Materials developed as a part of the *Skills development for research data* project:
https://www.ub.uio.no/english/about/projects/rdm-skills/

Introduction to research data management

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Open Research and *Digital Scholarship Center*

University of Oslo Library

03. March 2022

Agenda

- A bit of context
- What is research data management?
- UiO and funder requirements
- Where to get help?


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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

"**Open Science** is becoming the modus operandi for carrying out research and innovation by **sharing knowledge, data and tools** as early as possible, in open collaboration with all relevant knowledge actors and society."

ec_rtd_horizon-europe-strategic-plan-2021-24.pdf (europa.eu)

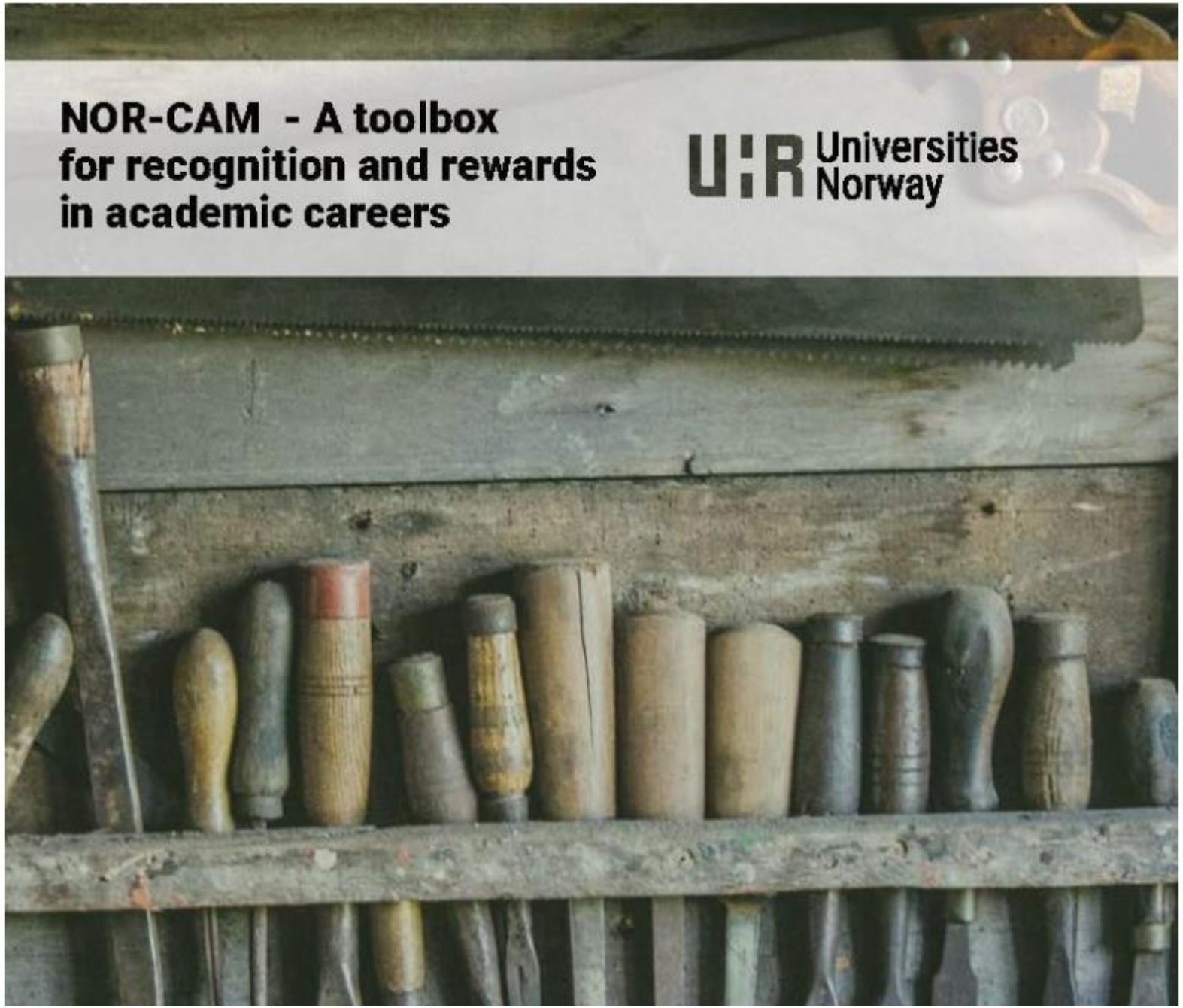
Changing research assessment system

Towards a reform of the research assessment system

Scoping Report

https://op.europa.eu/en/publication-detail/-/publication/36ebb96c-50c5-11ec-91ac-01aa75ed71a1/language-en/

Changing research assessment system – in Norway



https://www.uhr.no/en/front-page-carousel/nor-cam-a-toolbox-for-recognition-and-rewards-in-academic-careers.5780.aspx

But why?

Besançon *et al. BMC Medical Research Methodology* (2021) 21:117
https://doi.org/10.1186/s12874-021-01304-y

BMC Medical Research Methodology

COMMENTARY Open Access

Open science saves lives: lessons from the COVID-19 pandemic

Lonni Besançon[1,2*], Nathan Peiffer-Smadja[3,4], Corentin Segalas[5], Haiting Jiang[6], Paola Masuzzo[7], Cooper Smout[7], Eric Billy[8], Maxime Deforet[9] and Clémence Leyrat[5,10]

Abstract

In the last decade Open Science principles have been successfully advocated for and are being slowly adopted in different research communities. In response to the COVID-19 pandemic many publishers and researchers have sped up their adoption of Open Science practices, sometimes embracing them fully and sometimes partially or in a sub-optimal manner. In this article, we express concerns about the violation of some of the Open Science principles and its potential impact on the quality of research output. We provide evidence of the misuses of these principles at different stages of the scientific process. We call for a wider adoption of Open Science practices in the hope that this work will encourage a broader endorsement of Open Science principles and serve as a reminder that science should always be a rigorous process, reliable and transparent, especially in the context of a pandemic where research findings are being translated into practice even more rapidly. We provide all data and scripts at https://osf.io/renxy/.

Keywords: Open science, Peer review, Methodology, COVID-19

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https://bmcmedresmethodol.biomedcentral.com/articles/10.1186/s12874-021-01304-y

TECHNOLOGY FEATURE | 24 April 2020

Open science takes on the coronavirus pandemic

Data sharing, open-source designs for medical equipment, and hobbyists are all being harnessed to combat COVID-19.

Mark Zastrow

A student in Warsaw assembles 3D-printed protective masks. Credit: Jaap Arriens/NurPhoto/Getty

https://www.nature.com/articles/d41586-020-01246-3

SCIENCE

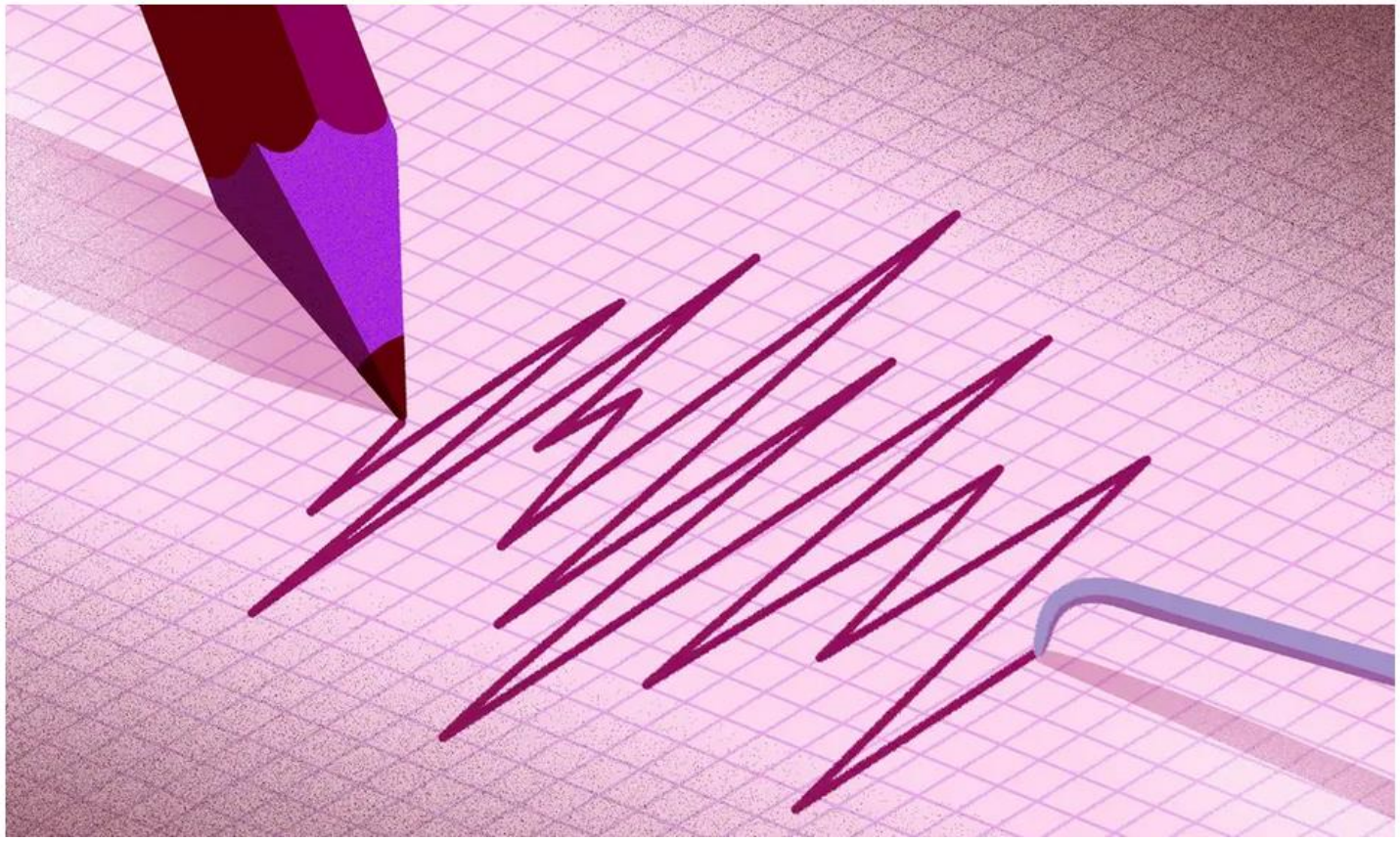
A Famous Honesty Researcher Is Retracting A Study Over Fake Data

Renowned psychologist Dan Ariely literally wrote the book on dishonesty. Now some are questioning whether the scientist himself is being dishonest.

Stephanie M. Lee
BuzzFeed News Reporter

Posted on August 20, 2021, at 2:40 p.m. ET

Tweet Share Copy



"When the researchers published their 2020 update, they posted the data from their 2012 paper for the first time. **Publicly sharing data was once a rarity** in science but is slowly becoming more commonplace amid calls for greater transparency."

https://www.buzzfeednews.com/article/stephaniemlee/dan-ariely-honesty-study-retraction

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**"

"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."

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

Why Open Research?

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

Source: FOSTER consortium

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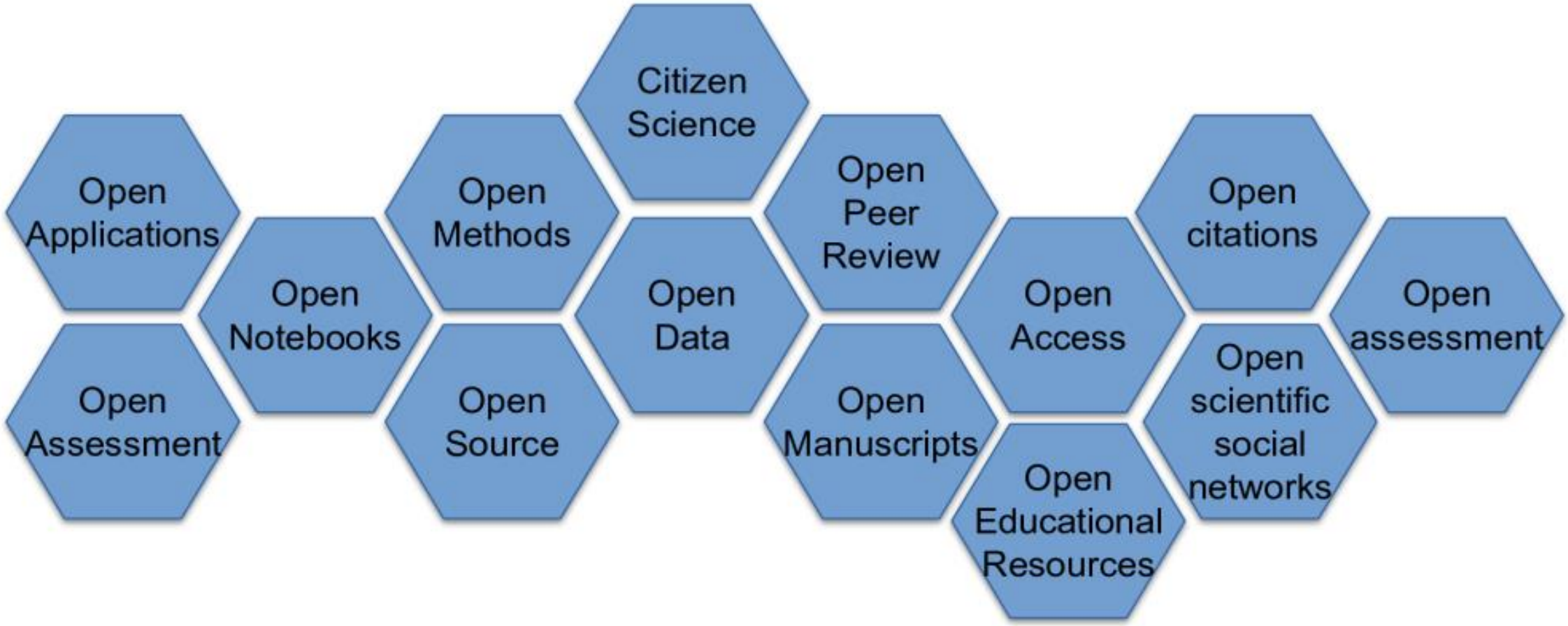
RITMO / Centre for Interdisciplinary Studies in Rhythm, Time and Motion

"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

Source: FOSTER consortium

Open Research includes



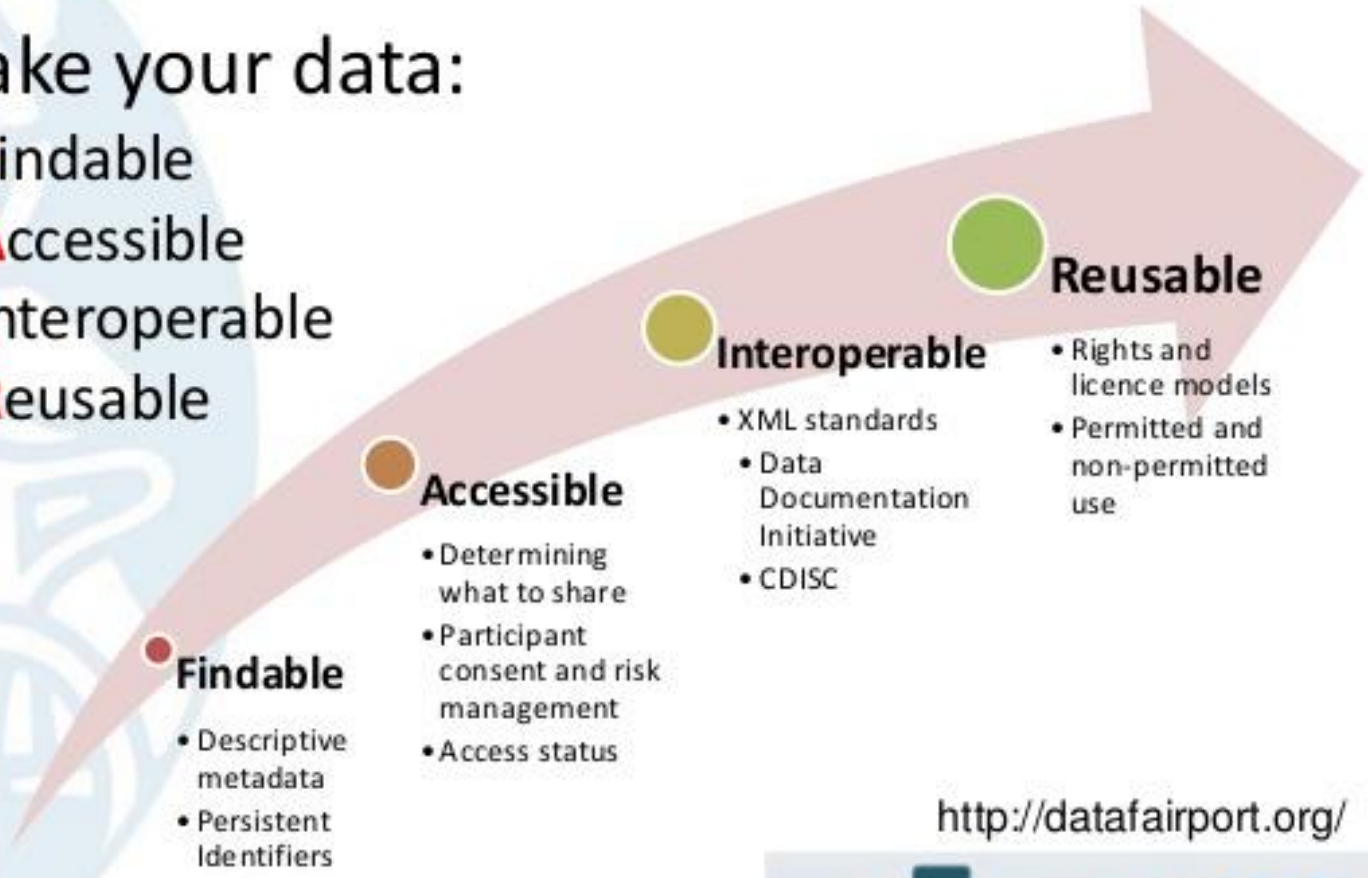
As open as possible, as closed as necessary

Findable Accessible Interoperable Reusable

FAIR Principles

Make your data:

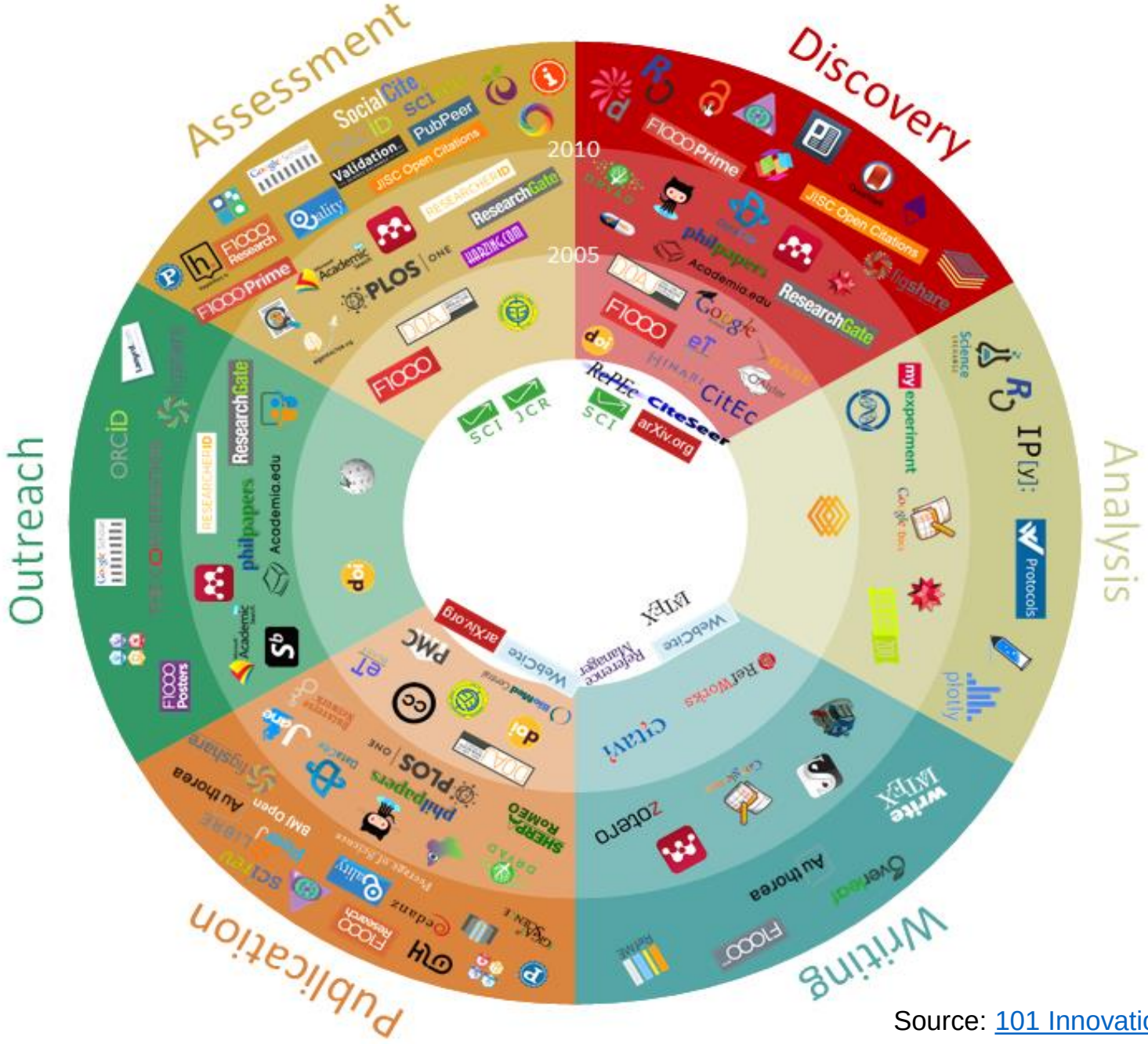
- **F**indable
- **A**ccessible
- **I**nteroperable
- **R**eusable



http://datafairport.org/

Data FAIRport

Find, Access, Interoperate & Re-use Data



Source: 101 Innovations in Scholarly Communication.

Research data management

What is research data management (RDM)?

"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**)

Source: RDMKit Elixir / https://rdmkit.elixir-europe.org/

What is research data management (RDM)?

Protection
Organization
Documentation (and metadata)
Classification
Short-term storage
Licensing
Sharing
Long-term preservation
Dissemination (publishing)
Reusing

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.

What data are you working with?

Mentimeter

71

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

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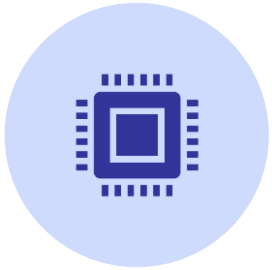
Observational data
results from recognising, noting, or recording facts or occurrences of phenomena



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

- Qualitative or Quantitative
- Primary (new) or Secondary (existing)
- Personal data
  - General (non-sensitive) personal data
  - Sensitive personal data

Why is research data management important?

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

Research data at UiO shall:

- be made **openly available** for further usage
- be made available at an **early** stage
- have a **data management plan**
- have **metadata** and be **documented**
- must be securely **archived**
- have **licenses** for access, reuse and redistribution
- made freely available, but the actual distribution cost should be covered

Source: https://www.uio.no/english/for-employees/support/research/research-data-management/policies-and-guidelines/

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

European Commission

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Source: Horizon Europe - Investing to shape our future | European Commission - March 2021

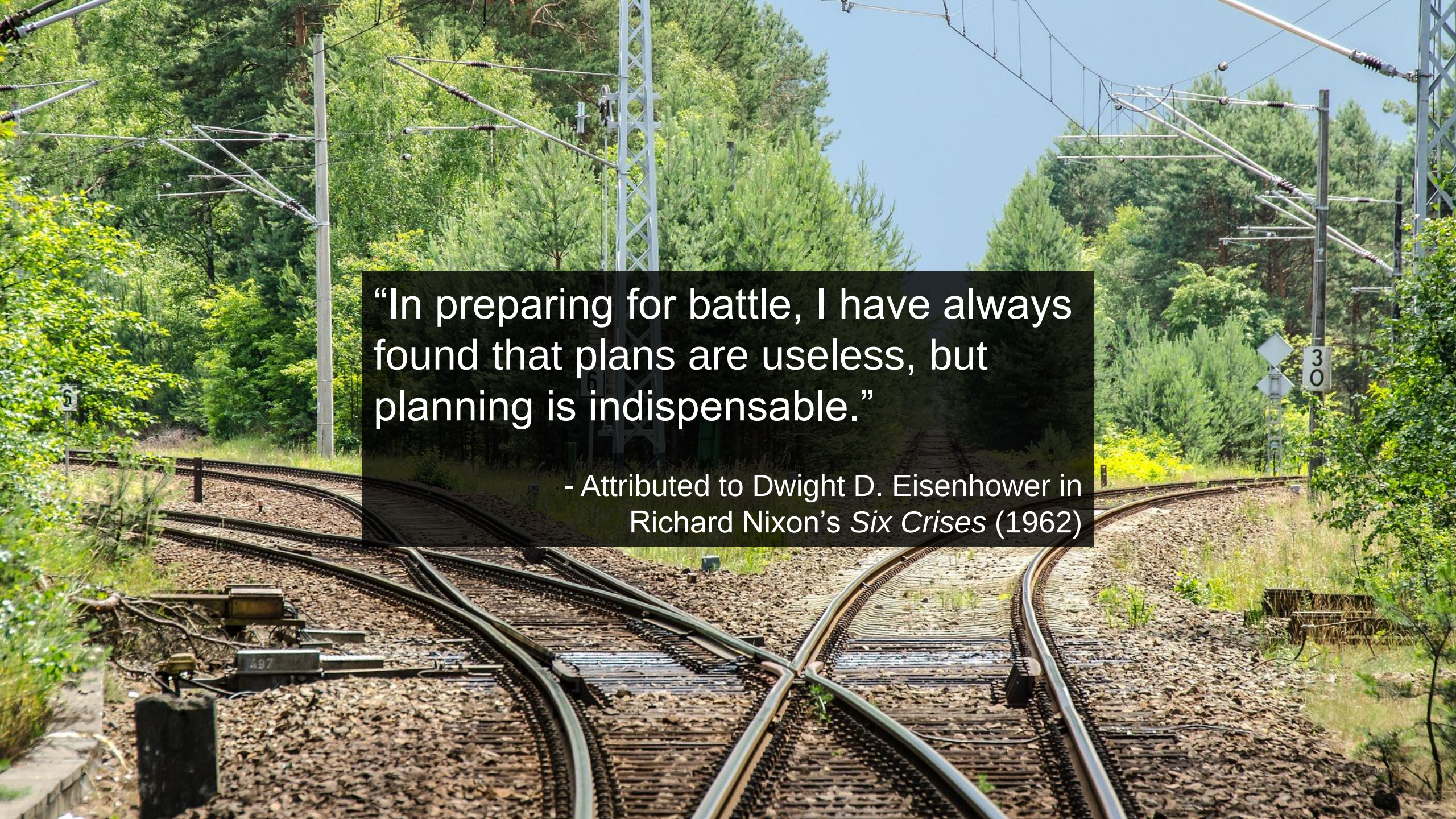
Data Management Plans (DMP)

- 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.*
- Final version of the DMP delivered with the final report of the project.

Source: https://www.forskningsradet.no/en/Adviser-research-policy/open-science/open-access-to-research-data/

The Data Management Plan (DMP)

- Is a **living** document that accompanies the research project
- Specifies the **types** of data that will be generated
- Describes how you plan to **manage** your data (organize, document, classify, store, license)
- Conveys whether and how the data can be **shared**
- **Agreement** between project members
- A tool to keep overview over data


“In preparing for battle, I have always found that plans are useless, but planning is indispensable.”
- Attributed to Dwight D. Eisenhower in Richard Nixon’s *Six Crises* (1962)

Services and tools for RDM support:

- Research support and IT staff at your faculty/institute
- Subject librarian for your discipline
- Research data management website
- Digital Scholarship Center (DSC)
  research-data@uio.no
- Norwegian Centre for Research Data (NSD, now Sikt)

Digital Scholarship Center

Norwegian version of this page

UiO's Digital Scholarship Center (DSC) can help you take advantage of digital tools and methods in your research. We offer support with data management, visualization, digital research methods, and digital skill development.

https://www.ub.uio.no/english/writing-publishing/dsc/

Research Data Management at UiO

Having proper Research Data Management (RDM) routines will help you save time, enables sharing and reuse of data, and promotes open science. However, RDM in a digital context can be challenging and complex. We offer guidance and consultation on RDM topics including:

- data management plans (DMP)
- classification and storage
- organization, documentation, and metadata
- legal questions (i.e.privacy, copyright, and licensing)
- archiving and sharing

Digital research methods

On these pages you will find overviews and user guides on digital research methods for researchers and students. There will be information about relevant digital research methods in many subject areas.

Currently, we have information about text mining - or digital research methods for those working with text data.

Need advice?

Visit us at the room 230, in the 2nd floor of Niels Henrik Abels hus.

Book an appointment →

Or send us an email to research-data@uio.no

Digital scholarship communities

Interested in teaching or helping at workshops? Join us in:

→ Carpentries@UiO

→ CodeRefinery - Get Involved

Do you have any suggestions for workshops or seminars or questions about the workshops? Send an email to digitalscholarship@ub.uio.no

Research data

Research data

- Time and place

Good research data management plays an essential role in Open Science, which is increasingly important for scholars around the globe. The University Library provides courses on key concepts as a part of the Skills Development for Research Data project.

We can provide training on the following topics:

- Introduction to research data management (RDM)
- Current data management policies (UiO, Research Council of Norway, EU)
- Data management planning
- Data organization
- Metadata and documentation
- Data classification and storage
- Sharing and archiving research data
- Copyright and licensing
- Data discovery and reuse

https://www.ub.uio.no/english/courses-events/courses/other/research-data/

Upcoming sessions

Data management planning

Mar. 4, 9:00 AM, Zoom

Data organization, metadata, and documentation

Mar. 9, 9:00 AM, Zoom

Data classification and storage selection

Mar. 11, 9:00 AM, Zoom

Copyright and licensing

Mar. 15, 9:00 AM, Zoom

Sharing and archiving research data

Mar. 17, 9:00 AM, Zoom

Finding and reusing research data

Mar. 18, 9:00 AM, Zoom

https://www.ub.uio.no/english/courses-events/courses/other/research-data/

Carpentry: Training on foundational coding and data science skills

Carpentry: Training on foundational coding and data science skills

At University of Oslo (UiO), Carpentries workshops based on Software Carpentry, Data Carpentry, and Library Carpentry lessons are offered to facilitate sharing and re-using of code and data among graduates and researchers from all faculties and units.

https://www.ub.uio.no/english/courses-events/courses/other/Carpentry/

Open and reproducible research

More and more researchers across disciplines are preregistering their hypotheses, methods, and analysis plans before they collect or analyze the data to increase research transparency and visibility. This course will give an introduction to preregistration and a step-by-step guide on how to do it yourself.

Introduction to open and reproducible research

May 11, 9:00 AM, Zoom

Preregistration of research studies

May 13, 9:00 AM, Zoom

Preregistration on Open Science Framework (OSF)

May 19, 12:00 PM, Zoom

R Markdown: Writing Reproducible Research Papers with R

May 24, 9:00 AM, Undervisningsrom 1, 3rd floor Georg Sverdrups hus

https://www.ub.uio.no/english/courses-events/courses/other/research-reproducibility/

OA-publishing and research visibility

Keep copyrights to your own work by publishing in Open Access journals. Find out your research impact. The course gives you practical support in publishing process and making your research visible.

OA-publishing and research visibility

Mar. 23, 9:00 AM, Zoom

OA-publishing and research visibility

Apr. 26, 9:00 AM, Zoom

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https://www.ub.uio.no/english/courses-events/courses/other/medicine-publishing/

Open Science Lunch

Open Science Lunch

Each last Thursday of the month at 12:00 we invite you to join us virtually for an online open lunch to hear about how to make your research more open. We will discuss research transparency and visibility, open publishing, data sharing, and more!

Upcoming

Time and place: Mar. 31, 2022 12:00 PM–1:00 PM, Zoom, Add to calendar

Open Science Lunch: Building and running a service for sharing curated research data

Learn about how data sharing services are built and run based on an example from EBRAINS Research Infrastructure.

Time and place: Apr. 28, 2022 12:00 PM–1:00 PM, Zoom, Add to calendar

Open Science Lunch: Open your research to the public

Learn about how you can conduct open science projects in the wild based on an example from MusicLab!

https://www.ub.uio.no/english/courses-events/events/open-science-lunch/

Journal Clubs

Our mailing list:
https://sympa.uio.no/uio.no/subscribe/open-science-oslo

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Welcome

Our journal club is open to both staff and students at UiO across all departments. Everyone is welcome to join us - whether you are an enthusiast, a skeptic, or a cautious explorer. Feel free to get in touch if you are interested to participate or contribute!

Our mission

- provide an informal and friendly platform for discussions about meta scientific topics
- help each other get familiarized with open science practices (e.g., pre-registrations, sharing data, sharing preprints, etc.)
- connect students and researchers from various disciplines who are interested in meta science.

Format

Before each meeting, we read an article on meta scientific topics, which we then discuss during the meeting. At each meeting, a different discussion leader will begin by providing a short overview of the paper and facilitate discussion throughout the meeting. Anyone can propose a possible paper or topic to present if we have not covered it already. Grab a cup of tea (coffee?) and join us! Due to the current pandemic, all sessions will be held online (Zoom) for the time being.

Universitetet i Oslo
osf.io/mvx54
Z collection
? timo.b.roettger@gmail.com
Timo B. Roettger
Agata Bochynska

Materials developed as a part of the *Skills development for research data* project:
https://www.ub.uio.no/english/about/projects/rdm-skills/

Thank you!

Contact us at:

research-data@uio.no

3. March 2022

Useful Links

- RDMkit (elixir-europe.org)
- RDA | Research Data Sharing without barriers (rd-alliance.org)

And a fun video about research data management:

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

Sources

- UiO's resources for data management
- FAIR principles
- About DMP from Nature: https://www.nature.com/articles/d41586-018-03071-1
- Michener, W. K. (2015). Ten Simple Rules for Creating a Good Data Management Plan. *PLoS Computational Biology,* 11(10): e1004525. https://doi.org/10.1371/journal.pcbi.1004525
- Science Europe: Practical guide to the international alignment of research data management
- The Research Council of Norway: Open Science