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At the **Research Institute for Operations Management (FIR) at RWTH Aachen** highly qualified engineers and business managers develop and put into practice solutions for central questions of Management and the organisation of a modern enterprise. It sets the pattern in the areas Logistics, Informations-, Service- and Production management. Thereby, the FIR can rely on a 50 years of experience in the development and application of methods to increase growth and employment.

Project partners



<http://www.smart-wheels.de>



Research Institute for Operations Management at RWTH Aachen University

Project



Intelligent e-mobility in the model region Aachen

Business models and convergent ICT-Services for the dissemination of e-mobility



Mobile inside the Internet of Energy

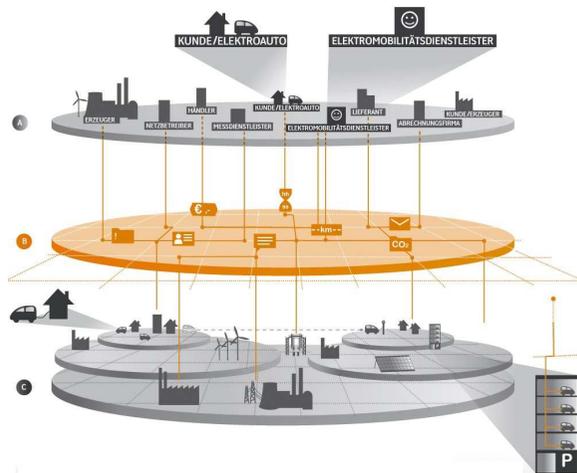


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The Project Smart Wheels

Smart Wheels develops and tests business models and ICT-solutions for an intelligent e-mobility.

The approaches concerning the intelligent energy system of the future, as developed in the project Smart Watts, will be extended consequently in Smart Wheels by concepts of e-mobility. Besides commercial and technical grid integration, concepts will be worked out and tested to enable the large-scale and intermodal expansion into the internet of energy.



A – Business level B – Internet of Energy C – Asset level

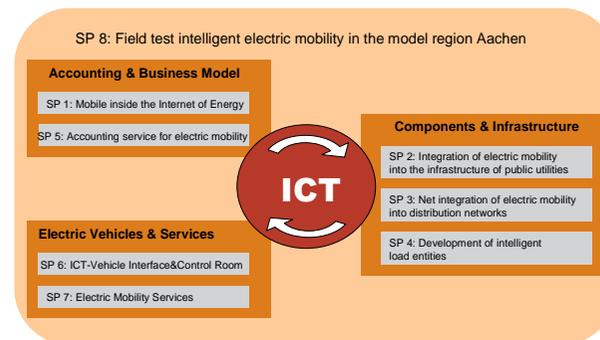
The goals of Smart Wheels can be summarized as follows:

- Emission-free and climate friendly e-mobility
- Intermodal e-mobility
- New business models and sustainable battery management
- Integration of ICT-adapted electric vehicles in distribution networks
- Standardizations
- Further development of local infrastructure in the model region Aachen

ICT as the Driver of Innovation

To guarantee a highest level of achievement, the project is divided into seven subprojects (SP). Their results will put into practice in a field test.

The focus concentrates systematically on solutions that help to meet the scientific and economic challenges of e-mobility, using promising ICT. To handle the challenges, the clusters “Billing and business models”, “electric vehicles and service” as well as “components and infrastructure” are built. During the field test in the model region Aachen, the intelligent e-mobility gets off the ground connected through the „wheel“ of ICT.



Challenges

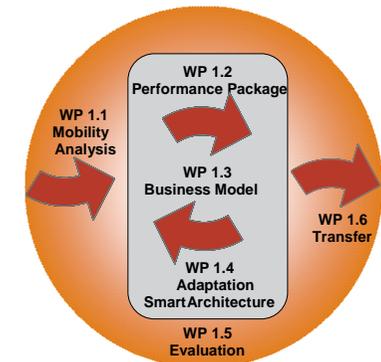
To meet the challenges of intelligent e-mobility, Smart Wheels will offer valid solutions for:

- Mobile character of an electric vehicle along with the dynamic of energy supply and accounting
- Selection of adequate communication technologies for cost-minimal grid integration
- Guaranteed profitability through innovative products and services
- Authentication and authorization at public charging points
- Intelligent charging characteristics to avoid peak demands

Mobile inside the Internet of Energy

The FIR coordinates and works on work packages (WP) of the subproject „Mobile inside the Internet of Energy“ (SP1).

One aim is the development and categorization of innovative business models in the field of e-mobility. Another focus of FIR’s work is the enhancement of the communication platform (namely Smart Architecture) created in Smart Watts.



The first step is to carry out a mobility analysis which results in performance-based requirements concerning e-mobility. The next step is to develop packages out of information-, service- and product-units. These packages are incorporated into the business model development as innovation components. Considering the promising business models, the Smart Architecture is expanded by e-mobility. Thereby, it is possible to assure a high compatibility with the concepts of the Internet of Energy developed in Smart Watts.



The findings of the subproject will be evaluated in a field test. Afterwards, it will be possible to derive further requirements for the economical operation of the Smart Architecture in the sphere of e-mobility.