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Welcome Address

18th International Forum on Advanced Microsystems for Automotive Applications

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Federal Ministry of Education and Research (BMBF), Germany

Unit Electronics Systems; Electromobility

Berlin, June 23, 2014

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Outline

Electric Mobility – Rethinking the Car

European and national Strategy for Microelectronics

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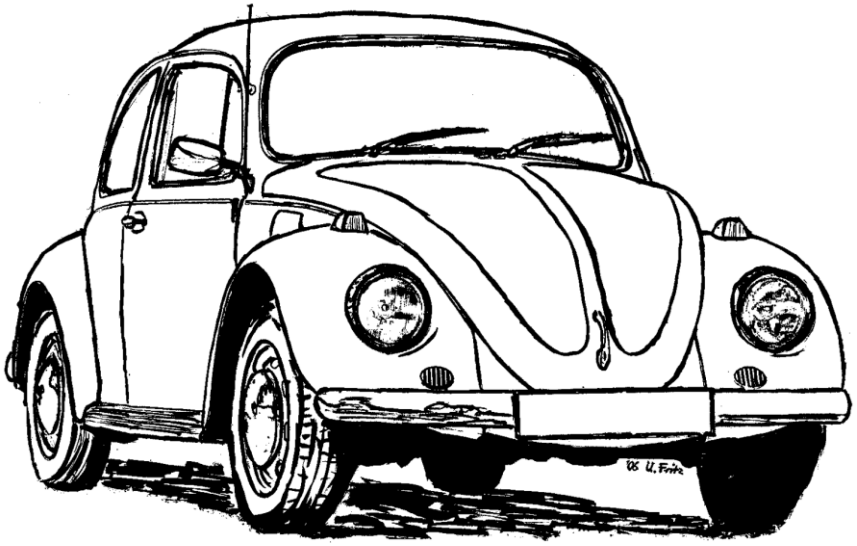
Electric Mobility - Rethinking the Car…

…is put forward by a 2009 National Development Plan for Electric Mobility

…is a joint endeavor by 4 federal ministries
(economics, environment, transport, research)

…combines low carbon strategies with industrial and energy policy

…with a strong focus on research and innovation
– no subsidies for cars



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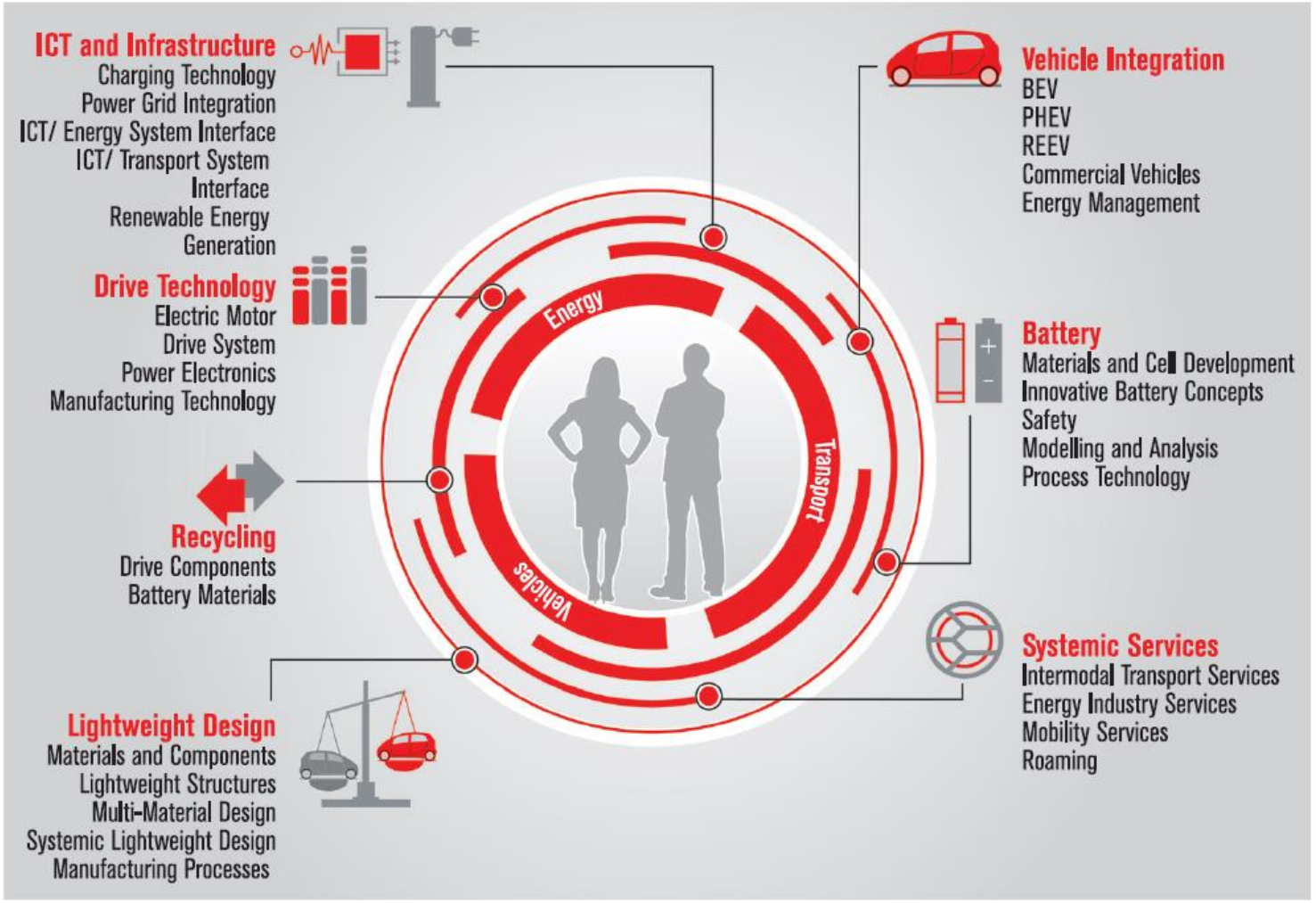
Electric Mobility - Rethinking the Car…

… needs a systemic approach



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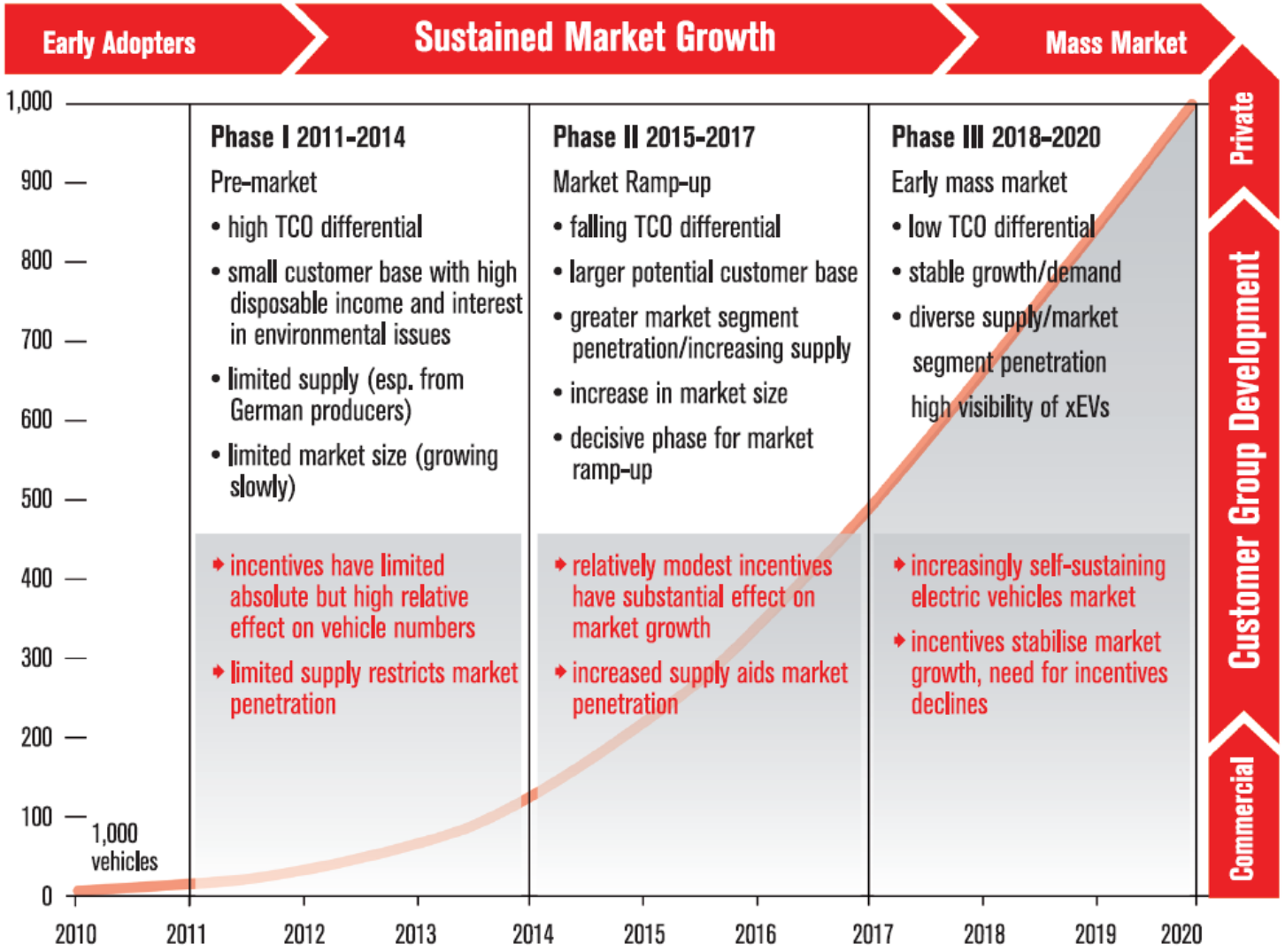
Electric Mobility - Rethinking the Car

The Scenario



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Electric Mobility - Rethinking the Car

Strong focus on research and innovation

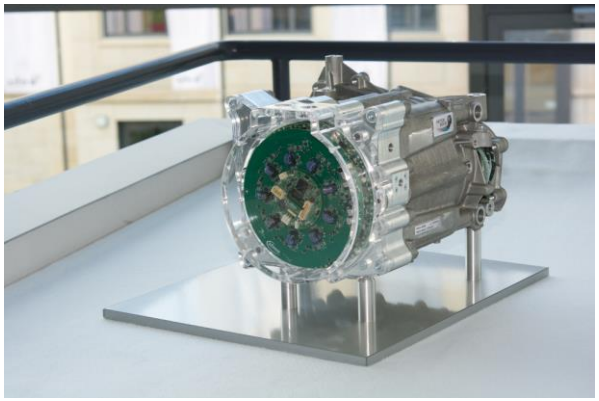
- 82 collaborative research projects with 1,2 billion Euro additional funding (BMBF 0,63 billion).
- Industry has committed an investment of 17 billion Euro
- Broad range of topics (battery technology, electric motors, light weight construction, innovative business models, standards, education, drivetrains, new vehicle concepts, charging infrastructure, power electronics for energy and thermal management, power grid integration, production technology)
- Broad range of instruments (classical R&D projects, cluster initiatives, show case demonstrators, international cooperation)
- Broad range of TRL, including higher TRL

Electric Mobility - Rethinking the Car

Research Examples

- Using NIR and FIR sensor data fusion developed within the project **ProPedes**, pedestrians at distances of up to 127 m can be detected with 93 % reliability – up from 78% for a single sensor

- A highly integrated powertrain with smart controls, developed within the ENIAC project **MotorBrain**, is projected to reduce energy losses by more than 24% and motor weight by 15% compared to the state of the art



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European and national Strategy for Microelectronics

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European and national Strategy for Microelectronics

Europe

European Electronics Strategy launched 2013

Implementation by ECSEL-Initiative 2014

Germany

Implementation via a national strategy with strong entanglement with ECSEL.

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European and national Strategy for Microelectronics

Germany

Focus on More-than-Moore, power electronics, chip based security, design.

Hightech capability of industry in Europe and Germany is key to shape the future of manufacturing, mobility, health.

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European and national Strategy for Microelectronics

Current R&I Funding in the Field of Electronic Systems

- The BMBF's total funding since 2000 in micro- and nanoelectronics, microperiphery, and microsystems amounts to nearly € 2 Bln
- Our funding covers targeted research as well as projects on design and fabrication technologies, integration technologies, sensor systems and manufacturing equipment for electronics
- The BMBF provided more than € 70 M in funding for the last two national calls relating to power electronics, enabling more than 40 projects
- Based on an agenda process the funding program will be revised; first result: a national call addressing "Electronic and sensor systems for Industry 4.0"
  (i. e., cyber-physical systems in an industrial context) in 2014

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European and national Strategy for Microelectronics

Selected Topics for Future Mobility

- Highly integrated and modular drivetrains
- Energy efficient and material efficient drives
- Battery management and safety
- Energy efficient electronics for automotive applications
- Energy efficient ECUs
- Efficient on-board energy and thermal management systems
- Secure Car-2-X communication units, methods and standards
- Advanced driver assistance systems
- Components and functions for automated driving and charging

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Thank you for your attention

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