SIS47
On the road towards seamless electromobility Services in Europe
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IBM Germany

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What is the problem?

**Electro Vehicle range and charging infrastructure**
Limitation to mobility and usability caused by the lack of interoperability.

**Data exchange**
The provision of interoperable & seamless ICT services on a pan-European level is hindered by the lack of a common data & information model and the lack of a common framework for commercial agreements.

**Diverse eRoaming platforms**
Problem of interoperability between the existing platforms and lack of standardization regarding information exchange and service provision.

**Electric grid network**
The electromobility ecosystem is not connected to the electric grid in a sustainable way.
NeMo: Hyper-Network for electromobility wants to create a Hyper-Network of new and existing tools, models and services which will provide seamless interoperability of electromobility services, creating an open, distributed and widely accepted Ecosystem for electromobility.
EU project NeMo at a glance

**Call identifier:** H2020-GV-2015

**Topic:** GV-8-2015 Electric vehicles’ enhanced performance and integration into the transport system and the grid

**EC funding:** 7,836,827 €

**Duration:** October 2016 – September 2019

5 test sites

1 cross-country demonstration

**Supported by** eMI3, EUCAR, BMW Group
NeMo Strategic Objectives are:

- Develop a **Hyper-Network** for the provision of seamless and interoperable electromobility ICT services (for all users and actors)
- Create **Common Information Models** for objects, data and services
- Introduce a set of **ICT interfaces**, to facilitate the communication and data access for all actors
- Develop a **Core system** capable of providing ICT services
- Develop a set of **horizontal services** to facilitate the creation of innovative and smart services
- Create a set of **open APIs** that will enable an **open B2B Marketplace** for electromobility
- Develop a **pan European eRoaming framework**
- Develop **new business models** and scenarios for all actors
Actors in the NeMo Hyper-Network
eRoaming: How it works ... Today
eRoaming and more: What if...
Blockchain for Business...

- Shared system of record. Permissioned visibility within own copy.
- Smart contract: Business terms embedded in transaction database & executed with transactions.
- Privacy: Ensuring appropriate visibility; transactions are secure, authenticated & verifiable.
- Consensus: All parties agree to network verified transaction.

...broader participation, lower costs, increased efficiency.
How will Blockchain change Business?

Without Blockchain

With Blockchain
How it works... with Blockchain

1. It all starts with one node
2. Each node has the shared ledger
3. Nodes form a peer network
4. Users submit transactions
5. Consensus and leader election
6. Execution & Recovery

Each block has a digital fingerprint of the previous block.
What’s IBM’s contribution in the NeMo EU project?

- IBM knows enterprise needs and workloads
- IBM Cloud elevates innovation
- IBM Watson APIs available on IBM Cloud
- IBM is the founding member of Hyperledger

IBM Bluemix

- Bluemix is the cloud platform encompassing Infrastructure, Developer and Domain services
- Bluemix offers the most complete set of integrated data and analytics available
- The most advanced cloud platform that weaves together services, infrastructure and data

IBM Blockchain

- full range of enterprise ready blockchain services
- the best and high secure infrastructure for blockchain
- proven engagement model
- Deep cryptography
- High Secure Blockchain Network with System Z crypto hardware
NeMo will change electromobility in the near future...

- Support of EU “Clean Power” directive
- Reduction of dependence on fossil fuels
- Speed up of shift from ICE to EV use

- Generation of innovative approaches & ideas
- Integration of recognitions into research institutes’ and universities curricula

- Fostering the growth of the EV market
- EMPs & SMEs:
  • Tools for a rapid & cost effective development of new services & products through the open market cloud
  • Third-party developers:
    • Create innovative ICT businesses
    • Offer customized services
    • Availability to wider public

- Optimization of energy sector cooperation, management & service offerings

“Charge anywhere & anytime” across Europe via sole identification, authorization & payment method

End Users
How do business clients and their customer benefit from NeMo?

- **Your benefits** -
  
  • Higher flexibility & transparency
  • B2B – & B2C – Marketplace:
    ✓ Direct & enhanced contract (customer, Energy, IT)
    ✓ Access to flexible & innovative (Start-Up) supplier
    ✓ No additional contracts
    ✓ Accelerate business

- **Your client’s benefits** -
  
  • “charge anywhere & anytime” across Europe
  • Lifted charging restrictions
  • Reduced charging time
  • Increasing EV range
  • Possibility of lower charging prices
  • Access to new innovations
  • High transparency → Open marketplace
  • Secured transactions through blockchain
  • Reduction of air and noise pollution

The NeMo Environment and ecosystem will facilitate the eMobility infrastructure and boost the market share of EV!
Thank you! Any Questions?

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Useful NeMo project links: Contact us at...

Project web site: http://nemo-emobility.eu/

Twitter channel: https://twitter.com/NeMo_Electro

LinkedIn Group: https://www.linkedin.com/groups/12012387
## List of abbreviations

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<thead>
<tr>
<th>Term</th>
<th>Description</th>
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<tbody>
<tr>
<td>B2B</td>
<td>Business to Business</td>
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<tr>
<td>B2C</td>
<td>Business to Customer</td>
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<tr>
<td>CPO</td>
<td>Charge Point Operator</td>
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<tr>
<td>DSO</td>
<td>Distribution System Operator</td>
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<tr>
<td>EMP</td>
<td>Electromobility Service Provider</td>
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<tr>
<td>EV</td>
<td>Electric Vehicle</td>
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<tr>
<td>Grid</td>
<td>Electricity production and distribution network</td>
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<tr>
<td>ICT</td>
<td>Information and Communication Technology</td>
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<tr>
<td>ITSP</td>
<td>IT Service Provider</td>
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<tr>
<td>SME</td>
<td>Small and Medium Enterprise</td>
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