

Terms and Conditions for the Storage, Access and Curation of Research Data

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List of Revisions

Page	Rev.-No	Date	Reason for revision
1-9	0	01.05.2018	New Regulation

List of Abbreviations

CC BY	Creative Commons Attributive License
CC0	Creative Commons Universal License
DMP	Data Management Plan
DOI	<u>D</u> igital <u>O</u> bject <u>I</u> dentifier
FAIR data	Data that is <u>f</u> indable, <u>a</u> ccessible, <u>i</u> nteroperable and <u>r</u> eusable
HZDR	Helmholtz-Zentrum Dresden - Rossendorf e. V.
PI	Principal Investigator
RODARE	<u>R</u> ossendorf research <u>D</u> ata <u>R</u> epository

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To enhance the readability, no distinction has been made between male and female.

Preamble

The proper management of research data is imperative to ensure that scientific findings are findable, accessible, interoperable and reusable (FAIR). The national and international research organizations support the long-term safeguarding of and the open access to research data from publicly funded research, as laid down in the "Berlin Declaration on Open Access" of 2003 [1] and the "Guidelines on Data Management in Horizon 2020" [2]. The Alliance of German Science Organizations, the Deutsche Forschungsgemeinschaft and the Helmholtz Association took up this idea in their guidelines for the handling of research data.

The HZDR approves the principle of open access to research data. The HZDR supports its guests in the fulfillment of the requirements of funders and of the scientific community. To this end, it provides the necessary infrastructure for data management and regulates the access to research data by these terms and conditions. Open access to research data should be ensured wherever possible taking the pathway of the citable data publication.

1 Definitions

For the purposes of these terms and conditions:

- (1) The term Research Data refers to all data exclusively in anonymous form which are involved in the research process related to this research. This includes (but is not limited to) raw data, results, other data (e.g. validated data or simulation data), third party data, automatically or/and manually generated data and associated metadata.
 - (1-a) The term Raw Data means originally generated data.
 - (1-b) The term Result Data pertains to data that are outcomes arising from the analysis of raw data. This does not include publications.
 - (1-c) The term Metadata describes the context in which the data has been generated including information about (but not limited to) the person generating the data, the setting, the surrounding and the facilities which were used when generating the data.
- (2) The term Public Research refers to research done with means of basic funding and/or other public funding.
- (3) The User Group consists of the natural and legal persons that are involved in the specific research project.
- (4) The Principal Investigator (PI) is the natural or legal person who accepts these terms and conditions by signature and acts as leader and speaker of the User Group implementing the individual research project at the HZDR. The PI in particular is responsible for the coordination and definition of data access and usage rights.
- (5) The Technician Group consists of persons who support the individual research process. This includes (but is not limited to) archiving and curating of data.
- (6) The Right Holder Group consists of natural and legal persons that hold rights on the research data.

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- (7) Anonymous Data is information which does not relate to an identified or identifiable natural person or personal data rendered anonymous in such a manner that the data subject is not or no longer identifiable.

2 General Principles

- (1) These terms and conditions set the rules for the storage, the curation of and the access to research data exclusively in anonymous form collected in the framework of publically funded research at research facilities and research projects of HZDR.
- (2) The User Group shall document the quality of the data (such as accuracy, completeness, integrity, confidentiality) and the data management parts (including responsibility, publication) as part of a Data Management Plan (DMP). Templates and support for such plans will be provided by the HZDR.
- (3) The principles of Open Access and Technology Transfer shall be balanced.
- (4) Mandatory legal provisions such as the Employee Invention Act [Gesetz über Arbeitnehmererfindungen] are not affected by this Terms and Conditions for Storage, Access and Curation of Research Data.

3 Research Data Management

- (1) The sustainable utilization of research data requires a quality management. This covers the entire lifecycle of the data ranging from data collection to processing, storage and to a controlled deletion. The documentation of the processes and their application in the context of specific projects are part of a DMP. A checklist for creating a DMP is annexed (Appendix 1).
- (2) The PI has to ensure that data generated during a specific project is anonymized as soon as possible to enable access to research data according to these terms and conditions.
- (3) During data collection metadata should be recorded which allow conclusions on the context and the quality of the data collected. If possible, open and free data formats should be used. It is recommended to use the "DataCite Metadata Schema for the Publication and Citation of Research Data" (Appendix 2) [3].
- (4) Access to research data that forms the basis of citable publications must be ensured by publication in a suitable and trustworthy research data repository with the Digital Object Identifier (DOI). This enables the exchange and reuse of research data with collaboration partners. In addition, verification of the research results is enabled in this way. Appropriate data repositories are provided by the HZDR [4] or by external facilities.
- (5) For research data the storage and safeguarding for at least ten (10) years corresponds to "good scientific practice" [5].

4 Raw Data and associated Metadata

- (1) Raw Data stored at the HZDR will be curated in well-defined formats, for which the means of reading the data will be made available by HZDR.
- (2) Associated Metadata will be curated either within the raw data files, within an associated on-line catalogue, or within both.

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- (3) Raw data and associated metadata will be stored by HZDR for at least ten (10) years as far as legally permitted.
- (4) Access to raw data and the associated metadata may be restricted to the members of the User Group for an embargo period of five (5) years after the end of the experiments of the individual research project. Thereafter, if legally permitted or if not necessarily required for Technology Transfer, it will be made openly accessible with HZDR acting as custodian. Any member of the Right Holder Group that wishes to maintain the restricted access to its data for a longer period will be required to file a corresponding request to the HZDR management.
- (5) Members of the technician group have access to data or metadata curated by HZDR for facility related purposes. HZDR will undertake to preserve the confidentiality of such data unless it has been made openly accessible.
- (6) In the DMP regulations have to stipulate if and how data shall be deleted at the end of its life cycle and how this deletion process will be documented.

5 Result Data

- (1) Rights to ownership and other rights of use with respect to Result Data are not affected by these terms and conditions.
- (2) HZDR will provide means for the entitled members of the User Group to upload results and associated Metadata to the facility and enable him/her to associate these results with Raw Data. The storage period for Result Data is determined by the storage of associated Raw Data or the DMP. The upload of results and associated Metadata may be subject to volume restrictions.
- (3) The User Group is requested to ensure that associated Metadata is as complete as possible, as this will enhance the chance to search for, retrieve and interpret the data in the future. For the long-term usability of data it is essential to use open or standard formats or to ensure that software to read / manipulate this data is made available.
- (4) HZDR is in charge of the curation of Result Data stored in HZDR repositories.
- (5) As far as legally permitted, the HZDR undertakes to provide means for the complementation of such Metadata items that are not automatically captured by an instrument, in order to facilitate recording the fullest possible description of the Raw Data.
- (6) Access to Result Data is restricted to the User Group. As far as legally permitted or if not necessarily required for Technology Transfer, the Result Data may be made openly accessible upon request of the PI.
- (7) Publications related to experiments carried out at HZDR shall acknowledge the support of HZDR, including the facilities used, supporting staff or any other assistance.

6 Legal Requirements

- (1) The User Group must ensure by the design and the preparation of the experiment that the Research Data to be stored are Anonymous Data. If Research Data are going to be published, the names of the authors and contributors involved in the specific project have to be specified in the Metadata set (see Appendix 2).

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- (2) The User Group must ensure that no third party holds rights to the Research Data stored in HZDR repositories by this User Group.
- (3) The storage and processing of data which are not anonymous must be explicitly defined within in the DMP. The data protection officer of the HZDR or the authorized entity has to be involved if non anonymous data have to be processed.
- (4) It is not permitted to store non anonymous data in the HZDR data repository RODARE.
- (5) It is recommended to publish the Research Data associated with a publication in accordance with the Open Access Guidelines [6]. The choice of an open license (actual Creative Commons, [7]) is recommended for easy reuse. This corresponds to the requirements of the research funders and project partners.
- (6) The HZDR assumes no warranty or representation as to the accuracy, integrity, timeliness and correctness or to the availability of Research Data and of Software stored in HZDR repositories.
- (7) The HZDR shall neither be liable for the usability of Research Data or Software nor for possible damages resulting therefrom nor for consequential loss. HZDR excludes any trustee relationship with respect to the Research Data and any representation of right holders to the Research Data stored in HZDR repositories.
- (8) The HZDR shall not be liable for the Research Data to be free of third party rights, viruses, bugs, defects, backdoor functions, malware or other malfunctions.
- (9) The HZDR including its senior executives, legal representatives and vicarious agents shall only assume liability in the case of fraud, intent and gross negligence. The liability of the HZDR for slightly negligent violations of duty is excluded unless these violations affect duties essential to these Terms and Conditions, damages resulting in wrongful death, personal injury or health impairment or guaranties or claims in accordance with the German product liability law. It should be noted that the provisions of 6.8 shall also apply to the limitations and exclusions of liability according to 6.5, 6.6 and 6.7.

7 Taking Effect

This directive takes effect when signed by the HZDR's Board of Directors.

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References

- [1] Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities, 2003, http://openaccess.mpg.de/67605/berlin_declaration_engl.pdf (20.02.2018)
- [2] H2020 Program Guidelines on FAIR Data Management in Horizon 2020, 2016, http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf (20.02.2018)
- [3] DataCite Metadata Working Group. (2017). DataCite Metadata Schema Documentation for the Publication and Citation of Research Data. Version 4.1., DataCite e.V., <http://doi.org/10.5438/0014>
- [4] Terms and Conditions for User Access to the Experimental Facilities (HZDR Regulation B210)
- [5] Safeguarding Good Scientific Practice and Proceeding in Case of Scientific Malpractice (HZDR Regulation B110)
- [6] Open Access Policy of the Helmholtz Association, 2016, <http://os.helmholtz.de/open-science-in-der-helmholtz-gemeinschaft/open-access-richtlinien/open-access-richtlinie-der-helmholtz-gemeinschaft-2016/open-access-policy-of-the-helmholtz-association-2016/> (12.02.2018)
- [7] Creative Commons Licenses, <https://creativecommons.org/licenses> (20.02.2018)

Appendix 1: Checklist for a Data Management Plan¹

DMP component	Issues to be addressed
1. General information	<input type="checkbox"/> Project name <input type="checkbox"/> Project ID <input type="checkbox"/> Principal investigator (project coordinator) <input type="checkbox"/> Contact <input type="checkbox"/> Date
2. Data summary	<input type="checkbox"/> State the purpose of the data collection/generation <input type="checkbox"/> Explain the relation to the objectives of the project <input type="checkbox"/> Specify the types and formats of data generated/collected <input type="checkbox"/> Specify if existing data is being re-used (if any) <input type="checkbox"/> Specify the origin of the data <input type="checkbox"/> State the expected size of the data (if known) <input type="checkbox"/> Outline the data utility: to whom will it be useful
3. FAIR data 3.1. Making data findable, including provisions for metadata	<input type="checkbox"/> Outline the discoverability of data (metadata provision) <input type="checkbox"/> Outline the identifiability of data and refer to standard identification mechanism. Do you make use of persistent and unique identifiers such as Digital Object Identifiers? <input type="checkbox"/> Outline naming conventions used <input type="checkbox"/> Outline the approach towards search keyword <input type="checkbox"/> Outline the approach for clear versioning <input type="checkbox"/> Specify standards for metadata creation (if any). If there are no standards in your discipline describe what type of metadata will be created and how
3.2 Making data openly accessible	<input type="checkbox"/> Specify which data will be made openly available? If some data is kept closed provide rationale for doing so <input type="checkbox"/> Specify how the data will be made available <input type="checkbox"/> Specify what methods or software tools are needed to access the data? Is documentation about the software needed to access the data included? Is it possible to include the relevant software (e.g. in open source code)? <input type="checkbox"/> Specify where the data and associated metadata, documentation and code are deposited <input type="checkbox"/> Specify how access will be provided in case there are any restrictions

¹ H2020 Programme Guidelines on FAIR Data Management in Horizon 2020, Summary Table 1, 2016, http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf (20.02.2018)

3.3. Making data interoperable	<ul style="list-style-type: none"><input type="checkbox"/> Assess the interoperability of your data. Specify what data and metadata vocabularies, standards or methodologies you will follow to facilitate interoperability.<input type="checkbox"/> Specify whether you will be using standard vocabulary for all data types present in your data set, to allow inter-disciplinary interoperability? If not, will you provide mapping to more commonly used ontologies?
3.4. Increase data re-use (through clarifying licences)	<ul style="list-style-type: none"><input type="checkbox"/> Specify how the data will be licensed to permit the widest reuse possible<input type="checkbox"/> Specify when the data will be made available for re-use. If applicable, specify why and for what period a data embargo is needed<input type="checkbox"/> Specify whether the data produced and/or used in the project is useable by third parties, in particular after the end of the project? If the re-use of some data is restricted, explain why<input type="checkbox"/> Describe data quality assurance processes<input type="checkbox"/> Specify the length of time for which the data will remain re-usable
4. Allocation of resources	<ul style="list-style-type: none"><input type="checkbox"/> Estimate the costs for making your data FAIR. Describe how you intend to cover these costs<input type="checkbox"/> Clearly identify responsibilities for data management in your project<input type="checkbox"/> Describe costs and potential value of long term preservation
5. Data security and handling of sensitive data	<ul style="list-style-type: none"><input type="checkbox"/> Specify where data will be stored and how data recovery as well as secure storage will be ensured<input type="checkbox"/> Describe how data shall be deleted at the end of its life cycle<input type="checkbox"/> Describe how sensitive data (data which is not anonymous) is handled, which law is used, which technical process has been used for processing of them<input type="checkbox"/> Describe which persons have access to the sensitive data
6. Ethical aspects	<ul style="list-style-type: none"><input type="checkbox"/> To be covered in the context of the ethics review, ethics section of DoA and ethics deliverables. Include references and related technical aspects if not covered by the former
7. Other	<ul style="list-style-type: none"><input type="checkbox"/> Refer to other national/funder/sectorial/departmental procedures for data management that you are using (if any)

It is recommended to use the Digital Curation Centre DMPonline tool, which offers DMP templates that match the demands and suggestions of the Guidelines on Data Management in Horizon 2020 (<https://dmponline.dcc.ac.uk/>, 28.02.2018).

Appendix 2: Data Cite Metadata Schema v4.1²

There are three different levels of obligation for the metadata properties:

- **Mandatory (M)** properties *must* be provided,
- **Recommended (R)** properties are optional, but strongly recommended for interoperability and
- **Optional (O)** properties are optional and provide richer description.”

Table 1: DataCite Mandatory Properties

ID	Property	Obligation
1	Identifier (with mandatory type sub-property)	M
2	Creator (with optional family name, given name, name identifier and affiliation sub-properties)	M
3	Title (with optional type sub-properties)	M
4	Publisher	M
5	PublicationYear	M
10	ResourceType (with mandatory general type description sub-property)	M

Table 2: DataCite Recommended and Optional Properties

ID	Property	Obligation
6	Subject (with scheme sub-property)	R
7	Contributor (with optional family name, given name, name identifier and affiliation sub-properties)	R
8	Date (with type sub-property)	R
9	Language	O
11	AlternateIdentifier (with type sub-property)	O
12	RelatedIdentifier (with type and relation type sub-properties)	R
13	Size	O
14	Format	O
15	Version	O
16	Rights	O
17	Description (with type sub-property)	R
18	GeoLocation (with point, box and polygon sub-properties)	R
19	FundingReference (with name, identifier, and award related sub-properties)	O

“Those clients who wish to enhance the prospects that their metadata will be found, cited and linked to original research are strongly encouraged to submit the Recommended as well as Mandatory set of properties.”

² DataCite Metadata Working Group. (2017). DataCite Metadata Schema Documentation for the Publication and Citation of Research Data. Version 4.1, S. 8, Table 1 u. 2, DataCite e.V., <http://doi.org/10.5438/0014>