Hochschule
Bonn-Rhein-Sieg
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Challenges of research data management and publication of research data

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Research Services of the library

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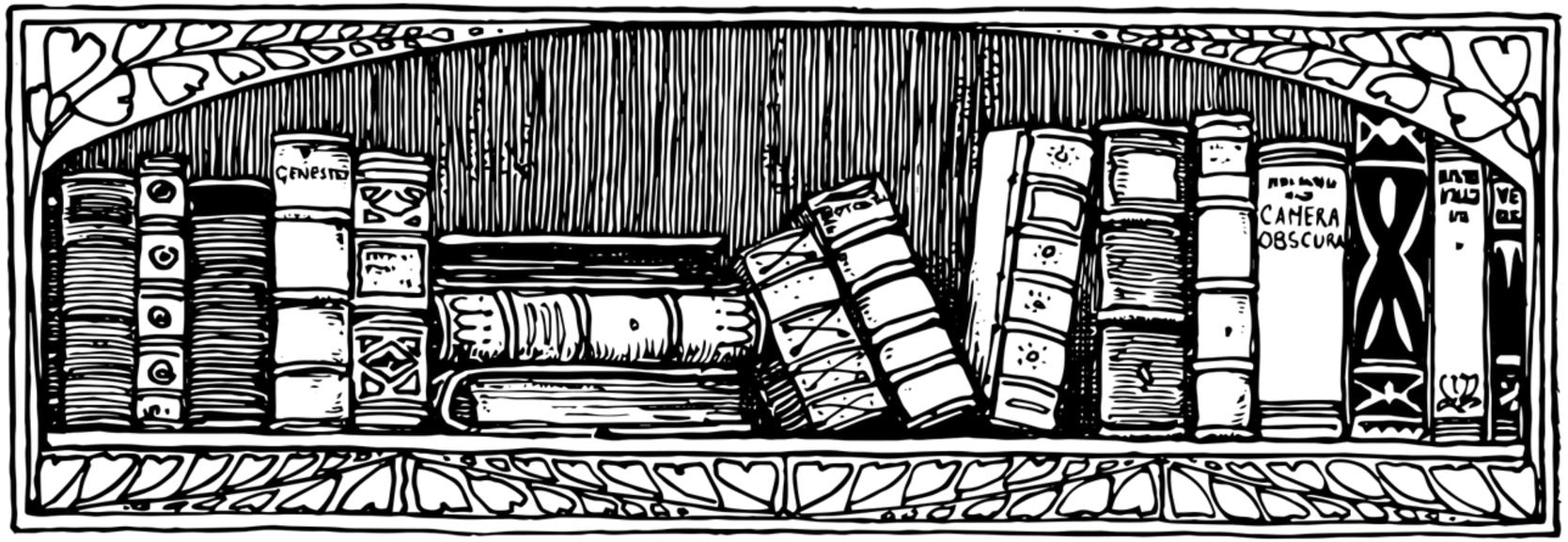

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What is research data?

Research data includes **measurement data**, **laboratory values**, **audiovisual information**, **texts**, **survey or observation data**, **methodological test procedures and questionnaires**. **Compilations** and **simulations** can likewise constitute a key outcome of academic research and are therefore also included under the term research data.

Picture by PublicDomainPictures on Pixabay

https://www.dfg.de/en/principles-dfg-funding/basics-and-principles-of-funding/research-data

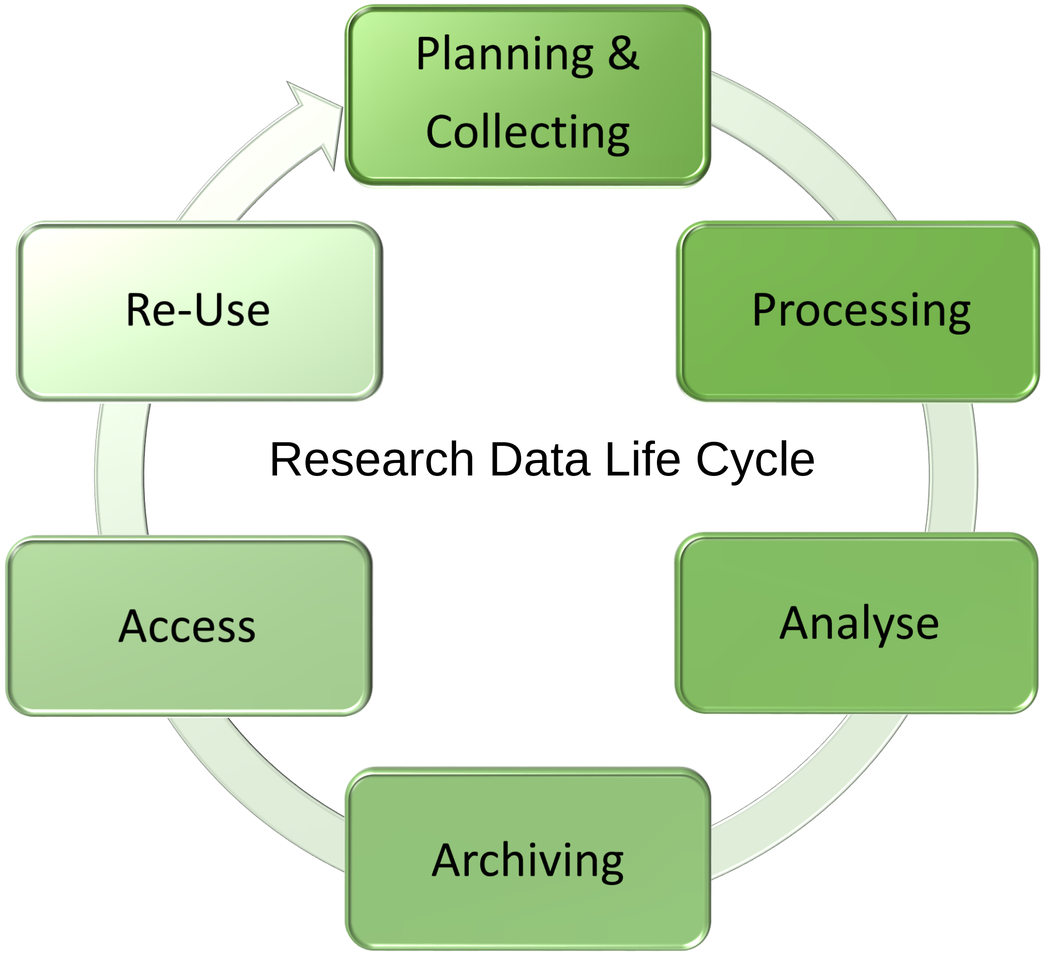
RDM - Definition

Research Data Management (RDM) includes all activities associated with

- processing,
- storage,
- preserving and
- publication

of research data.

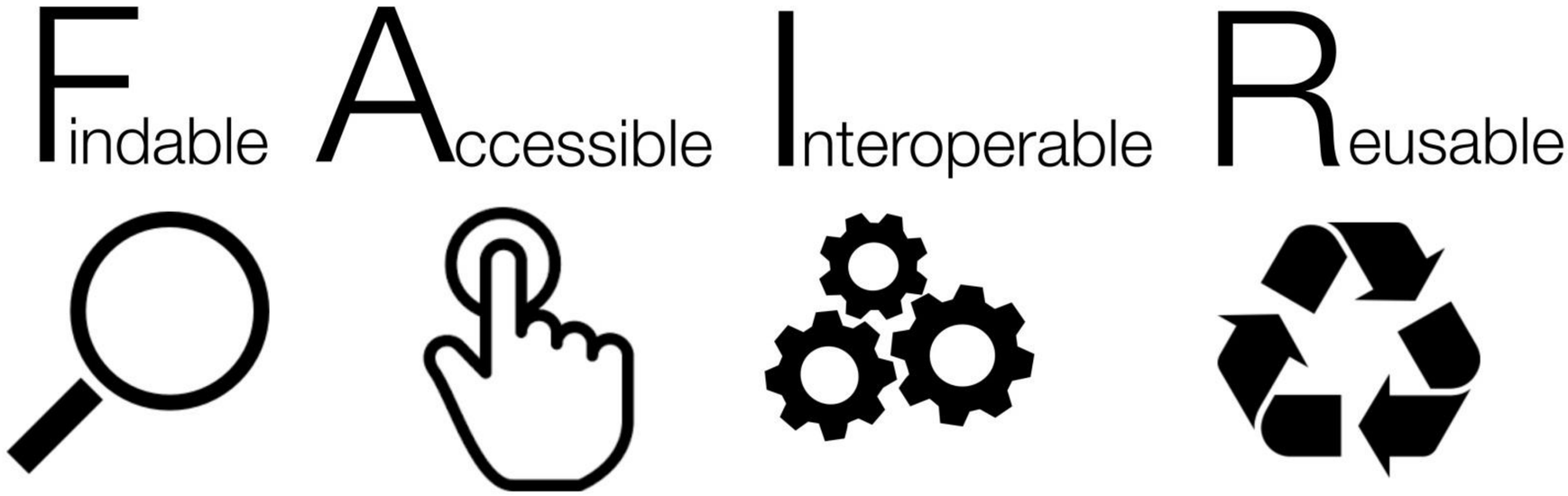
RDM accompanies the research process from the initial planning to the archiving, re-use or deletion of the data.



Source: Maxi Kindling, Peter Schirmbacher, Elena Simukovic: *Forschungsdatenmanagement an Hochschulen: das Beispiel der Humboldt-Universität zu Berlin*. *LIBREAS. Library Ideas*, 23 (2013). https://doi.org/10.18452/9041.

FAIR Data

FAIR data
≠
open data



Source: Pundir, Sangya. *https://commons.wikimedia.org/wiki/File:FAIR_data_principles.jpg* [last access: 27.09.2018], CC-BY-SA-4.0 https://creativecommons.org/licenses/by-sa/4.0/deed.en.

Wilkinson, Mark D., Michel Dumontier, IJsbrand J. Aalberg, Gabrielle Appleton, Myles Axton, Arie Baak, Niklas Blomberg et al. "The FAIR Guiding Principles for scientific data management and stewardship." *Scientific Data* 3, 160018 (2016). https://doi.org/10.1038/sdata.2016.18.

https://www.go-fair.org/fair-principles/

Research Data Policy

Describes the guidelines for handling research data

- Institutional (H-BRS Guidelines for Research Data)
- Funder (DFG Guidelines)
- Discipline-specific
- Journal/Publisher

- Project leaders are responsible for a proper RDM along with Good Scientific Practice (GSP)
- Call for creation of a DMP
- Assurance of support via H-BRS

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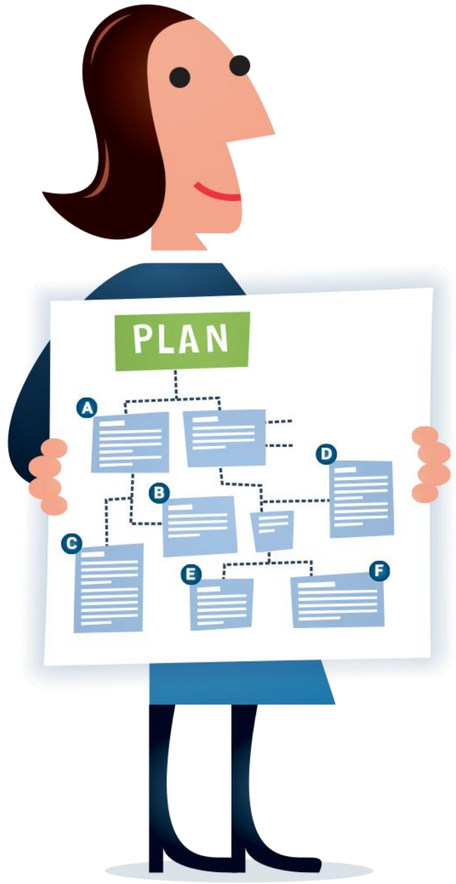
Data Management Plan

Contains all information that describes and documents sufficiently the **collection, processing, storage, archiving and publication of research data** within a research project.

Why do I need it?
- provides structure and clarifies responsibilities (GSP)
- some funders request it

Tools
- DMPonline / DMP Tool
- Germany: RDMO (some Universities)
- Data Stewardship Wizard

Some funders provide a form and/or guidelines



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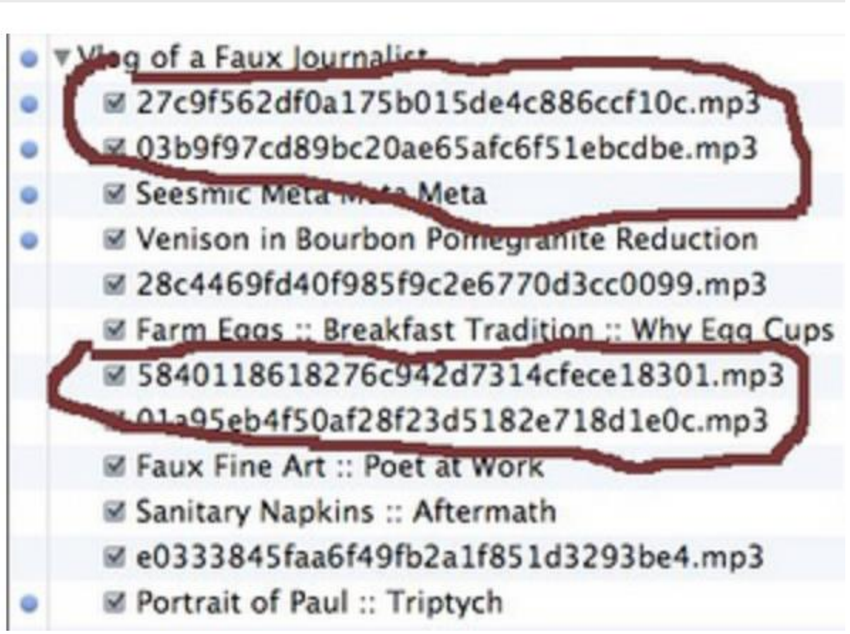
When have I ever missed order and/or structure of my data?

Order and structure

- Comprehensive names
- Uniform scheme
- Logical structure
- Date for chronological sorting in the following form: YYYYMMDD
- Avoidance of spaces and special characters



Train-the-Trainer Concept on Research Data Management (3.0) [Computer software]. Zenodo. https://doi.org/10.5281/zenodo.4071471
Original Source: MANTRA – Research Data Management Training: Organising data. http://datalib.edina.ac.uk/mantra/organisingdata, [last access: 01.03.2018], the image is licensed under Creative Commons Attribution 4.0 International (CC BY 4.0), https://creativecommons.org/licenses/by/4.0/

Documented naming conventions or abbreviations, e.g.

[sediment]_[sample]_[instrument]_[YYYYMMDD].csv

[project]_[interview]_[place]_[personID]_[YYYYMMDD].mp4

Storage and backup

Things to think about

- Storage **media**
- Data **location**
- **Who** has access?
- Data **format** (*.csv ↔ *.xls)
- Avoid data waste
- Protection against data loss

Backup 3-2-1 Rule:
3 copies on 2 different media, 1 external

- **unpredictable** situations: fire, storm, flood,…

Source: Flooding of Campus. Photo: H-BRS/Roger Strotmann (2021)

Data publication

Publication paths for research data

1. Addition to a peer-reviewed article ("**enhanced publication**")

2. Independent information object in a **research data repository** (discipline-specific: Archiving BASIS, Pangaea, generic: ZENODO)

3. In **data journals**, the data is only described but not interpreted, - peer reviewed, therefore high quality https://www.forschungsdaten.org/index.php/Data_Journals

Digital Object Identifier (DOI) ensures findability

Example:
10.1000/182
10.5281/zenodo.7886667

Finding a repository

re3data.org

- Registry of repositories
- Worldwide
- Different disciplines
- Researchers, funders, publishers and institutions
- Many filter options
- Certificates and licences

re3data.org
REGISTRY OF RESEARCH DATA REPOSITORIES

Try it: re3data.org

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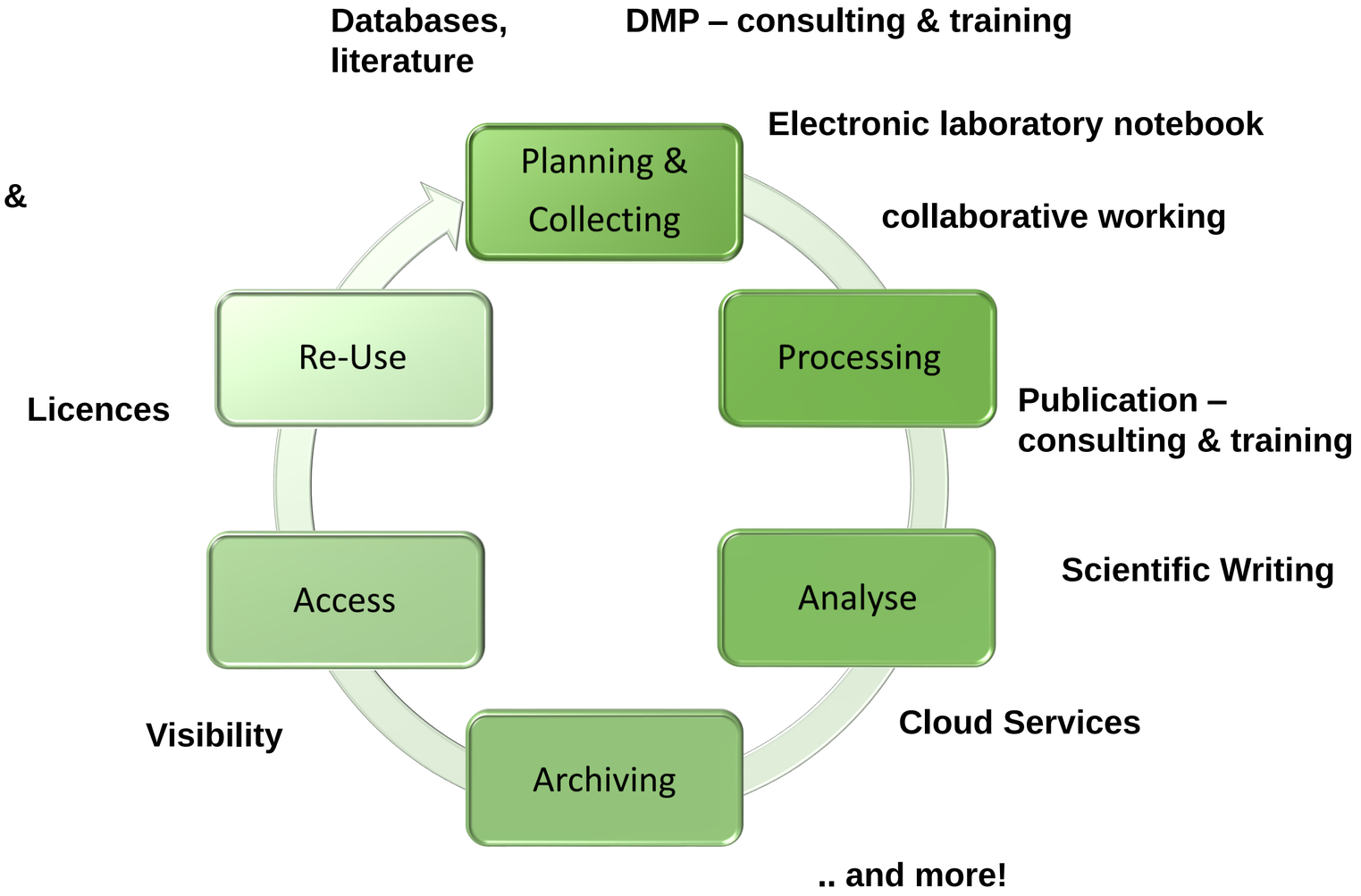
Offers from the Research Services at H-BRS



More information: https://www.h-brs.de/en/bib/library-researchers

Where can I find support?

Check your university:

Often, libraries support Research Data Management

Keywords:

- Research Data Management/Service
- FAIR data
- good scientific practice
- data management plan
- repository
- data publication

Germany:
forschungsdaten.org → search for FDM-Kontakte

helpful information

EU: e.g. Science Europe, European Open Science Cloud, OpenAire,…
Germany: forschungsdaten.info

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The slides were designed including material from:
Biernacka, Katarzyna, Bierwirth, Maik, Buchholz, Petra, Dolzycka, Dominika, Helbig, Kerstin, Neumann, Janna, Odebrecht, Carolin, Wiljes, Cord, & Wuttke, Ulrike. (2020). Train-the-Trainer Concept on Research Data Management (3.0) [Computer software]. Zenodo. https://doi.org/10.5281/zenodo.4071471

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