



UiO : University of Oslo Library

Module I: Introduction to research data management

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Agenda

- What is research data?
- What is research data management?
- Research data management and open science
- Aspects of research data management



Rules for today

- Interrupt me if I speak too fast!
- Feel free to write your questions in the chat, we will answer them at the end
- We will be using [menti.com](https://www.menti.com) – Go to [menti.com](https://www.menti.com) and use code 7764 4328

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- Which faculty or department do you work in?

RDM as a "wicked challenge"

- New technology, new types of science, and the “deluge” of data, have increased the need for better research data management.
- If management is generally understood as dealing with problems, those problems can be either “tame” or “wicked”.
- “Tame” problems can be solved, because the issues are often known, and long experience can teach us how best to solve them.
- “Wicked” problems, on the other hand, are less familiar, more complex and uncertain, and this is where you find research data management. Perhaps there are no clear solution to these problems and leadership and management must find new ways to solve them.
- Each “wicked challenge” is unique, so it is harder to learn from previous experience. The scale of the challenge is significant, as it entails a change of the research practice of every researcher.

Source: Cox, A., & Verbaan, E. (2018). RDM as a Wicked Challenge. In *Exploring Research Data Management* (pp. 57-66). Facet. doi:10.29085/9781783302802.006

What is Research Data?

Research data are representations of observations, objects, or other entities used as evidence of phenomena for the purposes of research or scholarship.

Ref: Borgman, Christine L. 2015. *Big Data, Little Data, No Data : Scholarship in the Networked World*. Cambridge, MA: MIT Press.



Qualitative



Quantitative



Non-Digital



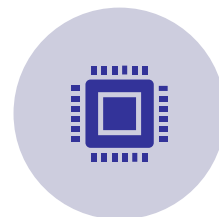
Digital

Types of data



Observational data

- resulting from recognising, noting, or recording facts or occurrences of phenomena, usually with instruments.



Computational data

- products of executing computer models, simulations, or workflows.



Experimental data

– results of procedures in controlled conditions to test or establish hypotheses or to discover or test new laws.



Records

– records of almost any phenomenon or human activity, can be treated as data for research.

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- What kind of research data are you working with?



WHAT IS RESEARCH DATA MANAGEMENT (RDM)?

A Definition



"Research data management concerns the organisation of data, from its entry to the research cycle through to the dissemination and archiving of valuable results. It aims to ensure reliable verification of results and permits new and innovative research built on existing information."

(from, Whyte, A., Tedds, J. (2011). 'Making the Case for Research Data Management'. DCC Briefing Papers. Edinburgh: Digital Curation Centre. [Available online](#))

Why is research data management (RDM) important?

- Efficiency
- Awareness of requirements
 - Policies, regulations, and where to find support and help
- Quality, credibility and reproducibility
- Sharing and transparency



Save time!



[Redacted]
Apparently I have lost several months worth of qualitative analyses through my own naivety, non-intuitive storage procedures [Redacted] and an ill-prepared software upgrade. Guttled.



5



4



Share this Tweet

Reproducibility

"For my first work-related tweet of 2020, I am totally bummed to announce that we have retracted last year's paper on enzymatic synthesis of beta-lactams. The work has not been reproducible," she tweeted.

"It is painful to admit, but important to do so. I apologize to all. I was a bit busy when this was submitted and did not do my job well."

Source: <https://www.bbc.com/news/world-us-canada-50989423>



The image is a screenshot of a BBC News article. At the top, the BBC logo is visible on the left, and navigation links for 'News', 'Sport', 'Reel', 'Worklife', 'Travel', and 'Future' are on the right. Below the logo is a red banner with the word 'NEWS' in white. Underneath the banner is a horizontal menu with links for 'Home', 'Video', 'World', 'UK', 'Business', 'Tech', 'Science', 'Stories', and 'Entertainment & Arts'. The article is categorized under 'US & Canada'. The main headline reads 'Nobel Prize-winning scientist Frances Arnold retracts paper'. Below the headline, the date '3 January 2020' is shown on the left, and social media sharing icons for Facebook, Twitter, and Email are on the right. A small box labeled 'Nobel Prize' is positioned below the date. The main image shows a woman, Frances Arnold, in a blue blazer, standing in a laboratory with various pieces of equipment. A caption at the bottom of the image reads 'Prof Arnold works in the department of chemical engineering at Caltech'. Below the image, a text block states: 'American scientist Frances Arnold, who won the Nobel Prize for chemistry, has retracted her latest paper.'

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- What kind of problems have you had working with your data?

Open Research / Open Science

Open science means transparency and knowledge-sharing in research processes to make knowledge accessible across academic groups, sectors and national boundaries. The concept of open science encompasses the entire research process [...].

- The Research Council of Norway. Policy for open science 2020



Why Open Research?

- Transparency
- Knowledge sharing
- Better validation and reproducibility
- Reduce academic misconduct
- Increased quality and impact
- Foundations for others to build upon
- Demanded by funders...



RITMO / Centre for
Interdisciplinary Studies in
Rhythm, Time and Motion



“My main argument for opening all parts of the process is that it is “sharpening” the research process. You cannot be sloppy if you know that it will be exposed”.

Alexander R. Jensenius, 2020

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- Do you intend on publishing your research openly?



FUNDER POLICIES AND REQUIREMENTS



University of Oslo's Policies and Guidelines

The University of Oslo wants to manage research data according to international standards, such as the FAIR principles, and thereby support the development of a global research community in which research data is widely shared.

By doing so, UiO contributes to:

- Improved **quality** of research
- Increased **transparency** in the research process and better opportunity for **verifiability** of scientific results
- Increased **cooperation** and less duplication of research
- Increased **innovation** in the private and public sectors
- **Efficiency** improvement and better **utilization** of public funds



Research data at UiO must:

- be made openly available for reuse
- have a data management plan
- have metadata
- be archived in a responsible manner
- be equipped with licenses for access, reuse and redistribution
- be made available as early as possible
- be made openly available, but costs for distribution can be covered



Open by default as the key principle for data created through research funded by the Research Council of Norway (RCN)

The Research Council of Norway's policy for Open Research (2020) has three main goals:

- Contribute to a well-functioning research system
- Contribute to sustainable development
- Strengthen trust in research



The Research Council
of Norway

Data Management Plans (DMP)

- Must assess the need to develop a data management plan in relation to all projects awarded funding. If you decide that a data management plan is not needed, you must provide an explanation.*
- The Data Management Plan (DMP) must be delivered in connection with the revised grant application.
- RCN will request a final version of the data management plan in connection with the final report of the project.

*Research Council of Norway will soon require that all projects have a Data Management Plan



HORIZON EUROPE

Open Science across the programme

Open
Science

Mainstreaming of open science practices for improved quality and efficiency of R&I, and active engagement of society

Mandatory immediate Open Access to publications: beneficiaries must retain sufficient IPRs to comply with open access requirements;

Data sharing as 'open as possible, as closed as necessary': mandatory **Data Management Plan** for FAIR (Findable, Accessible, Interoperable, Reusable) research data

- Work Programmes may incentivize or oblige to adhere to **open science practices** such as involvement of citizens, or to use the **European Open Science Cloud**
- Assessment of open science practices through the **award criteria** for proposal evaluation
- Dedicated support to **open science policy actions**
- **Open Research Europe** publishing platform

The Data Management Plan (DMP)

- Is a living document that accompanies the research project;
- Specifies the kind of data that will be generated;
- Outlines how the data will be described;
- Explains where the data will be stored;
- Conveys whether and how the data can be shared.



Common funder requirements for DMPs

- **Submit a first version of your DMP** (as a deliverable) within the first 6 months of the project
- Must be **updated** over the course of the project whenever significant changes arise
- Revised versions may be requested by the funder throughout the project

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- On DMPs



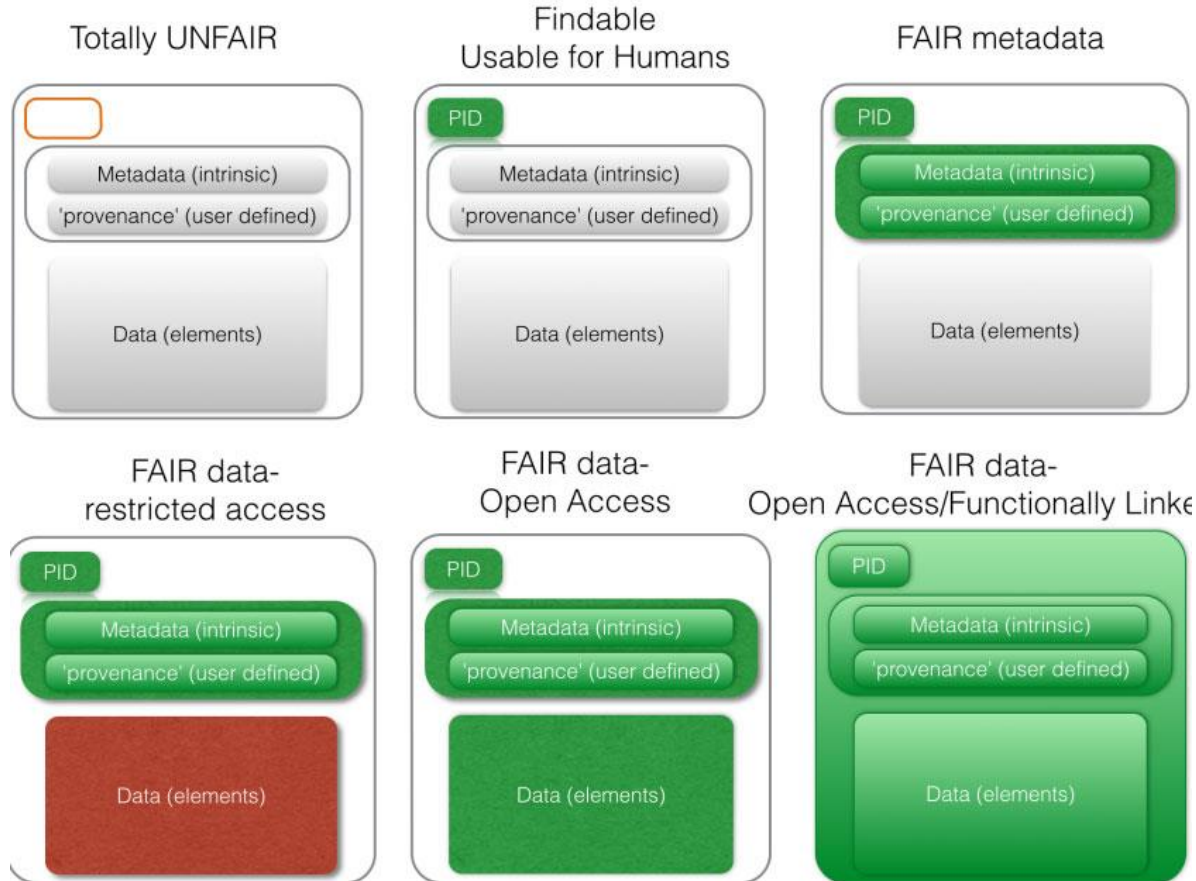
What should a Data Management Plan contain?

- Types of data
- Collection and Analysis
- Storage
- Classification
- Organization
- Roles and Responsibilities
- Documentation and Metadata
- Long-term Storage and Archiving
- Sharing and Reuse
- Dissemination
- Legal and Ethical Requirements

RESEARCH DATA - OPEN BY DEFAULT



Data as increasingly FAIR Digital Objects



Services and tools for RDM support:

- Digital Scholarship Center (DSC)
- Norwegian Centre for Research Data (NSD)

DMP templates (links in the notes):

- UiO's template
- Digital Curation Centre (DCC, UK)
- easyDMP (data management plan) (Sigma2)
- NSD
- Horizon Europe



Some common questions

Privacy!!!!!!

Is this DMP good enough?

Where can I store (red, yellow, green) data?

What kind of archive should I use? Does UiO have an archive?

For employees

☰ All content

Search in For employees

Search

< [Research support](#)

Research Data Management

[Norwegian](#)



Organisation

Contact us at research-data@uio.no

Read more about how the research data work is organised at UiO.

→ [Organisation](#)

→ [Go to introduction](#)

Laws and regulations



Funding agencies' requirements and guidelines



UiO's Policies and guidelines



Thank you!

Questions?

Email UiO's data management experts: research-data@uio.no

Resources at UiO:

[Research Data Management - For employees - University of Oslo \(uio.no\)](#)

More info on data management and courses:

[Digital Scholarship Center - University of Oslo Library \(uio.no\)](#)



Upcoming sessions...

- Data Management Planning
29/04 9:00-10:30
- Data Organization, Metadata and Documentation
10/05 9:00-10:30
- Data Classification and Storage Selection
12/05 9:00-10:30
- Ethics, Privacy and Data Protection
19/05 9:00-10:30
- Sharing and Archiving Research Data
20/05 9:00-10:30
- Data Discovery
21/05 9:00-10:30

Menti – Questions?

Go to [menti.com](https://www.menti.com) and use code 7764 4328

Sources:

Anne Bergsaker og Live Håndlykken Kvale. Datahåndtering, kurs 25.9.2019

CESSDA. Data management expert guide. <https://www.cessda.eu/Training/Training-Resources/Library/Data-Management-Expert-Guide>

Christine L. Borgman. 2015. Big Data, Little Data, No Data: Scholarship in the Networked World. The MIT Press.

Forskningsrådets policy for åpen forskning <https://www.forskningsradet.no/nyheter/2020/slik-skal-forskningsradet-jobbe-for-åpen-forskning/>

Forskningsrådet. Forskningsrådets policy for åpen tilgang til forskningsdata: <https://www.forskningsradet.no/forskningspolitisk-radgivning/apen-forskning/apen-tilgang-til-forskningsdata/>

OpenAire. Guides for researchers: How to comply with h2020 mandate – for research data. <https://www.openaire.eu/how-to-comply-to-h2020-mandates-for-data>

University of Oslo. Policies and guidelines for research data management <https://www.uio.no/english/for-employees/support/research/research-data-management/policies-and-guidelines/index.html>

Useful Links

- [RDMkit \(elixir-europe.org\)](https://elixir-europe.org)
- [RDA | Research Data Sharing without barriers \(rd-alliance.org\)](https://rd-alliance.org)

And a fun video about research data management:

<https://www.youtube.com/watch?v=N2zK3sAtr-4>