

> acatech ANNUAL REPORT 2014



DEUTSCHE AKADEMIE DER TECHNIKWISSENSCHAFTEN



CONTENTS

ESIDENTS' FOREWORD	4
NOVATION POLICY ADVICE	6
ERGY, RESOURCES, SUSTAINABILITY	8
CHNOLOGIES	10
UCATION	12
CHNOLOGY COMMUNICATION	14
TERNATIONAL RELATIONS	16
ALOGUE	18
OJECTS	20
ENTS	22
BLICATIONS	24
MBERS	28
NATE	32
ECUTIVE BOARD	34
NDING COUNCIL	36
IANCES	38
FICES	42
	42
NKI PKIZE	44

Contents

> PRESIDENTS' FOREWORD



Prof. Dr. Reinhard F. Hüttl and Prof. Dr. Henning Kagermann, Presidents of acatech – National Academy of Science and Engineering.

The digital revolution has already changed the way we communicate; now we are witnessing more and more concrete examples of how it is also transforming our living and working environments. Digital technology will revolutionise entire industries and facilitate new ways of living. At this year's CeBIT, the "Smart Service Welt" Working Group presented a report to the German Chancellor, describing how products and services will increasingly merge to form smart services. We have promoted the fourth industrial revolution through a number of in-depth projects and through the Scientific Advisory Board of the Industrie 4.0 Platform. With its strategic initiatives "Industrie 4.0" and "Smart Service Welt - Webbased Services for Businesses" (Smart Service Welt - Internetbasierte Dienste für die Wirtschaft), Germany has established an industrial policy vision that has attracted attention from around the world. The architects of this vision were brought together under the patronage of acatech.

Our mobility behaviour and mobility infrastructure are also being affected by the changes referred to above. In its second progress report, the National Platform for Electric Mobility, which is coordinated by acatech, placed particular emphasis on the development of the market for electric vehicles. As drive technologies change, traffic and transport are also becoming increasingly connected. At the same time, the vision of autonomous, driverless vehicles is fast becoming a reality. Moreover, connected transport allows mobility to be integrated into the energy transition, where it can exert a stabilising influence on a process that is set to last for many years to come.

The scientific community is addressing its responsibility with regard to the energy transition by developing strategies for switching to a sustainable energy system. The necessary coordination of the relevant energy research initiatives is being provided by the project "Energy Systems of the Future" (Energiesysteme der Zukunft). In 2014, the researchers involved in this joint project of the German academies investigated a wide range of topics and set out the priority areas for longterm research. Their findings informed the Agenda Congress of the "Energiewende Research Forum" (Forschungsforum Energiewende).

Technology policy cannot be transformed without progress on the relevant cross-cutting themes. The "Barometer of Young Talent in the STEM Subjects" (MINT Nachwuchsbarometer) that was recently established by acatech and the Körber Foundation addresses the training of young people. In addition, the National STEM Summit held in 2014 served to further strengthen the alliance of stakeholders seeking to promote comprehensive education in the STEM subjects. Another equally important issue is the security of our critical infrastructure. Accordingly, acatech has supported the concept of resilience as the security paradigm of the future, arguing that it must be incorporated into technological developments right f raising acade the G intens and co In 20 acate Innov nue to policy



4

right from the outset and stressing the importance of actively raising this issue in the relevant international federations of academies. Finally, we published a joint position paper with the German academies of sciences that has prompted an intensive discussion of quality criteria for science reporting and communication.

In 2014, Federal Chancellor Merkel once again assigned acatech the task of preparing the German government's Innovation Dialogue. We view this as an invitation to continue to press ahead with our mission of providing advice to policymakers and the general public.

Berlin and Munich, January 2015

Prof. Dr. Reinhard F. Hüttl acatech President

Prof. Dr. Henning Kagermann acatech President

acatech Annual Report 2014

> INNOVATION POLICY ADVICE

hether it be digital networks, a sustainable energy sup-**VV** ply or future technologies, strong innovation is key to ensuring long-term prosperity and global competitiveness. As a result, innovations have become increasingly important over the past few years. The growing complexity of modern innovation systems has led to the development of a multitiered consultancy structure incorporating the Industry-Science Research Alliance, that has been supporting imple-

The Academy provides advice to policymakers and the public through

scientific reports on current innovation policy issues.

mentation of the German government's High-Tech Strategy since 2006, the Commission of Experts for Research and Innovation, that publishes regular reports on Germany's innovation system, and the national academies of sciences, that provide the scientific expertise for advising policymakers and the public.

The Innovation Dialogue between the German government, the scientific community and industry occupies a central position within this structure. The Dialogue, which is prepared by acatech, was established in 2010 to provide a discussion platform for drawing together expertise from different sectors of society. It enables actors from different government departments, industries and sectors who play a key role in Germany's innovation system to come together in order to discuss important strategic issues.

In 2014, Federal Chancellor Angela Merkel renewed acatech's mandate to provide the German government with innovation policy advice and reappointed acatech President Henning Kagermann as chairman of the Innovation Dialogue's Steering Committee. The Steering Committee comprises 16 high-level representatives of business, science and civil society who take part in the Innovation Dialogue



together with the Federal Chancellor, the Federal Minister for Economic Affairs, the Federal Minister of Education and Research and the Head of the Federal Chancellery. The first meeting of the Innovation Dialogue's current membership was held at the invitation of the Federal Chancellor in Octo-



In 2014, the German government once again tasked acatech with preparing the Innovation Dialogue, while acatech President Henning Kagermann was reappointed as chairman of the Steering Committee





6

Innovation Policy Advice

The new members of the Innovation Dialogue met at the invitation of Federal Chancellor Anaela Merkel at the Federal Chancellery on 13 October.

ber 2014. The participants discussed the strengths and weaknesses of Germany's innovation system compared to other countries around the world, as well as the innovation policy implications of education in the STEM subjects.

According to a study carried out in preparation for the meeting, Germany will need to adapt to a number of significant changes although it is currently well placed in terms of innovation. While Germany's strengths lie in high-tech technologies and a highly productive research system, it still has some ground to make up with regard to education spending and access to venture capital. The principal opportunities and challenges reside in the field of digital networking. Whilst there is huge potential for growth, e.g. through Industrie 4.0, the scientific and business communities also need to be prepared for the new structures, processes and business models that are emerging as a result of the digital revolution. This will be essential if Germany is to secure its position among the world's leading centres of innovation.

http://innovationsdialog.acatech.de

> ENERGY, RESOURCES, SUSTAINABILITY

ndustry, the scientific community and the public are facing numerous challenges as a result of a growing demand for resources, a changing climate and Germany's decision to shift towards a sustainable, nuclear-free energy system. Two of the key challenges of Germany's energy transition include research on cost-effective lower-carbon heating and mobility technologies and the efficient transformation of the

energy infrastructure. Since its initiation in 2013, the project "Energy Systems of the Future" (ESYS) has been developing policy options on these issues. This joint initiative of acatech, the German National Academy of Sciences Leopoldina and the Union of the German Academies of Sciences and Humanities facilitates interdisciplinary cooperation between experts in the field of energy research. In 2014,



At the plenary meeting of the "Energiewende Research Forum", RWI President and acatech Executive Board member Christoph M. Schmidt outlined various policy options for the European integration of the energy transition as a basis for further discussion.



ESYS Steering Committee Chairman Robert Schlögl spoke about the concrete challenges of the energy transition at the plenary meeting of the joint academies project.

the topics addressed by the various working groups included the complex interactions between technology, the regulatory framework and public expectations, the value of scenario studies and reform options for the European Emissions Trading System.

The "Energiewende Research Forum" ensures that the findings of the ESYS initiative are introduced into the public debate. This year, the main focus of this dialogue platform for the scientific community, government, business and civil society was on the "Strategic Research Agenda (Energiewen de)". The Research Agenda identifies a range of topics which contribute to the German Federal Government's Energy Research Programme.

While the decision to phase out nuclear power is one of the pillars of Germany's energy transition, it is still necessary to manage existing radioactive waste. In a project funded by the Federal Ministry of Education and Research, acatech has been investigating the extent to which it is possible to reduce the long-term hazard potential of this waste using partitioning and transmutation - procedures that transform heat-generating waste into shorter-lived nuclides. The project submitted a number of recommendations on this topic. In view of the controversy surrounding the issue of fracking and its economic and environmental impact, acatech has initiated a project entitled "Hydraulic Fracturing - A Technology Under Debate" (Hydraulic Fracturing - Eine Technologie in der Diskussion). The project group is compiling an overview of the technology's potential, opportunities and risks in order to increase and broaden information on the topic. The "Report from the Project" published in 2014 provides an insight into the results achieved to date.





ten), these perceptions of the interplay between technology and society are formulated in narrative form for molecular catalysis, alternative photovoltaics, synthetic biology and photoelectrochemistry in order to provide the basis for a dialogue with different social actors.

www.acatech.de/energiesysteme www.acatech.de/forschungsforum-energiewende



In response to the public controversy surrounding the issue of fracking, acatech has initiated the project "Hydraulic Fracturing - A Technology Under Debate". Left to right: project leader and acatech Member Rolf Emmermann (Brandenburg Higher Education Council) and Johannes Jolmes (NDR).



> TECHNOLOGIES

ur private and working lives have been fundamentally Utransformed by information and communication technology and will undergo further changes in the future as the digital revolution marches on. acatech initiated two strategic initiatives under the auspices of the German government's High-Tech Strategy in order to take a more detailed look at these changes. One working group has been studying smart services, in which products, processes and services are digitally implemented and connected to each other, forming the basis of new business models. The "Smart Service Welt" Working Group presented its preliminary recommendations for making Germany a leading supplier in this field to Federal Chancellor Angela Merkel at CeBIT in March 2014. At the 8th National IT Summit in October 2014, the Federal Minister for Economic Affairs. Sigmar Gabriel, announced the "Smart Service Welt" technology competition. With up to 50 million euros of funding, the

LU CEDI 1 2014





Presentation of the "Smart Service Welt" Working Group's report to Angela Merkel in April.



Project leader Klaus Thoma (right) presented the results of acatech's "Resilien-Tech" project to Wolf Junker, head of division at BMBF, at the 2nd BMBF Innovation Forum "Civil Security" on 8 May.

competition is already addressing some of the Working Group's key recommendations. Further contributions have been made through a strategic initiative of the Scientific Advisory Board of the Industrie 4.0 Platform, which is coordinated by acatech. In view of the fact that there are currently several different interpretations of exactly what is meant by Industrie 4.0, the Scientific Advisory Board presented a paper at the Hannover Messe trade fair in April 2014 that provides a clear definition of Industrie 4.0 and outlines its potential for the future. The Platform also published a white paper in cooperation with the Scientific Advisory Board that sets out the twelve priority research areas. These will be used to formulate a research roadmap for Industrie 4.0 during the course of 2015.

The international potential of Industrie 4.0 was illustrated by the project "Advanced Manufacturing and Urban Development - India" (Advanced Manufacturing und Stadtentwicklung - Indien) that concluded in 2014. The project investigated the relationship between modern ICT-based urban manufacturing and sustainable urban development in emerging economies. acatech used the example of India as a basis for formulating recommendations for German development cooperation at the interface between economic and urban development. Moreover, in the publications "Integrative ICT for the City of the Future" (Integrierende IKT für die Stadt der Zukunft) and "City of the Future - Strategic Elements of Sustainable Urban Development" (Stadt der Zukunft - Strategieelemente einer nachhaltigen Stadtentwicklung) acatech demon strates that sustainable urbanisation processes are still possible even at a time of increasing globalisation, thereby making an active contribution to the research agenda of the National Platform for the City of the Future.

The project "Resilien-Tech: 'Resilience by Design' - a strategy for the technology issues of the future" (Resilien-Tech: "Resilien-Tech: "Resi



ence by Design" - Strategie für die technologischen Zukunftsthemen) investigated how critical infrastructure such as electricity grids can be protected and kept operating reliably even in the event of unforeseen disruption. The acatech POSITION PAPER on this topic makes a number of important suggestions aimed at redefining our understanding of security. These proposals were discussed at the 2nd BMBF Innovation Forum "Civil Security" that was held in Berlin in May.

www.acatech.de/technologien



The Mayor of Freiburg, Martin Haag, speaking on mobility in the city of the future at the 2014 Academy Day.

> EDUCATION

∧ s a result of demographic change, new mobility concepts And the digital transformation of our economy, it will be necessary to step up efforts to ensure an adequate supply of skilled professionals in the fields of science, technology, engineering and mathematics (STEM). Moreover, a forward-looking society needs politically mature citizens who possess a sound understanding of science and technology so that they are able to participate responsibly in shaping technological, economic

and social change. It is acatech's view that a sustainable strategy for ensuring an adequate supply of skilled workers will require a new quality of training and further education in the STEM fields that reflects the changed requirements of the digital workplace. Both new monitoring techniques that allow future trends to be identified in better time and innovative forms of cooperation between science, business, education and policy makers will be indispensable in order to develop a





The annual National STEM Summit brings together policy makers and senior experts from business and civil society. Left: then President of the German Confederation of Trade Unions (DGB), Michael Sommer (left) and Chairman of the Board of Management of Daimler AG, Dieter Zetsche.



Chairman of the German Council of Science and Humanities and acatech Member Manfred Prenzel speaking at the acatech Annual Meeting on the central importance of STEM education for German industry.

shared vision of future challenges. acatech addressed this subject area through a variety of different projects and initiatives over the course of 2014.

One example is the "2014 Barometer of Young Talent in the STEM Subjects" that the Academy published in cooperation with the Körber Foundation. This trend report, that is now published annually, investigates the degree of interest in science and technology among children and young adults. It is also analysing the structural conditions required to provide a high standard of education in the STEM subjects. The report is prepared under the leadership of acatech Executive Board member Ortwin Renn and acts as an early warning system for securing the supply of skilled professionals in the STEM fields. The acatech project "Mobilisation of Educational Potential to Secure a Skilled STEM Workforce - the Contribution of Dual Study Programmes" (Mobilisierung von Bildungspotenzialen für die MINT-Fachkräftesicherung - der Beitrag des dualen Studiums) concluded in December 2014. The project identified ways in which dual study programmes can reach new target



12

groups for the STEM subjects as well as addressing existing target groups more successfully.

The "National STEM Forum" (Nationales MINT Forum) was established in 2012 at the instigation of acatech and the joint STEM-initiative of the Confederation of German Employers' Associations (BDA) and the Federation of German Industries (BDI) (MINT Zukunft schaffen). It has now become successfully established as a dialogue platform for 30 national key actors involved in the promotion of STEM education in Germany. The Forum also provides advice to policy makers and society. The 2nd National STEM Summit held in Berlin in May 2014 brought together more than 300 representatives of politics, business and civil society. In the coming year, the priority themes addressed by the Forum will be expanded to include vocational education, parents' competencies in the STEM subjects and digital education.

www.acatech.de/bildung



The use of existing technologies and the development of new ones are of fundamental importance to securing Germany's place as a centre of innovation. It is therefore necessary to ensure that they are supported by broad sectors of the public. In establishing technology communication as a priority theme, acatech's aim is to improve the theoretical

understanding of the actors involved in negotiating a social

consensus on technology-related issues, as well as to use this enhanced understanding to inform the development of practical and innovative dialogue formats. The Academy then tests these formats in a real-world setting.

acatech's 2014 Annual Meeting "Society shapes Technology" focused on the issue of technology communication. Journalists and the mass media have always played a key role in science



At the wrap-up event of the project "Science, the Public and the Media" held on 17 June in Berlin, acatech brought together scientists and journalists to discuss the relationship between the scientific community and the media and technology communication. In view of the multiple changes in the science and media landscape, the German academies of sciences are concerned that science journalism is finding it hard to attract people's attention amid a growing volume of competing media content. As a result, acatech, the Union of the German Academies of Sciences and Humanities and the German National Academy of Sciences Leopoldina published a joint position paper entitled "On Designing Communication between the Scientific Community, the Public and the Media" (Zur Gestaltung der Kommunikation zwischen Wissenschaft, Öffentlichkeit und den Medien). This document prompted an intensive discussion of quality criteria in science reporting.

In addition to its involvement in theoretical analyses and debates, acatech carries out critical appraisals of different communication formats and engages in the ongoing development of innovative dialogue formats. This provides an opportunity to cooperate with a wide range of different partners.



Left: In September, more than 100 participants had the opportunity to discuss controversial technologies at each of the three "Science & Technology Cafés" held at an event in Mainz. Right: Axel Auweter, winner of the science slam organised by acatech and the Bavarian Academy of Sciences and Humanities. He captivated the audience with his story about digital worlds.

Examples include the science slam organised by acatech and the Bavarian Academy of Sciences and Humanities (Bayerische Akademie der Wissenschaften) as part of the Munich science festival (Münchner Wissenschaftstage) and the "Technology Communication Learning Workshop" run in partnership with "Science in Dialogue" (Wissenschaft im Dialog). This latter event, which was held at the Deutsches Museum in Munich, provided some 20 young scientists with a chance to explore the question of how to communicate facts about technology and how to engage the public in the development of new technologies. Finally, delegates at the 128th congress of the German Association for the Advancement of Science and Medicine (Gesellschaft Deutscher Naturforscher und Ärzte) had the opportunity to discuss topical issues such as artificial photosynthesis with scientific experts in the "Science & Technology Cafés" organised by acatech.

www.acatech.de/technikkommunikation



ource: acateci



Through its international activities, acatech forms part of a European and global network. In his role as president of the European Council of Academies of Applied Sciences, Technologies and Engineering (Euro-CASE), acatech President Reinhard F. Hüttl has directed the institution's focus towards the issues of innovation and technology policy and energy and climate policy. A dialogue has been commenced with the relevant European academy sister organisations with the aim of providing the European Institutions with comprehensive inde-

pendent policy advice covering all disciplines. At the annual conference in Brussels, the work of the platforms was presented to the new European Commission. This included a position paper on the future of the European Emissions Trading System and a series of recommendations regarding the direction of European innovation policy. All of these activities were supported by acatech's Brussels office.

Outside of Europe, acatech has particularly important partnerships with the Chinese Academy of Engineering and the Indian







Left: Vladimir Šucha, Director-General of the Joint Research Centre of the European Commission. Right: Discussion on independent evidence-based policy advice by a panel including ALLEA President Günter Stock, EASAC President Jos van der Meer, Euro-CASE President Reinhard F. Hüttl and representatives of the European Commission.





Left: acatech Member and co-chair of the Energy Platform, Ottmar Edenhofer, presenting the Euro-CASE position paper on emissions trading to ETS rapporteur Ivo Belet MEP. Right: acatech attaches particular importance to engaging in a dialogue with other international academies of engineering. Accordingly, the Academy has links to a number of organisations, including the Indian Royal Academy of Engineering.

National Academy of Engineering. The Academy's cooperation with these organisations involved joint projects on digital infrastructure, urban industrial development and smart manufacturing.

acatech also assisted the Federal Ministry of Education and Research in formulating its strategy on China in advance of the third Sino-German Intergovernmental Consultations. The current situation and likely future trends regarding competition and cooperation with China were analysed and recommendations were drawn up for the life sciences, ICT, key technologies, renewable energy, environmental, higher and vocational education and the humanities and social sciences. acatech was also delighted to be charged with the task of representing the interests of Germany's science and science promotion organisations at the "Science and Technology in Society (STS) forum" during the period 2013-2014. Moreover,

the Academy played an active role in the International Council of Academies of Engineering and Technological Sciences (CAETS).

www.acatech.de/internationales



The Academy pursues its mission of providing advice to government and the public by engaging in a direct dialogue with policymakers, the media and civil society. acatech actively feeds the results of its work into current debates, raises strategic issues and provides evidence-based advice. acatech is involved in a broad dialogue with decision-makers from government and civil society regarding the key technology policy themes of digitisation and Industrie 4.0. For example, representatives of acatech discussed the transformation of manufacturing and the workplace in the digital age with the different parliamentary groups in the German Bundestag. The Academy also contributed to the German government's IT Summit and



At an "lunch with acatech" (acatech am Mittag) event on 20 May, acatech President Hennina Kagermann reported to members of the German Bundestag on the progress made with regard to electric mobility in Germany and the requirements for its rapid expansion.



This mystery piece of technology was at the centre of a competition for schoolchildren and researchers organised by acatech.

provided input at a number of symposia on topics such as cybersecurity and Web-based services. It also supplied experts and organised events for Science Year 2014 "The Digital Society". In addition, the Academy contributed to the current debate on the opportunities and risks of fracking by organising a meeting with members of the German parliament. Rolf Emmermann, head of the acatech project "Hydraulic Fracturing - A Technology Under Debate", gave papers on this topic both at this event and at the Frankfurter Allgemeine Zeitung's "Technology Journalism Forum".

At the beginning of the year, acatech President Henning Kagermann reported to members of the German parliament on the current status of electric mobility in Germany. In December, the National Platform for Electric Mobility, which is chaired by Henning Kagermann, published a review of the pre-market phase for electric mobility in its second progress report. acatech also initiated a structured dialogue with the foundations of Germany's political parties. Political foundations will now be involved in future projects right from the earliest stages.

A new home for the public dialogue on futuristic technologies is being built in Berlin. Work began on the House of the Future in 2014 and it is expected to open its doors to the public in 2017. As one of the partners in this project, acatech is once again helping to make research come alive for the public and

engaging with them in a dialogue about innovations. acatech's PUNKT - Prize for Technology Journalism and Technology Photography recognises outstanding technology journalism. Now in its tenth year, a record number of entries were received in 2014. At a workshop in November, prizewinners, judges and journalists discussed how the relationship between science, the public and the media is changing. Furthermore, acatech showed how learning about technology can be both fun and creative in a competition where schoolchildren and researchers had to guess what a mystery piece of technology was. The participants worked to the highest scientific standards in unravelling the mystery and provided their interpretations of the core theme through a variety of humorous and poetic contributions. In doing so, they clearly demonstrated that technology and culture belong together.



Sina Platzbecker's creativity and understanding of technology won her 1st place in acatech's competition for schoolchildren.

The acatech Members collaborate on a variety of projects with experts from the scientific and business communities. The Academy's work is organised under the following priority themes: Energy, Resources and Sustainability, Technologies, Education and Technology Communication. These are complemented by interdisciplinary activities such as joint projects with other academies. The list below includes all the acatech projects worked on during 2014. Collaborations with other academies where acatech was not the lead partner are omitted for reasons of space. More detailed information about the projects' content and funders can be found on www.acatech.de.

NAME	DURATION
The Relationship between Science, the Public and the Media (in partnership with the Union of to of Sciences and Humanities and the German National Academy of Sciences Leopoldina)	he German Academies Jan. 2012 – May 2014
Future Business Clouds	Aug. 2012 - June 2014
Advanced Manufacturing and Urban Development – India	Dec. 2013 - Sep. 2014
Resilien-Tech: "Resilience by Design" - a strategy for the technology issues of the future	July 2012 - Sep. 2014
Assistance to BMBF in developing its strategy on China	Dec. 2013 - Sep. 2014
Social Implications of Partitioning and Transmutation Research	Sep. 2012 - Oct. 2014
Euro-CASE Innovation Platform	Jan. 2012 - Dec. 2014
New edition of Innovative Potential of Healthcare Technologies	Oct. 2012 - Dec. 2014
Mobilisation of Educational Potential to Secure a Skilled STEM Workforce – the Contribution of Dual Study Programmes	July 2012 – Dec. 2014

NAME

Moderation of National Platform for Electric Mobility comprising representatives	
of government and the scientific and business communities	July 2013 - Dec. 2014
Euro-CASE Energy Platform	June 2013 - Dec. 2014
Workshop series with the Chinese Academy of Engineering (CAE): Ranking of Intelligent Cities	Jan. 2013 - Dec. 2014
Workshop series with the Indian National Academy of Engineering (INAE): Big Data for Engineering/Advanced Manufacturing	Jan. 2013 – Dec. 2014
Human Resources Group	May 2014 – Jan. 2015
Hydraulic Fracturing – A Technology Under Debate	Aug. 2013 - Feb. 2015
Preparation of a strategy process on digitisation	Aug. 2014 - Feb. 2015
City of the Future initiative	Nov. 2011 – Mar. 2015
The Laboratory within Engineering Education	July 2012 - May 2015
Coordination of National STEM forum (Nationales MINT Forum) (in partnership with the "MINT Zukunft schaffen" initiative)	Sep. 2012 – June 2015
Smart Service Welt - Web-based Services for Businesses	Mar. 2013 – June 2015
Coordination and organisation of a Scientific Advisory Board as part of the strategic initiative Industrie 4.0	Sep. 2013 – Aug. 2015
Industrie 4.0 – Engineering of Smart Products and Services	Sep. 2014 - Aug. 2015
Industrie 4.0 – International Benchmarking and Future Options Study	Jan. 2014 - Nov. 2015
Artificial Photosynthesis – Development of Technology Futures	Oct. 2013 - Dec. 2015
Energiewende Research Forum (in partnership with the Institute for Advanced Sustainability Studies and the Max Planck Society)	April 2013 – Feb. 2016
Energy Systems of the Future (in partnership with the German National Academy of Sciences Leopoldina and the Union of the German Academies of Sciences and Humanities)	April 2013 – Feb. 2016
Workshop series: Industrie 4.0 – The Future of Industrial Work	Dec. 2014 - Nov. 2016
APPsist – Intelligent Knowledge Services for Smart Production	June 2014 - Dec. 2016
Barometer of Young Talent in the STEM Subjects (in partnership with the Körber Foundation)	July 2013 - June 2017
Innovation Dialogue between the German government and the scientific and business communities	Dec. 2009 - Dec. 2017

20

DURATION



The Academy's events facilitate a dialogue between science, industry, government and civil society, providing a platform for people to freely share their ideas and engage in lively debate. The list below features the key events held in 2014.

New Delhi, 23-24 January 2014 Indo-German Science and Technology Centre -Workshop "Strategies and Concepts for Advanced Manufacturing"

Munich, 24 January 2014 Workshop "Corporate Venture Capital"

Munich, 3-4 February 2014 Workshop "Artificial Photosynthesis. Promising approaches, striking hurdles"

Augsburg, 25 February 2014 Prize-giving ceremony of schools competition for researchers and young people

Stuttgart, 3 April 2014 Academy Day 2014 "Future Mobility"

Munich, 7 May 2014 Breakfast with members of the Bavarian State Parliament

Berlin, 8 May 2014 2nd National STEM Summit

Berlin, 20 May 2014 "Lunch with acatech" (acatech am Mittag) at the German Bundestag

Berlin, 17 June 2014 Presentation of results of the project "Science, the Public and the Media"

Paris, 26 June 2014		
Franco-German workshop		
"Round Table on Energy Transition"		
Munich, 27 June 2014		
Annual Meeting of the Senate		
Berlin, 2 September 2014		
acatech symposium in honour of Prof. Günter Spur		
Berlin, 13 October 2014		
Innovation Dialogue "International Benchmarking		
Study Innovation Systems/The Innovation Policy		
Challenge of STEM Education"		



acatech's events bring together experts and other interested parties from industry, government and civil society, allowing them to engage in technical discussions and share their opinions.

Vuhan, 29-31 October 2014 Brd Sino-German workshop "iCity"

Berlin, 4 November 2014 catech Annual Meeting

Aunich. 10 November 2014 cience Slam in cooperation with the Bavarian Academy Sciences (Bayerische Akademie der Wissenschaften)

erlin. 11 November 2014 Lunch with acatech" (acatech am Mittag) the German Bundestag

erlin, 17 November 2014 Stakeholder dialogue on the "Barometer of Young Talent in the STEM Subjects"

Munich, 27-28 November 2014 11th symposium of the German-Japanese Society for Integrative Business (Deutsch-Japanische Gesellschaft für integrative Wissenschaft)

Brussels. 2 - 3 December 2014 Euro-CASE Annual Conference on European innovation and energy policy

Darmstadt, 4 December 2014 Workshop "Industry - Infrastructure - Society"

Berlin, 18 December 2014 Plenary meeting "Energy Systems of the Future"



acatech produces publications on strategic engineering and technology policy issues. The acatech POSITION PAPER series presents the Academy's recommendations. Analyses and ideas on principles of science and engineering and science-based policy advice are published in the Academy's IMPULSE series. The full technical reports on the results of acatech projects are published in the acatech STUDY series, while the acatech DISCUSSION series features documentation relating to events. Finally, preliminary studies and discussion papers arising from the projects are published as part of the acatech MATERIALS series.

"acatech POSITION PAPER" series

acatech (Ed.)

Partitionierung und Transmutation nuklearer Abfälle. Chancen und Risiken in Forschung und Anwendung (acatech POSITION PAPER) Munich 2014

acatech (Ed.)

Innovationskraft der Gesundheitstechnologien. Neue Empfehlungen zur Förderung innovativer Medizintechnik (acatech POSITION PAPER) Munich 2014

acatech (Ed.)

Potenziale des dualen Studiums in den MINT-Fächern (acatech POSITION PAPER) Munich 2014

acatech (Ed.)

Resilien-Tech. "Resilience-by-Design": Strategie für die technologischen Zukunftsthemen (acatech POSITION PAPER) Munich 2014

acatech (Ed.)

Future Business Clouds. Cloud Computing am Standort Deutschland zwischen Anforderungen, nationalen Aktivitäten und internationalem Wettbewerb (acatech POSITION PAPER) Munich 2014



Position papers from collaborative projects

Leopoldina/acatech/Union of the German Academies of Sciences and Humanities (Eds.)

Frühkindliche Sozialisation. Biologische, psychologische, linguistische, soziologische und ökonomische Perspektiven Halle (Saale) 2014

Leopoldina/acatech/Union of the German Academies of Sciences and Humanities (Eds.) Individualisierte Medizin. Voraussetzungen und Konsequenzen Halle (Saale) 2014

Publications

acatech / Union of the German Academies of Sciences and Humanities / Leopoldina (Eds.) Zur Gestaltung der Kommunikation zwischen Wissenschaft, Öffentlichkeit und den Medien. Empfehlungen vor dem Hintergrund aktueller Entwicklungen Munich/Mainz 2014

Arbeitskreis ",Smart Service Welt" / acatech (Eds.) SMART SERVICE WELT. Umsetzungsempfehlungen für das Zukunftsprojekt Internetbasierte Dienste für die Wirtschaft (Positionspapier) Berlin 2014



"acatech STUDY" series

Wolter, A. et al. (Eds.) Potenziale des dualen Studiums in den MINT-Fächern -Eine empirische Untersuchung (acatech STUDY) Munich 2014

Renn, O. (Ed.) Partitionierung und Transmutation. Forschung - Entwicklung - Gesellschaftliche Implikationen (acatech STUDY) Munich 2014

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Professor of Thermodynamics Gabriele Sadowski was elected as a Member of acatech in 2013 and was presented with her certificate of membership at the Members' meeting on 4 November. Left to right: Reinhard F. Hüttl, acatech; Gabriele Sadowski, TU Dortmund University, and Henning Kagermann, acatech.

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They are fondly remembered by all at acatech.

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acatech's Senate brings together distinguished individuals from technology-oriented companies in a single body. At their meeting in Munich on 27 June, the Senate members discussed the opportunities and risks of the energy transition.

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36

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162,187
191,631
63,070
38,512
11,762
31,592
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34,354

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PUNKT PRIZE

Tim Schröder had originally intended to write about nature-friendly forest restructuring in Germany. However, a fascination with the potential offered by a traditional raw material like wood caused Schröder, who has a degree in biology, to change his plans and focus instead on the natural material itself. Under the title "Renaissance of a Traditional Material" (Renaissance für einen alten Werkstoff), Schröder provides a well-reasoned and very readable account of how wood can be transformed into a multifunctional and sustainable high-end material through a variety of sophisticated production and finishing techniques carried out in laboratories and workshops.

His article in the Neue Zürcher Zeitung was awarded the PUNKT prize in the "Daily Newspaper" category. The winner of the "Magazine/Weekly Newspaper" category was Christoph Kucklick. His exploration of the impacts of big data drew on examples from everyday life to graphically demonstrate how it is possible to find answers to specific social questions and problems by analysing huge volumes of individual data. The judges were impressed by the way that Kucklick's elegantly written and copiously illustrated report "The Measured Man" (Der vermessene Mensch), published in GEO magazine, did not shy away from also drawing attention to the risks hinted at in his ambivalent title. acatech's Journalism Prize recognises outstanding writing, images and multimedia work. Now in its tenth year, the PUNKT Prize received a record number of entries - the two winners had to fight off competition from around 140 other participants.



Tim Schröder (2nd from right) and Christoph Kucklick receive their prizes, pictured here with Reinhard F. Hüttl (left) and Klaus Kornwachs, who gave the official speech at the prize-giving ceremony.

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