



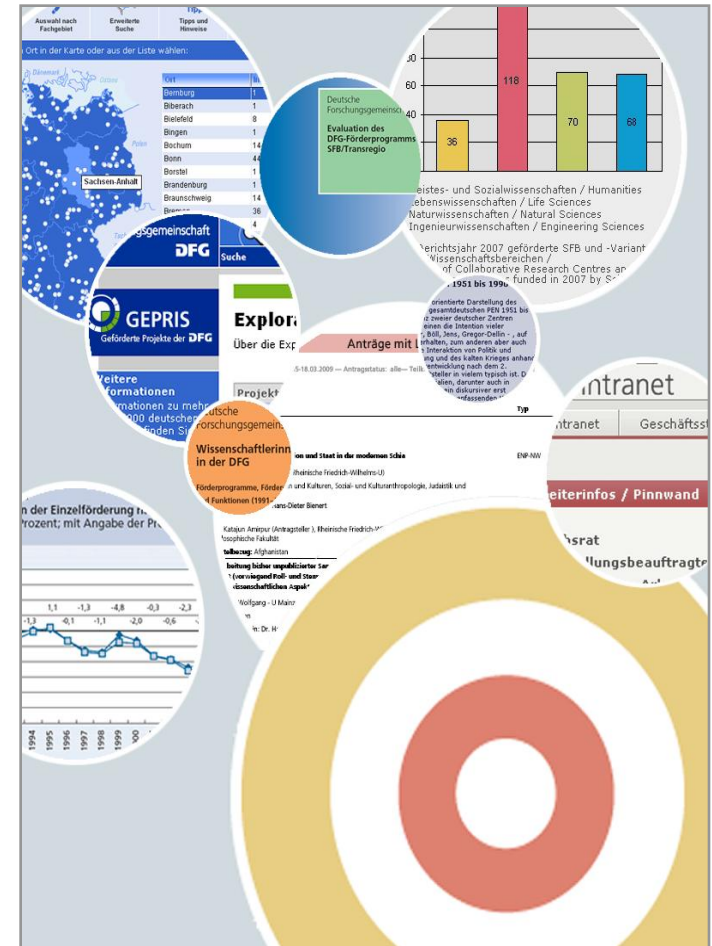
DFG

# DFG – Funding Ranking: Integrating Various Data Sources from Funding Agencies for Monitoring Purposes

ESF-Member Forum on Evaluation of Funding Schemes  
and Research Programmes, Dublin, 16-17 November 2009

# Agenda

1. Background
2. DFG at a Glance
3. The DFG's New Funding-Ranking
4. Research Explorer – A New Information Resource of the DFG



# Background

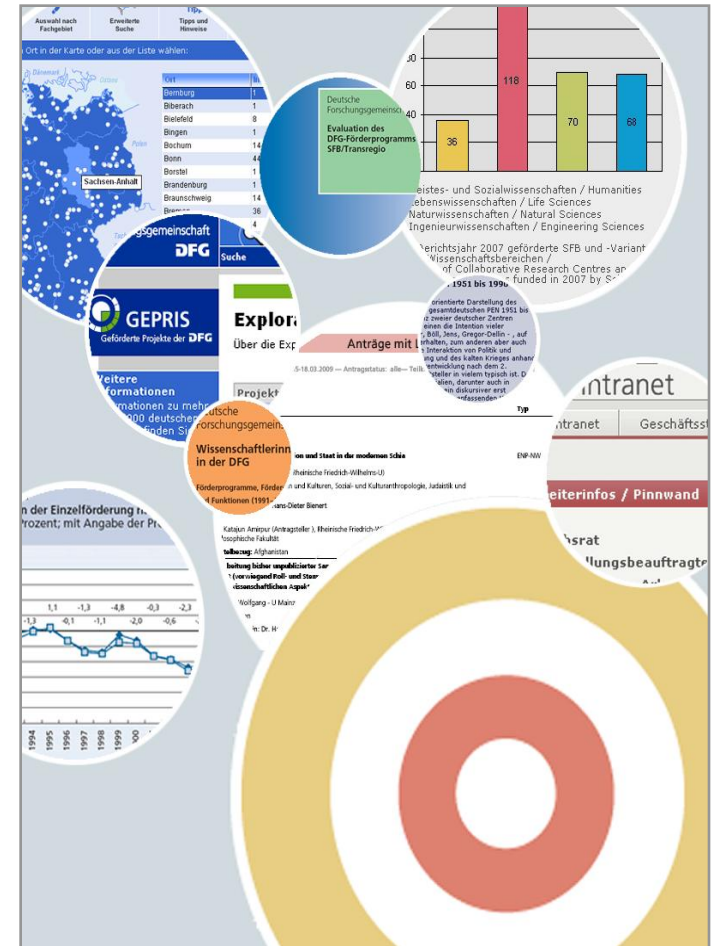
- ▶ growing need for statistical data that inform on
  - trends in research
  - research profiles of regions and institutions
  - collaboration in science
  - gender aspects ...
- ▶ most studies rely on bibliometrics (publications and citations), but:
  - difficulties in data handling; data are not as easy to interpret as many people think
  - lack of up-to-date information; often activities in the long past are described (e.g. citations mainly refer to publications five years and older)
  - problems of coverage for certain disciplines and types of publications (esp. books)
- ▶ surveys on that topic help – but who likes surveys? ;-)
- ▶ what other solutions are possible?

# Why is the DFG Engaged in Monitoring Science?

- ▶ important target groups for services described above:
  - science managers at universities
  - research planners at ministries
  - representatives from professional disciplinary associations
- ▶ DFG has very close links to these target groups:
  - private association: members are universities and other research organisations
  - important statute of the DFG: to give advise to parliaments and public authorities on scientific matters and to foster relations with the private sector and between scientists and academics at home and abroad
  - DFG is funding research in all disciplines. Disciplinary structured „Review Boards“ (e.g. Economics, Mathematics) play an important role in the review process.
- ▶ So the DFG decided to develop an own statistical monitoring service.

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# DFG Programme Portfolio and Budget (2007)

**29.3%:** Individual Grants Programme

**54.6%:** Coordinated Programmes

**06.3%:** Promoting Young Researchers

**01.2%:** Scientific Prizes

**07.2%:** Scientific Instrumentation and Infrastructure

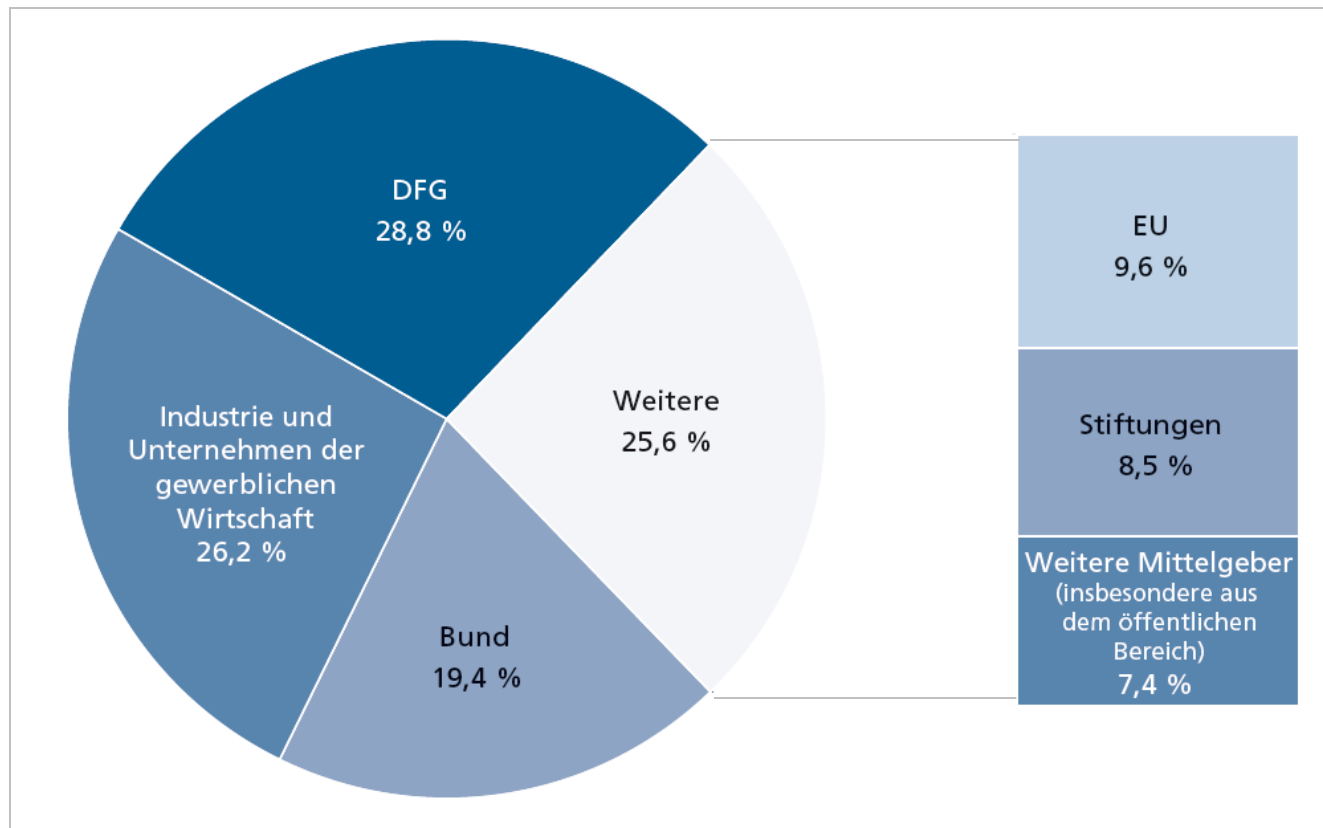
**01.4%:** Encouraging Scientific Contacts (and other)

→ programme portfolio and budget:

~**2 Billion €**, more than 1.000 programmes  
and 20.000 projects funded



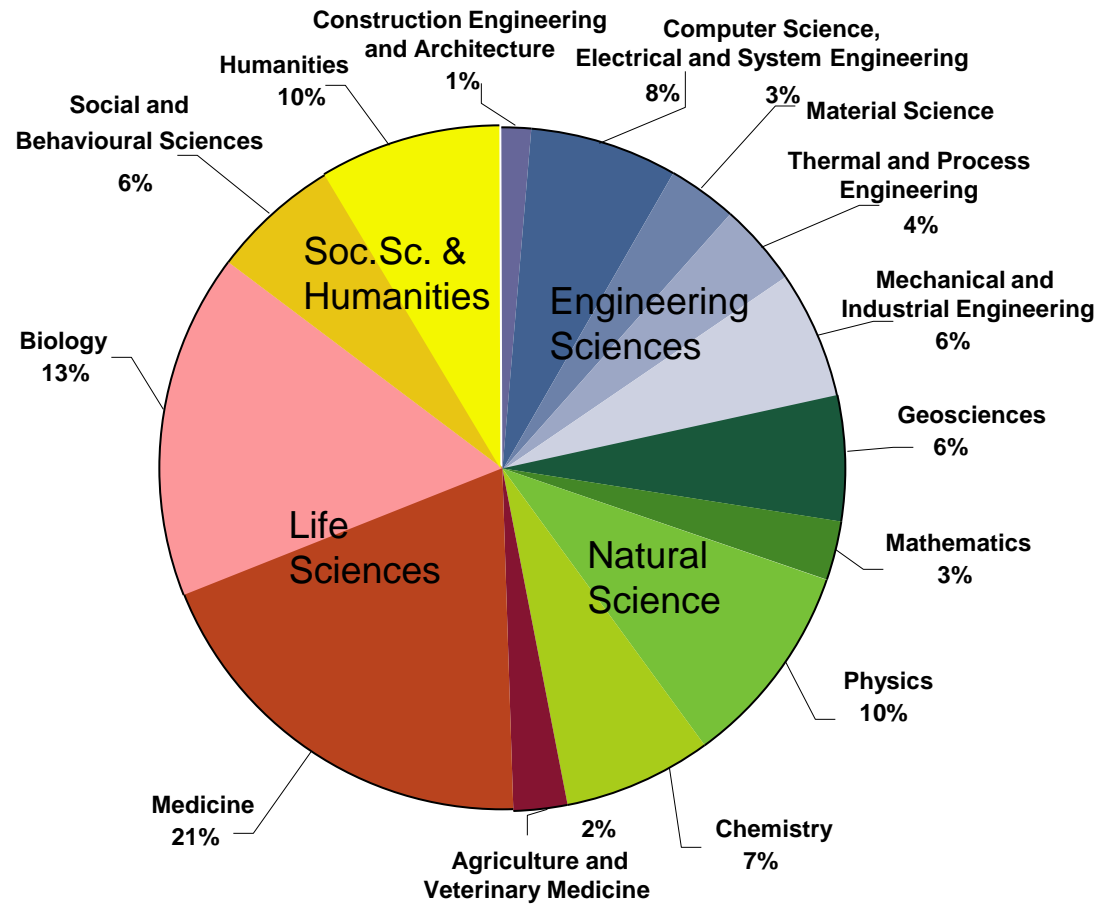
# Third-Party Funding Income of German Higher Education Institutions (HEI) by Source (2006)



# DFG Awards by Scientific Discipline (2007)

## Research Fields:

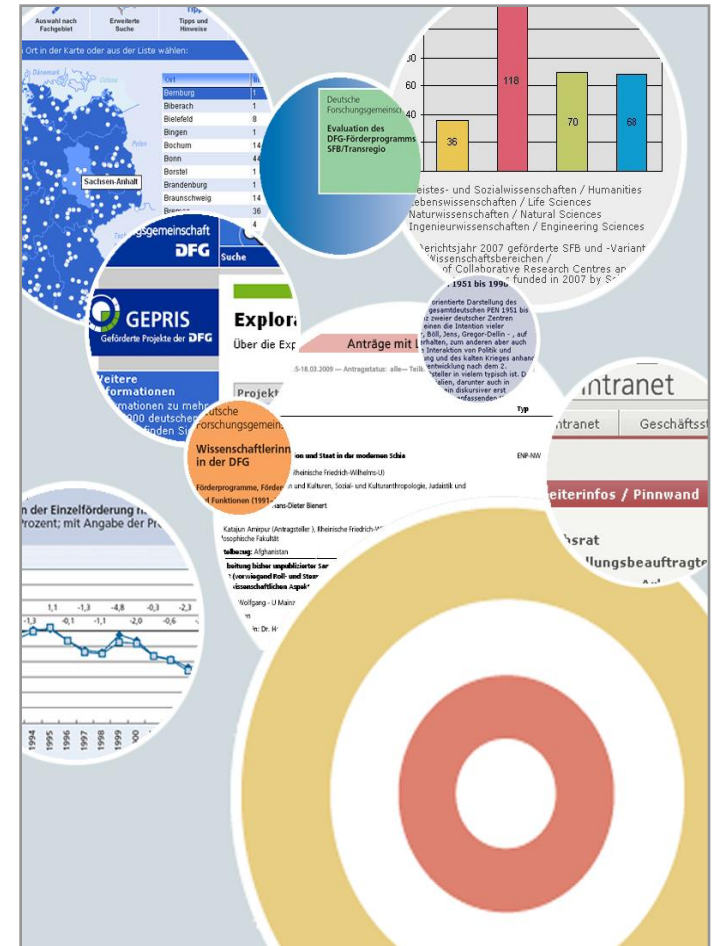
- ▶ Soc.Sci.+ Humanities 16%
- ▶ Engineering Sciences 22%
- ▶ Natural Sciences 26%
- ▶ Life Sciences 36%





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# The DFG Funding Ranking Targets

Planning tool for universities and other actors engaged in research planning and strategy

Helps to identify research profiles by means of:

- ▶ **institutional profiles:** information about research profiles and main research fields covered by German HEIs
- ▶ **regional profiles:** unveil regional profiles and clusters of excellence
- ▶ **structural profiles:** inform about networks in science
- ▶ **disciplinary profiles:** detailed analysis on research activities in different disciplines and fields of research (e.g. biotechnology)

Deutsche  
Forschungsgemeinschaft

## Förder-Ranking 2009 Institutionen – Regionen – Netzwerke

Fachliche Profile von Hochschulen und  
außeruniversitären Forschungseinrichtungen  
im Licht öffentlich geförderter Forschung

 WILEY-VCH

 Stifterverband  
für die Deutsche Wissenschaft

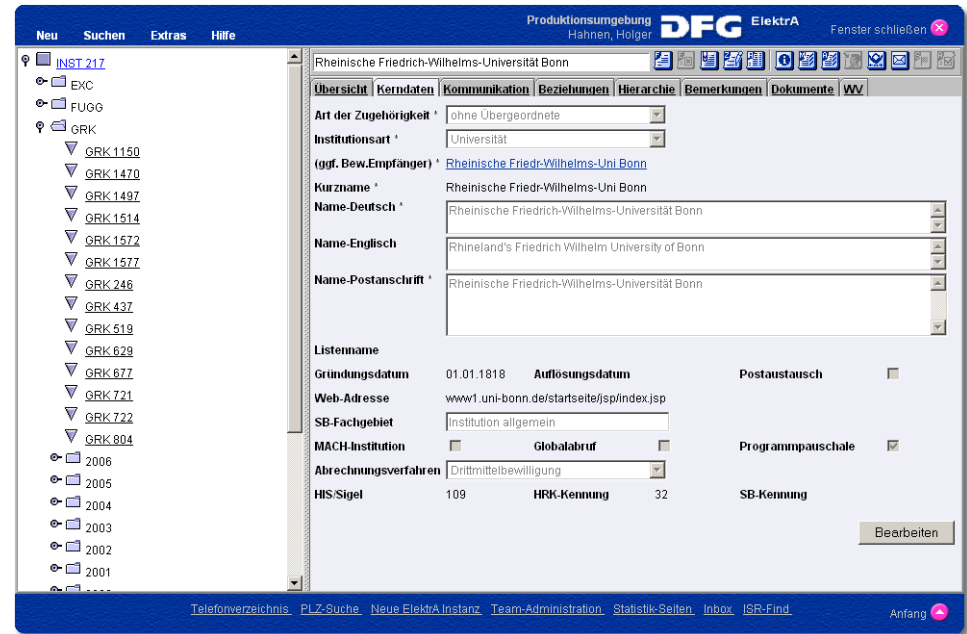
 DFG

# Database of the Funding-Ranking

## ElektrA – the DFG-Internal Data Source

### Facts and Figures

- ▶ DFG internal electronic proposal processing system
- ▶ in use since 2005 (integration of data as from 1982)
- ▶ used for all funding programmes
- ▶ used by about 500 staff members
- ▶ data source for all information products published by the DFG



### Contains data on (continuously growing):

- ▶ 500,000 proposals
- ▶ 150,000 scientists
- ▶ 30,000 national and international university and non-university institutes

# Database of the Funding-Ranking

## Internal Databases from Other Funding Agencies

- ▶ The Funding Ranking relies on DFG-data as well as data from other funding agencies.
- ▶ Data are matched by use of matching-tables developed within the DFG.
- ▶ so: DFG-service for member institutions developed into a „service from funders to the funded“



**DAAD**

Deutscher Akademischer Austausch Dienst  
German Academic Exchange Service



# The Institutional Repository (IRD) of the DFG

## The Idea of the IRD

- ▶ In Germany a lot of actors are involved in the organisation and funding of research at universities and non-university research institutions e.g. DFG, DAAD, German Rector's conference (HRK), Alexander-von-Humboldt-Foundation (AvH).
- ▶ Since the late 1990's there is a growing need for exchanging data on an institutional base between these organisations.
- ▶ The DFG itself was in need of a standardised institutional classification of proposals and reviewers for statistical purposes.

## Result

- ▶ Introduction of a common key for institutional affiliations as a helpful tool
- ▶ Matching data from different institutions by using this tool
- ▶ Some institutions will use the original key in near future (e.g. AvH)

# IRD Based DFG-Internal Products

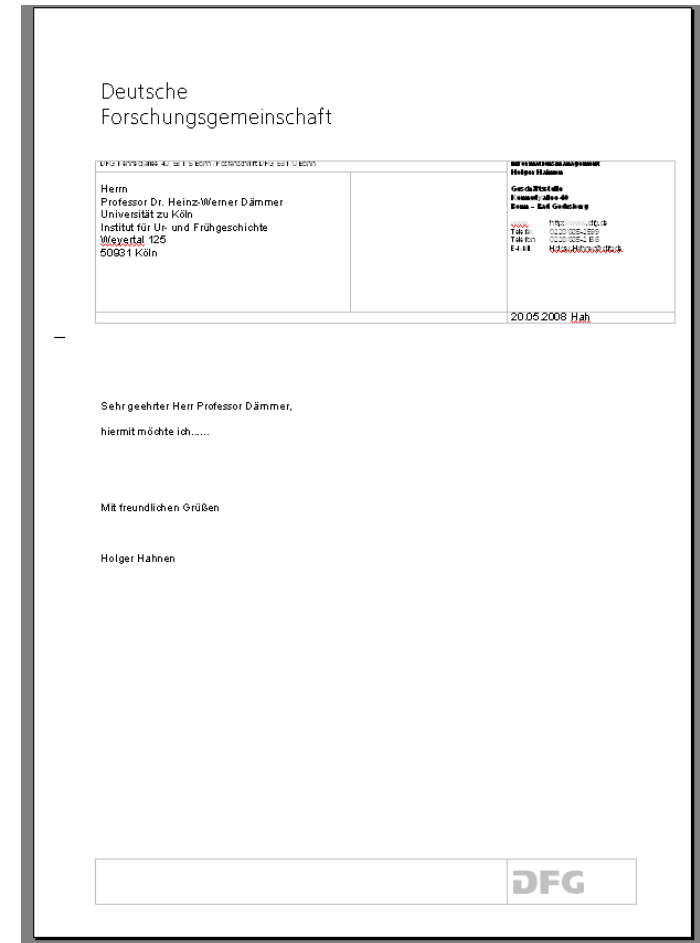
## Individual Letters to Applicants, Reviewers and Board Members

### Characteristics

- ▶ letters to applicants, reviewers, and members of the Statutory Bodies of the DFG
- ▶ addresses used are based on the IRD
- ▶ ease of use by selecting addresses via interface
- ▶ central quality assurance

### Contribution to Data Quality Management

- ▶ active use of addresses when sending letters
- ▶ about 30.000 proposals per year resulting in about 100.000 letters to people involved in the application process
- ▶ 80% of all addresses held in the IRD are used at least once a year
- ▶ letters with incorrect addresses are returned and quality process is triggered



# IRD Based DFG-Internal Products

## University Report

### Characteristics

- ▶ database driven report
- ▶ sent to DFG's member institutions every year
- ▶ gives information on all funding approvals by the DFG sorted by department and institute

### Contribution to Data Quality Management

- ▶ reflects the structure of the university
- ▶ missing institutes can be detected easily by target audience
- ▶ immediate feedback by the central contact person at the university

Übersicht über die Bewilligungen der DFG für die  
Universität Dortmund (INST 212)  
je Organisationseinheit und Antrag

Zeitraum ▶ 1.1.2006 - 31.12.2006\*

Gesamtbewilligungssumme im Berichtszeitraum: **19.385.494 €**

Aktenzeichen	Name, Antrags-titel	Fachsystematik**	bewilligt
<b>Universität Dortmund (unmittelbar)***</b>			
GRK 1032/1:3	Statistische Modellbildung (Graduiertenkolleg)	312	265.687
GRK 254/4:2	Allokationstheorie, Wirtschaftspolitik und kollektive Entscheidungen (Graduiertenkolleg)	112	13.698
GRK 298/3:4	Struktur-Dynamik-Beziehungen in mikrostrukturierten Systemen (Graduiertenkolleg)	303	36.633
GRK 298/4:1	Struktur-Dynamik-Beziehungen in mikrostrukturierten Systemen (Graduiertenkolleg)	303	21.045
GRK 726/2:3	Materialeigenschaften und Konzepte zur Quanteninformationsverarbeitung (Graduiertenkolleg)	307	240.931
GRK 841/1:4	Physik der Elementarteilchen an Beschleunigern und im Universum (Graduiertenkolleg)	307	58.540
GRK 841/3:1	Physik der Elementarteilchen an Beschleunigern und im Universum (Graduiertenkolleg)	309	84.628
SFB 475/3:4	Komplexitätsreduktion in multivariaten Datenstrukturen (Sonderforschungsbereich: Rahmenantrag)	SO2	826.000
SFB 475/4:1	Komplexitätsreduktion in multivariaten Datenstrukturen (Sonderforschungsbereich: Rahmenantrag)	SO2	986.700
SFB 531/4:1	Design und Management komplexer technischer Prozesse und Systeme mit Methoden der Computational Intelligence (Sonderforschungsbereich: Rahmenantrag)	ELE	1.357.700
SFB 559/3:3	Modellierung großer Netze in der Logistik (Sonderforschungsbereich: Rahmenantrag)	MAS	1.262.400
SFB 696/1:1	Forderungsgerechte Auslegung von intralogistischen Systemen - Logistics on Demand (Sonderforschungsbereich: Rahmenantrag)	MAS	319.900
TRR 10/1:4	Integration von Umformen, Trennen und Fügen für die flexible Fertigung von leichten Tragwerkstrukturen (SFB / Transregio: Rahmenantrag)	MAS	1.037.100
TRR 10-T01-1:1	T01 Verbesserung der Werkstoff- und Bauteileigenschaften von Luftfahrtsträngern durch Verbundstrangpressen (SFB / Transregio: Transferprojekt)	40102	58.200
TRR 30/1:1	Prozessintegrierte Herstellung funktional gradierter Strukturen auf der Grundlage thermo-mechanisch gekoppelter Phänomene (SFB / Transregio: Rahmenantrag)	MAS	280.300
<b>Fachbereich Bio- und Chemieingenieurwesen</b>			
INST 212/122-2:1	Guido Sand (Teilprojektleiter), Belegungsplanung verfahrenstechnischer Mehrproduktanlagen unter Berücksichtigung von Unsicherheiten mit hybriden Algorithmen (Sonderforschungsbereich: Einzelantrag / SFB 531)	40901	(58.800)
INST 212/122-2:1	Professor Dr.-Ing. Sebastian Engell (Teilprojektleiter), Belegungsplanung verfahrenstechnischer Mehrproduktanlagen unter Berücksichtigung von Unsicherheiten mit hybriden Algorithmen (Sonderforschungsbereich: Einzelantrag / SFB 531)	40901	(58.800)
INST 212/141-1:1	Professor Dr.-Ing. Sebastian Engell (Teilprojektleiter), Management von MINLP-Problemen durch evolutionäre Strategien (Sonderforschungsbereich: Einzelantrag / SFB 531)	40901	(58.800)
INST 212/141-1:1	Guido Sand (Teilprojektleiter), Management von MINLP-Problemen durch evolutionäre Strategien (Sonderforschungsbereich: Einzelantrag / SFB 531)	40901	(58.800)
KE 837/11-1:1	Privatdozent Dr.-Ing. Eugeny Kenig, Theoretische und experimentelle Untersuchung der Tropfenkoaleszenz in Flüssig-Flüssig-Systemen (Einzelförderung: Einzelantrag)	40301	224.600
TU 269/1-1:1	Dr.-Ing. Feely Tumakaka, "Oiling-out" bei der Kristallisation - Experimentelle Untersuchung und Modellierung (Einzelförderung: Einzelantrag)	40402	135.300
<b>Lehrstuhl für Anlagensteuerungstechnik</b>			
EN 152/35-1:1	Professor Dr.-Ing. Sebastian Engell, Optimal Control of Periodic Adsorption Processes via a reduced Newton-Picard scheme (Schwerpunktprogramm: Einzelantrag / SPP 1253)	31201	61.467

# Objectives, Approach and Databases of the Funding-Ranking

## Subject-Related Analyses, Analyses by Source and Recipients

- ▶ Indicators cover approximately 90 percent of the third-party funding income of scientific and higher education institutions in Germany.
- ▶ Huge set of additional non-monetary indicators (international appeal, scientific expertise...)
- ▶ No costly and laborious data collection from the research institutions but direct processing of data concerning funding activities of central sources

### subject-related analyses

classification according to four scientific disciplines

specifics:

DFG: 48 research fields  
German government: 12 funding fields  
EU: 8 funding fields  
AvH / DAAD a.o: 14 research areas

### analyses by source

Deutsche Forschungsgemeinschaft  
German government  
European Union  
European Research Council  
German Federation of  
Industrial Reserach Organizations  
Alexander von Humboldt Foundation  
German Academic Exchange Service

### analyses by recipients

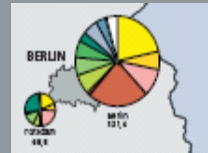
dimensions of differentiation:

countries, states, regions,  
institutions.

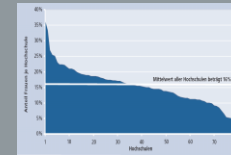


# Aspects of Statistical Reporting Within the DFG Funding Ranking

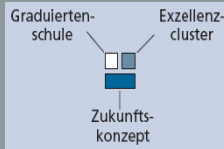
funding rankings and profiles



gender equality



influence of programmes (e.g. ExIn)

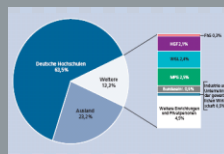


DFG Funding Ranking

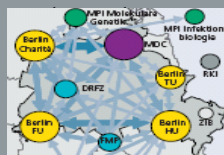
international appeal



participants in peer review processes

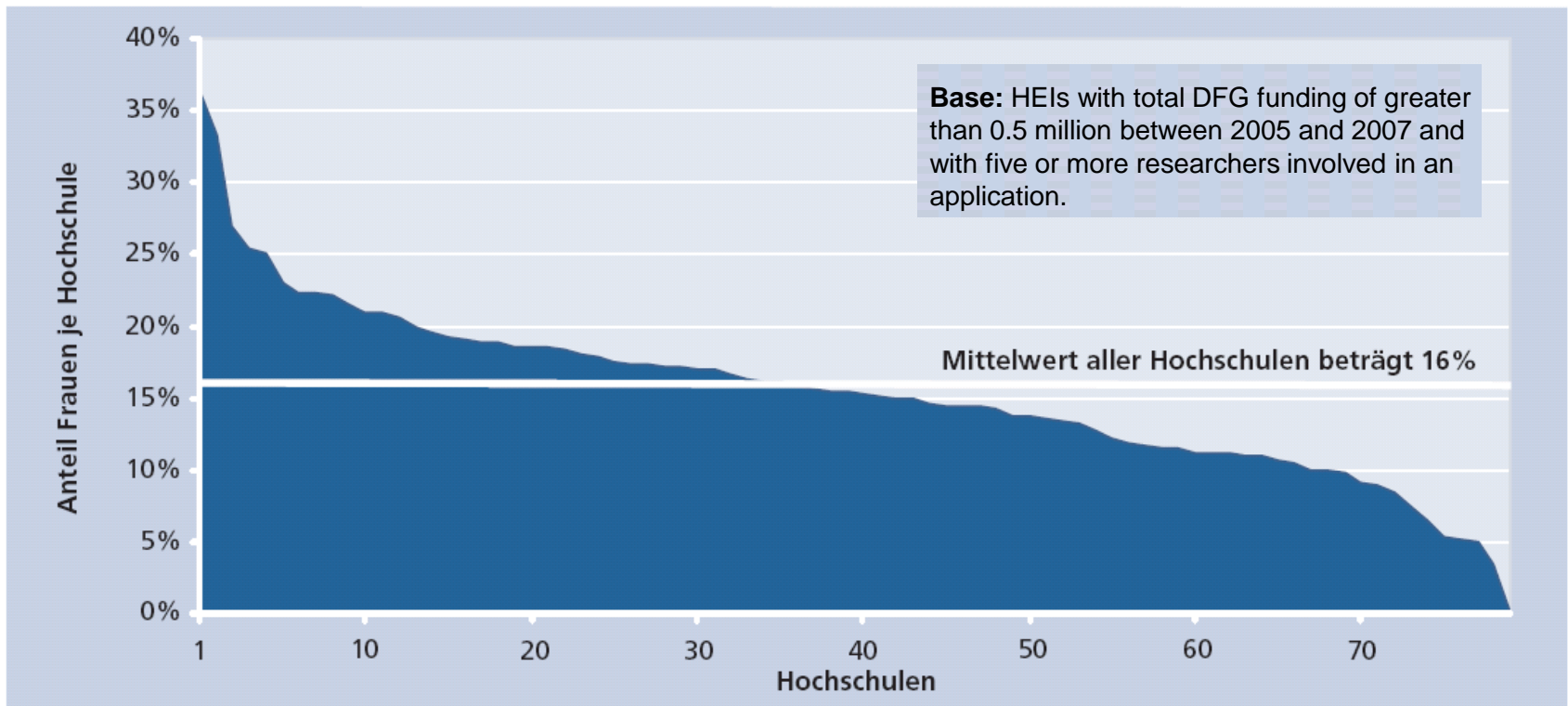


networks and cooperation



# A Contribution to Ensuring Transparency in Gender Equality Issues

## Share of DFG Awards Allocated to Women

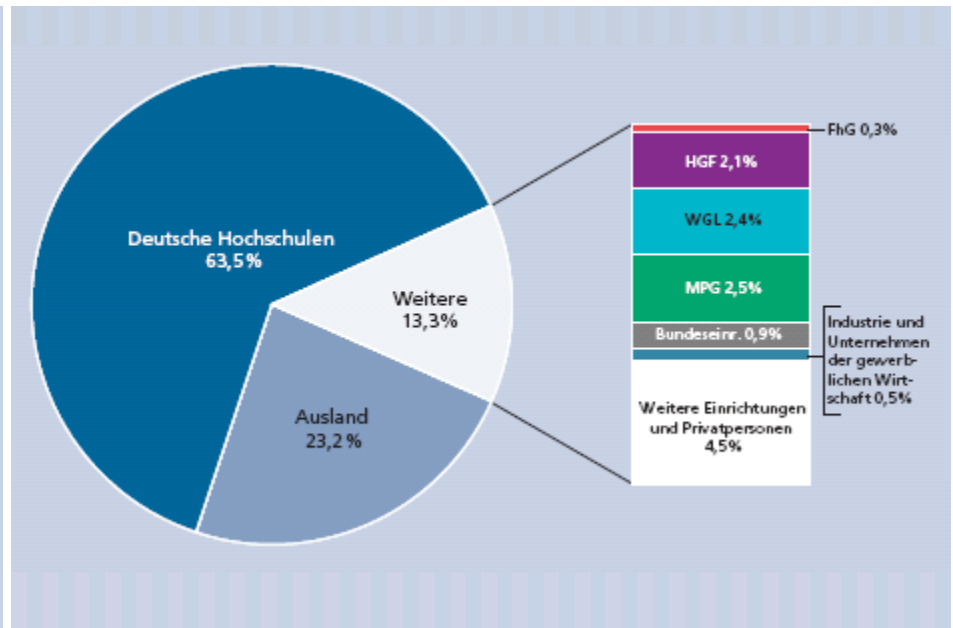


On average, 16 percent of the DFG grants were awarded to women – but there is a broad range in the proportion of women.

# Participation of Researchers in the DFG's Review System

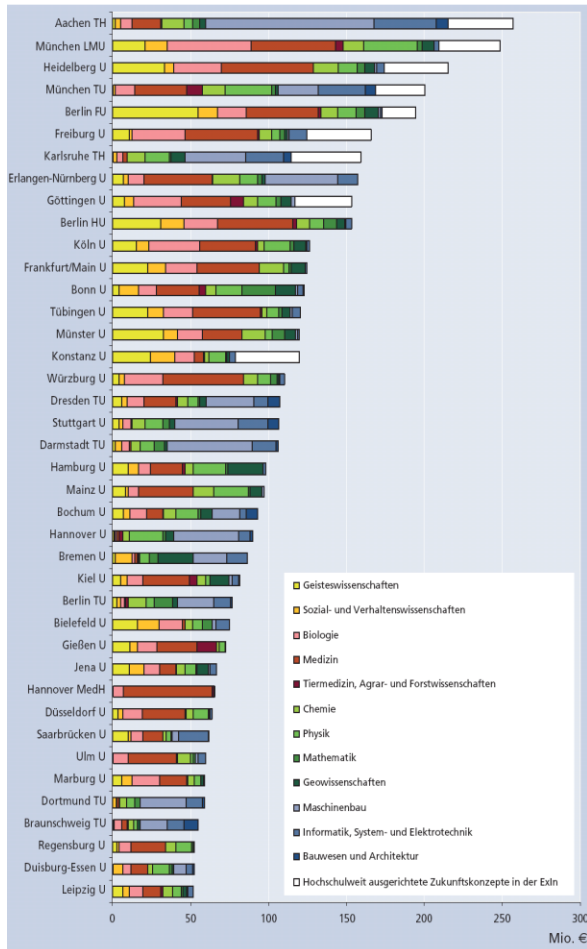
## An Indicator for Scientific Expertise

- ▶ Between 2005 and 2007 the DFG's decision-making bodies relied on the expertise of more than 15,000 reviewers.
- ▶ The figure illustrates the broad range of institutional origins.
- ▶ The number of reviewers per HEI or non-university research institution is used as an indicator for scientific expertise.
- ▶ Another indicator reports the institutional origin of the just under 600 members of the DFG Review Boards.

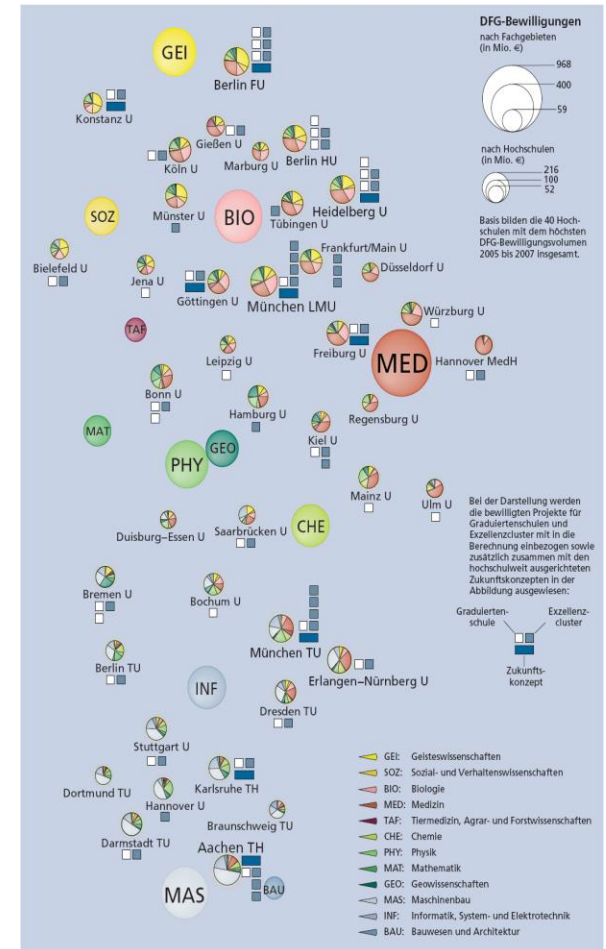


# Disciplinary Profiles of Universities

Different Forms of Data Presentation - e.g. amount of funding by discipline



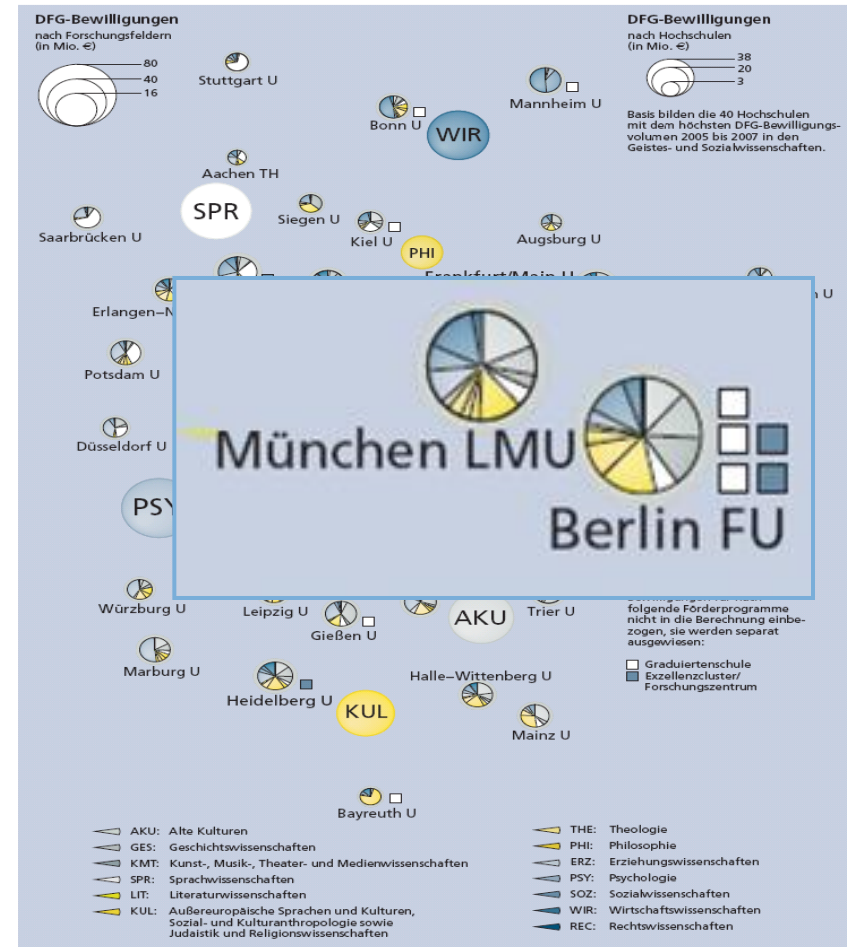
Hochschule	DFG-Bewilligungen gesamt			davon					
	Rang	Mio. €	kon. %	Gebiets- u. Sozialwissenschaften	Lebenswissenschaften	Naturwissenschaften	Ingenieurwissenschaften	2. Förderlinie der Exn für 2 Jahre	Mio. €
Aachen TH	1	227,8	5,1	5,4	25,4	25,0	133,7	41,5	
München LMU	2	240,8	10,0	25,1	112,8	58,2	2,9	29,8	
Heidelberg U	2	215,4	14,2	29,5	29,5	29,0	8,2	41,2	
München TU	4	200,4	18,2	1,8	35,8	48,7	62,6	21,4	
Berlin FU	5	194,4	22,0	87,6	84,0	27,1	2,1	21,7	
Freiburg U	6	165,3	25,2	12,7	41,2	18,2	12,2	41,0	
Karlsruhe TH	7	159,4	38,4	2,9	8,9	24,0	67,6	45,1	
Erlangen-Nürnberg U	8	157,8	21,5	18,0	54,6	22,2	29,8		
Göttingen U	9	152,5	24,5	12,8	79,2	21,4	2,4	24,7	
Berlin HU	10	152,4	27,5	45,9	71,9	21,0	4,5		
Köln U	11	126,4	43,0	22,2	83,6	21,2	2,2		
Frankfurt/Main U	12	124,8	42,5	24,2	88,2	28,8	1,6		
Bonn U	12	122,6	44,8	18,4	42,2	57,8	5,0		
Tübingen U	14	120,4	47,2	22,0	62,1	17,5	6,0		
Münster U	15	119,8	48,0	41,7	41,0	24,8	2,4		
Konstanz U	16	119,7	52,0	48,0	18,9	15,9	2,9	48,9	
Würzburg U	17	118,4	54,2	7,6	79,8	22,8	2,5		
Dresden TU	18	107,2	56,2	9,7	21,9	18,8	46,9		
Stuttgart U	19	106,7	58,4	6,6	8,0	27,2	67,0		
Darmstadt TU	20	106,1	63,5	6,1	8,1	22,2	70,7		
Hamburg U	21	98,7	62,4	16,9	28,9	48,6	2,2		
Mainz U	22	97,5	64,2	18,2	41,6	44,5	1,2		
Bochum U	22	92,8	66,2	11,2	21,7	21,7	29,4		
Hannover U	24	90,2	67,8	2,1	4,8	22,9	50,6		
Bremen U	25	86,7	69,7	12,6	2,8	25,8	24,7		
Kiel U	26	81,8	71,2	9,4	45,0	28,1	7,1		
Berlin TU	27	77,8	72,8	5,2	5,2	21,2	25,2		
Bielefeld U	28	74,8	74,2	28,0	16,6	17,2	10,8		
Gießen U	29	72,4	75,7	18,2	21,2	5,0	0,4		
Jena U	30	68,8	77,0	28,1	21,0	28,1	5,6		
Hannover MedH	31	65,8	78,2	0,4	84,2	0,2	0,0		
Düsseldorf U	32	62,8	79,6	6,0	48,1	15,4	1,4		
Saarbrücken U	32	61,8	80,8	12,2	28,1	8,0	22,7		
Ulm U	34	58,5	81,8	0,6	41,0	11,4	6,5		
Marburg U	35	58,2	82,1	12,2	25,7	18,4	0,9		
Braunschweig TU	36	54,8	84,2	2,2	2,6	12,2	40,6		
Regensburg U	36	52,5	85,4	4,1	21,7	18,5	0,1		
Duisburg-Essen U	39	52,2	87,4	6,7	15,9	17,0	12,7		
Leipzig U	40	52,2	88,4	18,8	21,2	15,5	4,5		
<b>Hochschulgruppen gesamt</b>	<b>01-159</b>	<b>5.876,7</b>	<b>100,0</b>	<b>769,4</b>	<b>1.722,7</b>	<b>1.170,6</b>	<b>1.074,7</b>	<b>229,4</b>	
<b>Ränge: H Hochschulen</b>	<b>159</b>	<b>124</b>	<b>70</b>	<b>06</b>	<b>97</b>	<b>9</b>			



# Disciplinary Profiles of Universities

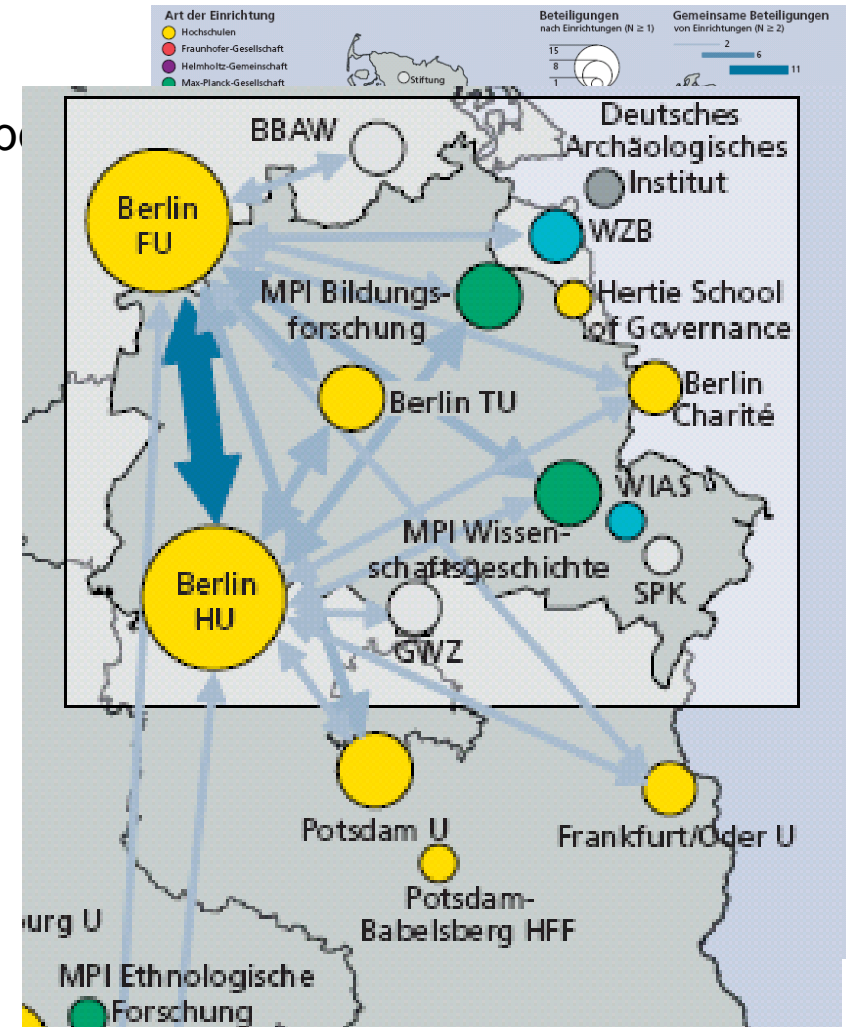
## Example Humanities & Social Sciences

- ▶ range of information:
  - funding volume
  - spectrum of disciplines of each HEI
  - participation of HEI in „Excellence Initiative“
- ▶ FU Berlin – LMU Munich:
  - similar volume of funding
  - and
  - similar disciplinary profile
  - different participation in ExIn



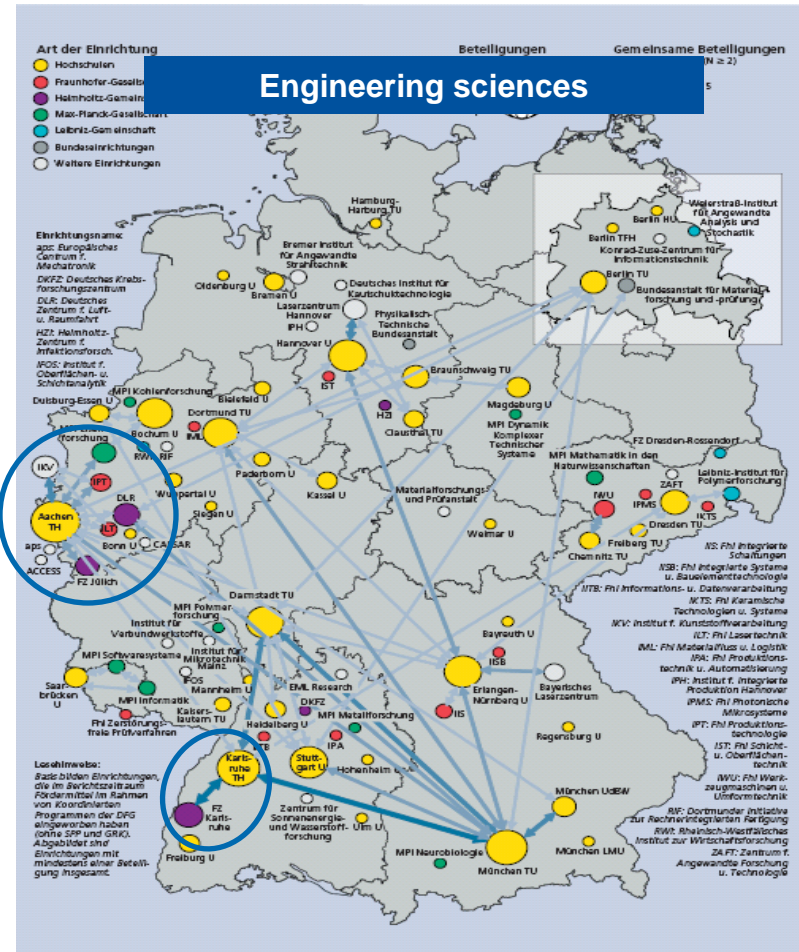
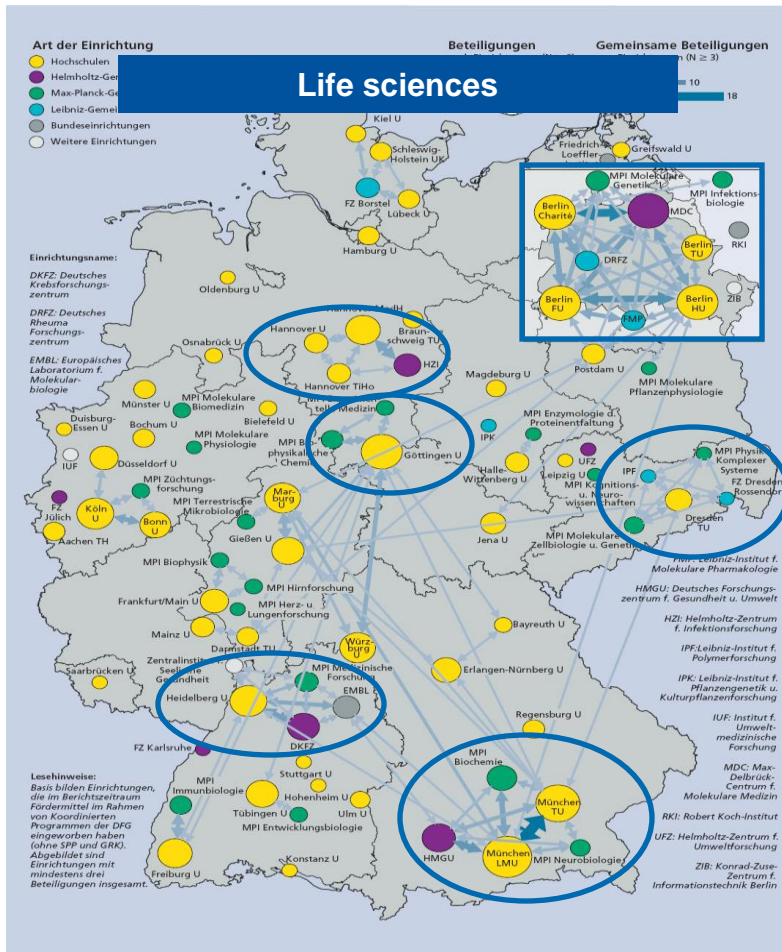
# Networks and Cooperation Structures within DFG Funded Programmes: Humanities & Social Sciences

- ▶ very dense coll. cluster in Berlin
- ▶ = Berlin capitalizes its local resources b



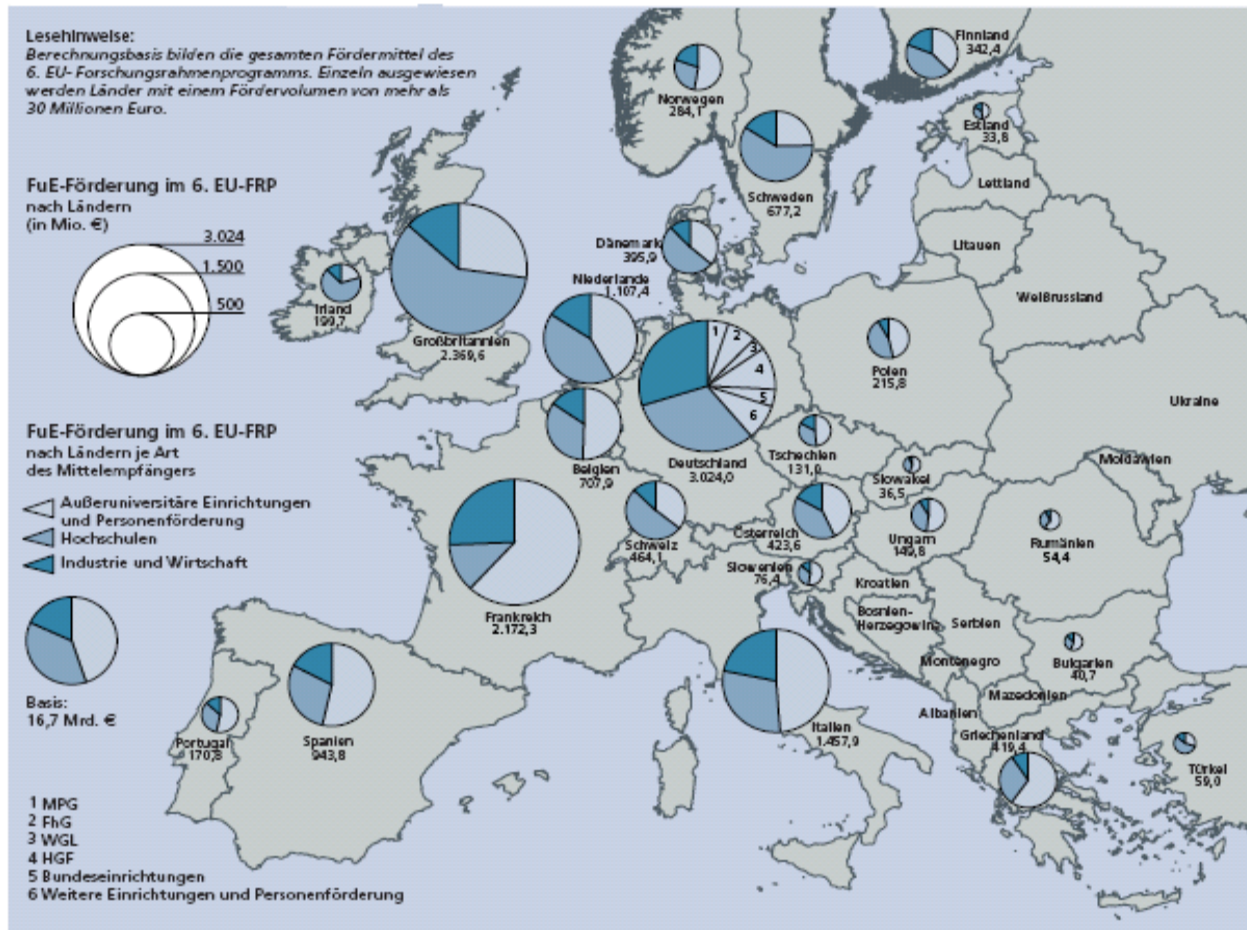
# Networks and Cooperation Structures Within DFG Funded Programmes

## Life Sciences and Engineering Sciences



# The European Dimension

## 6th Framework Programme of the European Union



### Ranking of countries

Country	Mio. €	cum. %
Germany	3.024,0	18,1
United Kingdom	2.369,6	32,4
France	2.172,3	45,4
Italy	1.457,9	54,1
Netherlands	1.107,4	60,8
Spain	943,8	66,5
Belgium	707,9	70,7
<b>Total</b>	<b>16.665,3</b>	<b>100,0</b>

### Recipients in Germany

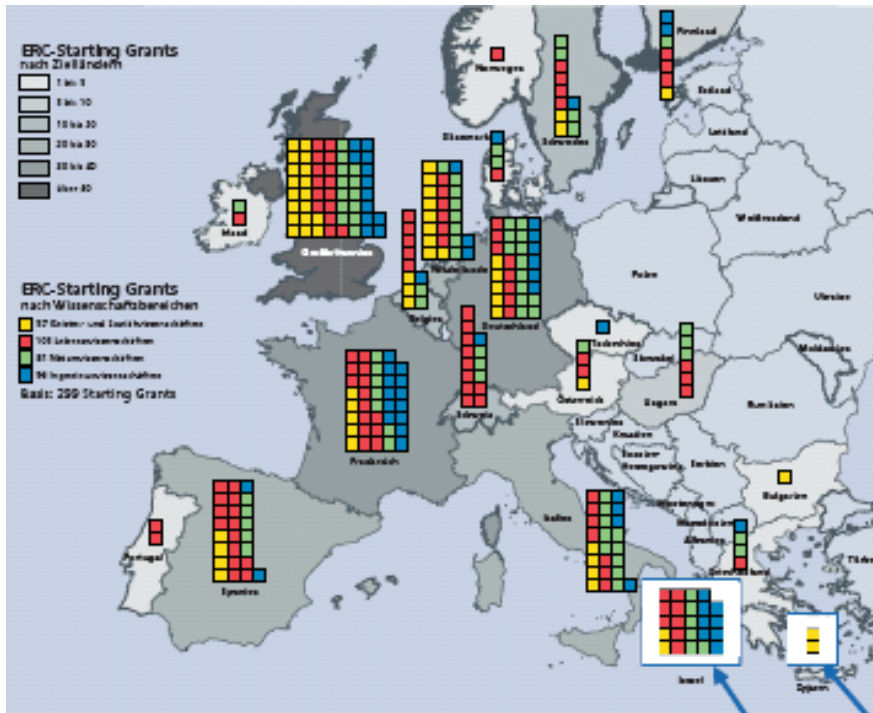
Type of institution	Mio. €	%
<b>HEI</b>	<b>947,9</b>	<b>31,3</b>
<b>Non-univ. research institution</b>	<b>1.173,5</b>	<b>38,8</b>
Max-Planck-Society (MPG)	154,3	5,1
Fraunhofer-Society (FhG)	216,4	7,2
Helmholtz-Association (HGF)	316,9	10,5
Leibniz-Association (WGL)	94,5	3,1
Federal institutions	128,1	4,2
Other institutions	263,2	8,7
<b>Business institutions</b>	<b>900,9</b>	<b>29,8</b>
<b>Non-institutional recipients</b>	<b>1,7</b>	<b>0,1</b>
<b>Total</b>	<b>3.024,0</b>	<b>100,0</b>



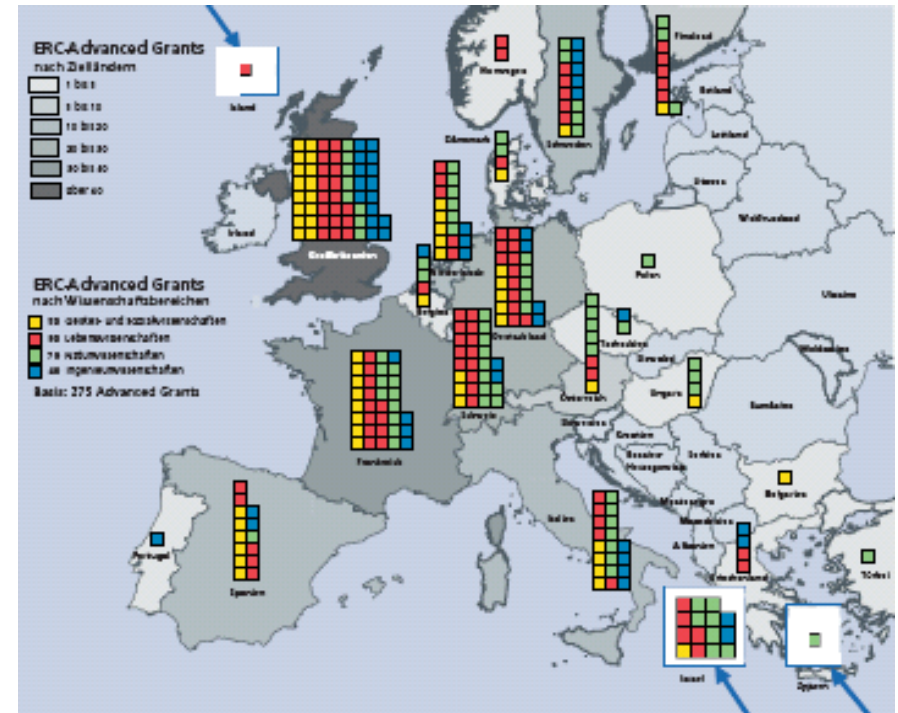
# The European Dimension

## European Research Council

### Starting Grants

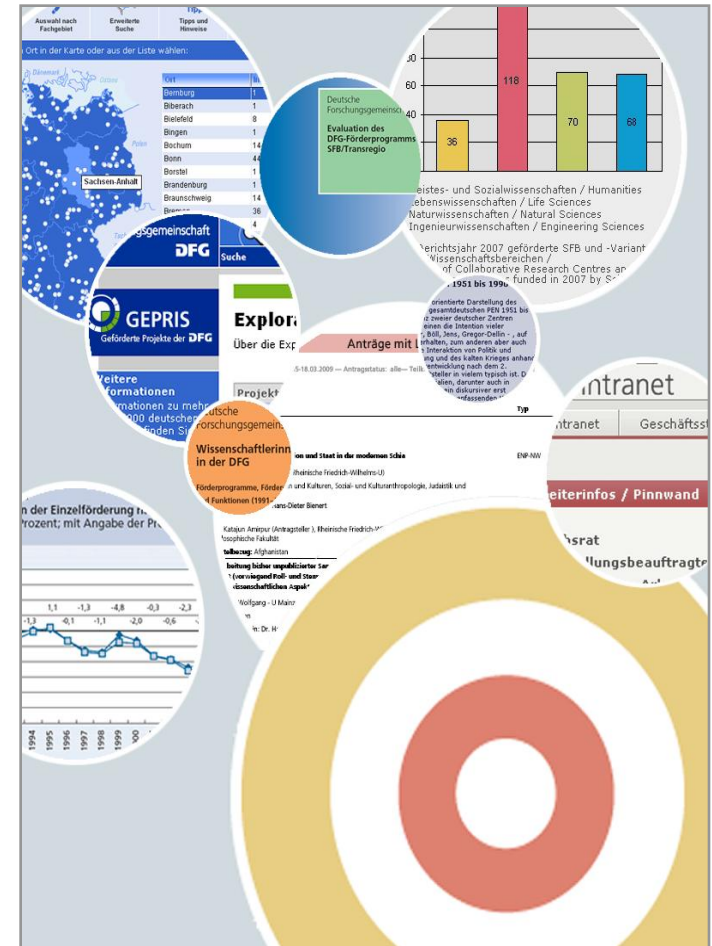


### Advanced Grants



# Agenda

1. Background
2. DFG at a Glance
3. The DFG's New Funding-Ranking
4. Research Explorer – A New Information Resource of the DFG



# New Information Resources Offered by DFG

Research Explorer (REx): [www.research.explorer.dfg.de](http://www.research.explorer.dfg.de)

## Characteristics

- ▶ bilingual database (German / English) on research institutes at German HEIs and other institutions
- ▶ detailed information on nearly 20,000 institutes at these institutions
- ▶ links to GEPRIS (Abstract-Database on DFG-funded projects)

Deutsche Forschungsgemeinschaft DFG

Research Explorer  
Das deutsche Forschungsverzeichnis

Deutsch

### Research Explorer

The Research Directory of the DFG and the DAAD.

The Research Explorer contains over 17,000 institutes at German universities and non-university research institutions, searchable by name, geographic location, subject and other structural criteria. Listings contain current postal and internet addresses.

Map of Germany Search Assistant Advanced Search Tips and Advice Imprint and Contact

You just choose the city from the map or from a list:

Town	Inst.
Aachen	4
Augsburg	2
Bad Nauheim	1
Bamberg	1
Bayreuth	1
Berlin	41
Bielefeld	3
Bochum	5
Bonn	8
Borstel	1
Braunschweig	5
Bremen	5
Bremerhaven	4
Chemnitz	2
Clausthal-Zellerfeld	1
Cologne	11
Cottbus	2
Darmstadt	9

\* Institutions

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Contact | Imprint

DAAD Deutscher Akademischer Austausch Dienst  
German Academic Exchange Service

DFG

# New Information Resources Offered by DFG

## Search Example

### Search

- ▶ research area = „mathematics“
- ▶ federal state = „Brandenburg“
  
- ▶ 14 hits

The screenshot shows the DFG Research Explorer interface. On the left is a navigation menu with options: Research Explorer, Map of Germany, Search Assistant, Advanced Search, Tips and Advice, and Imprint and Contact. The main content area is divided into several sections:

- organisational structure upwards from this facility**: Brandenburg University of Technology in Cottbus; Faculty 1: Mathematics, Science and Computer Science.
- selected institution**: Institute of Mathematics.
- Address**: Brandenburg University of Technology in Cottbus, Institute of Mathematics, Universitätsplatz 3-4, D-03044 Cottbus.
- Phone**: +49 355 69-3153
- Fax**: +49 355 69-3164
- Website**: [www.math.tu-cottbus.de/](http://www.math.tu-cottbus.de/)
- Assigned to Subject Area**: Mathematics in general
- Type of Facility**: Universities
- organisational structure downwards from this facility**: A list of 10 chairs, each with a checkbox:
  - Chair in Algebra and Geometry
  - Chair in Applied Mathematics
  - Chair in Discrete Mathematics and Mathematical Foundations of Computer Science
  - Chair in Mathematical Engineering
  - Chair in Mathematical Modelling
  - Chair in Optimisation
  - Chair of Mathematics - Analysis
  - Chair of Mathematics, especially Numerical and Applied Mathematics
  - Chair of Numerical Mathematics and Scientific Computing



# Thank you for your attention

## More informations

- ▶ On DFG: [www.dfg.de](http://www.dfg.de)
- ▶ On DFG-funded projects: [www.dfg.de/gepris/](http://www.dfg.de/gepris/)
- ▶ On nearly 20.000 research institutions in Germany: [www.dfg.de/research\\_explorer/](http://www.dfg.de/research_explorer/)