THE HYPER-NETWORK

The project includes a cross-country test to demonstrate the electromobility roaming capability between these five countries by locating charging infrastructure and access services.

WHAT IS IT?

The Hyper-Network is a distributed environment composed of NeMo Nodes with an open architecture based on standardised interfaces. It will allow all e-mobility actors, such as charge points and their operators, the electricity grid, EVs and their owners, DSOs (Distribution System Operators) and e-mobility service providers, to interact seamlessly. This will facilitate the data exchange needed for integrated and interoperable e-mobility ICT services (both B2B and B2C).

SERVICES / COMPONENTS

NeMo provides a set of new and adapted e-mobility services, offered through the Open Cloud Market place, including Hyper-Network horizontal services, grid related services, EV driver/owner related services, and EV and battery related services.

The NeMo project has also designed a Common Information Model (meta-model) that contains and describes all the data required by e-mobility actors in a structured way, incorporating existing information representation and exchange standards.

TEST SITES

Verification and validation of NeMo outputs are taking place at five test sites, involving major EV roaming platforms in Europe, the automotive industry, and charge point and grid operators. These are in **Germany**, **Austria**, **Italy**, **France**, and **Spain**, with each one covering different use cases.

The project includes a European Electromobility test drive to demonstrate the electromobility roaming capability between these five countries by locating charging infrastructure and access services. Find out more at:

- nemo-emobility.eu/test-sites
- nemo-emobility.eu/test-drive-2019

PARTNERS

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NeMo

Hyper-Network for electroMobility

MAKING ELECTROMOBILITY MORE ATTRACTIVE

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WHY NEMO?

Electrification of road transport – often referred to as electro-mobility or e-mobility – has the potential to drastically reduce emissions contributing to climate change as well as city noise pollution. Wider adoption of electro-mobility is however constrained by a number of challenges:

EV range and charging issues

A main factor limiting the driving range of Electric Vehicles (EV) is lack of interoperability in charging infrastructure and other e-mobility services. Actors in this domain currently have to deal with a broad spectrum of EV charging system hardware, service providers, standards and protocols, which can vary greatly from a technological perspective.

Energy and grid-related issues

E-mobility faces the challenge of the impact to the electric grid network caused by increasing EV numbers but also by new charging technologies. The main issue is to define and deploy a smart way to manage EV recharging. The e-mobility ecosystem is not connected to the grid in a sustainable way.

Data exchange issues

A major challenge in providing a seamless experience and easy service are the complex data structures and different formats in exchanged information. The set-up of a pan-European charging infrastructure is currently hindered by the lack of a common data and information model and the lack of common framework for commercial agreements.

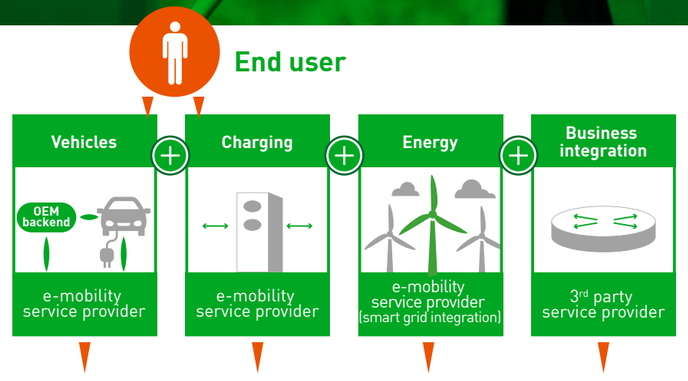
Diverse e-roaming platforms

The lack of interoperability gave rise to the recent concept of electro-mobility roaming platforms, referred to as e-roaming. NeMo has enabled interoperability between two of Europe's leading e-roaming platforms.

NEMO VISION

Develop a Hyper-Network of tools, models and services to enable the provision of seamless and interoperable electromobility services creating an open, distributed and widely accepted ecosystem for e-mobility

- improve accessibility to charging infrastructure and ICT services through a pan-European Inter-Roaming framework
- facilitate increased availability, better planning and more secure electric grid operation
- create business opportunities, with increased B2B connectivity



NeMo Hyper-Network

Charging network
Billing & payment
Pan-European e-roaming framework
Development toolkits
Common Information model
Service creation
Service management

Information & Communication Technology

Privacy & security
Data translators
Monitoring of actors
Service optimiser
Partner management
Contract management
Standard protocols
Business models

E-mobility actors integrated into the NeMo Hyper-Network

PROJECT ACHIEVEMENTS

The following tasks have been undertaken to achieve the NeMo vision:

1. Design and development of a **Hyper-Network** of NeMo nodes, hosting **electro-mobility tools and services**, which enables the provision of seamless and interoperable ICT services, to all users and actors relevant to e-mobility throughout Europe;

2. Development of the backbone of this Hyper-Network by:
   - creating a NeMo meta-language including common information models for objects, data and services;
   - introducing a set of ICT interfaces which will facilitate the communication and data access for all e-mobility related actors;
   - developing a core system capable of providing ICT services;
   - developing a set of horizontal services including monitoring and profiling of e-mobility actors, finding charge points, brokerage and pricing;

3. Creation of a **self-certification mechanism** through conformity tools and processes to establish the quality and integrity of both data and services, enabling an efficient and affordable integration of new and multiple partners and services within the Hyper-Network;

4. Establishment of a **pan-European roaming framework** for e-mobility, by linking existing roaming platforms and by designing a common and open European Inter-Roaming protocol.