CLUSTER FORSCHUNGSDATEN

FAIR DATA AUSTRIA

RDM AND FAIR DATA AUSTRIA

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TRENDS IN SCIENTIFIC RESEARCH

- Internationalization of research
- Rise in data intensive research
- Open Science requires increased transparency of research
  - FAIR data
- Need to demonstrate impact and visibility

https://icon-library.net/icon/data-science-icon-4.html

Research data – "first-class citizen" of research output

https://www.elsevier.com/connect/5-trends-in-research-data-management

RESEARCH DATA

Research data is any information that has been collected, observed, generated or created to validate original research findings

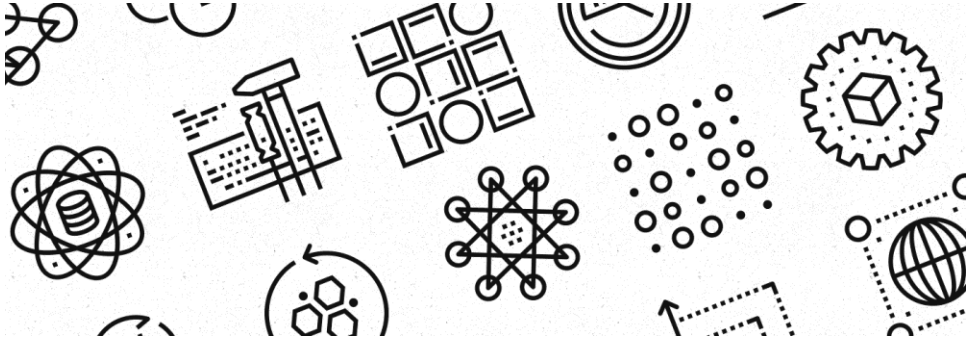
https://library.leeds.ac.uk/info/14062/research_data_management/61/research_data_management_explained

Biernacka, Katarzyna, Maik Bierwirth, Petra Buchholz, Dominika Dolzycka, Kerstin Helbig, Janna Neumann, Carolin Odebrecht, Cord Wiljes and Ulrike Wuttke: Train-the-Trainer Concept on Research Data Management. Version 3.0. Berlin, 2020. https://doi.org/10.5281/zenodo.4071471

FAIR DATA AUSTRIA

RESEARCH DATA

- ✓ High quality
- ✓ Well described
- ✓ Well structured
- ✓ Properly stored
- ✓ Available to others (if possible)



https://icon-library.net/icon/data-science-icon-29.html

Increased demand

RESEARCH DATA MANAGEMENT

"Research data management ensures that the power of the data behind research articles is unlocked"

"Research data management begins with thinking through all the phases of the research lifecycle"

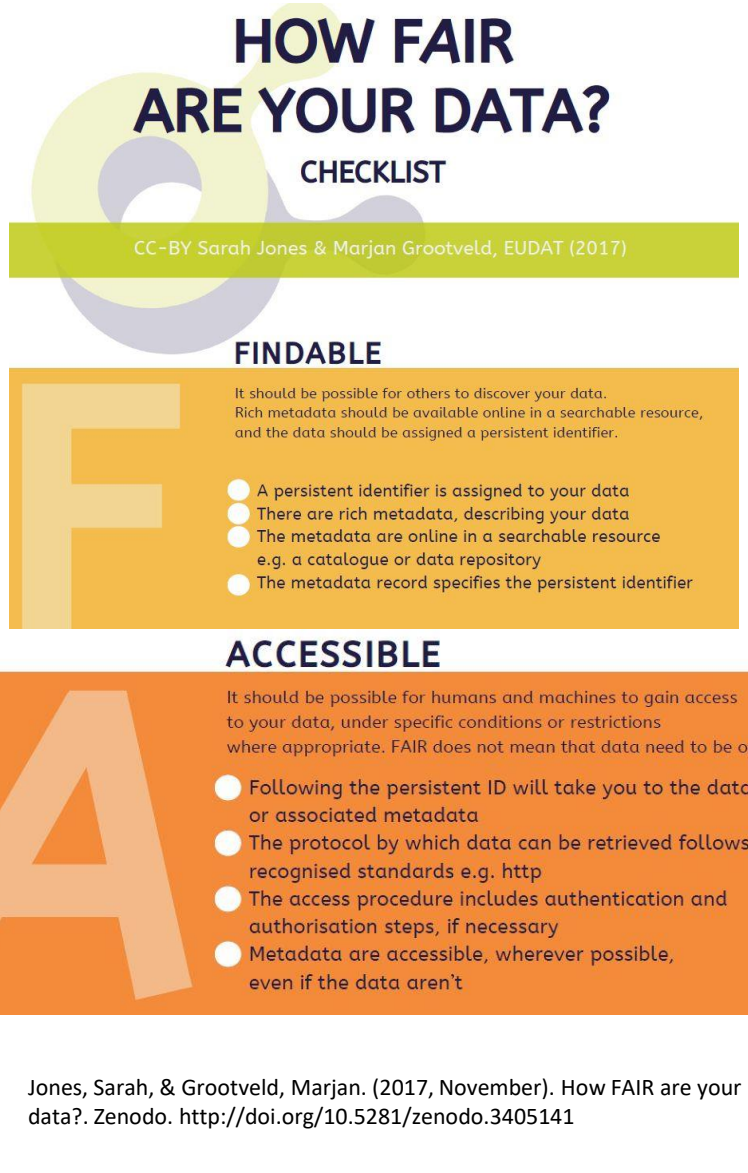
"Research data management thus complements research from the initial planning stage all the way to archiving, reuse or deletion of the data"

https://www.elsevier.com/connect/5-trends-in-research-data-management
Biernacka, Katarzyna, Maik Bierwirth, Petra Buchholz, Dominika Dolzycka, Kerstin Helbig, Janna Neumann, Carolin Odebrecht, Cord Wiljes and Ulrike Wuttke: Train-the-Trainer Concept on Research Data Management. Version 3.0. Berlin, 2020. https://doi.org/10.5281/zenodo.4071471

CHALLENGES

- Researchers & research institutions must achieve and retain **sovereignty over research data**
- Research institutions must support researchers to develop new research paths to **benefit from data-driven research**
- Research institutions must **train researchers**, especially early stage, to **professionally handle RDM**

FAIR PRINCIPLES



Jones, Sarah, & Grootveld, Marjan. (2017, November). How FAIR are your data?. Zenodo. http://doi.org/10.5281/zenodo.3405141

What does the application of the FAIR principles mean?

Findable - others can discover your data

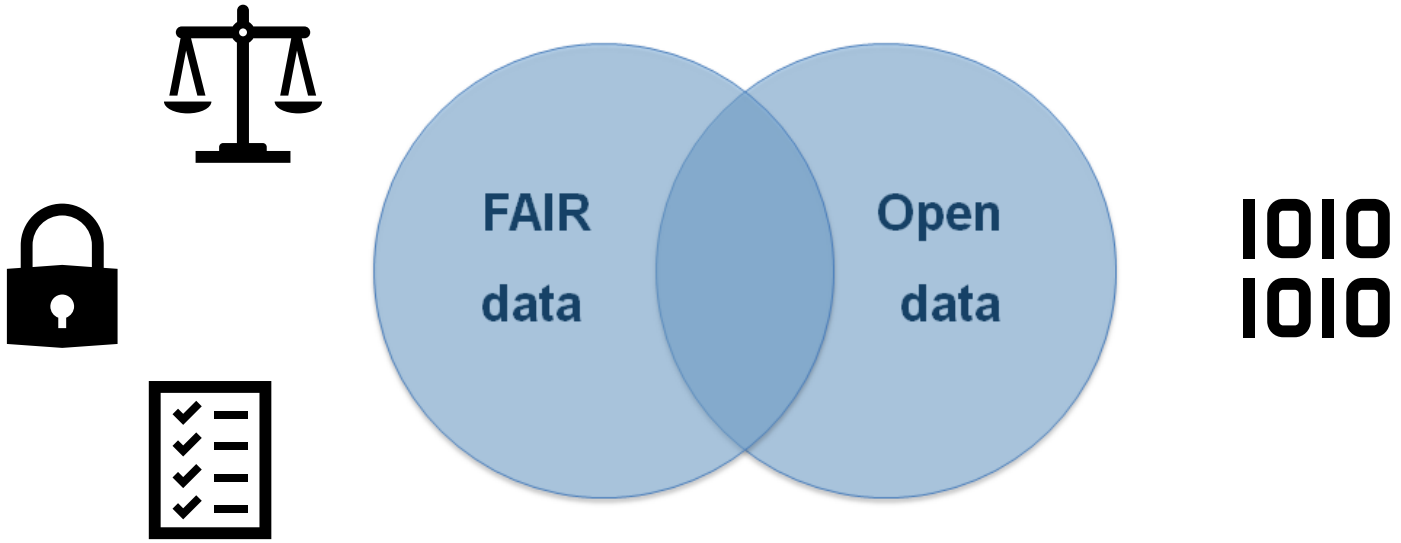
Accessible - your data can be made available to others

Interoperable - your data can be integrated with other data or can be used by machines

Reusable - your data can be used for new research

FAIR VS. OPEN RESEARCH DATA

FAIR ≠ Open



FAIR DATA AUSTRIA INTRODUCTION

Lead: **TU Graz**

Timeline: January 2020 – December 2022

Funding: Federal Ministry for Education, Science and Research (BMBWF)

Partners: TU WIEN TECHNISCHE UNIVERSITÄT WIEN, universität wien, universität innsbruck, Medizinische Universität Graz,]a[akademie der bildenden künste wien, 23 associated partners

Promote collaboration between Austrian universities in developing coherent and solid RDM services

Working together to create the conditions for the future of data-driven science

FAIR DATA AUSTRIA – THE TEAM

- Develop **researcher-led** FAIR services
- Develop **social** and **technical** solutions in parallel
- Close the gap between **researchers** and **support staff**

ALIGNING RDM ACTIVITIES

CERN

RDA RESEARCH DATA ALLIANCE

GO FAIR

CYVERSE®

US

THE CARPENTRIES

CESAER

DIO
Data Intelligence Offensive
Verein zur Förderung der Datenwirtschaft

EOSC Support Office Austria

FAIR DATA AUSTRIA

In collaboration with project partners, we develop:

- 'Hard' infrastructure elements
  - Research data lifecycle management tools (maDMPs)
  - Repositories for long-term archiving of research results (research data, code and databases)
- 'Soft' infrastructure elements
  - RDM training and support services
  - A toolkit for models, profiles, training offers for data stewards
  - FAIR Office Austria and a network for FAIR reference points

Key principles:

- **Research data:** *As open as possible, as closed as needed*
- **Tools:** *As general as possible, as discipline-specific as needed*
- **Services:** *Reduce manual work via automatized RDM workflows*

GENERAL VS. DISCIPLINE-SPECIFIC

RDM requirements fall into two classes:

- Discipline-specific requirements based on different research goals, methods, practices and departmental backgrounds, such as: (missing) metadata standards, intellectual property rights, data privacy and archiving

  →should be approached at the discipline/faculty level

- Discipline-invariant requirements such as findability, organization, requirements from funding agencies (e.g., regarding DMPs) and publication procedures affect all disciplines

  →fall within the scope of general RDM policies, tools and services

Reichmann, S., Klebel, T., Hasani-Mavriqi, I., Ross-Hellauer, T. (2021). Between administration and research: Understanding data management practices in an institutional context. Journal of the Association for Information Science and Technology, 1– 17. https://doi.org/10.1002/asi.24492

RDM POLICIES

RDM Policies – all Graz Universities
At TU Graz – faculty-specific implementation strategies

Framework RDM Policy

Roles, responsibilities, rights

Roles and responsibilities at the university level (ZID, Library, F&T Haus, **Faculties**)
Rights and responsibilities of the university (Rights ownership, Intellectual property rights (IPR), UG 2002)

Faculty-specific implementation strategies

Roles, responsibilities, rights

Faculty specific roles and responsibilities (e.g., PI, PhD supervisor, PhD student, individual researcher)

Further requirements for data management planning

Specific rights of each Faculty (IPR - further defined based on additional guidelines and agreements (e.g., grant or consortium agreements))

Framework RDM Policy includes the role of faculties and minimal general requirements, making faculty specific implementation strategies interoperable

Faculty of Mechanical Engineering and Economic Sciences
https://www.tugraz.at/sites/rdm/policies/faculty-policies/

DATA MANAGEMENT PLANS (DMPS)

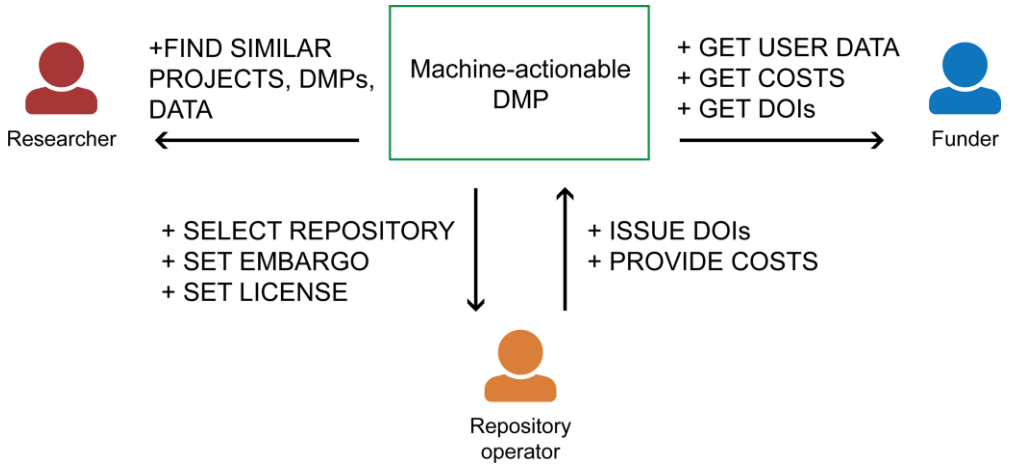
FAIR DATA AUSTRIA

DMPs are required by funders as a tool to

- help identify what data are generated, collected, or processed in a project
- plan for publication of data, including open-access when needed

However, DMPs are

- mostly manually completed and often vague
- not kept up to date
- regarded as a burden and bureaucracy, therefore remain a low priority for researchers



Examples of DMP tools

- DMPTool: https://dmp.org
- DMPOnline: https://dmponline.dcc.ac.uk/
- DS Wizard: https://ds-wizard.org/

To address these issues, we are

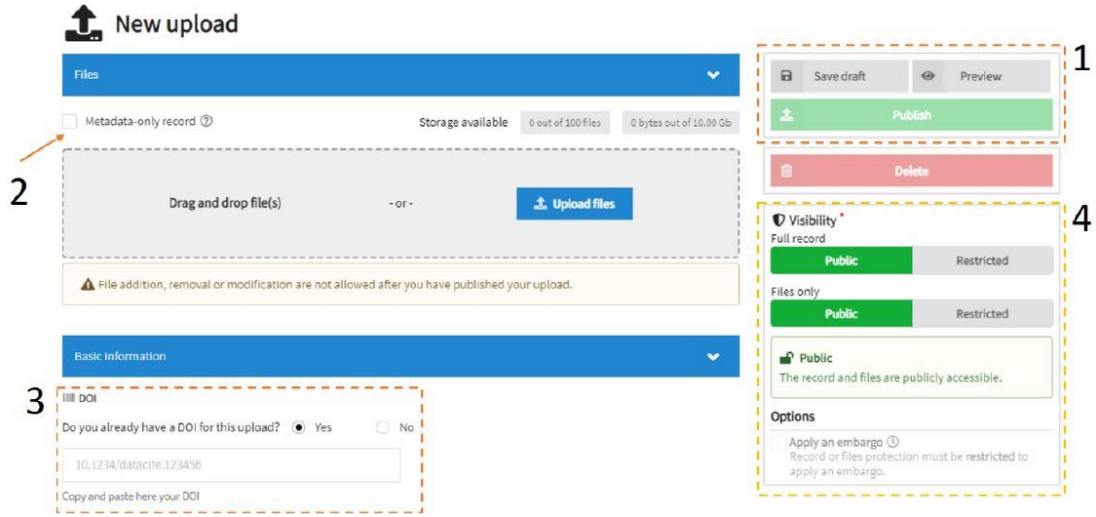
- developing machine-actionable DMPs (maDMPs) to help automate RDM tasks and act as link between researchers, repositories and funders
- creating pre-filled DMPs templates that can be adapted to meet funders' requirements

FWF
Der Wissenschaftsfonds.

PUBLICATION AND LONG-TERM ARCHIVING OF RESEARCH RESULTS

FAIR DATA AUSTRIA

Implementation of a repository for publication and long-term archiving of research data, publications and educational resources



- **Increased citability** of research by minting of DOIs
- **Based on InvenioRDM**, developed as part of a project lead by CERN with TU Graz and TU Vienna in the core team
- **New features** are added on a continuous basis

TU GRAZ REPOSITORY LIBRARY & ARCHIVES

INVENIO RDM

re3data.org REGISTRY OF RESEARCH DATA REPOSITORIES

https://repository.tugraz.at

RDM TRAINING CONCEPT

Curated Training Collection

- Location and time-independent
- Suitable for self-study

Webinar Series

- “Research Data Management in Austria”
- Recorded talks and lectures in the collection

Institutional Training

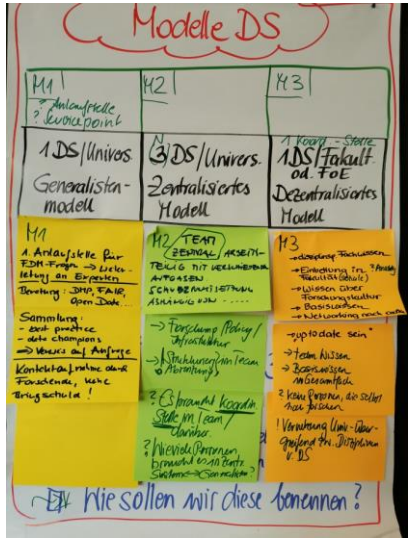
- (Further) development of virtual and face-to-face courses for researchers

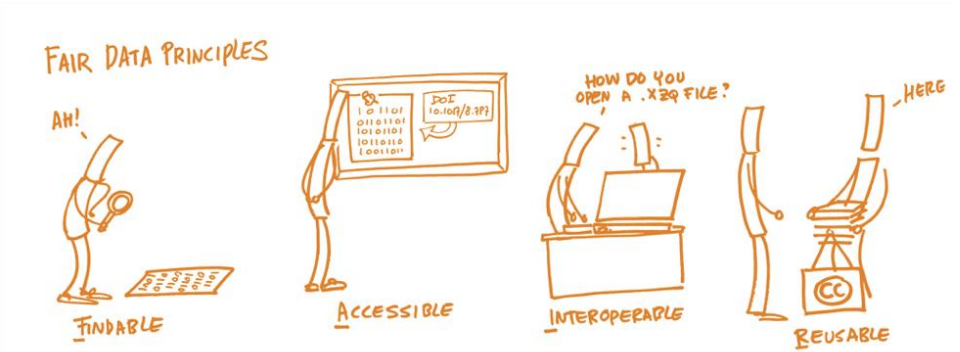
DATA STEWARDS

Data stewards - a new professional role in the field of RDM

Advisory role throughout the entire data lifecycle, whether in the run-up to a research project, during data preparation, archiving or reuse

National initiative – define models, tasks, skills, competences and training programs





DATA STEWARDS AT TU GRAZ

- Life Sciences
- Mechanical Engineering
- Mathematics, Physics and Geodesy
- Advice and training at over 30 institutes
- 15 Data Champions
- 7 pilot projects in RDM
- Rollout of RDM tools
- Active exchange with scientific community

FAIR OFFICE AUSTRIA

https://fair-office.at/

Launch Event: 9.6.2021 2-4 p.m.
Registration:
https://forschungsdaten.at/en/launch-event-fair-office-austria/

LAUNCH EVENT FAIR OFFICE AUSTRIA

17. May 2021 FAIR Data Austria

FAIR is the central topic in the FAIR Data Austria project. The focus is on the development of repositories and automated data management plans as well as trainings that enable researchers to increasingly integrate the FAIR principles into their activities.

The **FAIR Office Austria** initiative emerged from this project and commits to connect research communities and service providers in order to advance the FAIR principles in Austria. Together with these efforts, a link to the global GO FAIR initiative is established.

We are pleased to hereby invite you to our launch event:

- When: Wednesday, 9 **June 2021, 14:00–16:00**
- Online (Link will be sent to you after successful registration and before the event)

TAKE AWAY MESSAGE

“Research data will not become nor stay FAIR by magic. We need skilled people, transparent processes, interoperable technologies and collaboration to build, operate and maintain research data infrastructures.”

Mari Kleemola, Finnish Social Science Data Archive/CoreTrustSeal Board, Secretary

https://tietoarkistoblogi.blogspot.com/2018/11/being-trustworthy-and-fair.html

FAIR DATA AUSTRIA

Thank you!

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Digitale TU Graz – Handlungsfeld Forschung