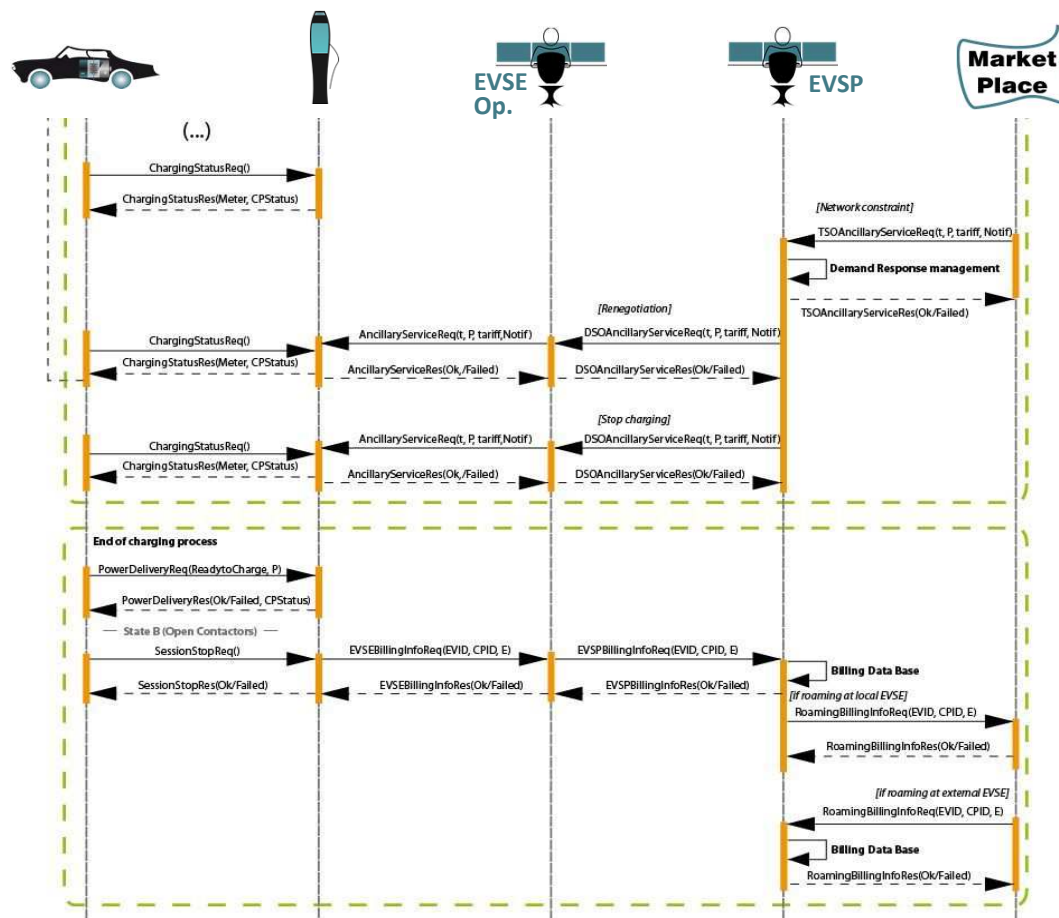
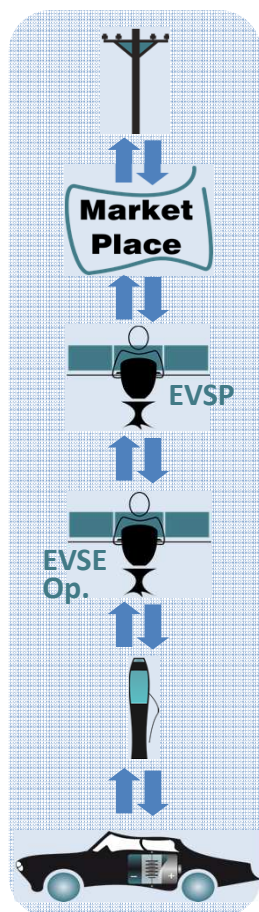


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Recommendations
for services
implementation

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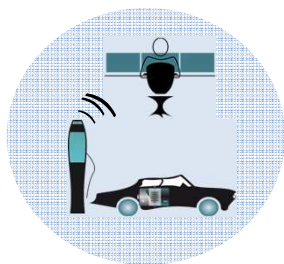
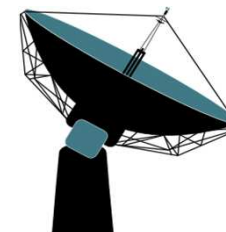


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EV related communication standards: IEC 61851-1, ISO/IEC 15118, OCPP, proprietary... EMI³



Interoperability with smart grids could provide synergies and reduce implementation costs

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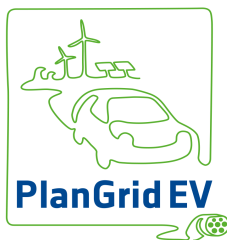


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Solutions for electromobility



www.plangridev.eu
Network planning



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Interoperability assessment

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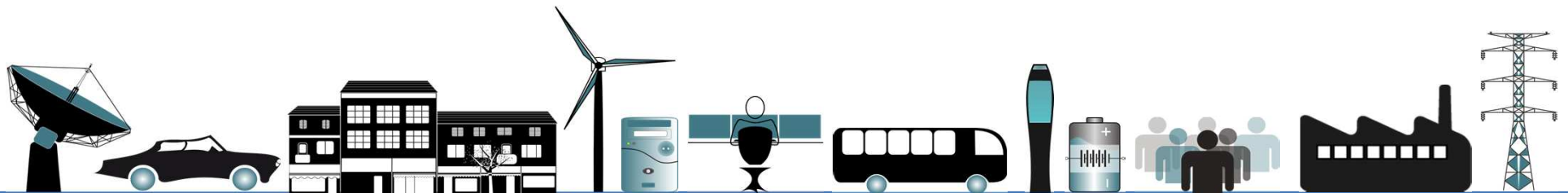
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Thank You!



References in the paper “Added Value Services for EV charging and management”

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