

Guidelines

e-Research Technologies



I Programme Information

1 Objective

As part of its Scientific Library Services and Information Systems Programme, the DFG funds projects at research institutions and other research service and information centres in Germany. The aim is to set up efficient nationwide research information systems.

Academic research is increasingly shaped by the fact that nearly all steps of the research process occur in digital work environments and networked forms of organisation. These systems are often what makes research possible in the first place, and they further increase the quality of research results. The techniques and procedures underlying this method of working are based on functionalities and mechanisms of digital, web-based networks and support (often collaborative) work on and with scientific information and data; these techniques and procedures will subsequently be referred to as e-Research technologies.

The e-Research Technologies Programme accepts grant proposals for the establishment and development of nationwide digital information infrastructures serving all or certain fields of research. The programme provides funding for

- the development and design of technologies, tools, methods and applications to procure, to access and utilise, to process and evaluate, as well as to safeguard scientifically relevant information;
- the development and design of organisational structures necessary for the use of e-Research technologies, and of funding models able to support their operations over the long term;
- the conception and implementation of measures that familiarise scientists and academics with the proposed e-research technologies, train them in the use of information infrastructures, and thus help to increase utilisation;
- analytical studies on topics related to digital research if the findings will be used directly for the development, implementation or consolidation of e-Research technologies.

Since any infrastructure undergoes different phases from needs analysis to regular operations, funding can be requested to support functionally and temporarily the

development and expansion of e-Research technologies in three different phases. Grants are therefore available for projects focused on

- application-oriented research and development of e-Research technologies;
- the implementation of e-Research technologies;
- the consolidation and optimisation of existing e-Research technologies.

Different requirements apply to these three phases (see 2.2).

Projects ineligible for funding are those whose objective or implementation is considered a basic responsibility of its host institution. This includes, for example, innovations of a purely technical nature, maintenance, or usage analysis. Training programmes cannot be funded separately, but only in conjunction with a project that develops or expands an e-Research technology. Projects aimed solely at the development or optimisation of the information infrastructure of individual research projects, institutions or sites are also not eligible for funding.

Excluded from this programme are also projects that can be clearly assigned to another DFG funding initiative in the area of Scientific Library Services and Information Systems. Note in particular the grant programmes for *Information Infrastructures for Research Data* and for *Infrastructure for Electronic Publications and Digital Science Communication*.

2 Proposals

2.1 Eligibility

In general, members of non-profit research information infrastructure facilities such as libraries, archives, museums, computer centres and media centres are eligible to submit proposals. Researchers in Germany or those working at a German research institution abroad who have completed their academic training (generally by obtaining a doctorate) are also eligible to apply.

In general you are not eligible to submit a proposal if you work at an institution that is for-profit or one that does not allow immediate publication of research findings in a generally accessible form.

Since funding provided in the area of scientific library services and information systems is intended to achieve improvements to nationwide information infrastructures, and its results benefit research as a whole, institutes and member organisations of the Max Planck Society, the Fraunhofer Society, the Helmholtz Association, the Leibniz Association, and publicly funded research institutions associated with these organisations, and German sections of international information infrastructure institutions are also eligible to apply.

2.2 Proposal requirements and funding conditions

When the aim of DFG project funding is to build a nationwide structure for the longer term, it is expected that the proposal be submitted and supported by or in conjunction with a publicly funded institution that is able to maintain the project results and ensure their sustainability.

The more interaction there is between the needs of the academic community, the research processes, and the designing of the necessary information infrastructure, the stronger the case for joint proposal submission by representatives of infrastructure facilities and the academic research community.

2.2.1 Project requirements

Applicants are expected to demonstrate convincingly the scientific need for any e-Research technology they intend to implement or consolidate (environment and needs analysis). Detailed application examples and usage scenarios can support the presentation of the needs analysis.

The projected technologies must be accepted by a particular research community. This requires that the scientifically appropriate use of these technologies is possible – particularly when it comes to infrastructures that support research processes on which researchers at different locations collaborate.

Applicants are expected to obtain comprehensive information on national and international developments and demonstrate that they are taking into consideration any existing methods, processes and tools that could be reused or further developed.

Technical compatibility of infrastructures must be ensured and explained in the proposal.

It is therefore imperative to note and apply relevant, existing standards and procedures

that ensure interoperability even at the international level (e.g. persistent IDs for authors, texts and data; open interfaces; metadata standards for long-term archiving; Creative Commons licences or licences for software reuse). In addition, the proposal must demonstrate compatibility and interplay with existing national and international systems and developments, the appropriateness of the legal framework, as well as the integration into a plausible process chain.

If an in-house technical development is planned as part of the proposed project, the proposal must discuss any existing similar solutions and why they cannot be used.

If the proposed project aims to implement a service or a tool, it can only be funded if financing and maintenance of the project results will be ensured after the DFG grant expires. Only for projects with a strong experimental orientation, where the long-term prospects of successful broad-based implementation cannot be fully assessed until the project is completed, can the question of how the project results can be maintained in the long term be initially disregarded.

If applicable, indicate whether the proposed project has already received a grant from a third party or if a funding request for this project has been submitted elsewhere.

Regarding the different stages in the development of infrastructure, the following additional requirements apply:

For projects on application-oriented research and the development of e-Research technologies:

Eligibility extends to all kinds of subject-specific or interdisciplinary or multidisciplinary technical, organisational or economic research and development projects on information infrastructure. The proposal should formulate a clear thesis on how the project will test novel approaches to operate specific e-Research technologies and identify what criteria will be used to determine whether the implementation was successful.

Projects in this area may be experimental and open-ended. If this is the case, the proposal should explain precisely why the project must be open-ended and what benefits the project is expected to yield.

For projects on the implementation of e-Research technologies:

Implementation of e-Research technologies requires, in particular, testing and development work that leads to regular operations and continuous usage of an infrastructure.

The proposal must include an analysis that clearly demonstrates the scientifically relevant need for the methods, procedures or functions that are planned and subject to implementation. In addition, it should describe the project control mechanisms and individual steps envisioned in order to ensure long-term viability of the intended e-Research technology, as well as the future operating structure. If the infrastructure is strongly geared towards subject-specific use, researchers should be appropriately involved in the implementation of the project as early as possible. Finally, the proposal should explain and justify what type of evaluation is envisioned within the project, why a specific evaluation method has been chosen, and what project-internal steps are planned to evaluate the implementation.

For projects on the consolidation of e-Research technologies:

Projects focused on consolidation are based on (possibly diverse) e-Research technologies that are already operational, in order to adapt, improve, merge or innovatively develop them.

The merger or adaptation of e-Research technologies aims to increase usability and usage of infrastructure, and eliminate inefficient redundancy of tools or services. At the same time, it strives to establish the relevant technologies for the long term. Use and user analyses should therefore be presented in a way that allows conclusions regarding the current acceptance and role of the e-Research technologies in question. The proposal must explain the purpose of the merger or adaptation and provide a forecast of the result of the consolidation. A project-internal evaluation should be planned as well. Details on sustainability planning and the organisational model for long-term operations are mandatory.

2.2.2 Project results

The technologies, tools, methods, organisational forms or financing models developed during the course of the project should be potentially reusable and transferable to other contexts.

All project results must be announced to the relevant community and made available for use free of charge, also to third parties. Disclosure of any source code produced is mandatory; project results must be made available as an open source in a suitable location (e.g. GitHub, SourceForge). This includes comprehensive documentation. Wherever possible, unambiguous licences will specify the scope of reusability of software or publications.

All the content – including software developments – produced with DFG funding and made available over the internet must be edited, indexed and advertised in such a way as to ensure that it will be as easy to find as possible. Appropriate metadata must meet library standards and must be suitable for integration in international subject-specific indexes or other cataloguing systems.

2.2.3 Financial contributions

Applicants are expected to make a reasonable financial contribution to the project, e.g. in the form of personnel and direct project costs. For projects aimed at the implementation or consolidation of infrastructures, the contribution is expected to be significantly higher than for experimental projects.

2.3 Format and deadline

2.3.1 Proposal structure

Proposals for projects in the area of scientific library services and information systems must be structured in accordance with the relevant proposal preparation instructions:

www.dfg.de/formulare/12_01

Please base your proposal on the outline in this template, addressing especially the following issues:

Item 1.1 of the project description (Current situation and preliminary work):

- Please indicate whether your proposal concerns a) research and development, b) implementation or c) consolidation of e-Research technology.

- Explain what preparatory work has been done to determine the need for the technology that you plan to develop, establish or consolidate.
- If you intend to consolidate or adapt digital technology, discuss the previous use of the service in quantitative and qualitative terms.
- Please explain the requirements of a specific community for the technologies you plan to develop, implement or consolidate; how these technologies can be used in a scientifically appropriate way; and how acceptance of these technologies can be demonstrated or at least made plausible.

Item 2.2 of the project description (Objectives):

- Please explain how and in what way the technology you plan to develop or optimise is expected to affect work processes in the target community.
- If you are proposing an experimental project, explain why the planned development should be considered viable for the future, what risks should be expected in the realisation of the project, and how these risks will be managed in the course of the project.

Item 2.3 in the project description (Work programme and realisation):

- Please describe in detail how the proposed project will feed back into the relevant communities even during the early stage of development, and how broad-based use of the technology can be established.
- State whether relevant standards or best practices are already established for the proposed project and how these are taken into account.
- Please explain what kind of project-internal evaluation you envision and what concrete measures you plan to evaluate the experiment or the establishment or adaptation of the technology.

Item 2.4 of the project description (Measures to meet funding requirements):

- Please describe in detail actions which will ensure that the infrastructures developed with DFG funding will continue to be reliable and, especially when it comes to consolidated technologies, sustainable after the grant expires.
- If your proposal is of a very experimental nature, please state the criteria which can be used to evaluate whether the project, on or after its completion, has fulfilled expectations in terms of the solution developed, whether this solution should be widely adopted and implemented, and possibly what measures would be suitable to accomplish this.

Item 5.4 of the project description (Formal assurances):

- Please confirm that “Publications resulting from the project and any relevant documentation will be available via open access, making them widely accessible for use by third parties.”
- Give a formal declaration that the “Source code for the software developed under the project will be documented in accordance with the principles of open source and made available for use by third parties.”

2.3.2 Additional information and data sheets

If the proposal is submitted by members of a research information infrastructure facility, the applicant must enclose a declaration by the facility's director stating that:

- the long-term accessibility of the texts and/or objects to be made available and/or digitalised is ensured;
- the financial contribution required within the scope of the programme has been made;
- the results of the project will be supported once DFG funding has expired.

www.dfg.de/formulare/12_141

2.3.3 Submission deadline

Proposals may be submitted to the DFG at any time.

3 Duration

All projects are initially funded for three years. Three additional years may be requested following a positive evaluation.

II Proposal Modules

Under this funding programme, you may submit one or more of the following modules. For more details, please see the respective guidelines for each module.

1 Basic Module

Use the basic module to request funding for direct project costs, project-specific staff, and instrumentation necessary to carry out the project.

www.dfg.de/formulare/52_01

2 Project-Specific Workshops

If you would like to conduct workshops as part of your project, you may request funding to help you do so. Please note that this module cannot be submitted separately but only in conjunction with the proposed project.

www.dfg.de/formulare/52_06

III Obligations

In submitting a proposal for funding under this programme, you agree to:

1 adhere to the rules of good scientific practice.¹

The general principles of good scientific practice include, among others: maintaining professional standards, documenting results, rigorously questioning all findings, and attributing honestly any contributions by partners, competitors and predecessors.

Scientific misconduct is defined as the intentional and grossly negligent statement of falsehoods in a scientific context, the violation of intellectual property rights or impeding another person's research work. The circumstances of each case will be considered on an individual basis. In cases where scientific misconduct has been established, the DFG may impose one or more of the following sanctions, depending on the nature and severity of the scientific misconduct:

- issuing a written reprimand to those involved;
- exclusion from the right to apply for DFG funds for a period of one to eight years, depending on the severity of the scientific misconduct;

¹ The rules of good scientific practice are presented in detail in the white paper entitled „Safeguarding Good Scientific Practice“ and in the [Funding Guidelines - General Terms and Conditions of DFG Grants](#) (DFG form 2.00).

- revoking funding decisions (complete or partial cancellation of the grant, recalling granted funds, demanding repayment of funds spent);
- demanding that those concerned either retract the discredited publications or correct the falsified data (in particular by publishing an erratum), or appropriately indicate the DFG's retraction of funding in the discredited publications;
- exclusion from acting as a reviewer or from membership in DFG committees for a period of one to eight years, depending on the severity of the scientific misconduct;
- denying voting rights and eligibility in elections for DFG statutory bodies and committees for a period of one to eight years, depending on the severity of the scientific misconduct.

By accepting funding, the recipient agrees to

- 2 use the grant exclusively and in a targeted manner to realise the funded project. The use and accounting of funds must conform to the relevant regulations of the DFG.
- 3 submit progress reports on the research according to the dates specified in the award letter and to present financial accounts to the DFG detailing the use of funds.

The DFG expects that the findings of the projects it funds be made available to the public.

IV Publication of Data on Grant Holders and Research Projects

The data necessary for processing your grant proposal will be stored and processed electronically by the DFG. If a grant is awarded, your work address (e.g. telephone, fax, e-mail, internet website), as well as information on the content of your research project (e.g. topic, summary, keywords, international cooperation), will be published in the DFG's project database GEPRIS and – in excerpts (grant holder's name, institution and location) – in the "Programmes and Projects" section of the DFG's electronic annual report. If you do not wish this information to be published electronically, please notify us in writing no later than four weeks after receipt of your award letter.

www.dfg.de/gepris/en

www.dfg.de/en/annual_report

V Information

For further information, please contact Dr. Matthias Katerbow (e-mail: Matthias.Katerbow@dfg.de; telephone: 0228/885-2358). A detailed overview of contact details, responsibilities and funding opportunities in the DFG's Scientific Library Services and Information Systems Programme is available on the DFG website at

www.dfg.de/lis/en