

Germany's National Sustainable Development Strategy, the Climate Change Act and acatech's Efforts on Sustainability Issues

Professor Dr Frank Behrendt

acatech – National Academy of Science and Engineering



▪ The institution

- acatech: independent and self-determined representative of science and technology in Germany and abroad
- Supported by the federal government and the 16 federal states as a national academy since January 1, 2008
- Patron: Federal President Frank-Walter Steinmeier



▪ The network (status: Juli 2021)

- 603 members in Germany and abroad
- 101 senate members

The Objectives



- **Scientific recommendations**
acatech advises policymakers and the public on future technology issues



- **Knowledge transfer**
acatech offers a platform for exchange fostering cooperation between science and business



- **Promotion of young scientists and engineers**
acatech is committed to supporting young scientists and engineers

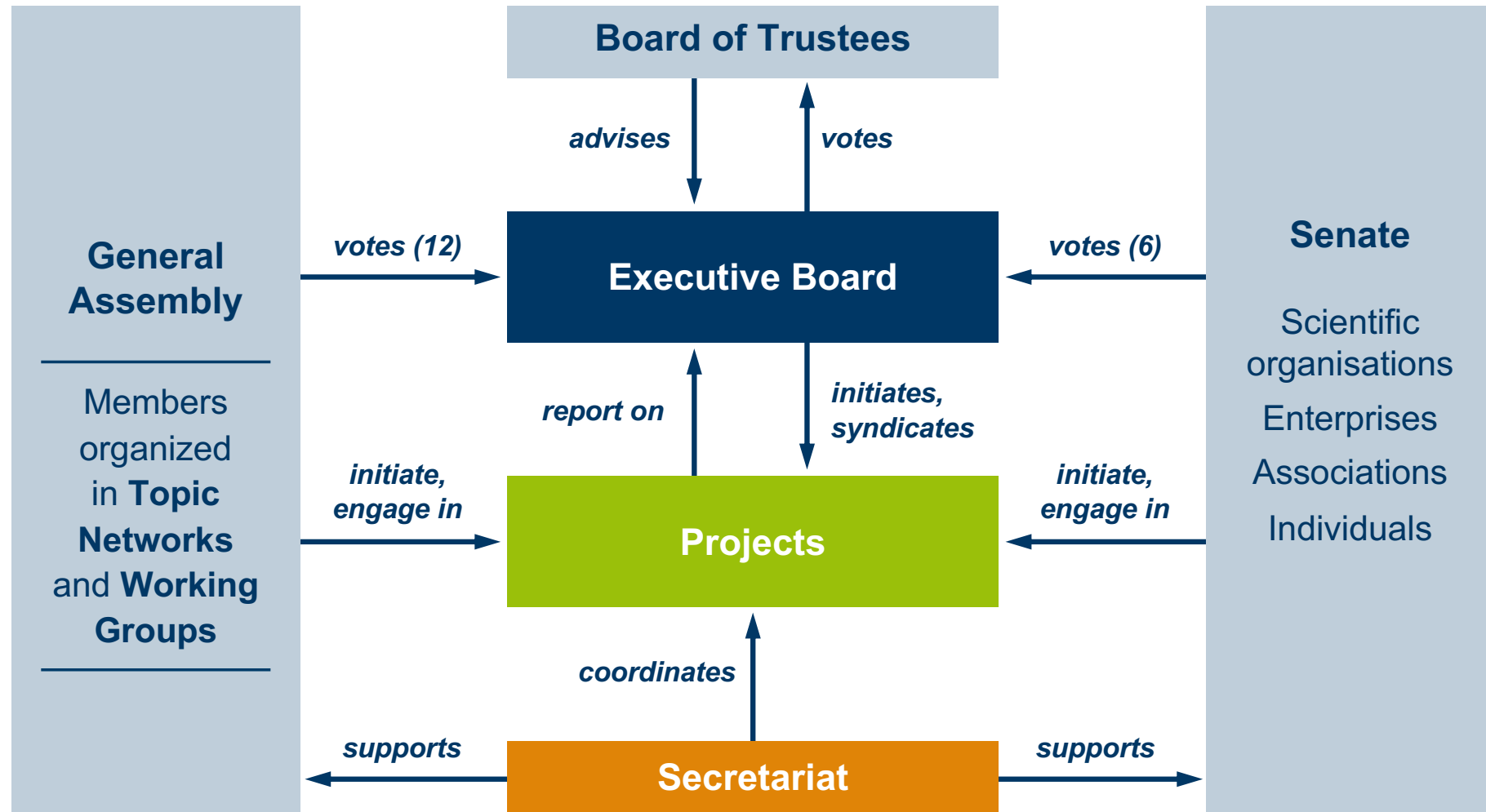


- **Innovative capacity**
acatech promotes sustainable growth through innovation



The Structure

The Two-pillar Model Science & Business



acatech's current Presidents



Prof. Dr.-Ing. Jan Wörner



Karl-Heinz Streibich



Financing

Ensuring Stability and Independence

**Project
sponsorship**
(public and private)



Core work

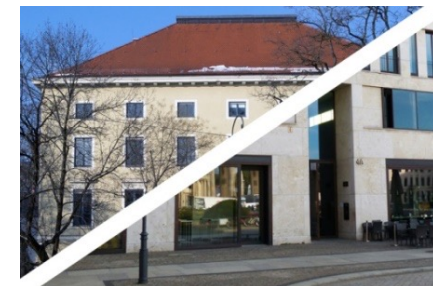
- Projects
- Events



**Institutional
sponsorship**
(by federal government
and federal states)



Academy
(Running
operations)



Sponsors of acatech

July 2021





Topic Networks and Key Topics

**Creating value and employment
for Germany**

**Economics,
Education and
Employment**

**Energy,
Resources and
Sustainability**

Mobility

Technologies

**Technology
Communication**

Key topics



Topic networks



At a Glance

The Topic Networks and Working Groups



Biotechnology & Bioeconomy



Energy & Resources



Healthcare Technologies



Information &
Communication Technology



Materials Science &
Engineering



Mobility, Logistics,
Aerospace Engineering



Nanotechnology



Product Development &
Production



Safety and Security



Society & Technology

- Working Group Education
- Working Group Communication in Technology
- Working Group Basic questions of Science & Engineering
- Working Group Economics & Innovation Research



German Sustainable Development Strategy

Origin and evolution of the Strategy

- 2002: GSDS was initially presented at the UN World Summit on Sustainable Development in Johannesburg.
- Updated every four years since 2004, with progress reports from the German Government published in 2004, 2008 and 2012.
- 2015: **2030 Agenda** has become the basis of the GSDS.
- New edition in 2017, which was updated in 2018 and 2021.





German Sustainable Development Strategy

Objectives of the Strategy

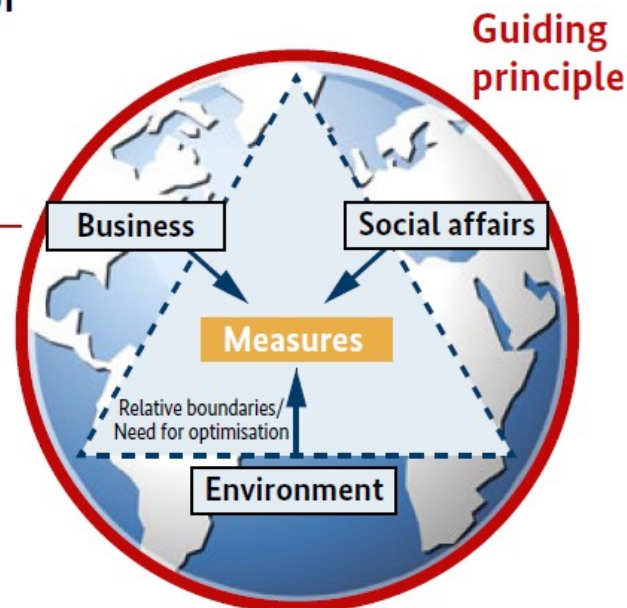
- To pursue a positive, comprehensive vision of Germany's sustainable future.
- To adopt policies to meet the needs of today's and future generations.
- To achieve economically efficient, socially balanced and environmentally sustainable development.

The three aspects of sustainability

Absolute limit:

Conservation of natural resources globally

A life in dignity for all



German Sustainable Development Strategy

Setting course for sustainability at all levels



- International level
 - High-level political forum
 - UN, G7, G20
- European level
 - Shared implementation strategy
 - European Sustainable Development Network (ESDN)
- National and regional level
 - Federation-Länder Exchange on Sustainable Development



German Sustainable Development Strategy

The Strategy's Sustainability Principles

- Principles for Sustainable Development

The GSDS sustainability principles

Apply sustainable development as a guiding principle at all times and in all decisions

- (1) Assume global responsibility*
- (2) Strengthen the natural resource base on which life depends*
- (3) Strengthen sustainable economic activity*
- (4) Preserve and enhance social cohesion in an open society*
- (5) Use education, science and innovation as drivers of sustainable development*

German Sustainable Development Strategy

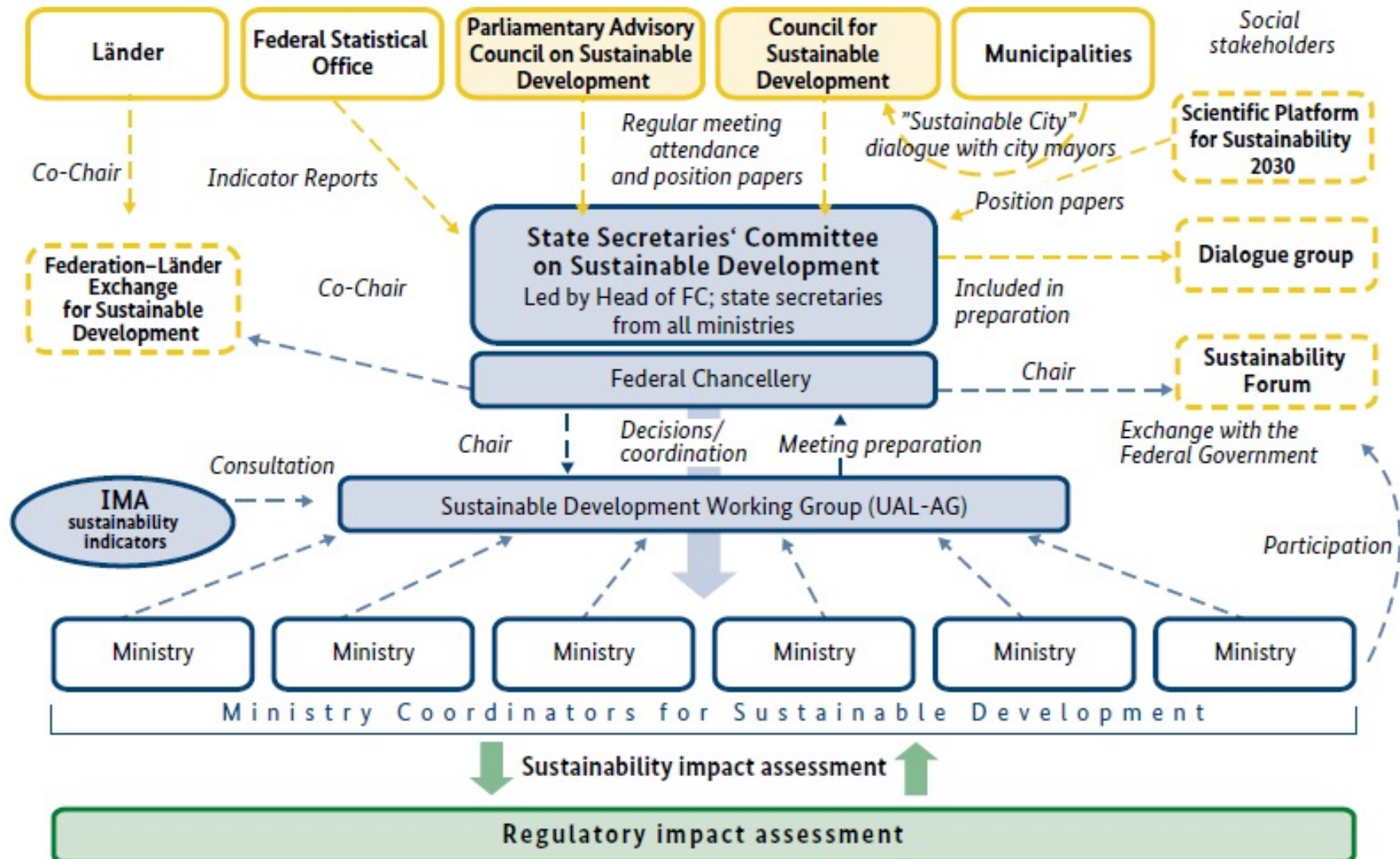
Social stakeholders: the Community Sustainability Project



- Stakeholders from civil society:
 - The public, trade unions, religious organisations and civic associations
- Private sector:
 - Businesses, chambers of commerce and associations
- Scientific community
- Arts and the media

German Sustainable Development Strategy

Institutions and responsibilities





Federal Climate Change Act

Intergenerational Contract for the Climate

- Entered into force in December 2019
- Amended in May this year -> Climate Change Act 2021

Germany to achieve climate neutrality earlier

- Greenhouse gas emissions
 - By 2030: 65% less CO₂ (current target 55 %)
 - By 2040: 88% less CO₂
 - 2045: Climate neutrality (current target 2050)
- Permissible annual CO₂ emissions for individual sectors such as energy, industry, transport and buildings to be reduced.





acatech's Efforts on Sustainability Issues

Overview of relevant activities of the Academy

- (Co-)Operation of various national platforms that contribute to SDGs
 - Plattform Industrie 4.0
 - Plattform Lernende Systeme (Germany's Platform for AI)
 - National Platform Future of Mobility
- Circular Economy Initiative Deutschland (CEID)
- Project Energy Systems of the Future (ESYS)
- Coordination of policy consultation dialogs:
 - At national level: The Innovation Dialogue
 - At European level: SAPEA project



Plattform Industrie 4.0

National Platform for the Digital Transformation

SDG 4 Quality Education

SDG 8 Decent Work and Economic Growth

SDG 9 Industry, Innovation and Infrastructure



Cooperation:

Driving force in the national and international exchange of expertise



SME Mobilization:

Guiding and supporting SMEs in their practical implementation



Recommendations:

Shaping the regulatory environment and supporting the transfer of knowledge

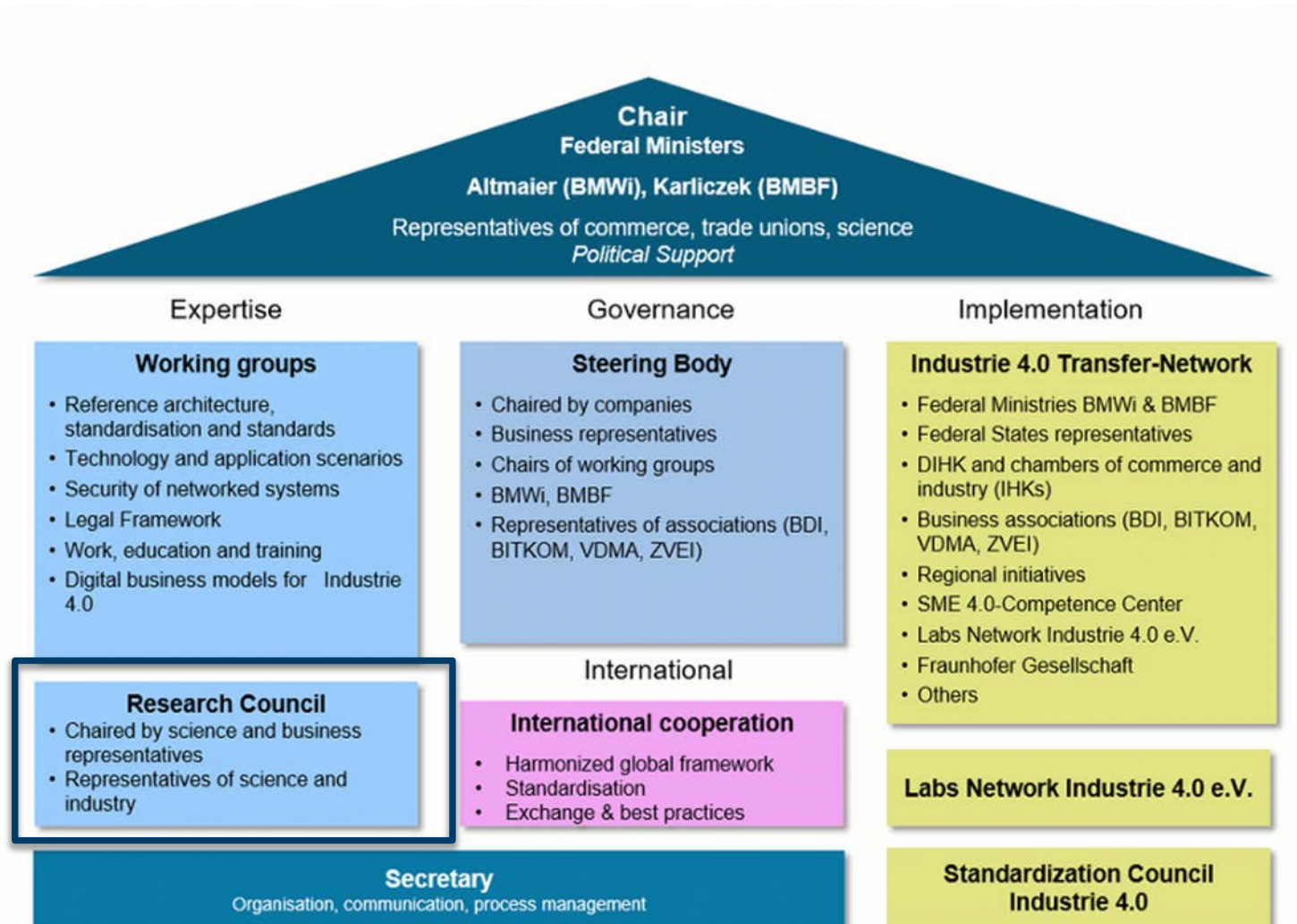


NATIONAL ACADEMY OF
SCIENCE AND ENGINEERING



Plattform Industrie 4.0

acatech's Role: Coordinator of the Platform's Research Council



BMWi; March 2020



Plattform Lernende Systeme

acatech's Role: Initiator and Coordinator of the PLS

SDG 8 Decent Work and Economic Growth

SDG 9 Industry, Innovation and Infrastructure

- Forum for artificial intelligence, that aims to shape Artificial Intelligence for the needs of society and utilize its economic potential.
- Launched by the Federal Ministry of Education and Research at the initiative of Acatech in 2017.
- Pools the current state of scientific and technological knowledge in order to identify new developments in the area of AI.





National Platform Future of Mobility (NPM)

acatech's Role: Operator of the NPM

SDG 9. Industry, Innovation and Infrastructure

SDG 11. Sustainable Cities and Communities

- Headed by the Federal Ministry of Transport and Digital Infrastructure; operated by acatech and IFOK GmbH.
- Clarifies facts on complex topics and brings together relevant stakeholders, technical expertise and politics.
- Recommends sets of measures that could help the government to shape a future-oriented, sustainable mobility system.
- Aims to develop a largely greenhouse gas-neutral and environmentally friendly transport system that enables efficient, high-quality, flexible, resilient mobility in both passenger and goods transport.



Circular Economy Initiative Deutschland (CEID)

acatech's Role: Organiser of the CEID



SDG 6. Clean Water and Sanitation | SDG 7. Affordable and Clean Energy
SDG 8. Decent Work and Economic | SDG 9. Industry, Innovation and Infrastructure
SDG 12. Responsible Consumption and Production | SDG 15. Life on Land

- Funded by the Federal Ministry for Education and Research.
- Joint initiative of acatech and SYSTEMIQ.
- Aims to shape a common target vision for a Circular Economy in 2030 and formulating concrete recommendations for action.
- 3 Working Groups: 1) Circular business models and regulatory framework conditions, 2) Traction batteries, 3) Packaging
- Final Report "Circular Economy Roadmap for Germany"



**Circular Economy
Initiative
Deutschland**

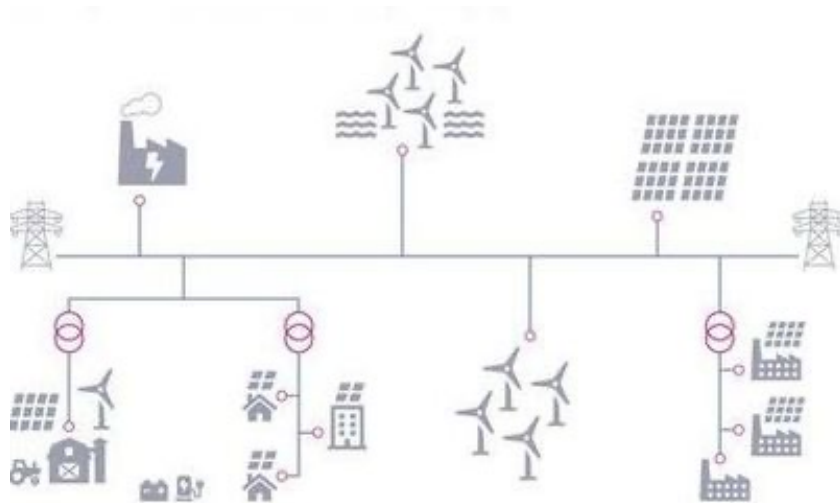


Project Energy Systems of the Future (ESYS)

acatech's Role: Organiser of ESYS Project



SDG 7. Affordable and Clean Energy
SDG 13. Climate Action



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- Funded by the Federal Ministry of Education and Research (BMBF)
- Joint initiative of acatech, Leopoldina and the Union of the German Academies (lead by acatech)
- Shaping the energy future for 2050
- 100+ energy experts from academia and industrial research
- Results provide scientific knowledge for the political discussion
- Presenting alternative solutions for the implementation of the energy transition





The Innovation Dialogue

acatech's Role: Organiser of the Innovation Dialogue

SDG 9

Industry, Innovation and Infrastructure



- Innovation Dialogue between Government, industry and science
- Organised by acatech on behalf of the Federal Government
- Established to provide the Government with independent expert advice on all aspects of the innovation scene and innovation policy
- Hosted biannually at the Federal Chancellery
- Attended by the Federal Chancellor, Ministers and representatives of science and industry



SAPEA:

Science Advice for Policy by European Academies

acatech's Role: Initiator and Coordinator of SAPEA

SDG 2. Zero Hunger | SDG 7. Affordable and Clean Energy

SDG 9. Industry, Innovation and Infrastructure | SDG 13. Climate Action

- Part of the European **Scientific Advice Mechanism** (SAM),
 - Independent, interdisciplinary and evidence-based scientific advice on policy issues
 - Advice to the European Commission
- Horizon 2020 project (2016-2021), receiving 6 Million Euros
- 100+ Academies in over 40 countries across Europe
- Topics are e.g. Cyber Security, Food from the Oceans, Light Vehicle CO₂-Emissions, New Technologies in Agricultural Biotechnology, Novel carbon capture and utilisation technologies...



**Thank you very much
for your attention.**

Professor Dr Frank Behrendt