Guidelines and Supplementary Instructions

Research Software Infrastructures

Disclaimer: The English translation of this document is provided for informational purposes. In the event of a discrepancy between the English and the German versions, the German text takes precedence.

Deutsche Forschungsgemeinschaft
Kennedyallee 40 · 53175 Bonn, Germany · Postal address: 53170 Bonn, Germany
Tel.: + 49 228 885-1 · Fax: + 49 228 885-2777 · postmaster@dfg.de · www.dfg.de

I Programme Information

1 Objectives and Scope of Funding

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

1.1 Background

Together with research data and text publications, research software provides the foundation for quality-oriented, reproducible and compatible digital research practice. Given the key role of research software, it is important to ensure its long-term findability, availability and usability. Research software infrastructures enable structural handling of software in a way that is appropriate to research. They include technically and organisationally networked services and offerings that involve such activities as software generation, processing and use, as well as ensuring access to and maintenance of research software.

1.2 Objective

The aim of the funding programme Research Software Infrastructures is to support projects that are dedicated to the development, establishment or organisation of infrastructures for research software.

In terms of their social and organisational set-up, infrastructures for research software involve shared responsibility on the part of academic infrastructure facilities, researchers and research software engineers. As such, proposals should ideally be submitted collaboratively by individuals at research institutions and infrastructure facilities.

Projects that only benefit a single site or exclusively concern local research software management are not eligible for funding. Neither is funding provided for the development or advancement of research software.

1.3 Scope of funding

In order to ensure the structured development of research software infrastructures, project proposals can be submitted at different stages of the infrastructure development process. Applicants are asked to assign the project to one of the following three **phases**:

Phase 1 – Set-up and testing

The aim of setting up and testing a functional prototype is to demonstrate how the functioning of an infrastructure is envisaged and to test it with representative users, ideally from more than one community of researchers.

Phase 2 – Establishment

The establishment phase serves to ensure the provision of a stable, reliable, secure, scalable and expandable service for users, also organising permanent operation.

Phase 3 – Consolidation

The consolidation of an existing infrastructure should include expansion of the scope of services and functions and in particular contribute to the harmonised overall system of research software infrastructures.

Funding can cover one or more of the following **tiers** in each phase:

Technical tier

The technical tier comprises the area of the infrastructure that is based on software and underlies the services and offerings that are to be developed. Examples here include infrastructures that support the development, expansion, maintenance and long-term usability, search, description, findability and accessibility of research software. This includes all solutions, environments or procedures that are written in software code.

Organisational tier

The organisational tier refers to the social aspects of developing, expanding and operating research software infrastructures. Examples include financing and operating models, the conception and establishment of organisational and governance structures, regulations and guidelines, standard setting, structures for the management and building of a community, communication measures, quality assurance procedures, etc.

Individual tier

The individual tier includes the development of skills when dealing with research software, for both researchers and research software engineers as well as for members of infrastructure facilities. Examples include education and training measures, the establishment of forums for sharing experience, the design of workshops and advisory services, etc.

2 Proposals

2.1 Eligibility

Members of non-profit research information infrastructure facilities such as libraries, archives, museums, research collections, research data centres or computing and information centres are generally 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, members of institutions that are not non-profit or do not allow immediate publication of research findings in a generally accessible form are not eligible to apply.

Funding provided in the Scientific Library Services and Information Systems area is intended to achieve improvements to nationwide information infrastructures, and its results benefit research as a whole. Therefore, researchers working at the institutes and member organisations of the Max Planck Society, the Fraunhofer-Gesellschaft, 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 Funding conditions

Projects can initially be focussed on individual research communities. However, their capacity for generalisation should be borne in mind, and it is important to take into account developments in research software infrastructures in other subject areas as well as at the national and international level. Projects are to respond to the needs of one or more research communities: their success will be reflected in the degree to which they are accepted by academic users. The closer the interaction between the requirements of academic users, research processes and the design of the research software infrastructure, even before the proposal is submitted, but in particular during a project, the greater are the chances of a project achieving long-term success.

2.2.1 Eligibility requirements

The academic need for a project must be plausibly demonstrated based on a needs analysis (e.g. surveys, workshops, round tables, analyses, studies, etc.). Detailed use cases can be provided to support the presentation of the needs analysis. The needs analysis is the key element in terms of the rationale of a proposal.

Applicants are expected to provide an environment analysis of national and international developments and demonstrate that they have taken into consideration any existing methods, technologies or software that might be reused or further developed. The environment analysis should also show which fundamentally similar solutions already exist and why these cannot be used. Reuse of existing modules or components of infrastructure software is to be given priority over new developments. Software dependencies of the infrastructure software are to be identified and analysed with regard to stability, cost and security.

Horizontal and vertical integration of a planned research software infrastructure must be described in the proposal. Horizontal integration refers to cross-links with co-existing information infrastructures such as those for research data or for text publications. Vertical integration refers to the integration of a research software infrastructure in structures and processes at the local and regional level through to the national and international level. Interfaces with existing structures and systems should be established wherever possible. For this reason, the consideration, description and usage of existing, often internationally established standards and technologies is essential (e.g. persistent identifiers, open, interoperable formats, open interfaces, open licences, metadata standards, etc.).

Each project should contribute to the creation of a national and ideally international, interoperable overall system of infrastructures for research software by: 1) designing technologies and services to be compatible, developing them for reuse and publishing them so that they are findable (see also FAIR4RS principles); and 2) by approved projects sharing information among each other while they are in progress. For this reason, the expectation is that the projects applied for will identify their role and function (or potential role and function) within this overall system and describe activities they plan to undertake in this connection.

The proposal is expected to be supported or co-supported by an institution that is in a position to consolidate the project results and ensure that these are safeguarded in the long term. For this reason, the institution is expected to make an appropriate project-specific financial contribution of its own during the project period. Projects assigned to Phase 1 should provide at least 10% of the project costs as the financial contribution. For projects in Phase 2, a financial contribution of at least 20% of the project costs is expected, while for projects in Phase 3 the institution involved is expected to contribute at least 30% or more.

Projects dedicated to the consolidation of a research software infrastructure can only be funded if the financing and maintenance of the project results is ensured after the DFG grant expires. For this purpose, the proposal must include a concept for permanent safeguarding. Accordingly, from no later than Phase 2 onwards, the planned infrastructure must:

- □ guarantee secure national and possibly international connectivity or establish such connectivity during the course of the project,
- □ ensure the long-term safeguarding of the research software infrastructure by means of suitable measures (e.g. operating models, organisational models, etc.) during the course of the project,
- □ (where relevant) optimise the infrastructure software for reliability, stability, security, user-friendliness and possibly accessibility.

Depending on subject specialisation, practical development and use of the research software infrastructure, the international perspective must also be taken into account.

2.2.2 Project results

The technologies, tools, methods, organisational forms, business models etc. developed during the course of the project should be potentially reusable and transferable to other contexts. All results (publications, data, software, training materials, long-term studies, meta data schemas etc.) generated by a funded project must essentially be openly accessible, remain permanently accessible and comply with the FAIR/FAIR4RS principles; exceptions must be justified and the relevant handling must be described (e.g. anonymisation, rights management, types of use, etc.). Source code and data must be documented in accordance with established standards and published as early on as possible in the development process. Detailed documentation and training materials for the development and use of software. Licences are to be granted which are clearly specified and as open as possible, indicating to what extent the reusability of publications or parts thereof is guaranteed.

All content available online that is created using DFG funding must be prepared, indexed and/or disseminated in a manner that guarantees the maximum potential for retrieval, e.g. through appropriate metadata. Measures for dissemination and training in the use of the research software infrastructure are to be offered during the project period.

Projects funded under the programme are invited to present their results (or results to date) at an annual networking meeting, initially organised by the DFG. This will serve to promote regular dialogue between project participants and ongoing development of the overall structure. Information on contributions made to the development of the overall system must be provided, and this point should also be covered in the final report (or interim report, where applicable).

2.3 Proposal structure

Proposals for projects in the Scientific Library Services and Information Systems area 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. Specific explanatory comments regarding this programme are to be found in the supplementary instructions under V. Please use the template from DFG form 53.35 to describe the project.

www.dfg.de/formulare/53_35_elan

2.4 Submission deadline

The deadline for submission of the first proposals is 4 November 2024. Thereafter, proposals can be submitted by the first Monday in March and by the last Monday in August. By forming cohorts, the aim is to ensure that projects start at roughly the same time, thereby facilitating dialogue between them so as to facilitate the establishment of an overall infrastructure.

2.5 Further information

Please note that under the funding programme, additional funding opportunities may be announced in the form of time-limited calls for proposals aimed at particular topics. As long as a grant procedure of this kind is not completed, no more proposals concerning the same topic can be submitted after the submission deadline until a decision is reached.

The hosting of roundtable talks may also be funded for the purpose of strategic planning, nationwide collaborations in the sense of self-organisation processes and networking measures for communities, as well as the further development of funding measures. The funding programme “Coordinating Roles and Responsibilities in Information Infrastructures” (VIGO)[1] is recommended for the development of solutions to tackle specific challenges in the establishment, expansion or long-term safeguarding of research-related information infrastructure. Please contact the responsible DFG programme contact if you have any questions.

[1]Funding Programme “Coordinating Roles and Responsibilities in Information Infrastructures” (VIGO): https://www.dfg.de/en/research-funding/funding-opportunities/programmes/infrastructure/lis/funding-opportunities/vigo

3 Duration

Initial funding can be approved for up to three years. If a renewal proposal is submitted, the next phase of infrastructure development should generally be completed. The total funding period should not exceed six years.

II Proposal Modules

Under this funding programme, it is possible to apply for the basic module, potentially in conjunction with the “Project-Specific Workshops” module. Please note that the “Project-Specific Workshops” module cannot be submitted separately but only in conjunction with the proposed project. 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 Module Project-specific Workshops

If you would like to conduct workshops as part of your project, you may request funding to help you do so.

www.dfg.de/formulare/52_06

III Obligations

In submitting a proposal to the DFG, you

1. agree to adhere to the **principles of good research practice.**[2]

The principles of good research practice include, among others: maintaining professional standards, maintaining strict honesty with regard to one's own contributions and those of third parties, documenting results and rigorously questioning all findings.

2. recognise the **Rules of Procedure for Dealing with Scientific Misconduct (Verfahrensordnung zum Umgang mit wissenschaftlichem Fehlverhalten – VerfOwF)**[3] **as legally binding.**

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 in accordance with its Rules of Procedure, 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;
- revoking funding decisions (full or partial termination of the grant contract, 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 serving as a reviewer for a period of one to eight years, depending on the severity of the scientific misconduct;
- exclusion from membership in DFG bodies and committees for a period of one to eight years, depending on the severity of the scientific misconduct;

---

[2] The principles of good research practice can be found in detail in the DFG Code of Conduct Guidelines for Safeguarding Good Research Practice and in the Funding Guidelines: General Terms and Conditions of DFG Grants (DFG form 2.00).

[3] DFG Rules of Procedure for Dealing with Scientific Misconduct, DFG form 80.01

- denying voting rights and eligibility in elections for DFG 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:

3. 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.

4. 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 Data Protection

Please note the DFG's data protection notice on research funding, which can be viewed and downloaded at www.dfg.de/privacy_policy. If appropriate, please share this information with individuals whose data is processed by the DFG due to the fact that they are involved in your project.

www.dfg.de/privacy_policy

V Supplementary Instructions

Please base your proposal on the "Proposal Preparation Instructions for Project Proposals in the Area of Scientific Library Services and Information Systems" (LIS)

www.dfg.de/formulare/12_01

In addition, refer to the information in these supplementary instructions on submitting proposals under the Research Software Infrastructures programme. The section titles below are based on the titles in the proposal preparation instructions. Proposals must be submitted via the elan portal:

elan.dfg.de

Part B Project Description:

B 5.9 Financial contributions

The institution's financial contributions must be listed for each work package and allocated to specific activities in such a way as to allow plausible verification in each case: here it is possible to state the share of staff employed on the project, for example, or the funding for direct project

costs for items to be purchased or used specifically in connection with the project. General tasks of the applicant institutions are not considered financial contributions. Please note that project management and work package management tasks do not constitute a financial contribution: these are an underlying requirement for the feasibility of the project. Applicants are asked to quantify the financial contributions of the applicant institution and present them in tabular form.

Part C: Appendices

Additional information

The following appendices can be included with a proposal; however, the proposal must also be fully comprehensible without reading the appendices:

- Needs analysis
- Environment analysis
- Concept for permanent safeguarding incl. institutional letter of assurance
- Letters of support and letters of intent

If the proposal is submitted by members of an academic information infrastructure organisation, it must be accompanied by a declaration on the part of the management (see DFG form 12.141) stating the following (where applicable, depending on the phase):

- the financial contribution required within the scope of the programme will be made,
- the results of the project will be supported once DFG funding has expired.

www.dfg.de/formulare/12_141

VI Information

For further information, please contact:

- Formal and administrative support
  Petra Stötzel (e-mail: Petra.Stoetzel@dfg.de, phone: +49 228 885-2235)
- Queries on proposal submission
  Dr. Florian Mannseicher (e-mail: Florian.Mannseicher@dfg.de, phone: +49 228 885-2212)
- Responsible for the programme
  Dr. Matthias Katerbow (e-mail: Matthias.Katerbow@dfg.de)