

Discussion Paper, April 2017

Step by Step – Defining Contributions

A Discussion Paper on the Objectives and Prerequisites for Joining a National Research Data Infrastructure (NFDI)

This discussion paper of the German Council for Scientific Information Infrastructures (RfII) is intended for everyone who – as researchers, data and information experts, and scientific policy makers – is interested in the management of research data. The paper shall give impulses for the coordinated further development of the research data landscape in Germany. Among other recommendations, in 2016 the RfII also recommended the creation of a National Research Data Infrastructure (NFDI).¹ Such an NFDI is not intended to be a new infrastructure competing with the existing landscape. Instead, it should – according to the vision – connect, supplement, and expand upon existing activities as well as activate and integrate the demand side, i.e. scientific users.

The RfII does not implement any recommendations itself. Instead, the Joint Science Conference (GWK) assigned it the role of a consultant on policy and science. The role of the RfII can also include the initiation of discussion processes. In this sense, this discussion paper presents possible next steps on the path towards an NFDI.

OBJECTIVE OF A NATIONAL RESEARCH DATA INFRASTRUCTURE

Readily available, processable, and archived data are key to science in the digital age. The goal of the step by step establishment of a National Research Data Infrastructure in the form of a network is to create reliable and sustainable services to ensure both the quality and the dynamics of science and the humanities in the digital age.

This should be achieved through a moderated process that includes quality assurance and has a twofold aim: to integrate existing services and offerings and to stimulate research data management (RDM) wherever no such structures yet exist. The process is driven by the demand side. This is where sufficiently large scientific communities,² i.e. of scientific users needing specific RDM services, should form and join forces with the infrastructure³ partners they consider suitable before joining the NFDI. The resulting collaborations (consortia) receive

¹ Cf. RfII - German Council for Scientific Information Infrastructures: Enhancing Research Data Management: Performance through Diversity. Recommendations regarding structures, processes, and financing for research data management in Germany, Göttingen 2016, 92 p. Available online at: <http://www.rfii.de/?p=2075>.

² Explanations of terms can be found *ibid.*, Glossary, p. 74ff.

³ The RfII refers to the NFDI *as a whole* as “infrastructure” – but also talks about infrastructure expertise and infrastructure stakeholders as partners of scientific communities *within* the NFDI. ‘Infrastructure’ as used here refers to a very broad concept of infrastructure, such as that used by the German Council of Science and Humanities (in visual terms, the NFDI is a “network”). However, it can also refer to the individual service providers or scientific service institutions (together with the scientific communities, they form the “nodes” in the network). The unequal use of the word can hardly be avoided.

resources, especially organisational and personnel resources that should form a permanent basis for the required RDM solutions. The consortia are the main players in the development of research data management – and also in the step-by-step establishment of the NFDI. To put it another way, they ‘operate’ the NFDI. A separate, consortium-independent management shall provide overall support.

Against this background, the NFDI should unfold the full potential of its added value for as many participants as possible. The NFDI ensures the sustainability of research findings and also ensures the quality, interoperability, and good usability of digital (even in connection with analogue) research data across discipline, institutional, and *Länder*⁴ boundaries. The services offered should be easily accessible from any location, while standards and services (as well as the required organizational-technical hubs) can be developed on a federated basis. The NFDI is also a joint platform for the clarification of questions regarding data protection, data sovereignty, data integrity, and data security as well as the international accessibility.

When a scientific community – or, ideally, an aggregation of scientific communities formed for this purpose – decides to join the NFDI together with suitable infrastructure partners, the capability to take action on behalf of their stakeholders is essential. The parties involved must fulfil prerequisites that allow a successful exchange to be expected, e.g. on standards and possible synergies, and secure maximum disciplinary and transdisciplinary acceptance for the services offered.

The RfII considers a discourse on the types of prerequisites (for scientific communities and the infrastructure partners) as useful. The following proposals regarding such prerequisites are intended to encourage and stimulate such a discourse. They could serve as a backdrop for a common understanding among the stakeholders, but also bring up possible criteria for the selection of suitable consortia.

⁴ RfII uses the term *Länder* for the 16 federal states in the Federal Republic of Germany.

PROPOSED PREREQUISITES

The following is needed from the participating scientific communities:

- A critical mass and a highly dynamic formation/high level of formation of producers and users of digital research data and research methods across the pillars of university/non-university research, which covers a large number of Länder;
- An approach oriented to the wider usability of research data services over the medium term;
- A certain kind of self-guidance (or of a widely accepted concept of self-guidance) that ensures its ability to speak out, form opinions, and even make decisions on a national level. The review boards of the German Research Foundation, existing self-organisation committees (e.g. national scientific societies), expert forums, platforms encompassing entire groups of specialists, or even “councils” and sufficiently well-networked and successful joint initiatives could play a role in this process;
- The willingness to determine the research data needs in a sufficiently well-founded manner and across a wide range;
- The willingness to give high priority to the re-use of data;
- The willingness to advance the development of digital analysis capabilities and get involved in research discussions for this purpose;
- The willingness to maintain and refine quality standards;
- [...].

The following is needed from the participating infrastructure partners:

- Relevant experience in handling digital research data (and the associated analogue data, if necessary);
- A focus on services;
- Sustainability of basic structures;
- The expertise required to develop generic services as well as services adequately tailored to the needs of the scientific communities;
- Proven expertise in terms of the scientific needs of the partner community and scientific communities;
- An active focus on collaboration and synergies;
- A designated and ideally evaluated/certified quality level for data descriptions, data retention, data protection, data security, and the additional services offered;
- A concept for user support and for communicating with users that also ensures fair access and equal treatment;
- A staff development concept oriented towards future needs;
- [...].

The prerequisites for consortia are:

- An active interest in interdisciplinary exchanges and the willingness to deal with interoperability issues;
- An association with university research as well as non-university research and possibly to other cultural institutions or other public, non-scientific institutions;
- The willingness to become involved over the long term in the professional forums of the NFDI;
- A governance structure agreed to by everyone for the phases of joining the NFDI and for the related joint tasks as well as for representation in the NFDI (or an accepted representation concept);
- The willingness to resolve substantive differences and organisational conflicts in the framework of the rules prescribed by the NFDI;
- A concept for international integration and/or connection of the services offered;
- The willingness to get involved in their own best interest in international forums (as well as the ability to examine such international integration);
- The willingness to collaborate in the training of qualified staff to the best of their ability;
- The willingness to promote the acceptance for forms of digital work among researchers and to raise awareness for the potential benefits of the NFDI;
- [...].

Imprint

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