Internet of Mobility
Challenges for ICT standards, data-security and data-privacy
Presenter: Volker Fricke, IBM Germany
Agenda

- Mobility of the future: Digital and inter-connected
- Alternative fuel vehicles: Electrified and inter-connected
- Autonomous vehicles: Cooperative Intelligent Transport Systems
- Challenges for ICT standards, data-security and data-privacy
- Summary and outlook
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- **Mobility of the future: Digital and inter-connected**
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To get a better understanding of the consumer expectations of 2025, IBM surveyed 16,000+ consumers around the world to get their perspective on what the industry executives predict consumers would want.

*These two studies complement each other in giving a comprehensive point-of-view of both industry and consumer expectations for the next 10 years.*

Source: IBM Institute for Business Value (IBV) Studies
The Automotive 2025: Industry without borders study suggested three disruptors to the industry over the next 10 years:

- 62% felt consumers would be expecting new ownership models
- 73% of OEMs said that consumers would be involved in co-creation of mobility services
- 80% said comprehensive connected vehicle services will be a key differentiator
- 75% said non-traditional industry participants will have a key role in the consumer-driven mobility ecosystem
- 71% of Industry executives feel there will be significant disruption in retail channels
- 54% agree that consumers will want to buy cars directly thru the internet

Source: IBM Institute for Business Value (IBV) Study: Automotive 2025: industries without borders
Shifts in how people move from one point to another and the levels of digital mobility interest they have for future mobility solutions

People want to own cars but not all necessarily with a traditional ownership model

The personal car will continue to be a key fixture in personal transportation, but the priority of when it is used will change

Understanding consumers by their digital mobility interest provides greater insight into groups with similar interests, attitudes and expectations

Source: IBM Institute for Business Value (IBV) Study
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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.
The NeMo consortium won as one from 3 out of total 41 consortia the Green Vehicles (GV8) European Union call and got awarded in March 2016.

- **NeMo**: Hyper-Network for electroMobility

- **Consortium and project key facts**:
  - 19 partners from Automotive, Energy & Utility, IT, research institutes, universities and others
  - 3 years duration: Start expected 4Q16 (1.October 2016) to end in 2Q19
  - Total project budget: 7,8 Million EURO

- **Key project partners**:
  - Renault, Fiat (via CRF), TomTom, Verbund, Hubject, GIREVE, IBM

- **Project objective**:
  The vision of NeMo is 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. NeMo aims at bringing the successful interoperability paradigm of seamless roaming (as in mobile telecommunications) into the domain of electromobility services, paving the way for a Pan-European eRoaming framework.
The NeMo Hyper-Network environment will enable seamless integration of data and services to provide innovative electromobility services.
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Eco-system for autonomous, connected and electric vehicles involves multiple stakeholders.
EU Platform C-ITS: Create an deployment plan for autonomous vehicles and road transport in Europe for starting by 2019

• Cooperative ITS (C-ITS) is a group of technologies and applications that allow effective data exchange through wireless technologies among elements and actors of the transport system, very often between vehicles (vehicle-to-vehicle or V2V) or between vehicles and infrastructure (vehicle-to-infrastructure or V2I).

• However, for the purpose of the work to be undertaken by the C-ITS platform and more in general in view of a roadmap for the deployment of C-ITS in the EU, C-ITS are to be understood as a broad concept which is not limited to V2V or to V2I communication but also includes C-ITS applied to vulnerable road users such as pedestrians, cyclists or motorcyclists.

• The C-ITS Deployment Platform coordinated by DG MOVE is a closed, public-private forum with the objective to provide policy recommendations for the development of a deployment strategy and roadmap for C-ITS in the EU and identify potential solutions to some cross-cutting issues.
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High-level map of ongoing standardization in the domain of IoT
What are the relevant ICT standardisation activities for: Connected, Electric, Autonomous Vehicles

- ISO work on Road Vehicles
  - Extended Vehicle
- Connected Car
  - Standards
    - Interoperability
    - Security & Privacy
- e-Mobility
- Co-Operative ITS (C-ITS)
- W3C Automotive Web Platform
- eMI3 Group
  - IEC 15118
  - OASIS OCPP
  - DKE
- Car2Car
  - Communication Consortia
  - ISO/TS 14823
  - ISO/TS 17425
  - ISO/TS 19321
  - IEEE SC42
  - ETSI TS 103 301

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Summary and outlook
Information and Communication Technology (ICT) plays an important role in realizing the “Internet of Mobility” which has to be based on standards and to comply with security and privacy regulations.
Standards, data-security and data-privacy are important elements for successful deployment in the area of “Internet of Mobility”

• Standards are essential in today’s inter-connected world to ensure inter-operability.

• The selection and promotion of relevant standards in the domain of connected vehicle and C-ITS is challenging as there are sometimes competing in the same domain.

• An end to end security approach is needed to tackle actual and future threats and to meet compliance in all standards bodies.

• Threats by hackers will increase over time and by further digitization of Connected Vehicles.

• An end-to-end security review is key to deal with these threats.

• This will have an impact to current vehicle architecture.

• Vehicle manufacturers and suppliers are supposed to embrace this new challenge.
Questions?