Data Management Plans

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"[…] the evidence that underpins the answer to the research question, and can be used to validate findings […]"

https://www.openaire.eu/research-data-protected-what-is-research-data

Research data

may have different formats: numeric, text, images, video or sound recordings, etc…

Questions on research data quickly pile up

Which sources, formats, programs, code?

How will data be organised, named, versioned?

Which documentation is needed internally?

Agreements, GDPR, legal requirements, ethical issues?

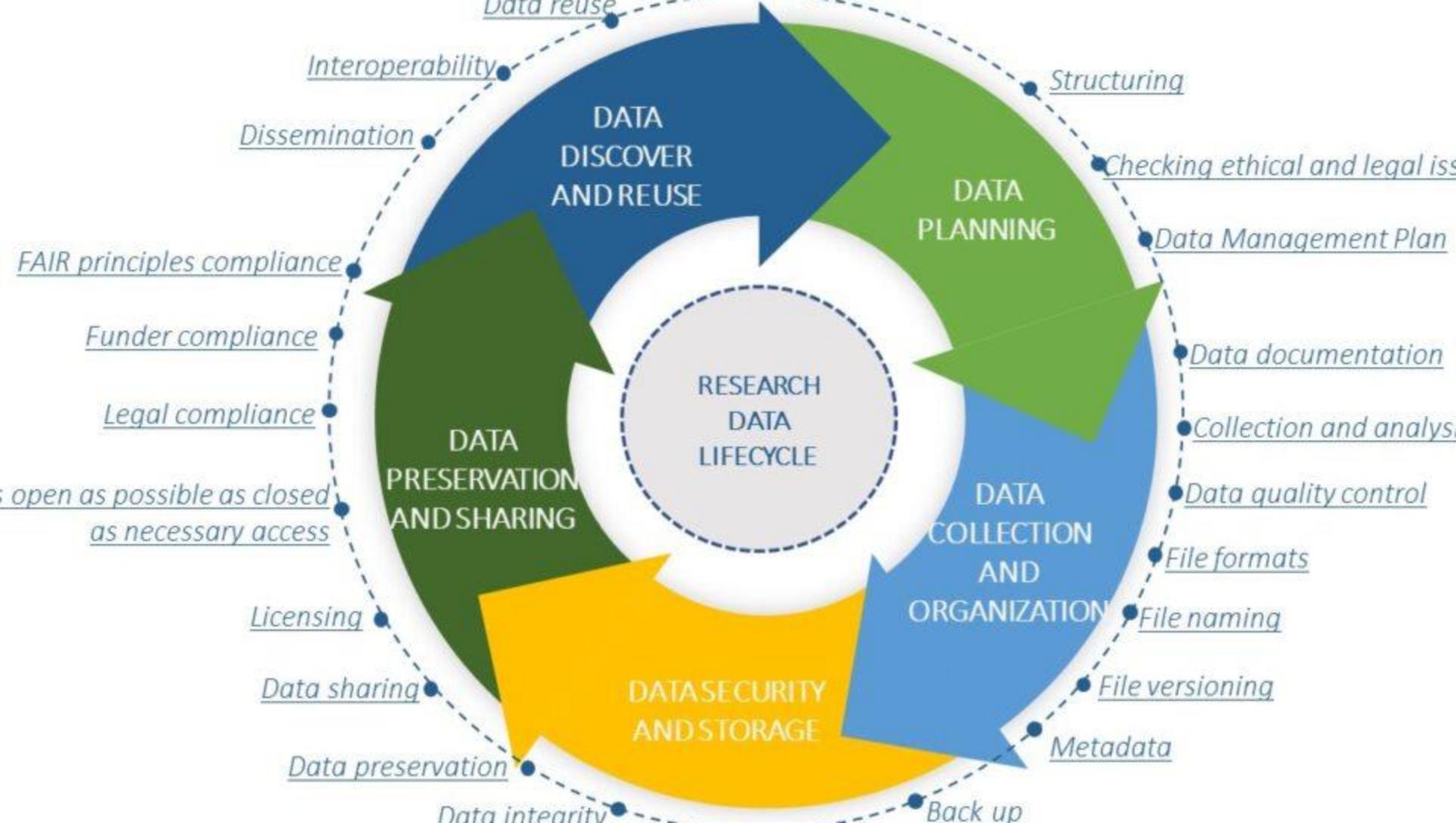What about *meta*data, documentation, provenance?

Storage, backup, security, collaboration. Who has which access and rights?

Will the data be published? Where, how? Which rights, which licence?

Who is responsible for what? What resources will it require?

Replicability?

Etc.

Research Data Lifecycle

DATA DISCOVER AND REUSE
- Data reuse
- Interoperability
- Dissemination
- FAIR principles compliance

DATA PLANNING
- Structuring
- Checking ethical and legal iss[ues]
- Data Management Plan

DATA COLLECTION AND ORGANIZATION
- Data documentation
- Collection and analys[is]
- Data quality control
- File formats
- File naming
- File versioning
- Metadata

DATA SECURITY AND STORAGE
- Back up
- Data integrity

DATA PRESERVATION AND SHARING
- Funder compliance
- Legal compliance
- as open as possible as closed as necessary access
- Licensing
- Data sharing
- Data preservation

RESEARCH DATA LIFECYCLE

Step 1: Write a data management plan (DMP)

… a document that describes the **data** you expect to acquire or generate during a research project, how you will manage, describe, analyze, and store those **data** and how you will share and preserve your **data** for future use.

DMPs are often submitted as part of grant applications, but are useful whenever researchers are creating data.

PLAN & DESIGN

Gaelen Pinnock / CC BY-SA

A Data Management Plan defines

- How will data be created?

- How will it be documented?

- Who will access it?

- Where will it be stored?

- Will it be preserved and shared? How?

DMPs: A planning & documentation tool

- A common checklist for working with data: strategies for collecting, documenting, organizing and preserving data

- Make informed decisions, anticipate and avoid problems

- Proof of good research practice

- Compliance with policy and funding requirements

- Saves time and trouble

2026-02-23

Horizon Europe's DMP template

1. Data summary

   o   Identify existing data for re-use.

   o   Data formats generated or re-used

   o   Siz of data expected

   o   Origins/provenance of data

   o   Potental re-usability outside the project?

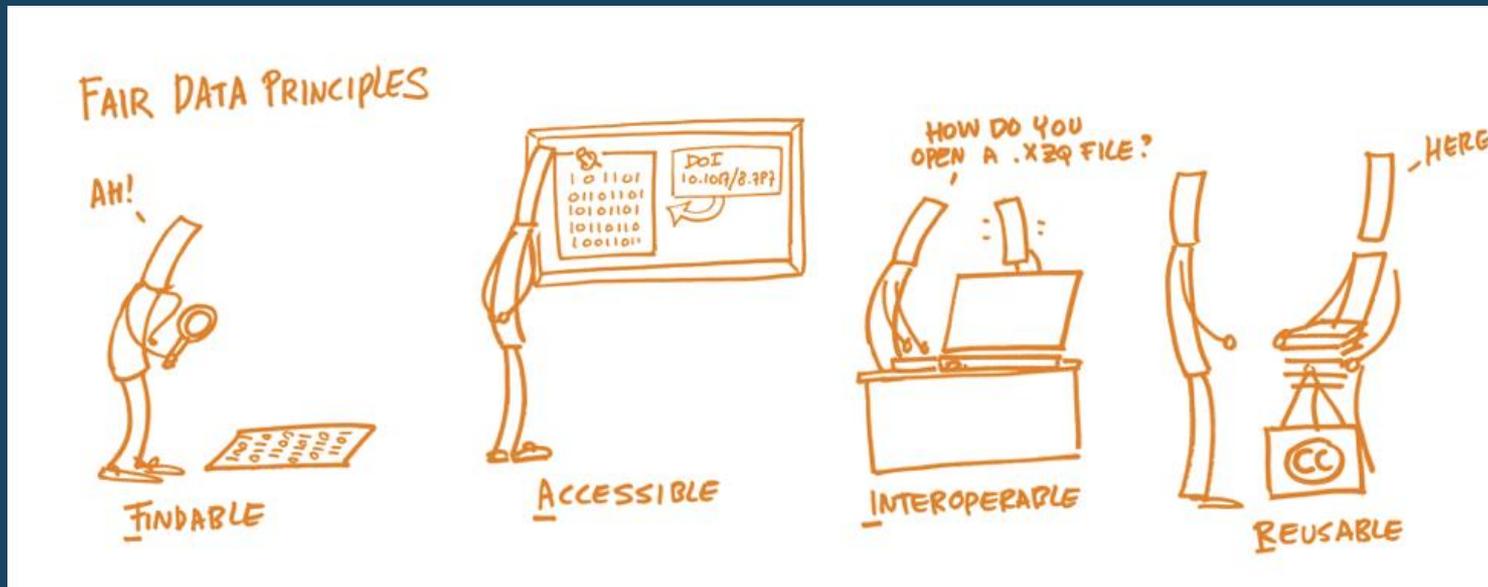# Horizon Europe's DMP template Section 2: Fair data

Image: https://book.fosteropenscience.eu/

Findable

- Will a persistent identifier be provided for the data?

- Will there be rich metadata with keywords?

SND
Swedish National Data Service

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GIS-material for the archaeological project: Kvarteret Ryttaren - Pre-Roman Iron Age at Kungshöga_2

SND-ID: snd2111-2. **Version**: 1.1. **DOI**: https://doi.org/10.5878/001848

Withdrawn

This version has been withdrawn and the data are no longer available from SND's research data catalogue. Please note that there may be a newer version available.

Withdrawal due to update of SND's metadata profile. The dataset is now included in https://doi.org/10.57804/36pp-8g17

Citation

Swedish National Heritage Board, UV Öst. (2014). GIS-material for the archaeological project: Kvarteret Ryttaren - Pre-Roman Iron Age at Kungshöga_2 (1.1) [Data set]. Uppsala University. Available at: https://doi.org/10.5878/001848

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Accessible

- Is the selected repository trustworthy?

- Will the data be made openly available? Any restrictions or security measures?

- Will there be good metadata?

- Will there be good documentation

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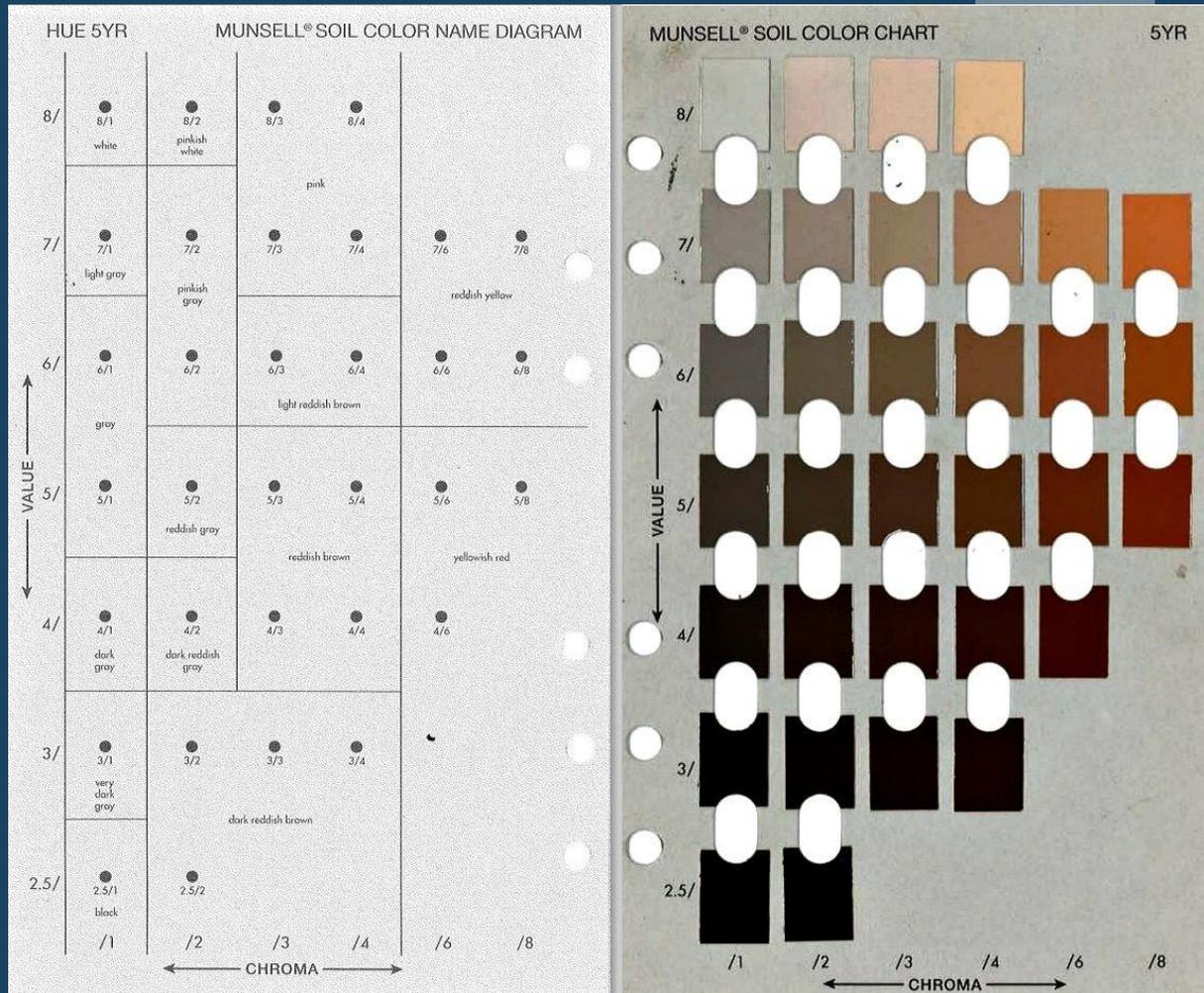
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Interoperable

- WIII vocabularies, standards and formats be used to make it easier to reuse data?

- If not, can you provide with necessary documentation?

Reusable

- Will you provide proper documentation and provenance?

- Will you provide clear licence information for widest re-use possible?

- Will you provide information on relevant data quality assurance processes?

License
CC BY 4.0

The measurements were performed in a wind tunnel at Chalmers University of Technology. It is a closed-loop low-turbulence wind tunnel with a cross-sectional dimension of the test section of 1.8 m x 1.25 m. The wind tunnel has good flow uniformity (better than 1 %) and high flow stability. The incoming flow velocity was measured by a high-accuracy digital micromanometer with 0.5% accuracy. The micromanometer was connected to a Prandtl tube located in the wind tunnel inlet, approximately at a two-meter distance from the model. The air density was evaluated from the flow temperature and absolute pressure with 0.5% accuracy. The aerodynamic forces acting on the models were measured by a six-component balance with 1% accuracy. Only the drag force component was analysed in this study. The flow velocity behind the model was measured by a hot film anemometer from Dantec Dynamics with an accuracy of over 2 %. The anemometer was measuring the streamwise wind velocity without distinguishing the direction.

All the models were mounted on a steel frame, with all members having a circular cross-section of 10 mm. The frame was mounted on a six-component balance located under the floor outside of the wind tunnel test section. The top and bottom of the textiles were held in place by a smaller steel rod (diameter: 3 mm and 2 mm). The total weight of the frame was 966 g.

The upstream velocities were approximately 3.5, 6, 8, 12.5 and 15 m/s (the slight variation between the test, was due to the blockage). These velocities correlate to the Beaufort scales of 3, 4, 5, 6 and 7, corresponding to a range from a gentle breeze to near gale. These values were measured for each test, resulting in minor differences each time. The

to 5/8 H,

Metadata can be set using a metadata standard that structures and organises the information. A standard specifies the fields and contents that are required to describe the data, which makes it easier to exchange metadata between different parties and make the information searchable. Descriptions of the data sets at SND are organized according to the metadata specification DDI (Data Documentation Initiative).
More information about DDI: http://www.ddialliance.org.

A number of standard elements in the DDI data description match the Dublin Core Metadata Initiative (DCMI). DCMI is a standard which aims to make it easier to describe and to locate Internet resources.
For more information about DCMI, see http://dublincore.org

3: Other research outputs?

Can you apply the same principles ot other research outputs?

-   Code

-   Workflows

-   Models

-   Physical objects (reagents, etc.)

4: Allocation of resources

- What will it cost to make your data FAIR?

- How will these costs be covered?

- Who will be responsible for research data management?

5: Data security

- Which provisions will be in place for data security? BAckup, recovery, secure storage, transfer of data, etc.)

- Will the data be safely stored in trusted repositories for long-term preservation and curation?

6: Ethics

- Are there ethical or legal issues which can have an impact on data sharing?Is an ethics review required?

- Will informed consent for data sharing and long-term preservation be required?

7: Other issues

- Relevant local /national/funder policies or procedures

Some final notes

- You are not expected to have all the answers at once.

- A DMP is never really finished.

- You can go back and change answers.

DMP Templates

Use recommended templates if available, e.g.:

- Science Europé

- Local templates: Chalmers own DMP tool

- National ones: Swedish Research Council (builds on Science Europe's own)

- Funder templates if required.

Thank you!