Guidelines for Handling Research Data at Forschungszentrum Jülich[1]

[1] The English translation is for information purposes only. The German original is legally binding.

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1. Preamble

Forschungszentrum Jülich conducts research on behalf society and we therefore assume responsibility for ensuring that the findings of our researchers can be used by society. We are committed to the principles of openly handling knowledge, research results, and technologies.
Research data are an essential constituent of scientific output. They are necessary for the verifiability and reproducibility of research processes and results. Published research data have a long-term value for science and particularly the potential for extensive reuse. Simultaneously, they increase the visibility of our scientists and their work. The present guidelines are intended to achieve a common understanding at Forschungszentrum Jülich of how research data should be handled and ultimately to implement shared research data management.
Well-documented research data that are easy to find are fundamental to any research project. They help maintain the smooth operation and high quality of science as an enterprise, even in the face of complex collaborations and changes in personnel.
For this reason, the management, storage, and sustainable provision of our research data must satisfy accepted standards, meet high requirements, and follow the rules of good scientific practice. Legal and ethical obligations must be observed and the particularities of scientific disciplines considered. Research data stored locally must be compatible with the institutional research data repository of Forschungszentrum Jülich as well as relevant national and international research data infrastructures.
Forschungszentrum Jülich supports its scientists in managing their research data and practically implementing these guidelines.

2. Scope of application of these guidelines

These guidelines apply to all research data generated by employees of Forschungszentrum Jülich while carrying out their official duties (see definition in the annex). They also apply to research data that are created within the scope of collaborations involving Jülich. In the case of externally funded projects, these guidelines should be adhered to as far as possible. Visiting scientists should also be instructed to adopt these guidelines.

3. Jülich‘s commitment

Forschungszentrum Jülich recognizes the need to permanently and sustainably support research data management by means of structural and financial measures.
Processes, central services, standards, and generic tools will be established in order to store and securely and sustainably archive research data, ensuring long-term reusability during and after the conclusion of research projects. Furthermore, support in the form of training and advisory services will be set up.
Forschungszentrum Jülich is working towards acknowledging data publications adequately as an element of scientific output in evaluations.

4. Responsibilities and roles

Research data management within an organizational unit (hereinafter referred to as “OU”) is the responsibility of the head of the respective OU (see annex). The head of the OU establishes regulations for implementing the management of research data in their area of responsibility. The persons involved in research work are responsible for the correctness of the data they have collected, quality assurance, and compliance with the respective regulations.
Each OU establishes the role of a data manager as the contact person for research data management in the OU. The data manager manages the OU’s data archive and is responsible for it and also replies to external requests to use data from this archive. To ensure continuity, this role should be filled by a person who is expected to be employed at the OU in the long term.

Forschungszentrum Jülich will further establish the position of central data curator. The central data curator is responsible for the integration of all local data at Forschungszentrum Jülich and for external compatibility. Furthermore, the central data curator supports the OUs in optimizing their research data management.

5. Scientists' duties

5.1 Handling research data

Scientists at Forschungszentrum Jülich have a duty to ensure that the research data they generate are sustainably usable within the OU and beyond. Particular attention should be paid to avoiding the loss of knowledge of the structure or context of research data when a scientist leaves Jülich. Research data should be processed according to the rules and standards established in the relevant field.
Scientists should prepare a binding data management plan during the planning phase of every project, and this plan should be maintained during the project and adapted in line with the developing requirements of the project. It should contain the tools and methods used throughout the entire research cycle (recording, processing, and preservation). When creating this plan, any provisions by the relevant funding bodies must be complied with.
Metadata should describe the data in a manner that clarifies the context of the data in order to permit extensive reuse. The metadata should be stored in a machine-readable format.
Wherever possible, open and free data formats should be used since they permit subsequent data imports even if the originally used application is no longer available.
The research data stored at Forschungszentrum Jülich must be protected from unauthorized access by appropriate and suitable technical and/or organizational measures.
Whenever Jülich scientists reuse the data of others, these data must be appropriately cited and licensing terms complied with.

5.2 Publication of research data

Research data should be made openly accessible by the scientists responsible immediately after their primary use (see annex), unless there are relevant reasons for not doing so. Relevant reasons include contractual or legal regulations, the use of third-party-owned data with non-permissive licences, the protection of intellectual property, or any intended use of the data within the framework of technology transfer.
The scope of primary use is specified by the OU in data management plans (see annex). Appropriate and justified delays are possible. If several OUs are involved, a joint procedure should be established and documented in the data management plan. In case of contracts with external parties and visiting scientists, no contractual obligations should be entered into that would prevent the publication of data generated with Jülich's involvement.
The data management plan also specifies the scope and the nature of access to the generated research data. Verifiability and reusability of the results is a key concern. If applicable, central data management services of Forschungszentrum Jülich or external repositories should be used in order to support the OU in providing access.
When research data are made openly accessible, this should be done under a permissive licence (see annex). Licensing terms should permit the use of research data for scientific purposes.
Within the scope of feasibility, previously unpublished data worthy of publication should retrospectively be made freely accessible and published in the form of citable data publications.
Openly accessible Jülich research data must be documented in the institutional repository of Forschungszentrum Jülich. This is applicable irrespective of where the data are actually stored.

6. Annex

6.1 Definitions

6.1.1 Data management plan

In order to ensure sustainable data management, a data management plan (DMP) should be set up before the beginning of a research project. Such a plan should ensure the systematic and long-term handling of the research data arising within the scope of a research project. It should furthermore include copyright as well as rights of use, rights of access, and primary use rights, and storage during and after the research project.

6.1.2 Scientiests

The term “scientist” refers to all employees of Forschungszentrum Jülich who are active in research, including doctoral researchers and visiting scientists.

6.1.3 Research data

Research data are taken to mean all data that are created during the research process, are used for research, or are the result of research. They are generated or more specifically procured or collected, observed, simulated, derived, validated, handled, processed, analysed, published, and finally archived according to the specific research issue and using various methods. Research data are therefore encountered in every scientific discipline, and – depending on the stage of the data life cycle – in various media types and formats, as well as aggregation and quality levels. Research data that form the basis of a publication are considered part of the scientific output of the scientists of Forschungszentrum Jülich.

6.1.4 Metadata

Metadata describe research data. They comprise information on the author of the data, contact data, time of creation, licence, and keywords, and they define the data formats used and describe the context that led to the creation of the data. Metadata may also contain instrument settings, environmental conditions (temperatures, pressures), comments, and measurement uncertainties. Metadata are essential for the reuse of research data. This reusability not only includes utilizing data for further research but also the verification of research findings by third parties.

6.1.5 Research data management

The term research data management designates the handling of research data from planning, generation, and processing up to and including publication, long-term preservation, and/or deletion in compliance with the rules of good scientific practice. The management of research data accordingly concerns the entire life cycle of these data. Furthermore, the term also includes the subject-specific documentation of the processes in the context of data collection. Data management plans make it easier to document these processes and to describe the data.

6.1.6 Primary use

The primary use of research data is typically a text publication – which is based on these data – in a specialist journal. It may also be a series of such publications. The scope and duration of primary use can be specified by the scientist in the data management plan. The end of the primary-use phase, in particular, should be determined according to context and reasons given.

6.1.7 Data publication

Data can be published in two ways: simply by providing access, for example via a web interface, or in the form of a citable data publication. The latter can include making the data accessible, but does not have to. Instead, a “landing page” can be set up, where interested parties can request data disclosure from the relevant local data manager (see “Responsibilities and roles”).

An important technical tool for publishing research data is a data repository. Such a repository is a server service that data creators can use to upload data. These data are assigned a globally unique identifier (e.g. a DOI) and can be searched and downloaded. Depending on the repository, data creators can limit access by defining access rights.

6.1.8 Licences

A publication licence is a contract between the person publishing and the person reusing or the institution regulating the terms of reuse. There are many licences readily available online that can simply be referred to. A permissive licence only minimally limits reuse. Well-known permissive licences include the Creative Commons licences CC-0 and CC-BY.
→ CC-0: https://creativecommons.org/publicdomain/zero/1.0/deed.en
→ CC-BY: https://creativecommons.org/licenses/by/4.0/deed.en

6.2 Legal status of data

The concept of owning data does not exist in Germany.
The German equivalent of copyright law (“Urheberrecht”, i.e. “author’s law”), however, grants everyone protection of their intellectual creations. Whether research data are protected by this German copyright legislation depends on whether or not they fulfil the requirements of the threshold of originality or the requirements of database regulations. Usually, neither is fulfilled during routine measurements, for example. Depending on how research data are collected, research data may fulfil the requirements of the threshold of originality and therefore be worthy of protection.
In order to ensure legal certainty, worthiness of protection should always be assumed, i.e. rights of use and exploitation should be specified contractually with external partners. Published data must be licensed with care.

Jülich, 29 April 2019

signed Prof. Dr.-Ing. W. Marquardt signed K. Beneke