



Botschaft
der Bundesrepublik Deutschland
Peking
德意志联邦共和国 驻华大使馆



China and Germany as Partners in Research

German Embassy, Beijing





- **The R&D landscape**
- Innovation Policy - HTS
- The Excellence Initiative
- Internationalization of R&D
- Germany and China:
Partners in Research



Universities in Germany

Standorte von Hochschulen



178 Universities

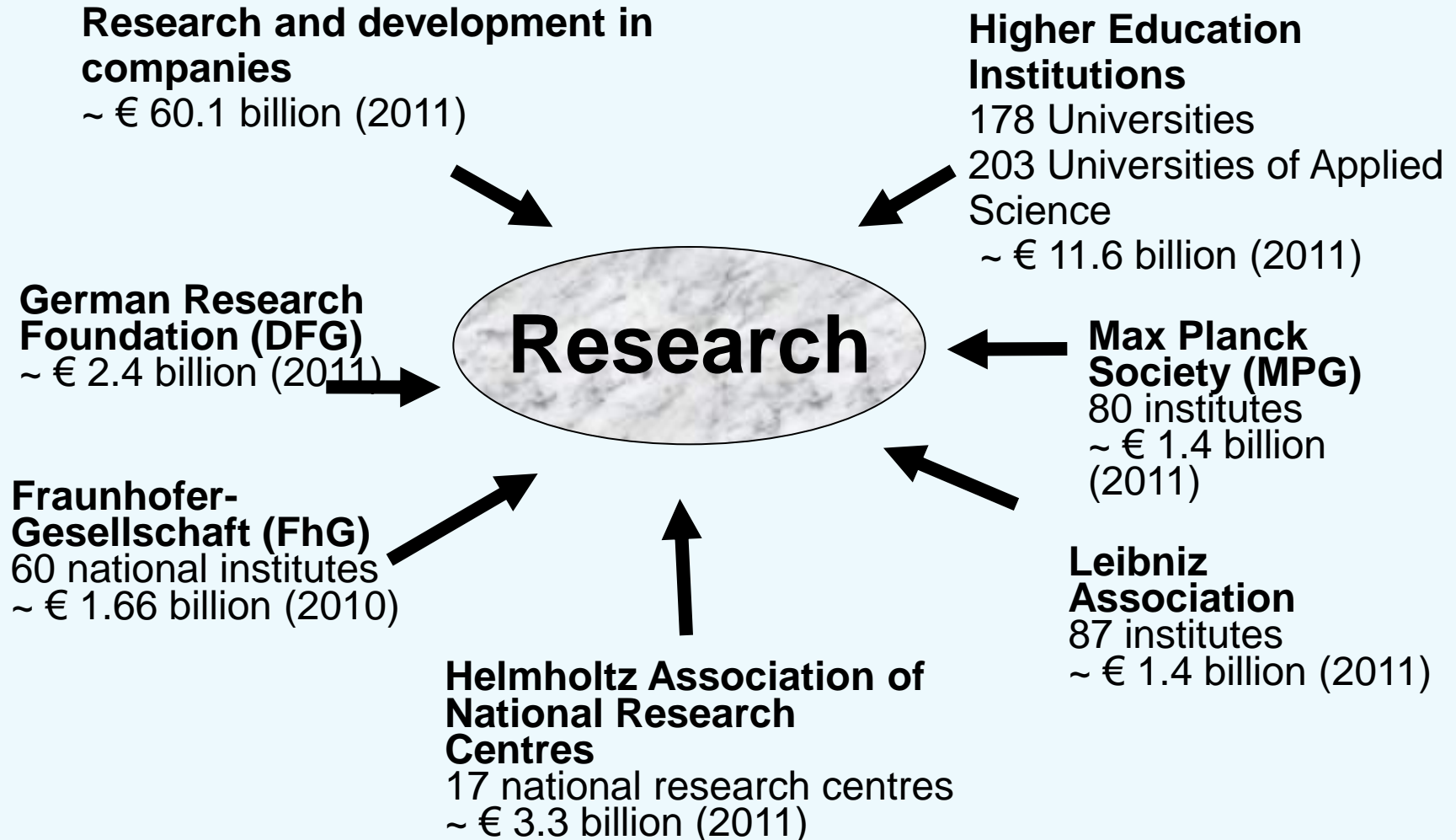
203 Universities of Applied Science

Excellence Initiative of German Government:

- Graduate schools
- Clusters of excellence
- Institutional strategies for advancing top-level university research



The German System of Research and Technology (2010/2011)





German Nobel Prize Winners

Of the total 80 German Nobel Prize winners to date, 68 won the prize for services to the natural sciences or medicine.

- The very first Nobel Prize went in 1901 to Wilhelm Conrad Röntgen – for Physics.
- Robert Koch, Max Planck, Albert Einstein, Werner Heisenberg and Otto Hahn were also German Nobel Prize winners famed well beyond their field
- Christiane Nüsslein-Volhard (Medicine), Horst L. Störmer, Herbert Kroemer, Wolfgang Ketterle, Theodor Hänsch, Peter Grünberg (all Physics), Gerhard Ertl (Chemistry) and Harald zur Hausen (Medicine) are the latest German winners of this pinnacle of scientific recognition.



Success of the German Research System

All in all, this system is successful

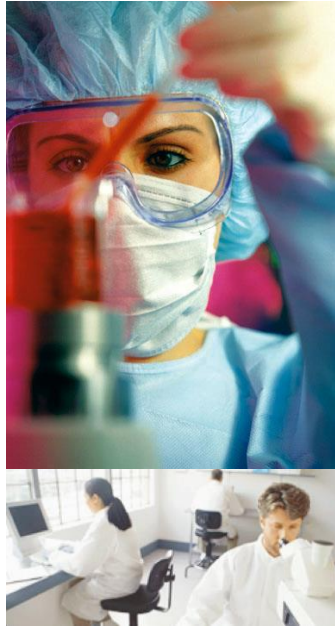
Success Factor 1: Independence of research; autonomy in the identification of research topics and methods in the area of basic research and new areas.

Success Factor 2: Subsidiarity and cooperation with the business sector.

Success Factor 3: Openness for international cooperation.



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Ignite ideas:

- New markets: Clear-cut paths to take Germany into the future (17 cutting-edge fields of the future)
- Industry & science: Strengthen networks (abandon state-driven technology finding)
- Fast application: Turning research into products, processes and services



The High-Tech Strategy

AIMS OF THE HIGH-TECH STRATEGY

LEAD MARKETS

- New **priorities** are being set – based on global challenges: climate, resources, health, mobility, security
- Attention is being focused on **all the conditions** related to innovation success
- **Key technologies** are the basis for innovations

Set new priorities and establish lead markets

INDUSTRY / SCIENCE

- **Competition for Leading-Edge Clusters** – excellent clusters in research and innovation growing
- Innovation funding for **SMEs** is being expanded and made more efficient (ZIM, *KMU-innovativ*)
- Top research and innovation are being strengthened in the **new Länder**
- Funding **innovation alliances**
- Supporting **validation**

Build bridges between science and industry

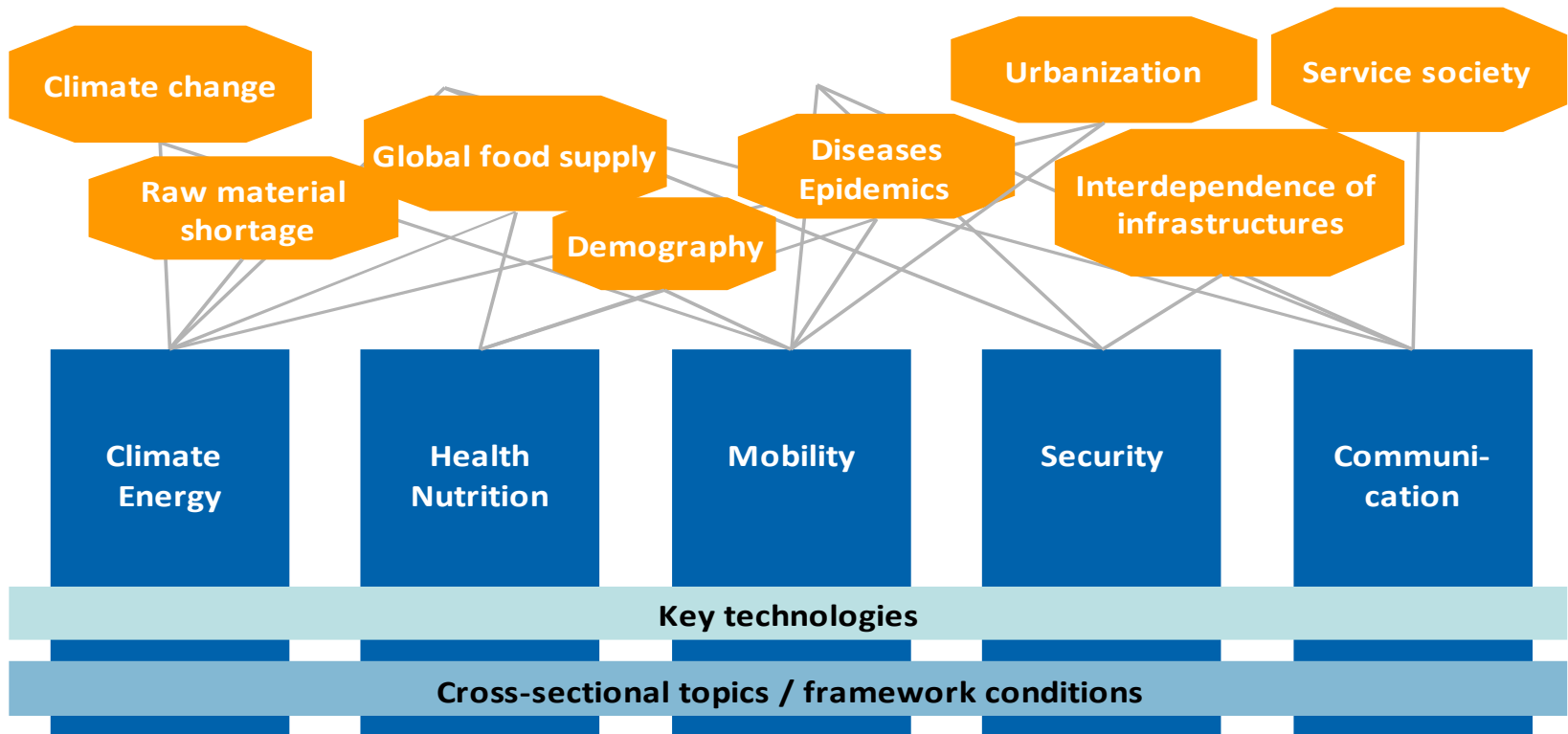
FRAMEWORK CONDITIONS

- **Innovation funding** is becoming more attractive
- **Basic conditions** are being improved
- **Protection of intellectual property** is making investments in R&D more rewarding
- **Public procurement** is becoming more innovative
- Initiative “Freedom of Science Law”

Improve framework conditions for innovations in industry



Focus on global Challenges





Examples:

- Health research (medical technologies, regenerative medicine)
- Security technologies (joint research platforms)
- Environmental/Energy technologies
- Optical technologies (“century of the photon”)
- Information & communication (new products)
- Nanotechnology (application for new technologies)



The Leading-Edge Cluster

The active networking of industry, science and their innovative strength

New:

200 Mio. Euro from BMBF for five top clusters:

- EffizienzCluster LogistikRuhr: Intelligent Logistics
- Medical Valley: Innovative products and services for optimal health care
- MicroTEC Südwest: Intelligent and energy-efficient microsystems
- Munich Biotech Cluster: Therapeutic agents for personalised medicine, more effective and safer medicine
- Software-Cluster: Adaptive and agile concepts, innovative processes and services in the software industry



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Background (1)

- **Good and broad-based higher education and research system:**
 - approx. 400 institutions of higher education and
 - more than 200 non-university research institutes (MPG, FhG, HGF ...)
- **Shortcomings of the German system:**
 - internationally competitive research is concentrated at non-university research institutions
 - German institutions of higher education are not sufficiently visible internationally as rankings have repeatedly shown



Background (2)

- **New focus on universities to enable them to:**
 - **develop internationally visible and internationally competitive research priorities**
 - **become more attractive for top scientists and students from abroad**
 - **strengthen cooperation with non-university research institutions and industry**

- **Shift in funding philosophy: focus on those institutions that already have high quality research to enable them to excel internationally**



Basic Elements of the Competition

- **First 2 rounds of funding (in 2006 and 2007): 1.9 bill. € spread over 3 funding lines (graduate school, research cluster, institutional strategy)**
- **75% to be borne by the Federal Government, 25% by the Land**
- **Procedures are supervised by scientific organizations: German Research Association (DFG) and Science Council (WR) are responsible for the selection procedure and administration**
- **Evaluations are based on international criteria of excellence, international experts (90% of experts are from abroad, 60% of them from Europe, 30% from overseas, several from US)**
- **Federal Government and *Länder* are only involved in the final funding decision at the so-called Approval Committee, but scientists have the majority of votes (32:39)**



1st Line of Funding

- **Graduate Schools to promote young researchers:**
 - provide structured doctoral programmes within an excellent research environment and a broad area of science
 - serve as instrument of quality assurance in promoting young researchers
- **Funding:**
 - 1 – 2.5 million euro each per annum,
in total approx. 60 million euro per annum
 - plus a general allowance of 20% for indirect expenses related to the funding (proportional energy costs, rentals, administrative costs .)





2nd Line of Funding

- **Clusters of Excellence to promote world-class research:**
 - establish internationally visible and competitive research and training facilities at German universities
 - promote the development of scientific networks and collaborations with non-university research institutions, universities of applied sciences and industry
 - provide excellent educational and career conditions for young researchers



- **Funding:**
 - 3 – 8 million euro each p.a.,
 - in total approx. 292 million euro per annum
 - plus a general allowance of 20% for indirect expenses



3rd Line of Funding

- **Institutional strategies to promote top-level university research:**
 - establish themselves as leading institutions in the international competition
 - develop internationally outstanding areas of research in the long term
 - including innovative concepts of
 - research based education and teaching
- **Funding:**
 - requires at least one graduate school and one cluster of excellence
 - In total 142 million euro per annum
 - plus a general allowance of 20% for indirect expenses





Procedures

- **Call takes place in two stages:**
 - **1st stage of selection: Evaluation of the outline proposals, invitation to submit a full proposal**
 - **2nd stage of selection: Evaluation of the full proposals**

- **Selection process is governed by four commissions:**
 - **Expert Commission (set up by DFG)**
 - **Strategy Commission (set up by the Science Council)**
 - **both together = Joint Commission (= only researchers)**
Task: Establishing the conditions for funding, deciding on participation in the second stage of selection, passing on recommendations for all three lines of funding to the
 - **Approval Committee, which consists of the Joint Commission and the Federal and *Länder* Ministers responsible for science**



Results of first 2 rounds

- 580 applications in all three lines of funding were received
- out of which 182 outline proposals were invited to submit full proposals
- Final decisions were taken in

October 2006 and 2007:

- 39 graduate schools
- 37 excellence clusters
- 9 institutional strategies

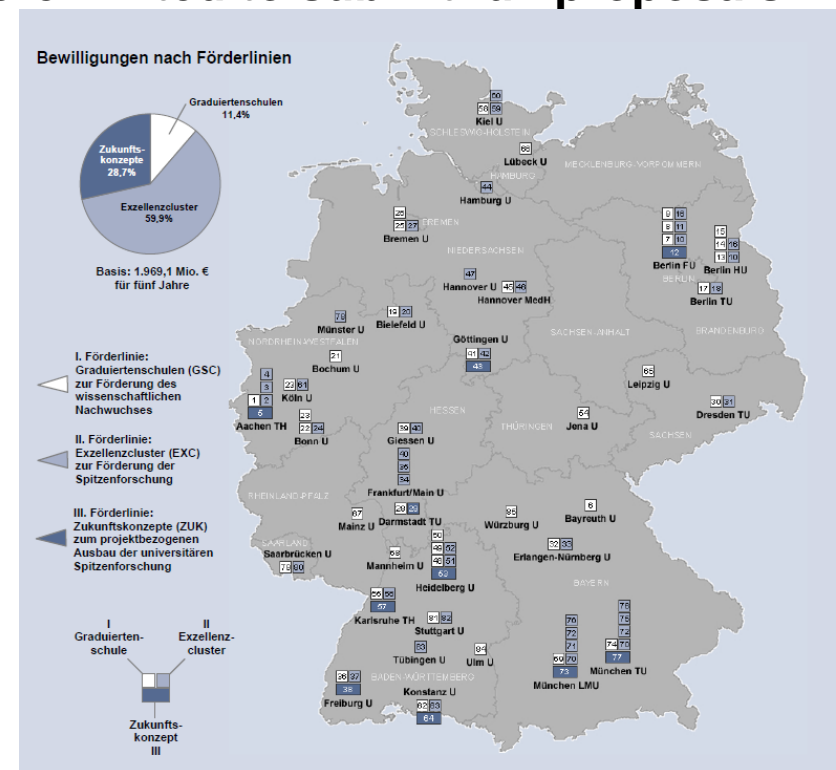
(LMU and TU Munich,

Karlsruhe, Aachen, Berlin (FU),

Freiburg, Göttingen, Heidelberg,

Konstanz)

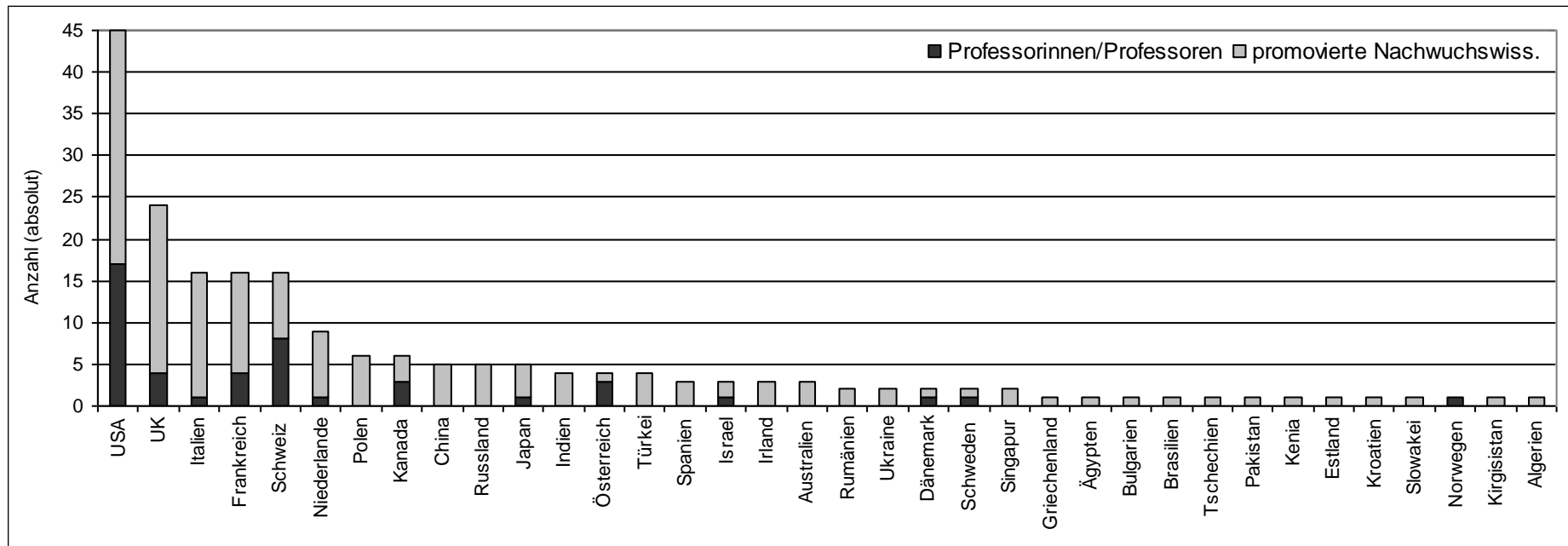
- €1.9 billion (of which 75% Federal Government, 25% host *Land*)
- 37 institutions of higher education in 13 *Länder* received funding





Results of first 2 rounds

**Recruitment of scientific personnel: approx. 4.200 so far,
of which 25% from abroad**





Consequences / Follow up

- **Fresh breeze in Germany's higher education landscape:**
new strategic orientation, identity-building, new forms of cooperation, differentiation
- **Federal Government and *Länder* have decided to continue program until 2017 (second phase) retaining the basic competition elements**
- **On 15 June 2012, the Joint Commission of the DFG and the German Council of Science and Humanities decided which projects will be funded in the second phase of the Excellence Initiative.**

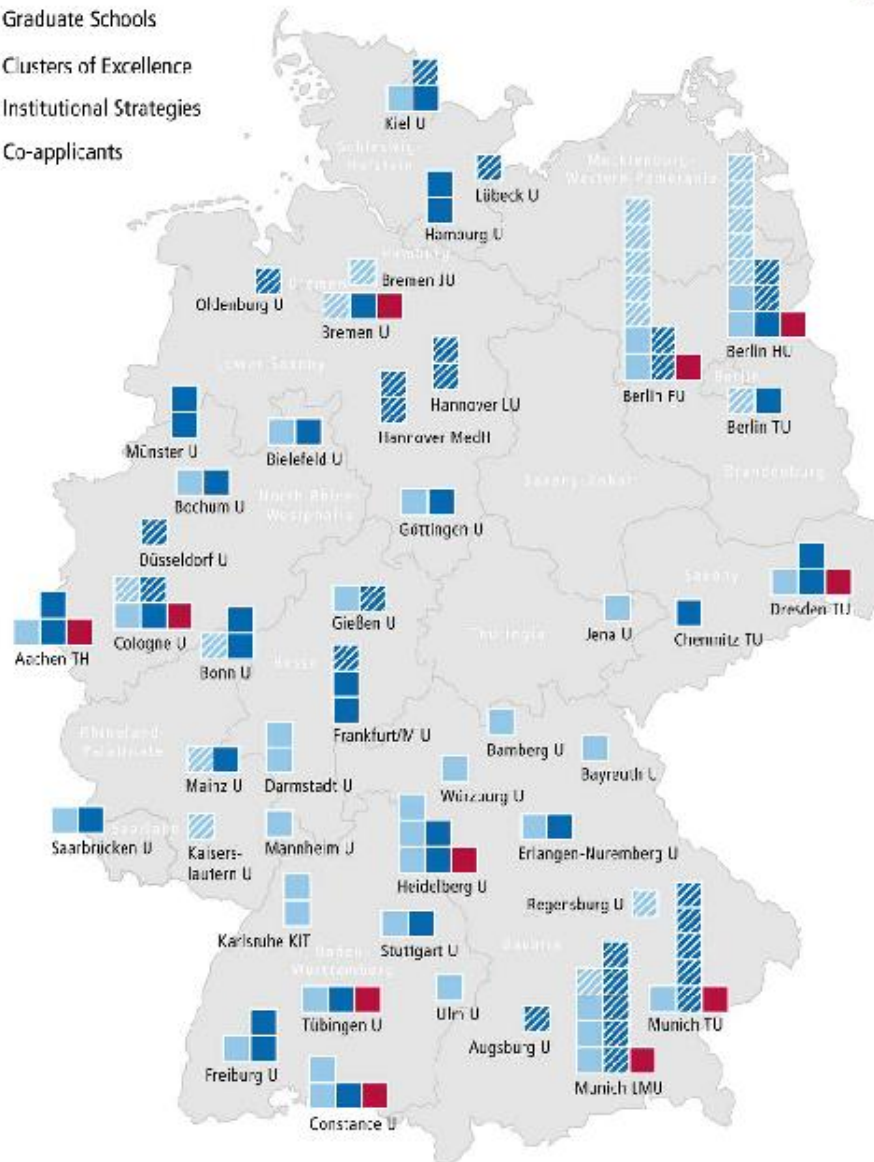


45 graduate schools,
43 clusters of excellence and
11 institutional strategies to promote top-level research at
44 universities will be funded with more than
€2.4 billion

Excellence Initiative: Funding Decisions

updated 19 July 2012

- Graduate Schools
- Clusters of Excellence
- Institutional Strategies
- Co-applicants





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- **Internationalization of R&D**
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Initiative for Internationalization of R&D

Internationalization of research in Germany

- More than 30 years of fruitful R&D cooperation with China
- Extension of international cooperation in research
- Research programmes addressing global needs
- Share knowledge and best practice
- Network with excellent research institutions worldwide
- Support knowledge/innovation clusters



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China and Germany : Partners in Research

Our cooperation mission:

- Bilateral partnership for sustainable development
- Access to German R&D and access to Chinese R&D
- Guidance for organizations seeking suitable partners
- Sharing expertise for mutual benefit in R&D
- Support for EU-cooperation



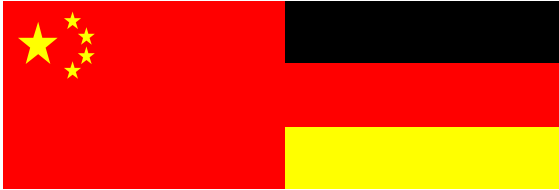


“Together on the road of knowledge”

- **Prof. Schavan (Minister of BMBF) initialized “German-Chinese Year of Science and Education 2009/2010” together with Prof. Wan Gang (Minister of MoST) and Prof. Zhou Ji (Minister of MoE).**
- **Year gave new impulses for successful collaborations between Germany and China.**
- **Plenty of seminars, workshops and meetings will address many research topics. Bilateral activities will support the further development of research structures.**



Joint Declarations



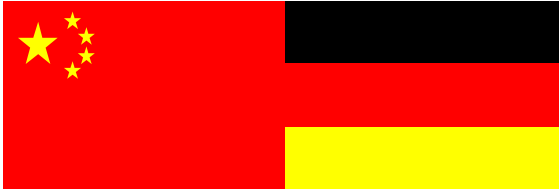
1st Sino-German Intergovernmental Consultations:

- Sino-German Platform Innovation
- Sino-German Research and Innovation Program Clean Water
- Innovation Platform Life Science
- Electromobility (sustainable mobility, energy efficiency, emission reduction, innovative transportation technologies)
- Strategic Partnership on High School Education
- Vocational Training



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Joint Declarations



Federal Ministry
of Education
and Research



中华人民共和国科学技术部

The Ministry of Science and Technology of the People's Republic of China

2 st Sino-German Intergovernmental Consultations:

August 2012

- LED Technology
- Ocean and Polar Research

and The 17th Steering Committee Meeting on the Cooperation in
"Marine Sciences and Technology" on 12 December 2012

→ Joint Call "SiGMA" (Sino-German Collaboration in Marine and Polar
Sciences) in development



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German Actors

Research institutions:



Supporting agencies:



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Federal Ministry
of Education
and Research



Alexander von Humboldt
Stiftung / Foundation



The worlds largest organisation for academic exchange

- Founded in 1925
- Partner countries: 100
- A self-governing organisation of German universities: 235 member universities, 125 student bodies
- Opening of the DAAD branch office Beijing 1994
- Chin. partners: Ministry of Education, China Scholarship Council u.a.
- 2003/2004 opening of DAAD ICs in Guangzhou and Shanghai
- Since 2007 representatives of German universities



German Academic Exchange Service

Tasks of Beijing Office:

- Promotion for Germany's higher education and research landscape
- Administration of DAAD fellowship programmes for Chinese PhD students and professors
- Support German students' studying and research
- Support for German Higher Education Institutions
- Promotion of German language, literature and cultural studies in China
- Alumni network

Some Key Projects

- **Beijing University:**
Center for German Studies
- **China University for Political Science & Law:**
Sino German Institute of Law
- **Tongji University:**
CDHK (Chinese German Graduate School)
- **Nanjing University:**
Sino German Institute of LawNICE
Nanjing International Centre of Earth Sciences



The Sino-German Center for Research Promotion



A Joint Venture of DFG and NSFC

- Inauguration: Oct. 9th 2000
- To initiate, strengthen and support cooperation in basic research
- Directors from both sides and 12 members of staff
- Annually Budget 2011: 32,75 Mio. RMB ~ 3,7 Mio €, Provided 50% NSFC and 50% DFG
- Instruments: Scientific Preparatory Visits, Bilateral Workshops and Symposia, Joint Research Projects and Cooperation Groups; promotion of young Chinese scientists, Participation at the Nobel Prize winners' Meeting in Lindau/Germany, Scientific visits in China by Excellent Young Scientists from Germany





Helmholtz Association of German Research Centres



Germany's largest scientific research organization

- 17 scientific-technical and biological-medical research centres
- Staff: 31,000
- Annual budget : more than €3,3 billion
- Six research fields: Energy, Earth and Environment, Health, Key Technologies, Structure of Matter plus Aeronautics, Space and Transport

Beijing Office since 2004

- Intensifying and expanding strategic scientific cooperation with Chinese partners
- Agreements with: Chinese Academy of Sciences, Chinese Academy of Medical Sciences, China Scholarship Council
- Bilateral scientific workshops, cooperative research projects, Joint laboratories and centers, partner groups, excellent young Chinese researchers



Europe's largest application-oriented research organization

- More than 80 research units, including 60 Fraunhofer Institutes
- 18, 000 staff (scientists and engineers)
- Annual budget : €1.66 billion
- Fields: health, security, communication, energy and the environment

Beijing Office since 1999

- Contractual partners:
Chinese Academy of Sciences (1980), Chinese Academy of Engineering (2000), Shanghai Academy of Sciences (2004), Guangdong Municipal S&T Commission (2005), Zhejiang Municipal S&T Commission (2007), Beijing Academy of Science and Technology (2011)
- Important cooperation projects in China:
logistic system, ITK, production technology, environmental technologies, microelectronics, energy technologies, innovation and S&T management



China and Germany : Partners in Research



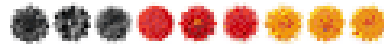
- Continuation and deepening of the cooperation
- Information about Research and Technology via Internet
www.research-in-germany.de
www.stipendienimpuls.de
www.forschungsportal.net
www.bmbf.de
www.kooperation-international.de
www.kompetenznetze.de
www.fonda.de
www.kisswin.de



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Germany
Land of Ideas



DEUTSCH-CHINESISCHES
Jahr der Wissenschaft und Bildung
德中科学教育年
2009/10

Thank you for your attention
谢谢