



The 27th INTERNATIONAL
ELECTRIC VEHICLE
SYMPOSIUM & EXHIBITION.

Barcelona, Spain
17th-20th November 2013



CHANGER L'ÉNERGIE ENSEMBLE



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EDF Electric Mobility Division

www.crome-project.eu

Lecture Session : Public Policy 6 D

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- **German-French working group on electric mobility (2009)**
 - **2 main results**
 - Position paper: „The German-French position on infrastructure and interface requirements for E-Mobility.“
 - Definition and development of a cross-border fleet
- **Franco-German Ministries Council in Paris (4th of February 2010)**
 - **Decision on the start of the pilot project mid 2010.**
- **Project start : March 2011**

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Gefördert durch:



Bundesministerium
für Verkehr, Bau
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aufgrund eines Beschlusses des Deutschen Bundestages

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The overall vision of the CROME project :

- ***Electromobility already meets transportation needs*** thanks to a wide range of EVs / PHEVs now on the market
- ***A safe, user-friendly and reliable cross-border e-mobility between France and Germany*** can be demonstrated
- ***An interoperable easy-to-use charging infrastructure*** (plug, cable, etc.) ***and customer-oriented services*** (authentication, billing, roaming, reservation, etc) ***can already be set up***

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RENAULT



PSA PEUGEOT CITROËN



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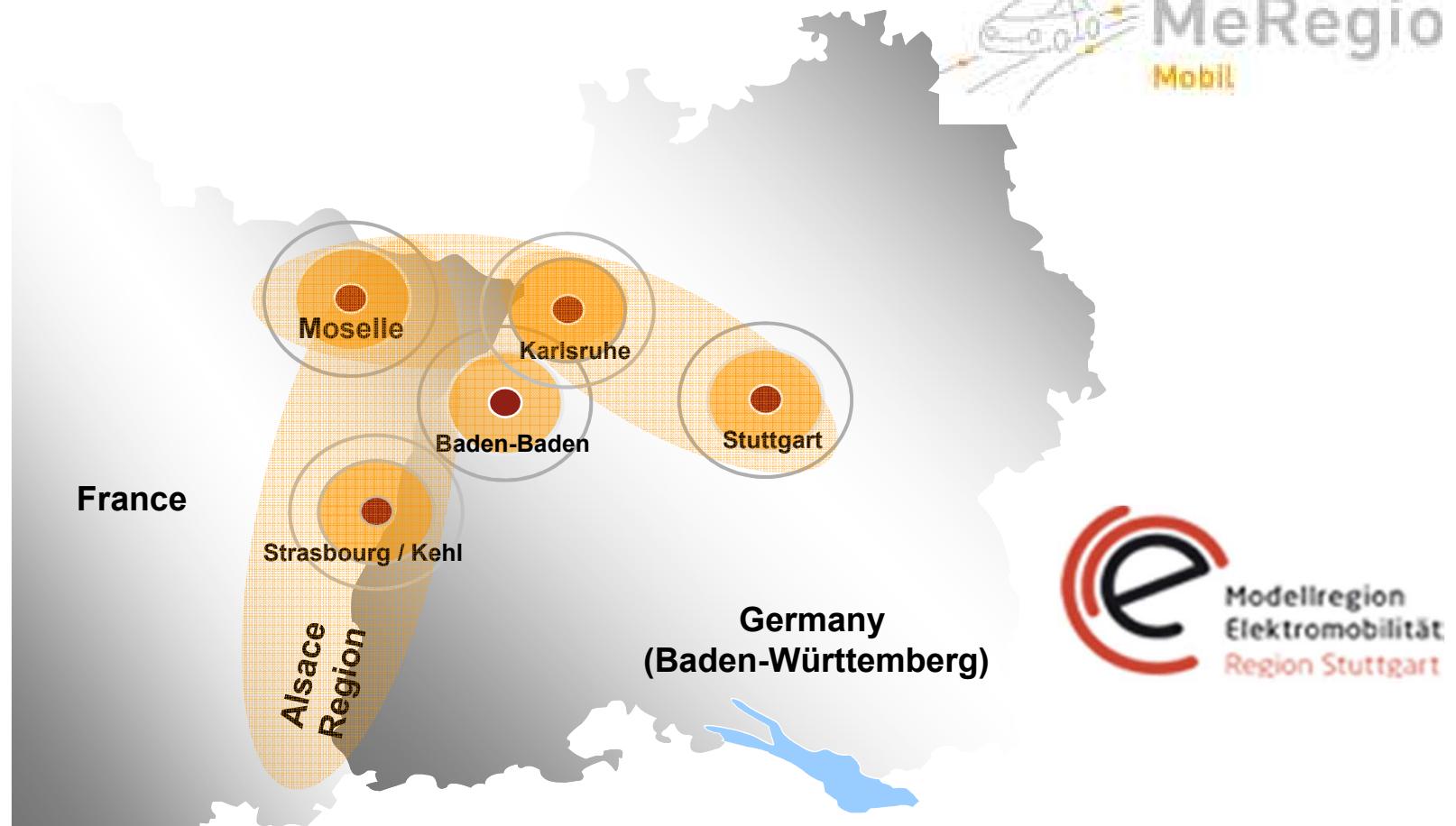
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Projet Kléber



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- 25-30 iOn / C-ZERO
- 10 Partner / Berlingo



PSA PEUGEOT CITROËN

- 7 Kangoo Z.E.



RENAULT

crome monitored fleet
of over 100 EVs

Germany (BMWi)

- 25 smart ed
- 15 A-Class E-Cell



France (Moselle)

- appr. 30 smart ed

DAIMLER



- 2 Panamera Plug-in
- 3 Boxster E

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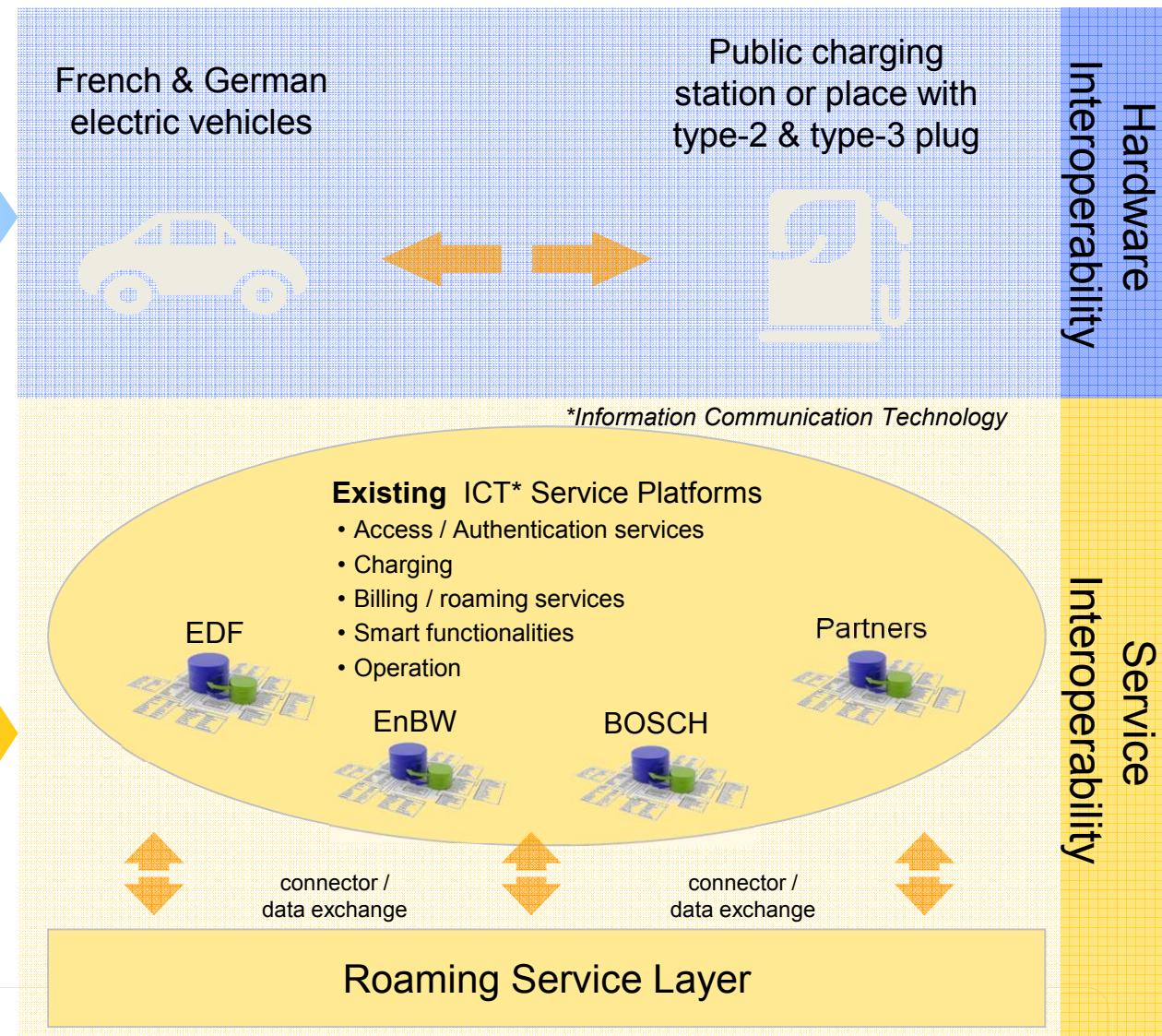


Every **EV** can connect to a charging spot



Every **user** can authenticate and control the charging process of its EV

crome Interoperable charging stations and eMobility services



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— EnBW

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- 25 interoperable public CROME charging stations with 50 charging points

edf

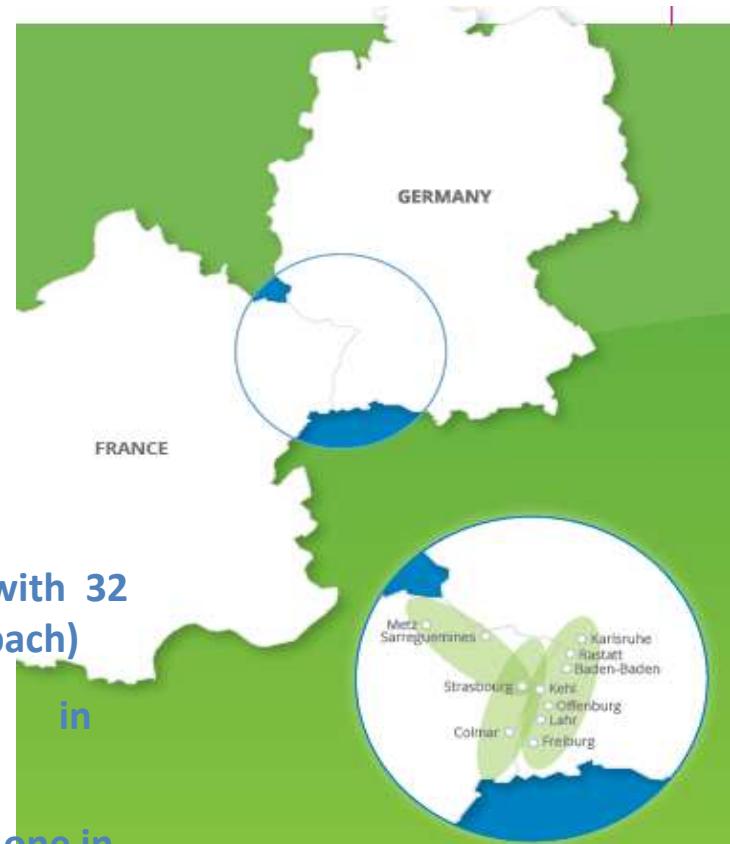
Strasbourg
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Stadt

Département
Moselle
Conseil Général

- SODETREL, operator of the French CROME network
- 16 brandnew interoperable public 22 kVA CROME stations with 32 charging spots (Strasbourg, Sarreguemines, Thionville, Forbach)
- 5 brandnew interoperable CROME stations installed Colmar (operation pending)
- 7 fast charging stations connected in France (Cora/Nissan/EDF), one in Germany

crome A cross border eMobility « corridor » with over 50 charging stations



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- **FRANCE :**
 - Public charging stations owned by the Cities
 - CROME « hardware » specifications
 - Call for tender - public investments (at least 6 months before Start of Operation)
 - Operation and supervision by Sodetrel as a global operator
 - Free of charge for use up to now, but tariff will be introduced
- **GERMANY :**
 - Public charging stations owned and operated by EnBW
 - Tariff
- **Full interoperability between French and German CROME network (CROME market place)**

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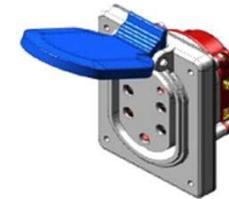
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- Ability to charge all EVs and PHEVs (CROME, Kleber, meregioMobil)
 - « mode 3 » connection , 3/22 kW AC
 - « mode 3 » type 3 and type 2 socket-outlets
 - Household E/F (mode 2) socket-outlets
- Compliancy with the technical requests of the CROME EV makers in order to upgrade mode 3 charging
 - « mode 3 » over-layers from Renault, PSA, Daimler, Porsche
e.g. RCD 30 mA, A Type, D curve
- Access to the 43 kW fast charging stations from « Corridor Energétique Alsace » (Nissan/Cora/EDF)
 - CHAdeMO DC (Ion/C0, Leaf, ...)
 - AC tiphase (ZOE)



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- Unified and simplified access to all the CROME charging stations with contactless ID cards (RFID) in France and Germany
 - Standards : Mifare Desfire EVI/Ultralight/Classic , NFC ...
 - Possible use of « transportation network » cards
- Communication between the charging stations and the operator's IT system
 - Availability
 - State of order, remote maintenance, ...
 - Different standards : OCPP,
- Simplified customer-oriented billing/payment
 - Pre-paid card: Kiwi Pass (France)
 - « Roaming » between cross-border operators



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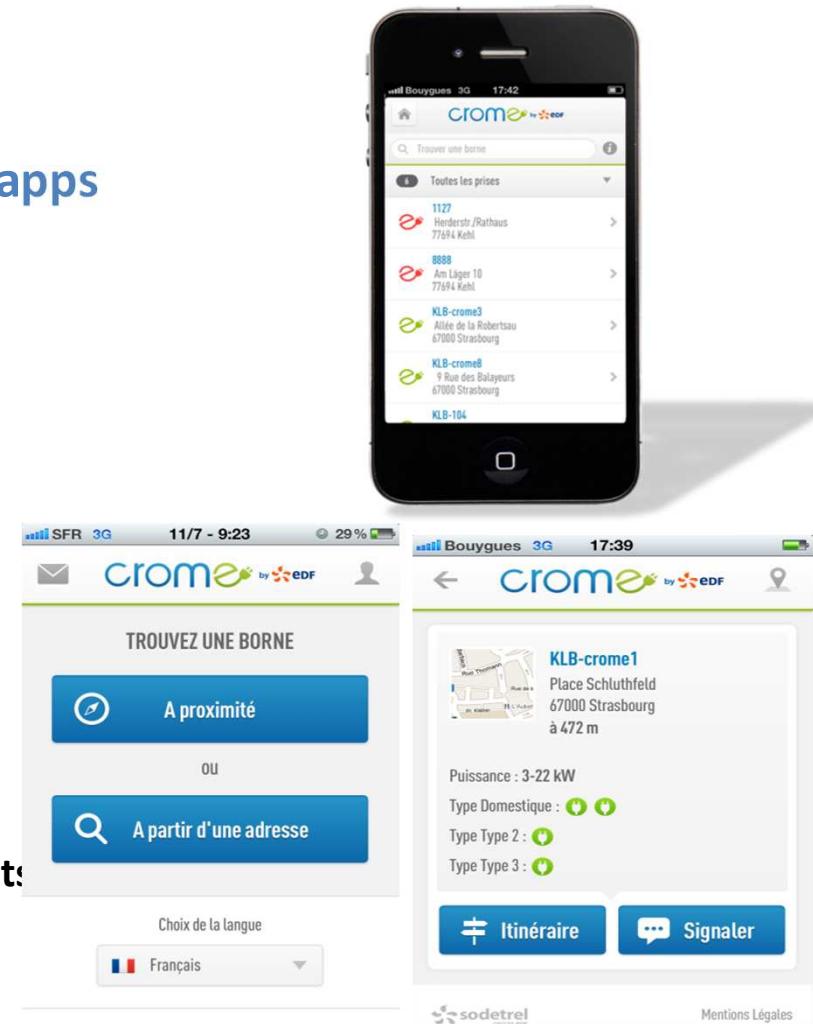


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- Customer-oriented « smartphone » and « Web » apps
 - Charging spot description
 - localisation
 - Availability
 - Smart phone apps in Beta testing :

URL : <http://m.sodetrel.fr/crome/>
- A Market Place between charging infrastructure operators and mobility service operators
 - No data is stored (broadcast approach)
 - Responsibility and property remains at the data owner
 - Routing and Brokering is controlled by defined agreements



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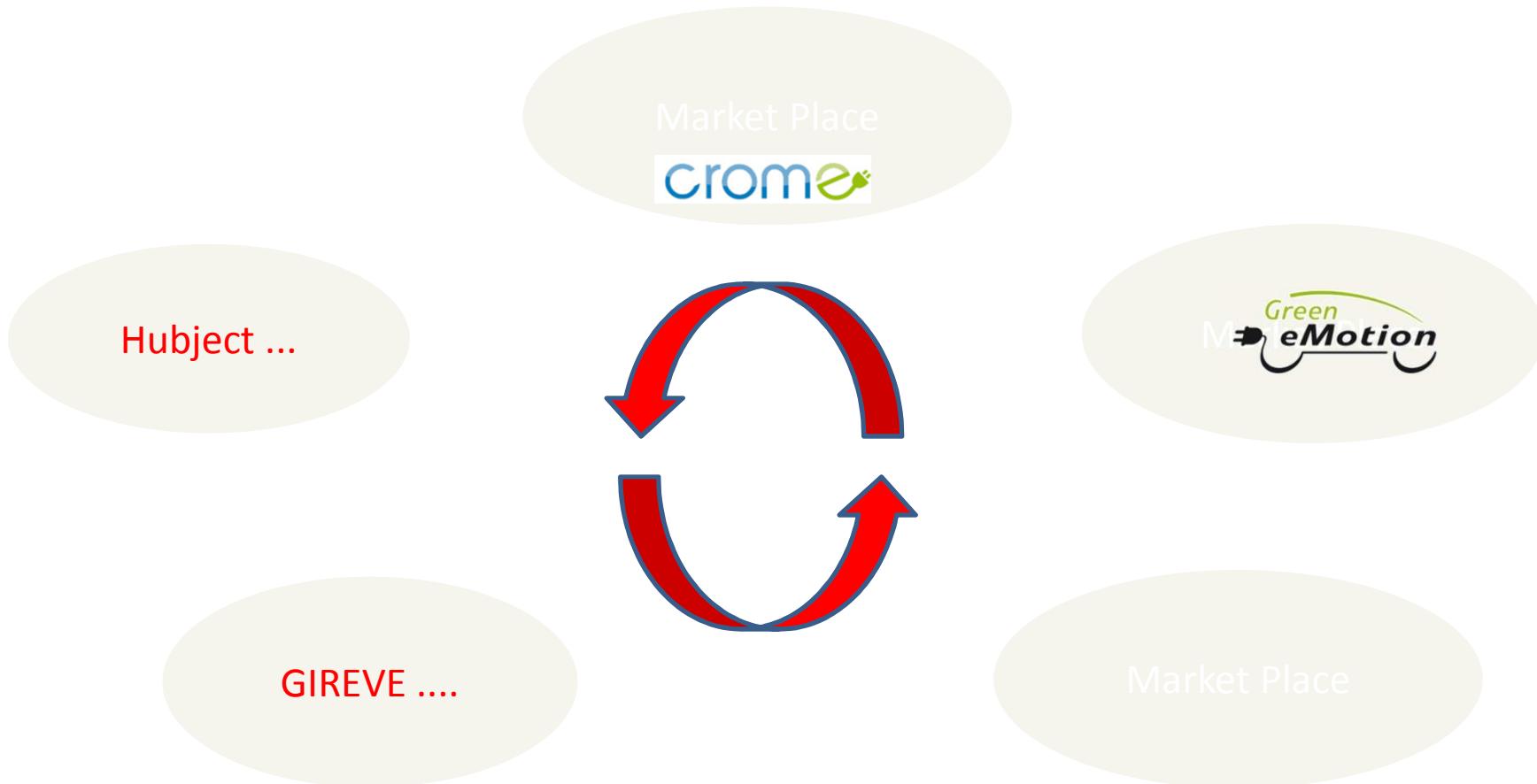


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- A unique wide-scale cross-border field demonstration of e –mobility
- Fully interoperable charging stations with easy access and charging of all EVs over the Crome area
- An assessment based on a wide diversity of new generation EVs, of charging conditions and mode, of standards and of customers (B2B, B2C, fleets, ...)
- Customer-oriented charging services :
 - Simplified identification and billing
 - Availability of the charging spots and reservation (investigated)
 - Access to all charging spots within CROME area
 - Roaming of e-mobility services between infrastructure operators
- Test and recommendation on charging infrastructures and services to European standardisation

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cromeUSER EXPERIENCE



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