

acatech – NATIONAL ACADEMY OF SCIENCE AND ENGINEERING

**Science for Society: how?
Sustainable Growth through
Research and Innovation**

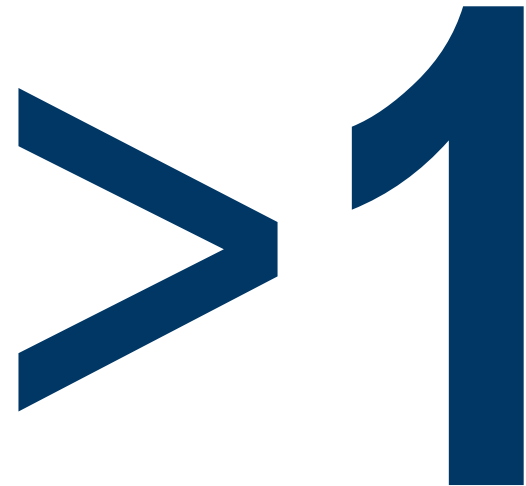
Prof. Dr. Henning Kagermann

Amsterdam, October 26, 2012

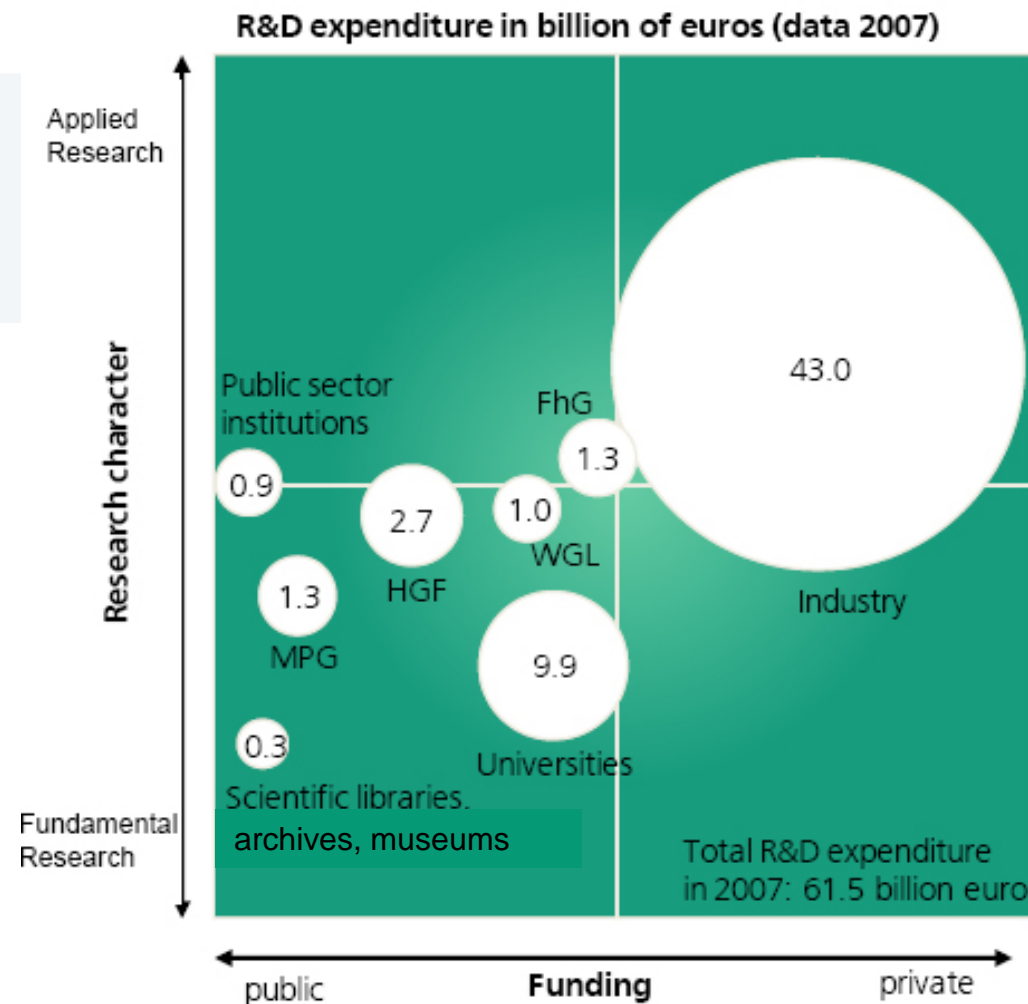


> **Overview**

- The German Research System
- The High-Tech Strategy
- Cooperation of the German Academies of Sciences
- acatech – National Academy of Science and Engineering



The German Research System



- > Gross Domestic Expenditure on R&D:
 - 2007: 2,53%
 - 2010: 2,82%
- > The percentage of the budget for investments in education and research is planned to add up to **10%** (7%+3%) of BIP by **2015**.

Advancing the national innovation system

- > **2006:**
“Advisory group for innovation and growth“ with Chancellor Angela Merkel
Results: **High-Tech Strategy, Industry-Science Research Alliance,**
Top Cluster Competition, IT-Summit
- > **2008:**
appointing two **national academies:** acatech and Leopoldina
- > **2009:**
 - authorizing acatech to develop a new format: **Innovation Dialogue**
- > **2010:**
 - **Innovation Dialogue** with Chancellor Merkel, organized by acatech
 - German **National Platform for Electric Mobility (NPE)** established
- > **2011:**
 - a new innovation instrument: **Research Campus**

The High-Tech Strategy (HTS): Cornerstone of the German innovation policy

Aims of the High-Tech Strategy

Set new priorities and create lead markets

- > Set new priorities – oriented to the global **grand challenges**
- > Rely on key technologies as a basis for innovation
- > Use **strategic partnerships** to mobilise industrial research

Build bridges between industry and science

- > Encourage the growth of outstanding research and innovation **clusters**
- > Expand and streamline innovation support for small and medium-sized enterprises (**SMEs**)
- > Strengthen top-quality research and innovation in the **‘new Länder’**

Improved framework for innovation in industry

- > Provide more attractive terms for **innovation financing**
- > Improve conditions for **start-ups**
- > Make **public procurement** more innovative

Cooperation of the German Academies of Sciences

Leopoldina
National
Academy of
Sciences

acatech
National
Academy of
Science and
Engineering

**Standing
Committee**

Goal:
Policy Advice

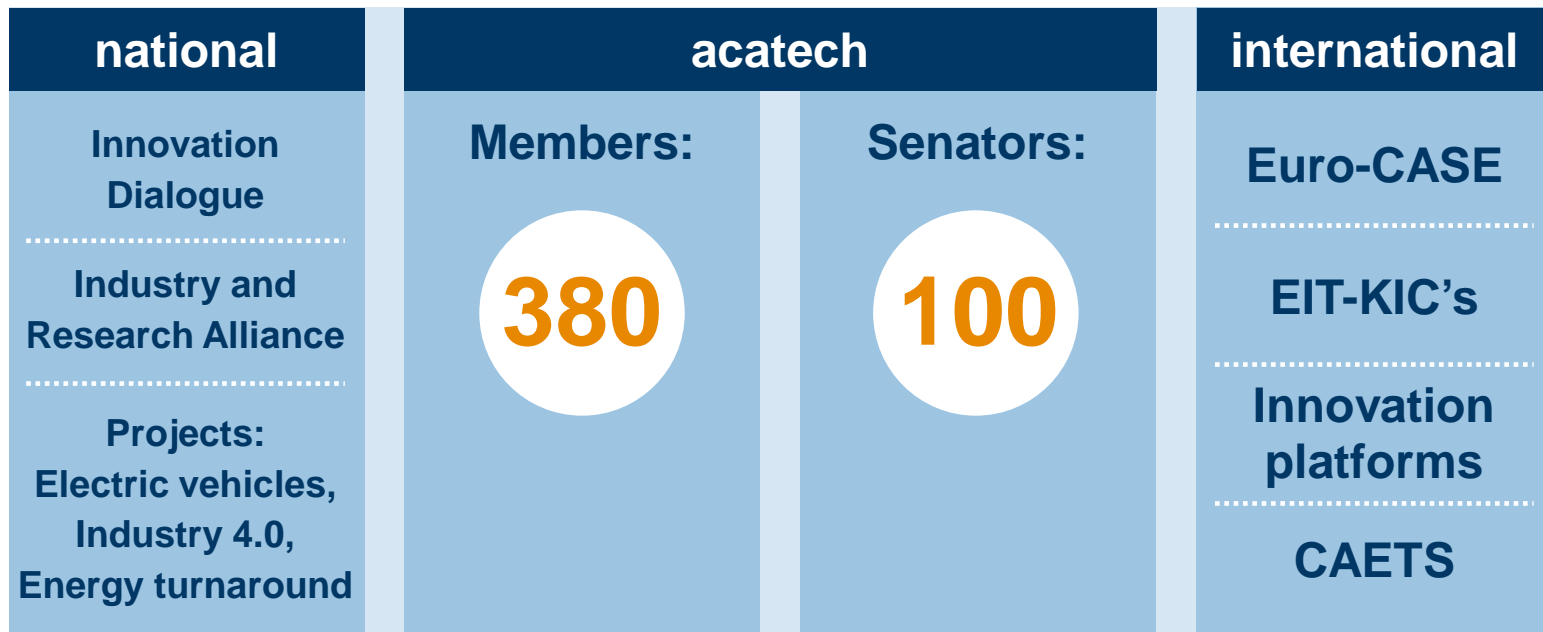
**Union of the
German Academies
of Sciences and Humanities**

- > **Standing Committee**
- three representatives from Leopoldina, acatech, Union
 - meets four times a year
 - defines joint initiatives, f.e.:
- Joint statement of the German Academies: “Synthetic Biology“**
November 2009

acatech

National Academy of Science and Engineering

- > **Network of experts** from academia, business and other stakeholder groups
- > **acatech vision:** sustainable growth through innovation
- > **Mission:** driving change, not just publishing



The economic crisis underlined the need for substantial innovations

Many national efforts have been undertaken for “sustainable growth through innovation“

- National innovation strategies have to include the international and even global perspective – the **grand challenges**
- Most new innovation challenges cannot be solved by one company or even one nation:
New **innovation platforms** and instruments are required
- Integrating the **Knowledge Triangle**:
education – research – business is key
- **Cooperation** between different sectors:
science, business, politics, society is more important than ever

Academies can play a key role as independent and trusted advisors for society and politics.



> **Best practise examples**

- The Innovation Dialogue
- The National Platform for Electric Mobility (NPE)
- The Industry-Science Research Alliance
- Top Cluster Competition
- Research Campus

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The Innovation Dialogue

- > **Steering Committee:**
15 members from business,
science and society
- > **Government representatives:**
 - Federal Chancellor Angela Merkel
 - Philipp Rösler, Federal Minister
of Economics and Technology
 - Ronald Pofalla,
Head of the Federal Chancellery
 - Annette Schavan, Federal Minister
of Education and Research
- > **Two** Innovation Dialogues
take place **per year**
- > In preparation for the
Innovation Dialogues,
acatech compiles
thematic (fact) dossiers



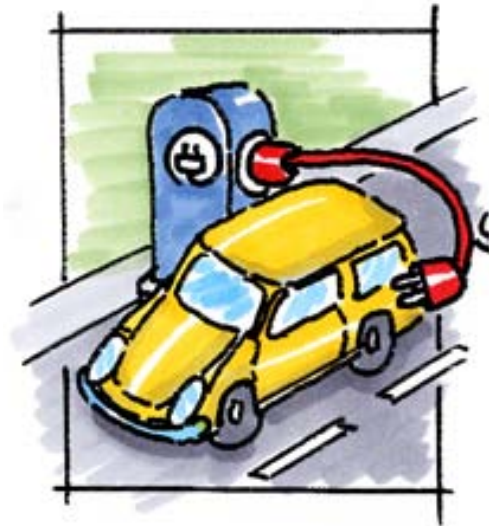
1st Innovation Dialogue, 13 September 2010:
Chancellor Angela Merkel with the members of the Steering Committee

Topics of the Innovation Dialogues at a glance

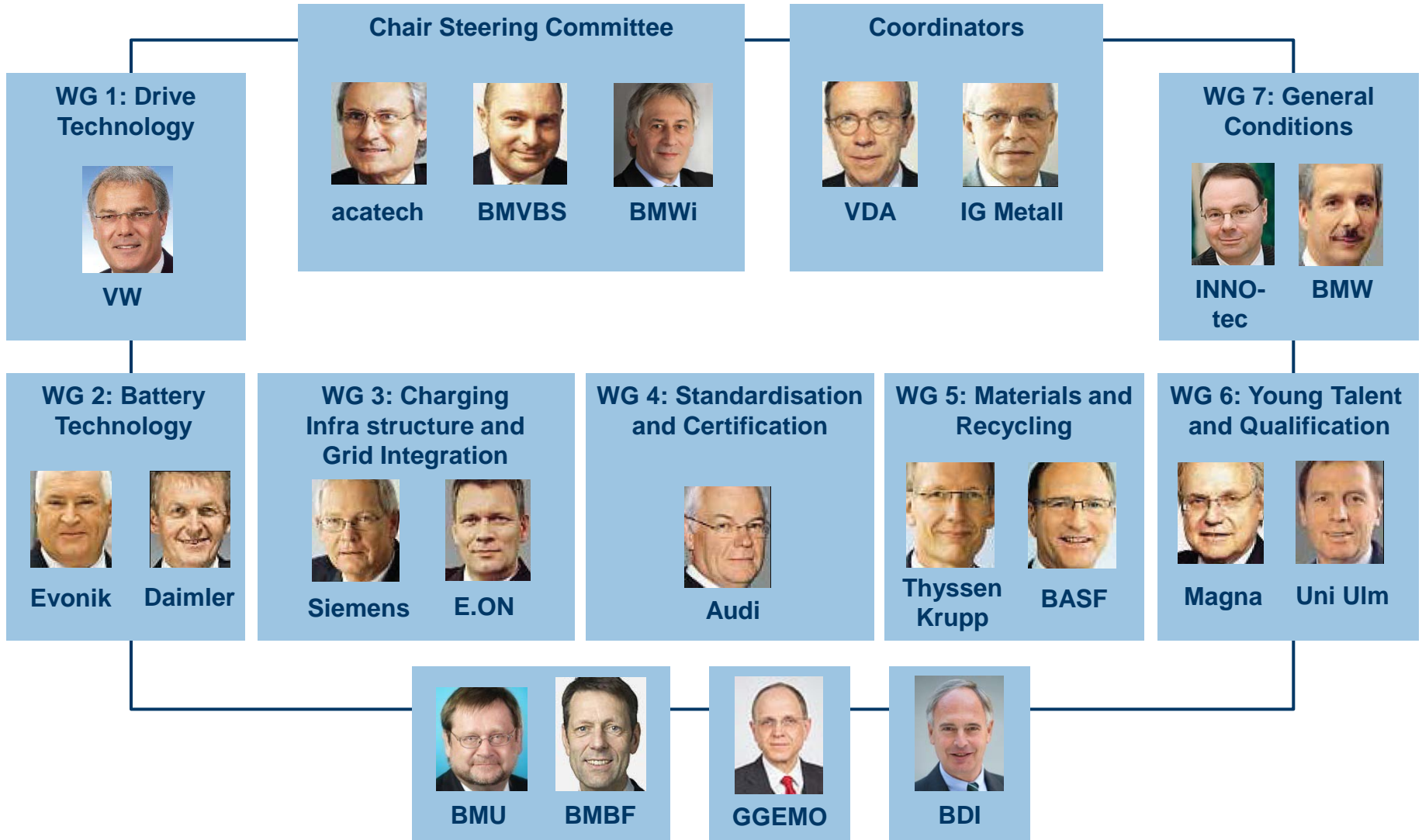
Topic of Dialogue	Date	
International benchmark innovation systems	13/09/2010	✓
Financing innovative business start-ups	07/04/2011	✓
Cluster landscape analysis		
Technology fields with great potential for added value and employment in Germany	27/02/2012	✓
The international dimension of technology and science policy – using the example of Asia	22/10/2012	✓

The National Platform for Electric Mobility (NPE)

- > Germany to become **leading supplier** and **leading market** for electric mobility until 2020
- > Worldwide unique **concentration of forces**: industry, science, politics, trade unions and associations
- > The approach: systemic, market-oriented and open to technological options
- > Agreement on a **phase approach**:



Steering Committee: Leading 7 Working Groups à 22 members



The National Platform for Electric Mobility: Results



Focus on society's major challenges and strategic projects

Health & Nutrition

*Expectation of life:
One century*



Climate & Energy

Climate friendly and affordable



Mobility

Always travelling best



Communication

Things learn to talk



Industry 4.0

Security

Protect economy and society



Key technologies

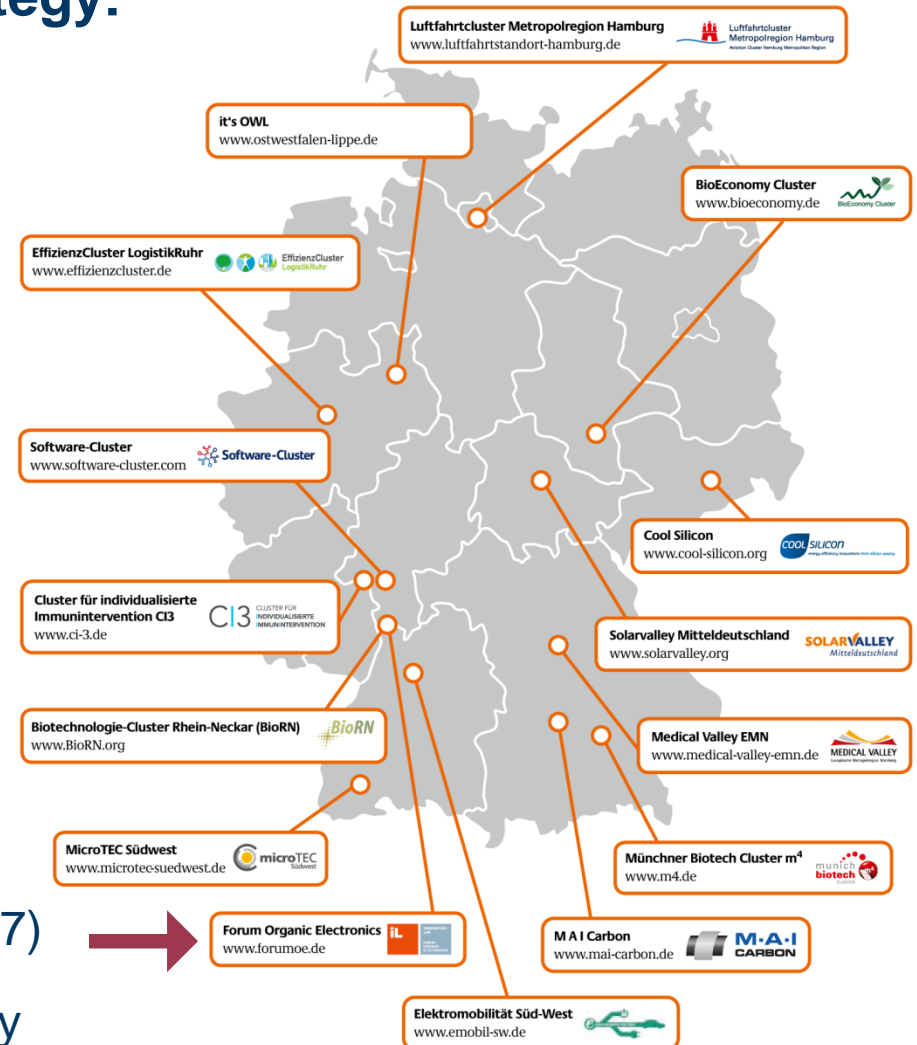
Strategic project “Industry 4.0“



- > **Industry 4.0:**
Unlock the potential of **Cyber-Physical Systems** for Germany's producing industry
 - Leading the “**4th industrial revolution**“ with smart products, smart production and smart engineering
- > Industry 4.0 contains several projects & activities
 - A **high-level expert group** (industry and academia) led by acatech and Robert Bosch GmbH develops the strategic direction for the Government
 - Publicly funded projects (BMBF and BMWi)
 - One top cluster rewarded
 - Two Research Campus Projects rewarded

National German Cluster Strategy: Top Cluster Competition

- > Competition launched by the Federal Ministry of Education and Research
- > Aim is to take Germany to the top of the league of technologically advanced nations
- > Clusters formed by business and science that enter into strategic partnerships
- > Three rounds of competition with a total public funding of about **600 million EUR** (2007-2017)
- > Decision made by independent jury



Research Campus: A new innovation instrument

- > Strategically motivated **long-term cooperation** between research institutions and industry in **applied basic research**.
- > New competencies and capacities should be developed to deal with **topics of tomorrow and the day after tomorrow**.
- > **Requirements:**
 - Bundling of research activities and competencies on one location, preferably at a university campus or at a research institution.
 - A **binding public-private partnership**
- > First 10 research projects were announced September 25, 2012

The European Institute of Technology: European network of co-location centres (EIT ICT)



<p>Berlin</p> 	<p>Eindhoven</p> 	<p>Helsinki</p> 
<p>Paris</p> 	<p>Stockholm</p> 	<p>Trento</p> 

EIT ICT Labs Strategy Integrating the Knowledge Triangle

- > Establish a **network of world-class co-location centers** to foster new ideas
- > **Educate** a new generation of **business savvy ICT professionals**
- > **Overcome fragmentation of Europe's excellence in ICT**
- > Create a **business-minded framework** for ICT innovations

Education

Creating a new breed of entrepreneurs

Research

Enabling excellent individuals and multidisciplinary teams to develop breakthrough ideas



Business

Supporting innovators all the way to the market





Summary

- > Several initiatives launched to advance the national innovation system
- > Goals of the High-Tech Strategy
 - priorities oriented to the global grand challenges
 - bridges between industry and science
 - improved framework for innovation in industry
- > National cluster strategy very successful

Next challenges

- > Inclusive Innovation and the international dimension of the innovation policy

Thank you very much for your attention.

Prof. Dr. Henning Kagermann
President

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Advisory structure of innovation in Germany

