



INTEROPERABILITY AND REGULATION

Sonja Pajkowska, Hsubject
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Agenda



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Introduction - Electromobility



- Electromobility is widely promoted by regulatory bodies
- More electric vehicles on the market
- The quantity and the quality of the charging infrastructure is being improved.

But: The electromobility market is highly dynamic and is expected to change the mobility and transport sector tremendously.

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Introduction - Interoperability



- Interoperability is the ability of various systems to work together.
- In electromobility:
The user of an electric vehicle should be able to charge their car at any charging point using their usual choice of authorisation and payment method

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Introduction - Regulations



- A huge number of initiatives, projects and national regulations
- To increase of accessibility and customer friendliness

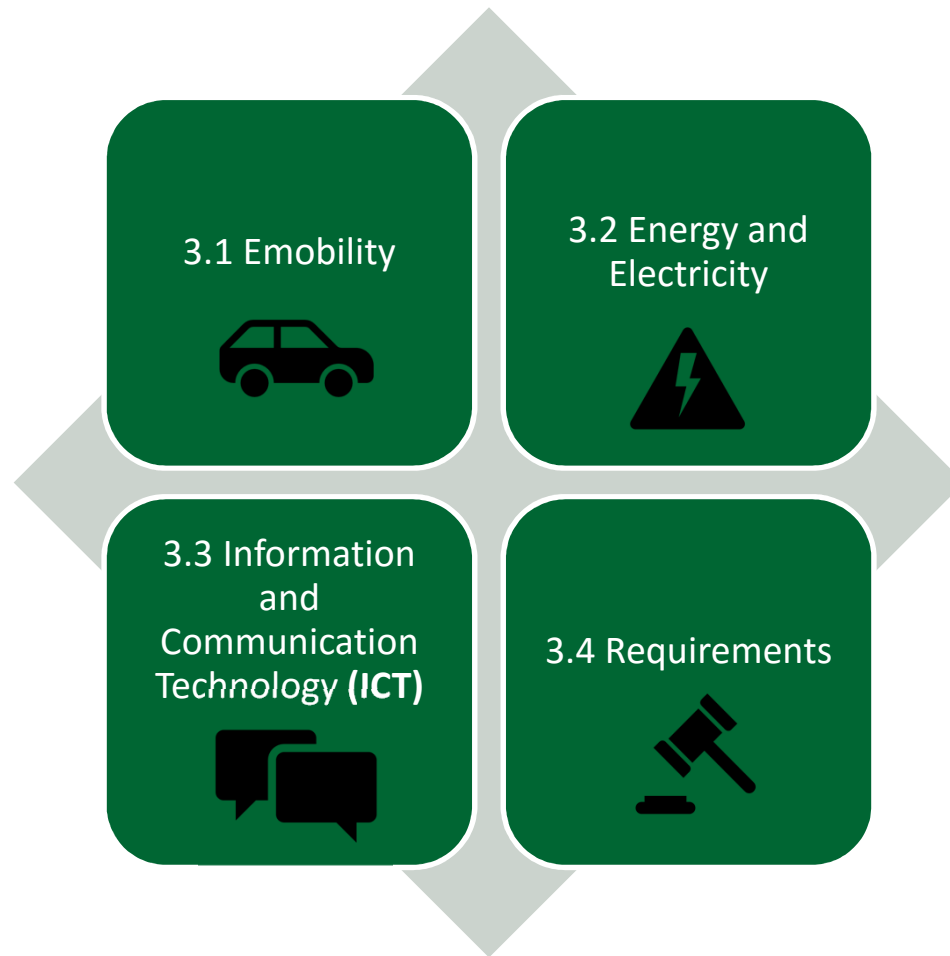
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Analyses on the regulatory framework



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Emobility



- Avoiding national and regional borders becoming **technological borders**
 - Common payment methods
 - Harmonized legislation
 - International collaboration on the installation of infrastructure
- Effects the fields of **energy/ electricity** and **ICT** heavily
- There are no governmental activities specifically dedicated to cross-operator interoperability
- Many regional practices, but few national wide interoperability scheme

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3.1 Emobility



Commercial activities

- Many different protocols developed by private actors e. g.
 - OICP (Hsubject)
 - eMIP (Gireve)
 - Etc.
- Interoperability through eRoaming platform protocols
- The Pan European Interroaming Initiative works on establishing **interroaming protocols**

Governmental activities

- A matter of the market development level → huge gap between European countries
- governmental efforts to establish interoperability
 - e. g. RFID Tag registration in Norway



Energy and Electricity



- Parties, which are involved in the **energy** and **emobility** market:
 - Distribution System Operator (DSO)
 - Meter Data Manager (MDM)
 - Meter Operator (MO)
- In several countries DSOs are in the responsibility of **owning and operating** the charging infrastructure
- All markets in Europe rely on same actors, but
Diverse legal and regulatory framework

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Information and Communication Technology (ICT)



- Several different ICT standards in the European countries
- Not in focus of central authorities
- There is a digital agenda in most countries to the expansion of the ICT infrastructure as necessary to keep pace with technical progress

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Conclusions



- The analysis of the regulation landscape shows the variety of technical and non-technical initiatives to support of the development of eMobility.
- Most of the initiatives are based on the country specifics and are covered by different agencies, ministries, etc.
- In most cases, those activities are performed parallel, with a limited interchange of information or activities between different parties.

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Conclusions



Interoperability between regulatory bodies, frameworks and contracting frameworks

Interoperability between business models of the involved players

Semantic interoperability

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Please let us know



What are the major obstacles?

What are the potential measures?

What are the promising actions?

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Please let us know!



Sonja Pajkovska Goceva
Manager R&D/ Innovation
Hubject

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Interoperability between regulatory bodies



- Close connection between research and development and the regulatory/ legislative and innovation
- National standardization and regulation carried out by certain countries vs. harmonization on an international level
- Different standard initiatives from different regulatory bodies
- A common understanding and increased Member States' coordination to ensure the creation of an EU Single Market for electro-mobility
- Cooperation of National authorities to establish guidelines for electric charging tariff.

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Interoperability between the regulatory and contracted frameworks



- Co-existence of different standards
- Supporting the establishment of charging points in areas with a high demand through authorities
- The legal framework besides the classical stationary market since EV and EVSE are part of this strictly regulated market
- Legal harmonization of charging and plug systems across Europe

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Interoperability between business models of the involved players



1. A harmonized way of how required data incurred by charging processes can be exchanged and used among actors
2. Harmonizing the handling of data measurements
3. Handling of contractual framework between involved parties
4. An interoperable payment method, access options and services both for eRoaming and Pay – as – you - go solutions.
5. Secure and transparent information regarding to pricing, level of service, origin of electricity and the ability of consumers to easily choose/change between different charging services/ providers

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Semantic interoperability



1. Common information models for electromobility should be agreed to, so that data exchange between actors is facilitated and interoperable services can be provided
2. Technical solutions must ensure the required interoperability for interface related standards
3. A unified way of identification and authentication
4. A roaming system, which is established between charging point operators and allows electricity roaming, i.e. allowing customers to freely choose a (renewable) energy supplier.
5. The establishment of an EU-wide charging station database and mobile tools

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