DFG funding: Programmes and Criteria for successful applications

Presentation at the Technical University Dresden, February 25, 2015

Dr. Andreas Strecker
Program Director
Immunology, Virology, Medical Microbiology
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1. What is the DFG?
2. What does the DFG fund?
3. What are the DFG's funding criteria?
4. How does the DFG provide funding?
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6. Guidelines to follow
7. Some numbers
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What is the DFG?

The members

► The DFG is the central public funding organisation responsible for promoting research in Germany

► *De jure* a private association!

► Its members are:
  - German universities (69)
  - non-university research institutions (16)
  - German academies of sciences and humanities (8)
  - scientific associations (3)

What is the DFG?
The structure of the association

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What is the DFG?
The head office

Executive Board
President
Secretary General
Head Office

Strategic Planning / Committees / Executive Office
Quality Assurance and Program Development
International Affairs
Internal Advisory Committee
Press and Public Relations
Internal Auditing
Berlin Office

Forum Heads of Division

Department I
Central Administration
• Budget and Accounting
• Human Resources and Legal Affairs
• Information Technology and Infrastructure
• Information Management
• International Offices

Department II
Scientific Affairs
• Humanities and Social Sciences
• Life Sciences 1
• Life Sciences 2
• Physics, Mathematics, Geosciences
• Chemistry and Process Engineering
• Engineering Sciences

Department III
Coordinated Programs and Infrastructure
• Research Centers
• Research Careers
• Scientific Library Services and Information Systems
• Scientific Instrumentation and Information Technology

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What is the DFG?
The core principles

The DFG furthers the progress of (basic) science:

► **Science-driven**
  - Funding of science itself is at the core, funding of scientists is a (desirable!) side-effect; *the advancement of science is the driving force*

► **Bottom-up principle**
  - Scientists propose projects whenever they consider them ready (few exemptions)

► **Self-governed**
  - Peer review! Scientists decide on the best science on all levels including central grants committees; sponsors („the politics“) are involved in decisions (they pick up the bill, after all!)
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What does the DFG fund?
Projects in all fields of basic science

The DFG receives funding proposals for

► individual projects
► coordinated research projects
► research infrastructure
► scientific contacts
What does the DFG fund?
The budget and its sources


67,0%
Federal government input

32,7%
State governments input

0,3%
Private sponsors

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What does the DFG fund?
The mandate of the DFG: Funding of basic science in all disciplines

The DFG
► serves all branches of science and the humanities
► fosters scientific excellence through competition
► supports international cooperation in research
► advises political and social decision-makers
► supports the transfer of knowledge between science and industry

Please note:
5% annual increase of total budget guaranteed according to the „Pakt für Forschung“!
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2. What does the DFG fund?
3. **What are the DFG's funding criteria?**
4. How does the DFG provide funding?
5. What funding programmes does the DFG offer?
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What are the DFG's funding criteria?
DFG reviewers evaluate proposals based on

- projects’ scientific merit
- applicants’ qualifications
- goals and work programme
- employment opportunities
- proposed use of funding
- quality and added value of the cooperation
- programme-specific criteria

in coordinated programmes
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How does the DFG provide funding?
The DFG promotes projects by providing:

- staff funding
- funding for direct project costs and consumables
- funding for animal costs
- travel allowances
- instrumentation funding
- funding for other items such as:
  - publications
  - trial-related expenses
  - PR activities
How does the DFG provide funding?
The DFG awards

- individual grant funding
- coordinated programme funding
  → not further discussed today
What funding programmes does the DFG offer?

Funding instruments for individual applications

- research grants (with publication funding)
- research fellowships
- temporary positions for principal investigators
- Emmy Noether Programme
- Heisenberg Programme
- Reinhart Koselleck projects
- Clinical Trials
What funding programmes does the DFG offer?
Overall allocation of funding to the various instruments

<table>
<thead>
<tr>
<th>Programme</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual grants programme</td>
<td>849</td>
<td>32.3%</td>
</tr>
<tr>
<td>Excellence Initiative</td>
<td>401</td>
<td>15.2%</td>
</tr>
<tr>
<td>Research Centres</td>
<td>43</td>
<td>1.6%</td>
</tr>
<tr>
<td>Collaborative Research Centres</td>
<td>563</td>
<td>21.4%</td>
</tr>
<tr>
<td>Priority Programmes</td>
<td>201</td>
<td>7.6%</td>
</tr>
<tr>
<td>Research Training Groups</td>
<td>164</td>
<td>6.3%</td>
</tr>
<tr>
<td>Research Units</td>
<td>167</td>
<td>6.3%</td>
</tr>
<tr>
<td>Infrastructure funding</td>
<td>190</td>
<td>7.2%</td>
</tr>
<tr>
<td>Prizes, other</td>
<td>54</td>
<td>2.1%</td>
</tr>
<tr>
<td>Overall allocation of funding</td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>
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What funding programmes does the DFG offer?

Research grants

**Purpose**
To carry out a focused research project within a specific time frame

**Eligibility**
Researchers from all disciplines at German research institutions who have completed their scientific training (in most cases by achieving their doctorates)

**Duration**
Project-specific (usually several years)
What funding programmes does the DFG offer?
Research fellowships

Purpose
To carry out a defined research project abroad in order to become acquainted with new scientific methods or to complete a larger project

Eligibility
Young researchers from all disciplines who have completed their doctorates

Duration
Usually two years

Particular features
Six-month return grants are also available

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What funding programmes does the DFG offer?
Temporary positions for principal investigators ("Eigene Stelle")

Purpose
To carry out an individual project in the researcher’s chosen research environment

Eligibility
Researchers from all disciplines who have completed their doctorates

Duration
Three years initially

Specific requirement:
No other 3rd party funding from any funder can be applied for!
What funding programmes does the DFG offer?
*Emmy Noether Programme*

**Purpose**
To allow researchers to achieve early independence and to enable them to qualify for a university teaching career by leading their own independent junior research group.

**Eligibility**
Outstandingly qualified postdoctoral researchers with significant international experience may apply within two to four years (six years for M.D.s) after obtaining their doctorates.

**Duration**
Usually five years.
What funding programmes does the DFG offer?

Heisenberg Programme

Purpose
To enable researchers to prepare for scientific leadership positions while simultaneously working on advanced research topics

Eligibility
Young researchers from all disciplines who meet the requirements for a long-term professorship and who have achieved outstanding results in their career so far. Demonstrated scientific independence is important!

Duration
Maximum of five years; professorship funding based on W2/W3 salary level (depending on the university’s transition funding)
What funding programmes does the DFG offer?
DFG funding of positions or projects within coordinated projects

- Collaborative Research Centres and CRC/Transregios
- DFG Research Centres
- Research Training Groups and International Research Training Groups
- Priority Programmes
- Research Units and Clinical Research Units

Coordinated programmes are national, international and/or interdisciplinary. They provide opportunities for cooperation with other universities and non-university research institutions (e.g. partners in industry) and bundle expertise at a university or several university locations.

**Training of junior scientists is an important or central aspect of those programmes.**
What funding programmes does the DFG offer?
Overview of programmes directed at junior investigators

<table>
<thead>
<tr>
<th>Studies</th>
<th>Doctorate</th>
<th>Postdoc Period</th>
<th>Achievement of eligibility for tenure</th>
<th>Preparation for scientific mgmt position</th>
<th>Professorship or other scientific mgmt position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research in a Research Training Group</td>
<td>Research Training Group fellowship</td>
<td>Research fellowship abroad</td>
<td>Research fellowship abroad</td>
<td>Research fellowship abroad</td>
<td>Research fellowship abroad</td>
</tr>
<tr>
<td>Research Training Group position</td>
<td>Research Training Group fellowship</td>
<td>Research fellowship abroad</td>
<td>Research fellowship abroad</td>
<td>Research fellowship abroad</td>
<td>Research fellowship abroad</td>
</tr>
<tr>
<td>Student assistant in DFG project</td>
<td>Position in DFG project</td>
<td>Position in DFG project</td>
<td>Position in DFG project</td>
<td>Position in DFG project</td>
<td>Position in DFG project</td>
</tr>
</tbody>
</table>

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In the **centre** of every proposal submitted to the DFG is a **scientific project**; every proposal must have convincing **scientific merit** to be considered for funding.

Funding of an individual, a scientific career or a scientific structure is a desired side effect; in coordinated programmes, the benefit for (a) scientific structure(s) is essential (e.g. University, topic...)

All disciplines are in direct competition to ensure the best of science is funded.

→ Funds are exclusively granted to further the scientific progress!
Relevant Criteria:

- Scientific quality and originality
- Qualification of scientists involved
- Hypothesis & strategy
- Working environment

Not relevant:

- Age, Gender, Nationality
- Previous DFG-record
Guidelines to follow
What is required for a good proposal? (1)

General considerations:

- Think like the reviewers to make their job as easy as possible
- Think of your application as your scientific business card – like a job application!
- Ask a colleague for a critical reading!
- Avoid the „copy-paste-problem“: „aim 1, aim 2, goal 4, phase 5“

Essentials:

- Give all the information necessary, but only that
- Ensure easy reading and clear presentation
- Follow the guidelines – reviewers will appreciate it! (They have them, too!!)
- Enclose publications and manuscripts to document preliminary work
Core virtues:

Hypothesis: *Exactly* what do you want to prove, falsify, find out?

Work plan / strategy:
- Is the work program as core of the application original, novel, but not overloaded? → Focus!
- Which are your primary goals? Prioritize!

Alternative strategies: What do you do when your strategy fails?
  → Develop „Plan B“!

Funds applied for: Be realistic - your application is not the only one in this year!

Consider this: Very large first applications are harder to get approved; a grant should fund a focused scientific project, not your whole team! The expectation is to *first prove you are able to deliver on a project proposed and funded.*
Guidelines to follow
What is required for a good proposal? (3)

Full electronic application submission

**Following the Guidelines** („DFG-Merkblatt 50.01/Leitfaden 54.01 - Guideline 50.01e/Instruction 54.01):

**Summary:** max. 1600 characters (only in the form)

1. **State of the art and own preliminary work/progress report** (for continuation proposals):
   - Research and discuss the current literature extensively – show you are familiar with the field and have critically reflected on what you are proposing
   - short but concise - you are an expert, show it!
   - (self)critical and detailed, but project-related
   - enclose project-related publications
Guidelines to follow
What is required for a good proposal? (4)

Following the Guidelines (DFG-Leitfaden 54.01)

2.1 Duration of project (new proposal or extension)

2.2 Goals

- rigid depiction of specific goals and hypothesis – don’t explain the world!
- the project should be novel and original – reviewers like to be surprised!

2.3 Work programme incl. methods

- detailed experimental plan: what do you want to achieve when and how?
- why do you consider your methods appropriate?
- elaborate on alternative strategies
- depict methods established in your lab and those utilized in collaboration
- cite relevant literature (in paragraph 3) – your own and other work
Guidelines to follow
What is required for a *good* proposal? (5)

**Following the Guidelines** (DFG-Leitfaden 54.01)

2.4 **Data handling** – results achieved with public funding must be made accessible to the (scientific) community after publication

2.6 **Experiments involving humans or human-derived material; experiments involving animals**

- always answer the questions and describe the nature of the experiments
- if you use human-derived material, ethical clearance is mandatory by law – you will lose time if it is missing – the DFG **must** collect it
- rules of animal protection must be obeyed
- it is your duty to work according to the laws and ethical obligations

2.7 **Collaboration with partners in Germany and abroad**
Following the Guidelines (DFG-Leitfaden 54.01)

3. The reference list: rules for reference lists

- A maximum of ten publications depicting project-specific preliminary work
- Separate peer-reviewed original papers from reviews, patents, book chapters and congress abstracts
- Only accepted manuscripts are considered as publications (include journal confirmation!)
- NO manuscripts submitted, in review, „in preparation“
- List ten „personal highlights“ in your CV (no more!), not necessarily project-specific
This is Important!!!

**Never Ever:**
- Neglect/omit literature contradicting your hypothesis
- cite your own papers only and ignore the competition
- re-assess or ridicule other people’s findings – they may be your reviewers (or the reviewer appreciates their data!)
- do not swap authors when “equally contributed“: this constitutes scientific misconduct! → cite as in PubMed, including title, mark shared authorships by asterisks; highlight your name (helps reviewers!)

**Instead:**
- Discuss other people’s data – this might be inspiring to the reviewer and shows you contribute to the research field
Guidelines to follow
What is required for a good proposal? (7)

Following the Guidelines (DFG-Leitfaden 54.01)

4. Funds requested
Give a justification in line with your work programme for every staff position, consumables, travel costs, animal costs and equipment!

Staff: do you have experienced candidates for the positions?
Equipment: provide quotes!
Consumables: Project-related only; provide a rough calculation!
Travel costs, Publication costs
Other funds required (animal costs must be precisely calculated, remuneration of volunteers,)

The DFG funds project-related additional costs, but not basic equipment – this is expected from your institutes’ core funding!
Guidelines to follow
What is required for a good proposal? (8)

Following the Guidelines (DFG-Leitfaden 54.01)

5. Prerequisites for carrying out the project
5.1 Your current position
5.2 First-time proposal („Erstantrag“) - not applicable if you have a SFB-project
5.3 Your team
5.4 Cooperations with other scientists relevant for this project & others
5.5 Scientific equipment
5.6 Other requirements

A reasonable input of institutional funding is expected!
Guidelines to follow
A successful grant...

► has a novel and innovative topic and approach
► is well investigated and clearly described
► has published preliminary work
► is phrased concisely and precisely
► presents the experimental strategy comprehensibly and convincingly
► states short-term goals, embedded in a broader context
► presents a reasonable work plan to achieve the goals on time
► applies for appropriate funding
► convences by an attractive layout
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DFG Funding in the Life Sciences 2010 to 2013 in Mio. Euro

**Life Sciences**

- **Biology**
  - 2010: 242.2 Mio. Euro
  - 2011: 254.1 Mio. Euro
  - 2012: 254.0 Mio. Euro
  - 2013: 251.5 Mio. Euro

- **Medicine**
  - 2010: 484.7 Mio. Euro
  - 2011: 512.2 Mio. Euro
  - 2012: 493.1 Mio. Euro
  - 2013: 481.0 Mio. Euro

- **Agriculture, Forestry, Horticulture and Veterinary Medicine**
  - 2010: 40.0 Mio. Euro
  - 2011: 41.8 Mio. Euro
  - 2012: 44.1 Mio. Euro
  - 2013: 41.4 Mio. Euro
Funding rates for Individual Grants

Ratio of applications funded 2010 to 2013

Funding rate (by number)

2010 2011 2012 2013

- Humanities and Social Sciences
- Life Sciences
- Natural Sciences
- Engineering Sciences
- Total

2010
- 39.2
- 43.1
- 42.5

2011
- 34.7
- 36.5
- 37.2
- 33.5
- 35.6

2012
- 28.9
- 34.2
- 34.7
- 30.9
- 32.5

2013
- 31.5
- 28.3
- 34.2
- 33.3
- 31.3

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Funding rates for Individual Grants

Ratio of funding volume applied for funded 2010-13

<table>
<thead>
<tr>
<th>Year</th>
<th>Humanities and Social Sciences</th>
<th>Life Sciences</th>
<th>Natural Sciences</th>
<th>Engineering Sciences</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>28.6%</td>
<td>31.2%</td>
<td>31.9%</td>
<td>32.4%</td>
<td>31.0%</td>
</tr>
<tr>
<td>2011</td>
<td>26.9%</td>
<td>27.9%</td>
<td>26.2%</td>
<td>27.8%</td>
<td>27.3%</td>
</tr>
<tr>
<td>2012</td>
<td>22.4%</td>
<td>23.9%</td>
<td>22.8%</td>
<td>25.0%</td>
<td>23.6%</td>
</tr>
<tr>
<td>2013</td>
<td>22.8%</td>
<td>20.7%</td>
<td>21.8%</td>
<td>26.4%</td>
<td>22.5%</td>
</tr>
</tbody>
</table>
Processing time for Individual Grants
(submission date to decision date, months)

Average in **Life Sciences** (2014): 6.1 months

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Total percentage of funding granted to female applicants

Individual grants, 2010 to 2013

Based on: Individual proposals for individual grants, research fellowships and Heisenberg fellowships

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Thank you very much!

Please contact the DFG Head Office for advice and consulting!

andreas.strecker@dfg.de
Tel. 0228-8852530

More information
► about the DFG: www.dfg.de
► about funded projects: www.dfg.de/gepris/
► 2012 Funding Atlas: http://www.dfg.de/dfg_profil/foerderatlas_evaluation_statistik/foerderatlas/index.jsp
► about more than 17,000 German Research Institutions: www.dfg.de/research_explorer/

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Temporary Position for Principal Investigators
Requirements for members of non-university research institutions

Quote from „Guidelines on the duty to cooperate“ (Form 55.01e)

► The following applies to researchers who are employed at one of the institutes or member organisations of the Max Planck Society, Fraunhofer Society, Helmholtz Association or Leibniz Association, researchers working at a publicly funded institute associated with one of these organisations, and researchers working at international research facilities located in Germany:

► If you are employed on a permanent contract, you may, as a rule, only submit a proposal for a joint project and in cooperation with a university partner (duty to cooperate). The joint project may only be funded if at least 50% of the award is allocated to the partner at the German university and if the partner at the German university heads the project. You are eligible to submit an independent proposal if you are employed on a fixed-term contract at your institution and are considered a young researcher (Nachwuchswissenschaftler).

► If you are not cooperating with a partner from a German university, you are eligible if you are affiliated with a Leibniz institution (WGL), which pays a lump sum to the DFG.

► Special conditions apply to proposals for temporary positions for principal investigators which will be located at such research institutions. Please note that the duty to cooperate also applies to young researchers (Nachwuchswissenschaftler). You may be exempt from this obligation, however, if you submit your funding proposal for a temporary position as a principal investigator within six years of obtaining your doctorate and if the non-university research institution bears 45% of the costs for the project, including the cost of your position.

1 This rule does not apply to proposals for research grants submitted within the framework of Priority Programmes or Research Units.

2 This 6-year period may be extended on a case-by-case basis with suitable justification, for example due to maternity/paternity leave.