

未来工学研究所
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世界の
National Excellence Programs

日本学術振興会・学術システム研究センター
WPI プログラムディレクター
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Workshop on National Excellence Programs

- Cologne, September 16-17, 2010
- Organized by DFG and DR
- Participation; Denmark, France, Germany, Japan, Malaysia, Poland, Spain, Sweden



National Excellence Programs

- High quality of research is essential for sustainable growth under global competition.
- Many countries in Asia and Europe initiated “National Excellence programs” since 2006.
- Keywords for “Excellence programs” include:
 - Cutting-edge research
 - Innovation
 - Interdisciplinary research to create new fields.
 - Reinforcement of universities
 - Nurture of young researchers
 - Internationalization

National Excellence Programs

- 2006** Germany, Sweden(Linnaeus)
- 2007** Japan, Malaysia
- 2008** Korea
- 2009** Denmark, Spain
- 2010** France, Sweden(Strategic area)
- 2011** Poland

Denmark 1: Investment Capital for University Research (UNIK)

Aims:

- World-class research at Danish universities
- Dynamic and closely co-ordinated research frameworks
- Strong international orientation
- Scientific breakthroughs and/or significant progress
- Attractive frameworks for young talented researchers

Denmark 2: UNIK

Duration:

5 years from 2009

No plan for continuing the program

Funding:

- 16.3 mill Euro/ center /y. (19×10^8 yen)

- Total amount ; 65 mill Euros / y. (75×10^8 yen)

Selection :

28 applications (8 U.) \rightarrow 4 (3 U.)

Denmark 3: 4 UNIKs

- **Catalysis for Sustainable Energy**
(Technical University)
- **MINDLab**
(Aarhus University)
- **Synthetic Biology**
(University of Copenhagen)
- **Food, Fitness and Pharma for Health and Disease**
(University of Copenhagen)

France 1 : Investing for the future

Aims:

- Innovation for national productivity
- Higher education as an essential tool for growth
- Strengthening national R&D
- Accelerating the transition towards green growth and sustainable development.

Schedule:

- First call July 2010
- Decision at the end of 2010

France 2: Investing for the future

Total funding:

22 bill Euros . (2.5×10^{12} yen) (88% for endowment)

Duration:

Structures:

- Excellence initiatives; 5-10 ; 7.7 bill Euro
- University Hospital institutes; -5; 85 bill Euro
- Technology Institutes; -5; 2 bill Euro
- Research labs; -50; 1 bill Euro

Germany 1: Excellence Initiative

Aims

- Top-level university research
- Excellent conditions for young researchers
- Cooperation across disciplines and institutions
- Internationalization
- Equal opportunities for men and women



**International competitiveness and
Visibility of German universities**

Germany 2: Excellence Initiative

Structure

- Graduate Schools
- Clusters of Excellence
- Institutional Strategies

Duration: 5 years x 2

- 2006-2011 / 2007-2012
- 2012-2017

Total funding:

- 380 mil Euros / y. (440 x 10⁸ yen)

Selection : 624 applications →85 selected

Germany 3: Graduate Schools

Aims

- Promotion of young scientists.
- Providing ideal conditions for doctorate students.
- 39 graduate schools; 1mill Euro/sch./y.(1.2 x 10⁸ yen)
Examples:
 - Muslim cultures and societies (Berlin)
 - History and sociology (Bielefeld)
 - Physics and astronomy (Bonn)
 - Computational engineering (Darmstadt)
 - Biology and medicine (Freiburg)
 - Molecular and cell biology (Heidelberg)

Germany 4: Clusters of Excellence

Aims

- Reinforcement of research potential of university
 - Strategic planning and priority in universities
 - Scientific networking and collaboration
 - Cluster with non-universities and industries
- 37 clusters; 6.5 mill Euro/cluster/y (7.8×10^8 yen)

Examples:

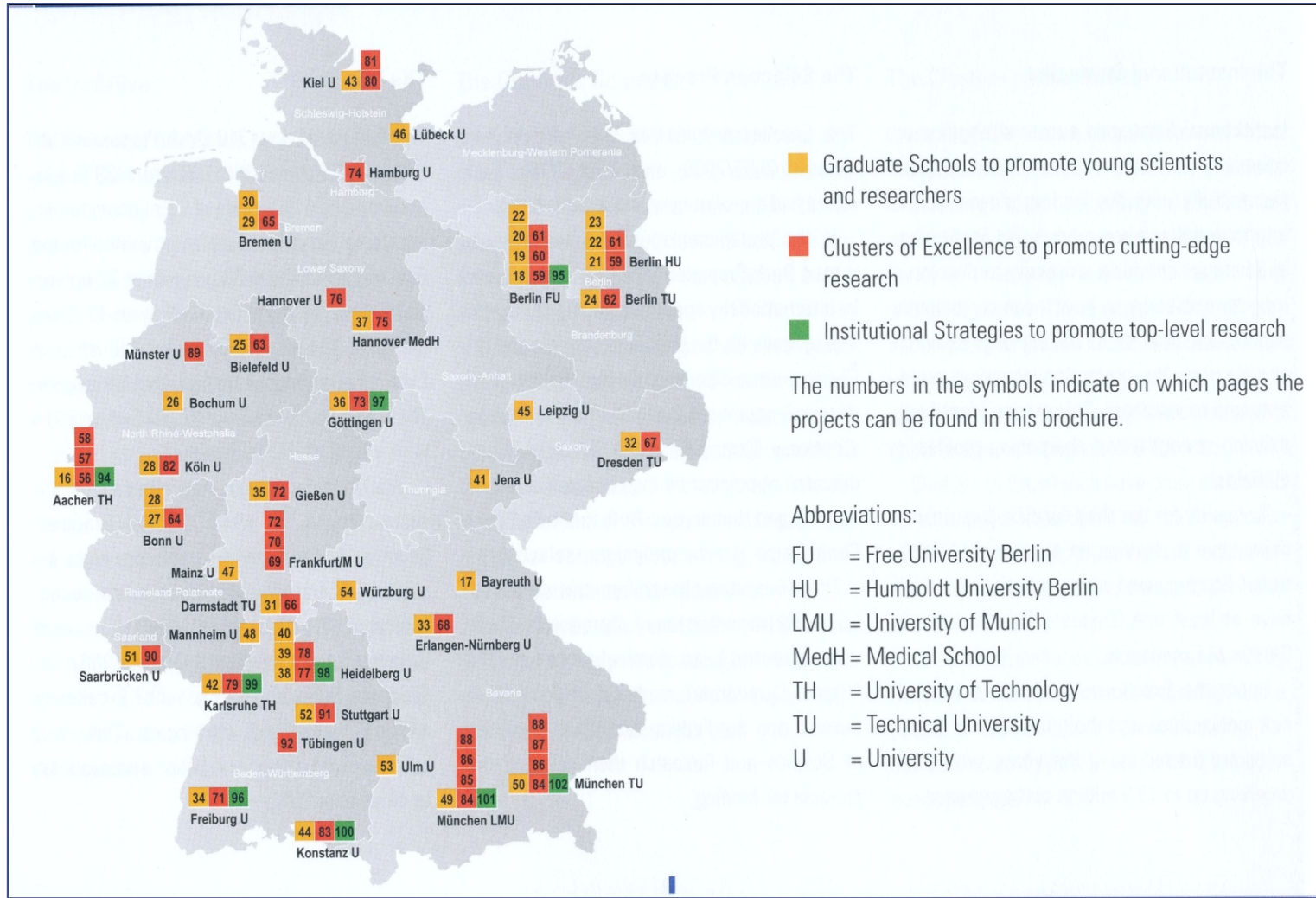
- Languages of emotion (Berlin)
- Asia and Europe (Heidelberg)
- Ocean in the earth system (Bremen)
- Regenerative therapies (Dresden)
- Quantum engineering (Hannover)

Germany 5: Institutional Strategies

Aims

- Reinforcement of universities as a whole.
 - Exceptional strategy
 - Promotion of young researchers.
 - With at least one Graduate school/ Cluster
- 9 universities; 12.5 mill Euro/center/y (14.3×10^8 yen)
These are:
 - RWTH Aachen U.
 - Freie U. Berlin
 - U. of Freiburg
 - U. of Goettingen
 - U. of Heidelberg
 - U. of Karlsruhe
 - U. of Constance
 - LMU Munich
 - TU. Munich

Germany 6: Excellence Initiative



Korea 1: World Class Universities (WCU)

Backgrounds:

- Publication jumped from 18th in 1998 to 12th in 2005.
- Citation remained 28th in 2002-2006.
- 2 universities ranked in the top 200 in 2007.
- Drain of young researchers ;46% stay in US after PhD.
- Low No of international students and faculties.

Aims:

- Enhance national higher education.
- Enhance industrial competitiveness.
- Transform Korean universities into world-class research institutions.

Korea 2: WCU

Fields :

- **New Growth-engine fields**

Energy science / Bio-pharmaceutics / Financial mathematics / Space technology / National defense science

- **Interdisciplinary studies**

Duration and budget:

- 5 years (2008-); 165million US\$ (140×10^8 yen) a year

Invited scientists:

 351 scientists are invited.

- Establishing new academic department (300,000 USD)
- Recruiting to existing academic programs
- Inviting distinguished scholars

Malaysia: Malaysia Research University (MRU)

Aims:

- Enhance R and D, and commercialization
- Increase post graduate and post doctoral students
- Increase PhD academia
- Increase international students
- Position MRU in world university ranking (within 200).

Duration:

3 years (2007-2009), continue until 2020

Total funding :

3.2 Euro/y (3.7 x 10⁸ yen)

Poland: Leading Domestic Res Center (KNOW)

Aims:

- Strengthen academic and research center
- Increase international visibility
- Remedy brain drain
- Advance academic links with industries
- Giving rise to flagship.

Duration:

5 years (2011-)

Total funding :

-200 Euro/y (230 x 10⁸ yen)

Spain 1: International Campus of Excellence

Aims:

- Strategic aggregation among universities
- Promotion of differentiation and specialization of univ.
- Strengthening international cooperation in teaching, research and innovation
- Contribution to regional socioeconomic development

Duration:

4 years (2 calls in 2009 and 2010)

Spain 2: ICE

Structure:

- **Excellence:**

- Institutional strategy to transform campus into ICE
 - ICE ; 5 campuses; -12 mill Euros/y (14×10^8 yen)
 - Regional ICE ; 4 cmp; -8.5 mill Euros/y (9.8×10^8 yen)
 - Promising campus; 9 cmp; -5 mill Euros/y (5.8×10^8 yen)

- **Institutional strengthening**

Total Funding:

98.375 mill Euros a year (113×10^8 yen)

Sweden: 1. Linnaeus grants

Aims:

- Environment for basic research and collaboration.

Structure:

2006; 20 centers

2008; 20 centers

Duration:

10 years (2 calls 2006 and 2008)

Funding:

0.5-1.0 mill Euros /center /y (0.6-1.2 x 10⁸ yen)

Sweden: 2. Strategic research areas

Aims:

- Highest international quality.
- Solving problems of society.
- Connection to business sectors

Duration:

5 years (2010-2014)

Funding:

0.76-10.15 mill Euros /center /y (0.9-11.7 x 10⁸ yen)

Total amount: 572 mill Euros (6600 x 10⁸ yen)