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Open Science and Research Data Management at UiT The Arctic University of Norway

A presentation at the Open Science Toolbox Start-up
Workshop, NTNU, 26 October 2018

Senior Advisor Stein Høydalsvik
Senior Research Librarian Philipp Conzett



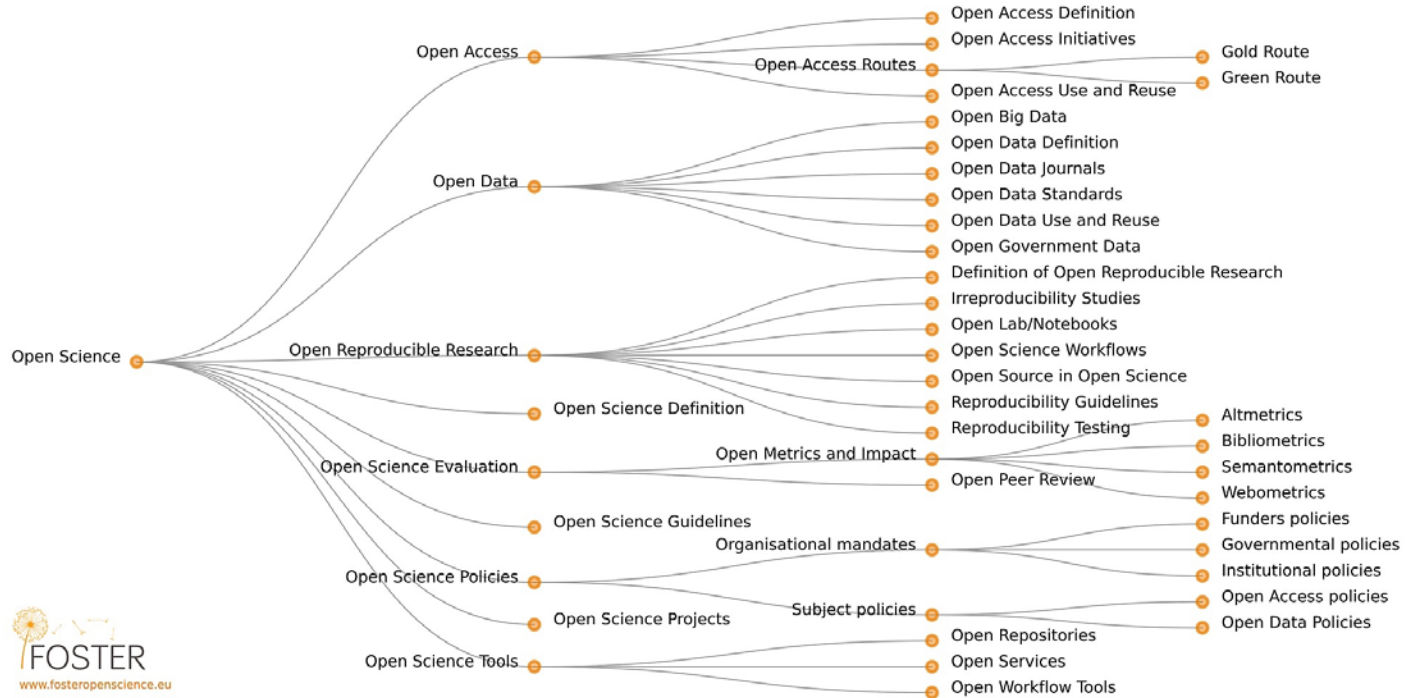
About the presentation

Open Science and Research Data Management from policies to practice

– The role of the University Library in research support.

- Part I: Open Science at UiT
- Part II: Research Data Management Support at UiT

Open Science Taxonomy

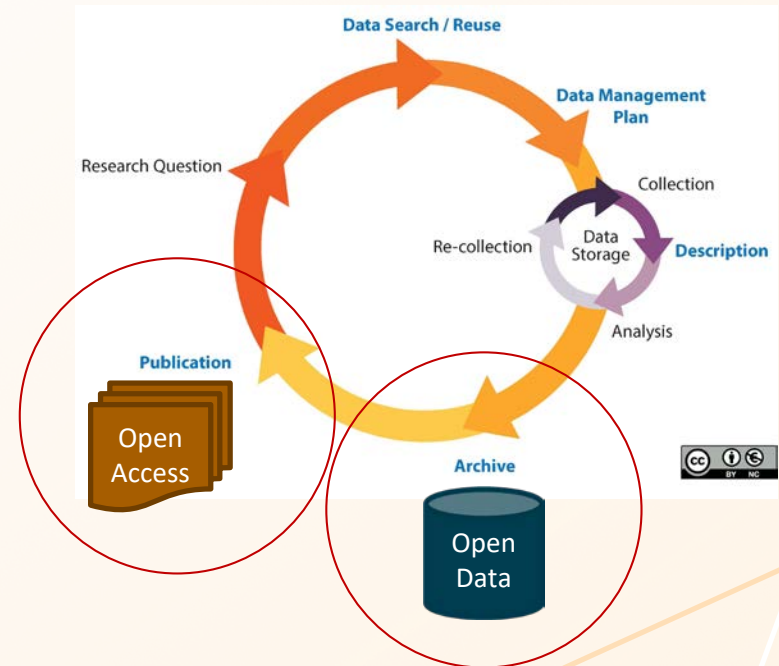


Open Science – what is it?

- Covers every phase of the research cycle.
- Covers research workflow tools, the principles of early sharing, cooperation and communication.
- A systemic change of the way we perform science.

Open Science – what is it?

- Covers every phase of the research cycle.
- Covers research workflow tools, the principles of early sharing, cooperation and communication.
- A systemic change of the way we perform science.
- But when it comes to actual services ask for by the researchers, the picture is more simple.



Open Science is:

- just Good Science
 - Jon Tennant, Open Science MOOC
- a systemic change to the way science and research is done today by extending the principles of openness to the whole research cycle.

Open Science policies, strategic plans and reports – enough now?

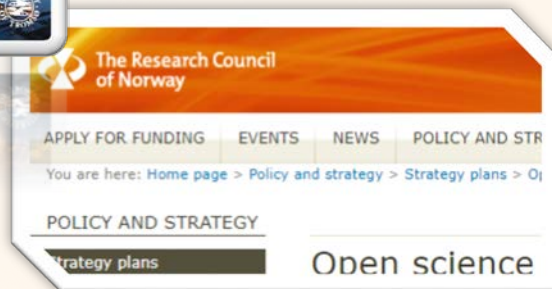


OECD Home About Countries ▾

OECD Home > Directorate for Science, Technology and Innovation > Science, Technology and Innovation Policy

> Science, technology and innovation policy

Open Science



God told Moses:

“This is not the *time for prayer*; this is the *time for action*”.

You have your instructions. I have told you what to do; now do *it!*
(Exodus 14:15, 16).

Policies, strategic plans and reports – Buzz words? Is it important?



<https://www.rand.org/randeurope/research/science-technology-innovation/focus-on-open-science.html>

DORA @ UiT – Implementation started

Two major forces work against adoption of open science practices:

– habits and reward structures

DORA is about implicit and explicit terms in the reward structure that impede or hamper a change-over to Open Science

- UiT The Arctic University of Norway signed the DORA-declaration in January 2016.
- Actions are (finally) taken to implement DORA in institutional instructions and routines

DORA @ UiT – Implementation started

Some examples of institutional instructions and routines that needs to be changed due to implementation of the DORA-principles:

- Complementary provisions for employment and promotion in teaching and research positions.
- Complementary provisions for appointment in positions as postdoctoral, fellow and academic assistant.
- Guidance on assessment (censorship) of doctoral degrees.
- Evaluation criteria for UiTs own research funding.

DORA @ UiT – Implementation started

It is suggested that the following sections be included in these documents:

"At UiT, assessments in connection with the appointment or promotion of positions, admission / appointment and evaluation of doctoral degrees and distribution of research funding shall emphasize the quality, relevance and importance of research work, and not emphasize where the work is published, according to the principles of the San Francisco Declaration on Research Assessment (DORA). "

Open Science – Library's role

On the 22nd of April 2018, OSPP adopted a set of prioritized **actionable** recommendations concerning the 8 Open Science ambitions of the Commissioner.

“The time to act is now”.

The recommendations have been split up into the eight priorities, namely:

- Rewards and Incentives
- Research Indicators and Next-Generation Metrics
- Future of Scholarly Communication
- European Open Science Cloud
- FAIR Data
- Research Integrity
- Skills and Education
- Citizen Science

<https://ec.europa.eu/research/openscience/index.cfm?pg=open-science-policy-platform>

OSPPs recommendations – major stakeholders

The major stakeholder groups (as listed in the key below) who have the main responsibility to drive the actions stated in the recommendations have been listed alongside each one.



Research & E-Infrastructures



Research Libraries



Universities & Research Performing Organisations



Policy Making Organisations



Research Funding Organisations



Publishers



Researchers



Scientific Societies & Academies



Citizen Science & Public Engagement Organisations

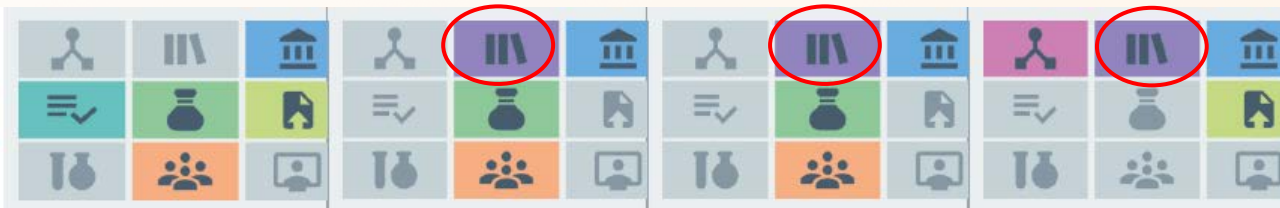
Research Indicators and Next-Generation Metrics

Evaluations of individual researchers or of research groups should not use journal brand or Impact Factor as a proxy for research quality. Those responsible for hiring, promotion, funding and/or the evaluation of researchers must use a broader, tailored range of quantitative and qualitative indicators of research activity, progression and impact that incentivises and rewards open research practice. All publication venues must

Quantitative and qualitative indicators need to be identified and developed for research assessment that captures the full range of contributions to the knowledge system. These should reflect the complexity and varied context of the research environment, the specific characteristics of the research being undertaken, as well as the new kinds of questions and results that might emerge in an open

All researchers need to be identified through an ORCID ID. Best practice for CV/biosketch evaluation should be developed and publicly showcased to encourage a broader recognition of the range of verifiable (and especially open) contributions individuals make to the knowledge system, including teaching and peer review, and the production of a broad range of output types. The career narrative should be central to the evaluation of

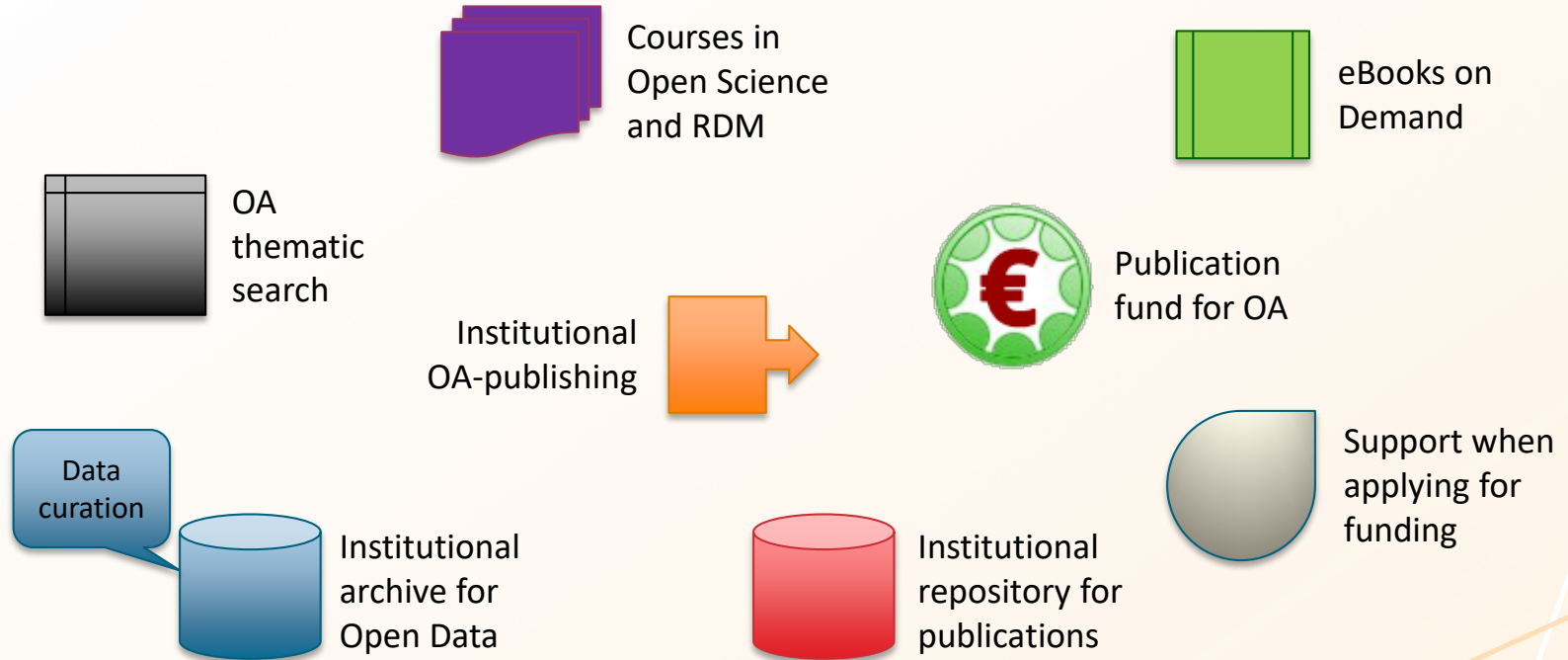
The data, metadata and methods that are relevant to research evaluation, including but not limited to citations, downloads and other potential indicators of academic re-use, should be publicly available for independent scrutiny and analysis by researchers, institutions, funders and other stakeholders.



Open Science @ UiT – our record

2018	<i>Implementation of DORA + +</i>		
2017	<ul style="list-style-type: none">• <i>UiT shall be national leading on Open Science</i> – the University board November 30.• <i>DataverseNO</i> – June 7.• <i>UiTs principles for management of research data</i> – decided by the University board March 9.	2010	<ul style="list-style-type: none">• Septentrio Academic Publishing – launched in January.• UiTs principles for Open Access publishing – decided by the University board October 14.
2016	<ul style="list-style-type: none">• <i>UiT Open Research Data</i> – launched September 1.• <i>DORA</i> – signed in January.	2008	<ul style="list-style-type: none">• Mandatory submission of master thesis – starting January 1.
2014	<ul style="list-style-type: none">• <i>TROLLING – The Tromsø Repository of Language and Linguistics</i> – launched June 18.	2006	<ul style="list-style-type: none">• UiTs institutional repository Munin – launched September 21.• The 1st Munin Conference – November 23.
2013	<ul style="list-style-type: none">• Mandatory submission of doctoral thesis – starting August 1.	2005	<ul style="list-style-type: none">• Project Institutional Repository – building an institutional repository for the institution.
2012	<ul style="list-style-type: none">• <i>High North Research Documents</i> – launched January 25 on the Arctic Frontiers Conference 2012.	2003	<ul style="list-style-type: none">• Project Open Access Publishing – Open Journal System established as the platform – launched in December.
2011	<ul style="list-style-type: none">• Open access publication fund at UiT – launched in February.	1999	<ul style="list-style-type: none">• Project Digital Library – 1999-2002• Electronic Thesis and Dissertation – a pilot project based on the ETD-system from Virginia Tech.

Open Science-services provided from the Library



... and we need to add more to this

- Open Notebook Science
- more training and education in Open Science to our researchers, – and to our PhD-students in particular
- applications for funding must document open science-skills (Horizon Europe)

Our position at the institution:

“The university recognize the library as a necessary and competent contributor to this cultural change”.

... and we need to add more to this

- Provide Open Science support to research communities applying for external funding
- Open Science research workflows

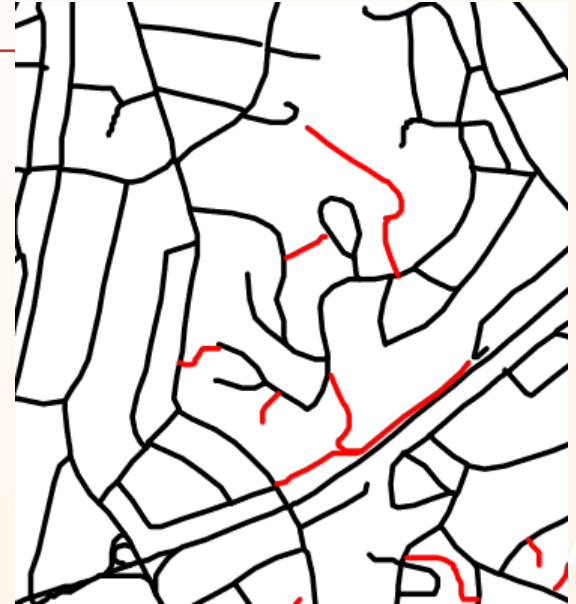


Bianca Kramer & Jeroen Bosman, <http://tinyurl.com/JROSTmap>, CC-BY

We know our destination and when we should
be there.

The choice of direction and how we are going to
travel needs to be decided.

Will we (and you) make it?



Yes, we can!

Destination:

The 13th Munin Conference on Scholarly Publishing, in Tromsø

When: 28-29 November

How: Your choice

Deadline:

14 November last date for registration

What:

5 top international keynotes

13 accepted presentations

5 lightning talks

150(?) participants from «all the world»
discussing different aspects of Open Science.

Munin Conference on Scholarly Publishing

Thirteenth Annual Conference – 2018,
Tromsø, Norway

[Home](#)

[Registration](#)

[Speakers](#)

[Program](#)

[Participant's guide](#)

[About the conference](#)

[Contact](#)

[Archive](#)

Welcome to the 13th Munin Conference 2018 on November 28–29

The Munin Conference is an annual conference on scholarly publishing and communication, primarily revolving around open access, open data and open science. This year's conference (2018) will be the thirteenth Munin Conference and **will take place on 28–29 November** at the Tromsø campus of UiT The Arctic University of Norway.



Illustration photos: www.colourbox.no

Announcements:

October 23, 2018 – The program for the 13th Munin Conference 2018 is published. [See the program](#)

October 8, 2018 – The last date for registration is 14 November. [Go to Registration](#).

Important dates 2018

APR 6	Announcing CFP
MAY 2	Registration open
AUG 19	Submission deadline
AUG 31	Notification of acceptance
NOV 14	Last date for registration
NOV 28	Conference day 1
NOV 29	Conference day 2

Page links

- [About the conference](#)
- [Advisory Board](#)
- [Archive](#)
- [Bus tickets](#)

About the presentation

Open Science and Research Data Management from policies to practice

– The role of the University Library in research support.

– Part I: Open Science at UiT

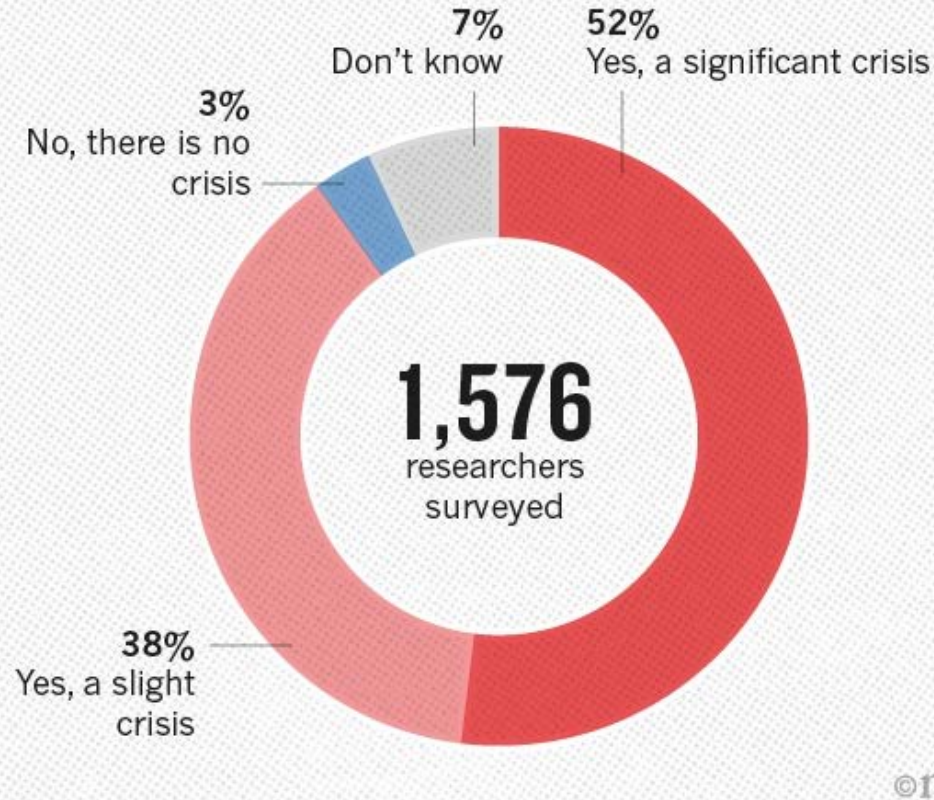
– **Part II: Research Data Management Support at UiT**

Why do we need research data management support?

- Good science is verifiable and reproducible*.
- Research data should be re-usable.
- Often, researchers need support for approving reproducibility.

Reproducibility

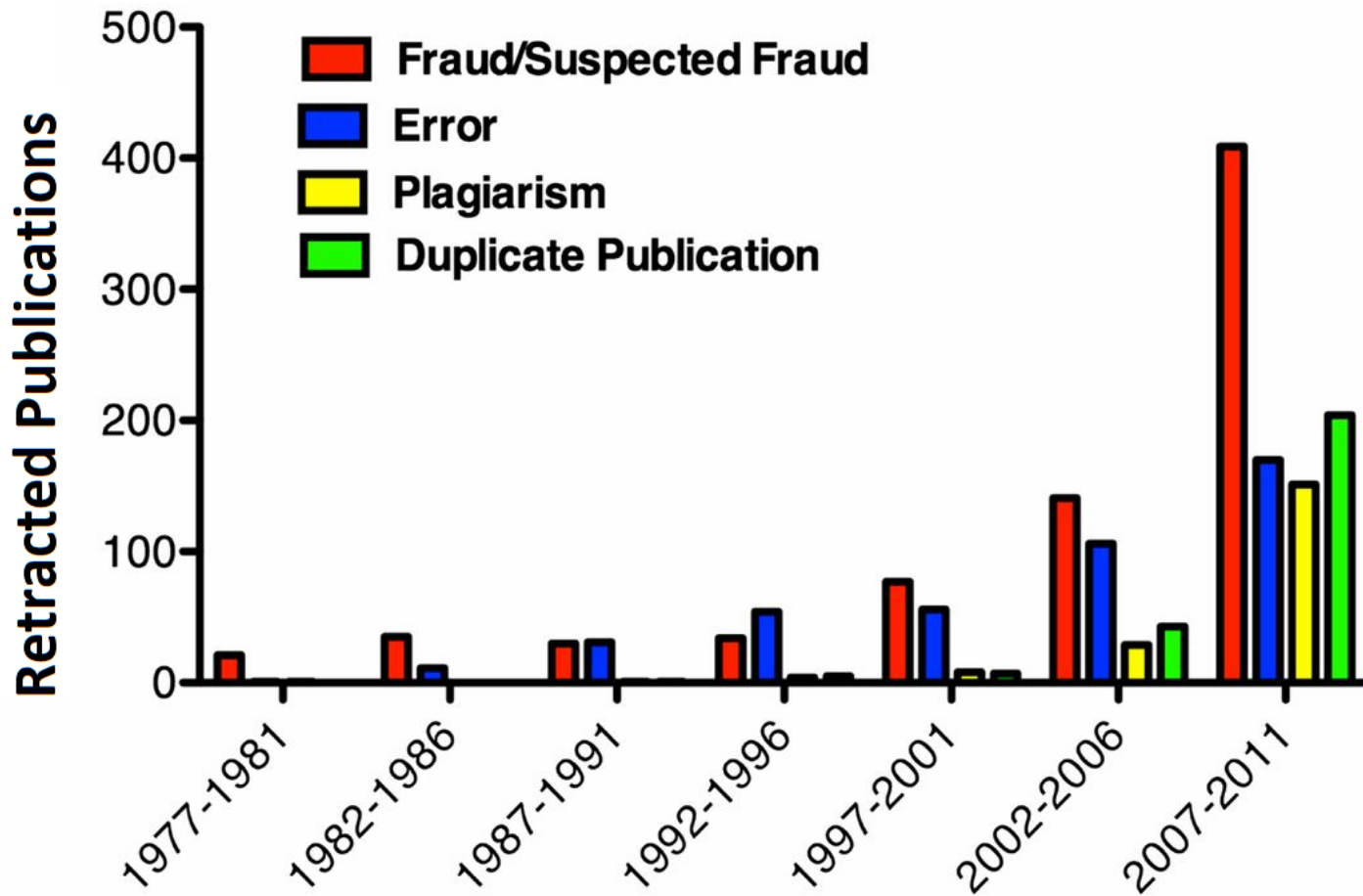
IS THERE A REPRODUCIBILITY CRISIS?



More than 70% of researchers have tried and failed to reproduce another scientist's experiments, and more than half have failed to reproduce their own experiments.

Main reason?

>> Selective reporting, e.g. "cherry-picking" data to support a hypothesis

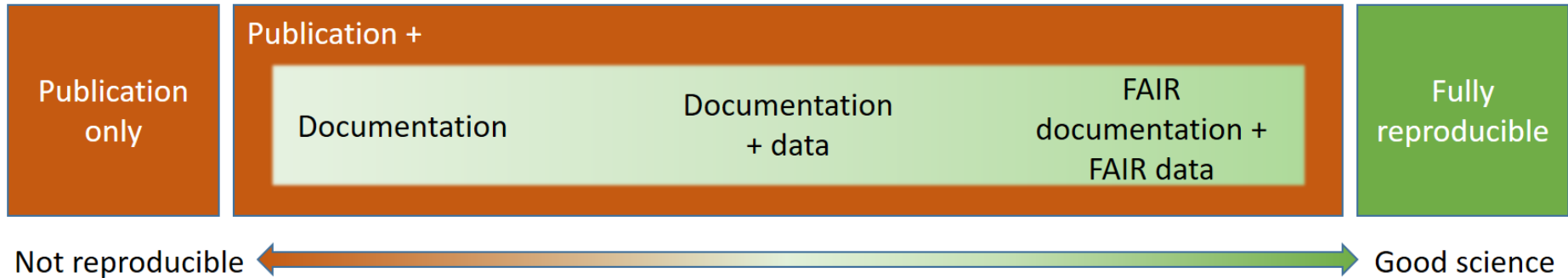


Ferric et al. (2012)

What do we need to make research more reproducible?

Short answer: Good management and sharing of research data

Reproducibility Spectrum of Research Results



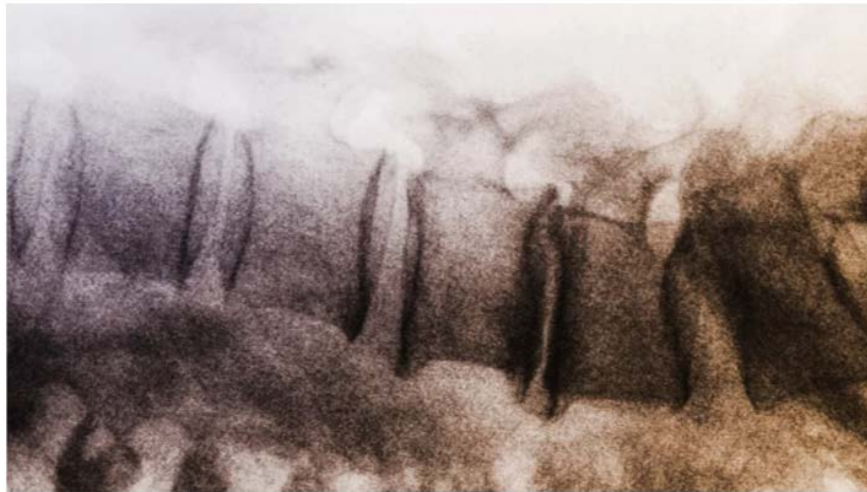
Adapted from Peng (2011)

Future Re-use of Data

10.14.15

The Latest Medical Breakthrough In Spinal Cord Injuries Was Made By A Computer Program

New software sifts through the information gathered in long forgotten studies and finds new avenues for researchers to pursue—like a new advance in treating spinal injuries.



[ALL IMAGES: ALPHA ZYNIISM VIA SHUTTERSTOCK]

Lindsay (2015)

Meta analysis of data, included a lot of unpublished data which had been considered useless.

Finding: “a previously unknown relationship between the long-term recovery of spinal cord injury victims and high blood pressure during their initial surgeries.”

“[T]he finding raises several interesting questions—notably whether scientists should publish their raw data for posterity and whether their time and funding would be better spent poring through old experiments than conducting new ones.”

What do we need to make research data re-usable?

Short answer (again): Good data management and sharing

In other words: Data need to be FAIR

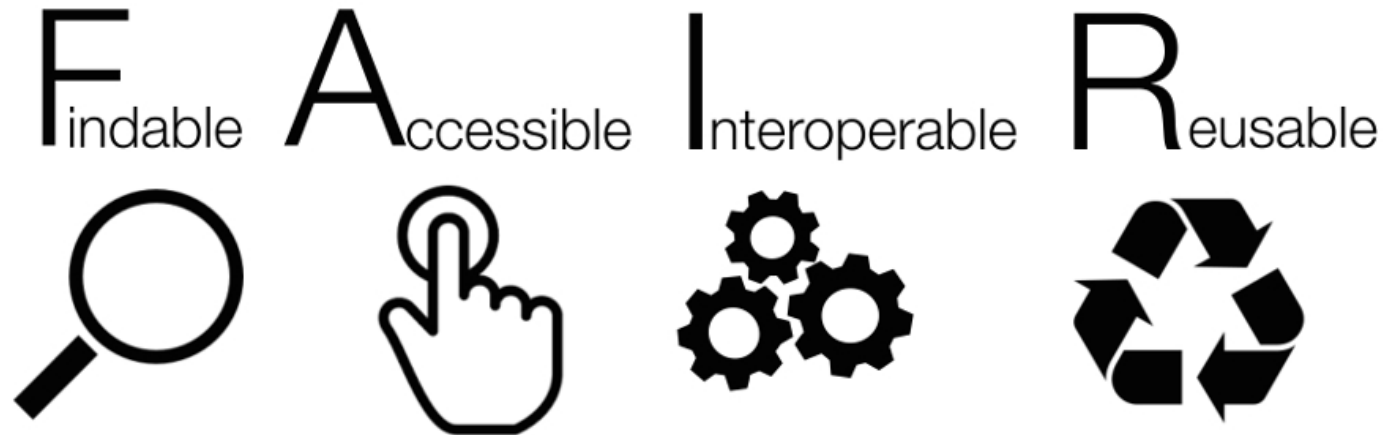


Image credit: Sungya Pundir, Wikimedia Commons CC BY-SA 4.0

FAIR data

- Persistent identifier (DOI)
- Good metadata
- Indexed

Findable

- Well-defined & open protocols
- Adequate authentication

Accessible

- Documentation
- Clear user license

Re-usable

- Open metadata & file formats
- Standard metadata
- Consistent vocabulary

Inter-operable

Requirements and expectations

- Many advantages of good management and sharing of research data
- Funders and publishers have requirements or expectations regarding RDM

Funders

EU, Horizon 2020

As open as possible, as closed
as necessary

H2020 Programme: Guidelines on Open
Access to Scientific Publications and Research
Data in Horizon 2020

Norges forskningsråd

Åpen som standard

Tilgjengeliggjøring av forskningsdata, Norges
forskningsråd

Ministry of Education and Research

Grunnprinsipp 1:

Forskningsdata skal være så åpne som
mulig, så lukkede som nødvendig.

Grunnprinsipp 2:

Forskningsdata bør håndteres og
tilrettelegges slik at verdiene i dataene
kan utnyttes best mulig.

Grunnprinsipp 3:

Beslutninger om arkivering og
tilrettelegging av forskningsdata må tas
i forskerfellesskapene.

Nasjonal strategi for tilgjengeliggjøring og deling av
forskningsdata

Publishers

<https://www.sciencemag.org/authors/science-journals-editorial-policies>

Science

Data and Materials Availability after Publication

After publication, all data and materials necessary to understand, assess, and extend the conclusions of the manuscript must be available to any reader of a *Science* Journal. [...]

Unreasonable restrictions on data, code, or material availability may preclude publication.

Problems in obtaining access to published data are taken seriously by the *Science* Journals and can be reported at science_data@aaas.org.



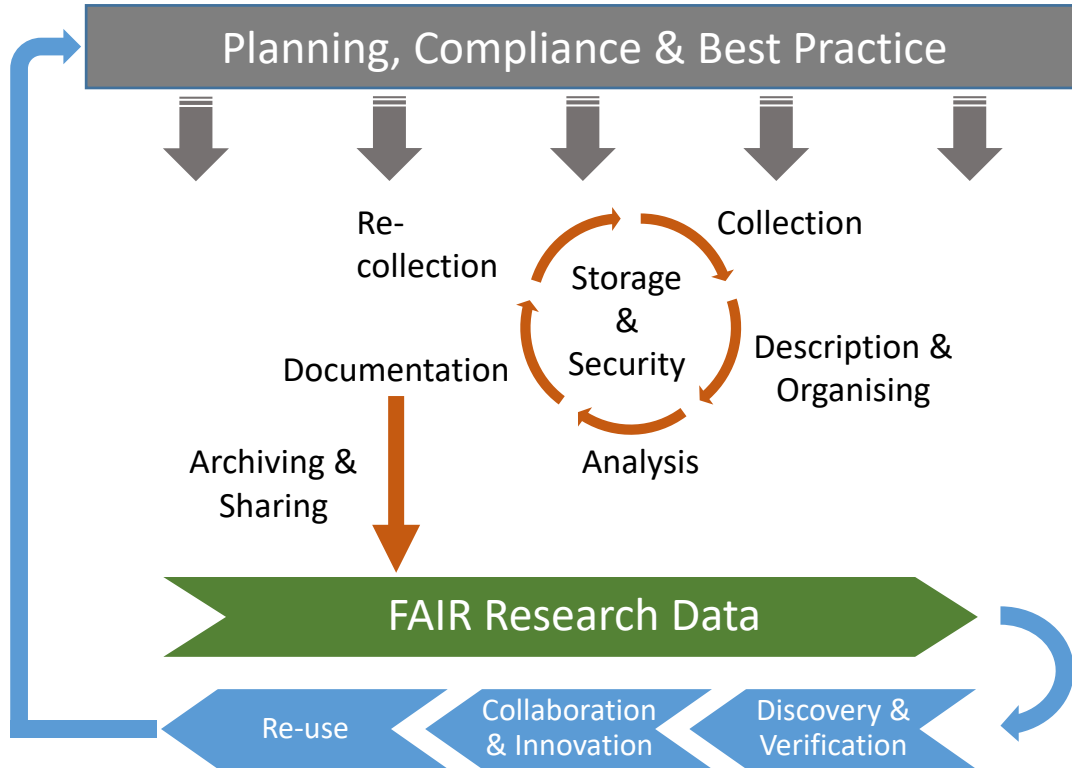
Data Availability

The data underlying the findings of research published in PLOS journals must be made publicly available. Rare exceptions may apply and must be agreed to with the Editor. Data should be de-identified where appropriate (see Human Subjects and Animal Research).

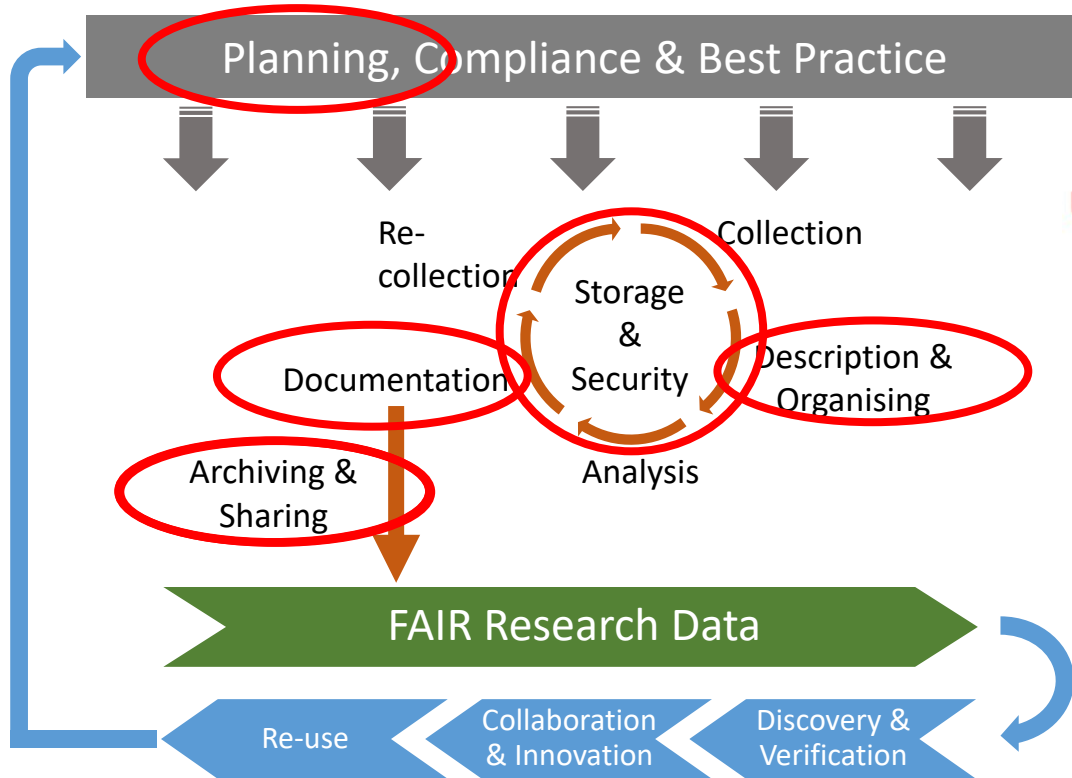
<https://www.plos.org/editorial-publishing-policies>

How does UiT support FAIR data?

Research Data Lifecycle



Where does UiT offer support?



Data Management Plan for employees at UiT

Note: This template is under development. Therefore, it is important that you download the template from [Forskingsdataportalen UiT](https://forskingsdataportalen.uit.no) every time you create a new data management plan.

For feedback you may send the completed plan to research-data@support.uit.no.

DMP template



<https://www.bigbi.co.uk/solutions.com/>

Storage services

UiT Open Research Data

support transparent and reproducible research

Archive for open data

Deposit

- Prepare your data for depositing
- Deposit your data
- Refer to your data

User Guides



Submit for Review

Curation

Best Practice

Compliance

UiT Research Data Portal
Training and Guidance

Principles and guidelines for research data management at UiT + Action Plan



What are these support services about?

PRINCIPLES AND GUIDELINES

for research data management at UiT

2. Ownership of data

As a general rule, UiT owns all research data produced by employees at UiT, in accordance with the *Regulations for securing and management of work results at UiT*. This also applies to employed PhD candidates and researchers on temporary contracts.

4. Responsibilities

Researcher responsibilities

- 4.2 The researcher shall write a data management plan in an early phase of the project and preferably within six months of the start of the project.
- 4.3 The researcher shall ensure that the research data is securely stored, backed up, and archived, in accordance with the *Information security management system at UiT*, either at the home institution or in other suitable and reliable repositories that safeguard UiT's continued use of the data.

PRINCIPLES AND GUIDELINES

for research data management at UiT

- 4.4 The researcher shall make the research data openly available for future use by all relevant users, providing this is not prevented by any legal, ethical, security, or commercial reasons.
- 4.5 The research data shall be made openly accessible as early as possible.
- 4.6 Research data shall be equipped with standardised metadata that enable other researchers to search for and use the data. The metadata shall be in accordance with international standards or de facto standards, and provide a description of the data content for future use. Research data that cannot be made openly accessible shall also be equipped with equivalent metadata that may be included in discovery systems, and used for administrative purposes.
- 4.7 The research data shall be equipped with licenses for access, reuse, and dissemination. These licenses should be internationally recognised and set as few limitations as possible regarding access to, reuse, and dissemination of the data. The researcher must ensure that licenses and applicable conditions for the use or sharing of third party data are complied with.

PRINCIPLES AND GUIDELINES

for research data management at UiT

The university's responsibilities

- 4.10 UiT shall offer guidance and support in the development of data management plans.
- 4.11 UiT shall offer basic services for processing, storing, as well as archiving of research data, either centrally at the home institution or in other suitable, quality assured infrastructure for
- 4.13 UiT shall facilitate that research data is made openly accessible for use as early as possible and at the lowest possible cost.
- 4.14 UiT shall offer guidance and support to set licenses for access, reuse, and dissemination of research data.
- 4.15 UiT shall offer guidance and support to researchers who have third party agreements and contracts.
- 4.16 All training, support and guidance UiT offers shall aspire to meet best practice.

UiT Research Data Portal

- ✓ One single entrance point to information about research data management at UiT
- ✓ Covering all phases of the research data lifecycle
- ✓ Overview of support services and other information
- ✓ Contact information
- ✓ In Norwegian and English

UiT Research Data Portal



The Research Data Portal UiT will provide information about storage, handling, archiving, access and sharing of research data for UiT students and researchers.

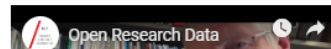
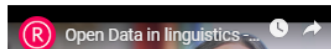
Good management and sharing of research data is a key principle for UiT The Arctic University of Norway, rooted in the value of increased transparency and quality of research, and in our social mission as a broad-based research university in the North.

It is of great value for future research that research data are archived and made available to others.

Applications for research funding must contain a description of how data will be managed after collection and archived after the research is completed.

It is also becoming more common for journals to set requirements relating to accessibility of the research data on which the articles they publish are based.

About the UiT Research Data Portal	+
Principles and guidelines for research data management at UiT	+
Education and training	+
Plan your work with research data	+
Working with your research data	+
Archiving and sharing your research data	+
Research ethics and personal data protection	+
Access to research data at UiT	+
Frequently asked questions - FAQ	+



EVENTS:

29. OCTOBER 2018
[Hvordan strukturere og dokumentere forskningsdata \(Skype\)](#)

29. OCTOBER 2018
[Lagring av forskningsdata \(Skype\)](#)

30. OCTOBER 2018
[Hvordan dele forskningsdata \(Skype\)](#)

30. OCTOBER 2018
[Hvordan søke og sitere forskningsdata \(Skype\)](#)

[SEE ALL EVENTS](#)

Contact: research-data@support.uit.no

 Denne siden på norsk

Quick links:

- [Template for data management plans for UiT employees](#)
- [Principles and guidelines for research data management at UiT](#)

External links:

- [The Research Council of Norway - The RCN policy on Open Access to Research Data](#)
- [Research Data in EU and Horizon 2020](#)
- [Norwegian Center for Research Data \(NSD\)](#)
- [Digital Curation Center \(UK\)](#)
- [The Fair Data Principles](#)



NEW PH.D'S FROM MUNIN

Gry Hoem:
[Triggering mechanisms in the molecular pathogenesis of FXTAS](#)
31 Oct 2018

Gro-Hilde Ulriksen:

Opplæring i håndtering av forskningsdata @ UiT

Research data management training @ UiT

1. Introductory course:

- Research data management at UiT

2. Thematic courses:

- How to structure and document
- How to store
- How to share
- How to search and cite
- Agreements
- Licenses
- Data management plan

3. Special topics:

- Personal / sensitive data (with NSD)

All courses (1-3):

- Class room/Skype
- Norwegian/English

4. Course series for PhD students:

Take control of your PhD journey (in English)

- Rewarding (2 ECTS)
- Module about RDM

5. Course for PhD supervisors

- Will soon be mandatory

<http://site.uit.no/rdmtraining/>

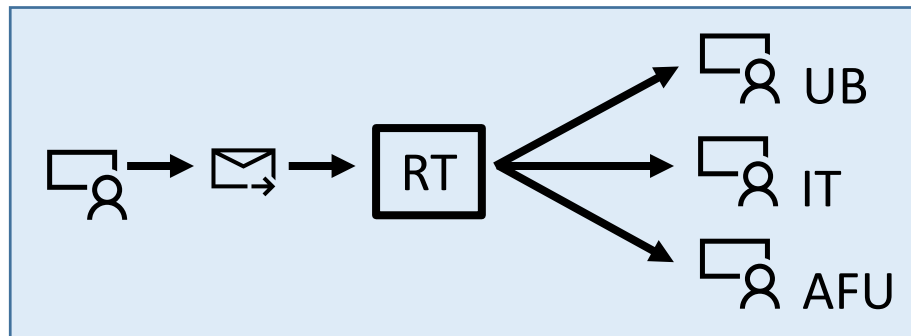
- Overview of training courses
- Open access to training materials

Guidance

- Email
- Data management plans
- Senior Data Project
- Meeting researchers

Single email address

research-data@support.uit.no



Distribute to the Library (UB), IT department or Department of Research and Development (AFU), depending on the issue

Request Tracker (RT)

#	Emne	Innmeldar	Oppretta	Sist oppdatert av	Sist oppdatert	Kø	Eigar	Status	#
1029470	spørsmål om å sende lyddata til transkribering		3 weeks ago	tkv015	7 timar ago	UB-Research-Data*	hna001	open	Ta
1027164	Forskningsdata og spørsmål knytt til GDPR		4 weeks ago	ros001	4 weeks ago	UB-Research-Data*	ros001	open	Ta

Data management plans (DMPs)

- We point our researchers to different templates, depending on the type of project:
 - Projects subject to notification to NSD: NSD template
 - Projects funded by EU, Horizon 2020: DMPonline
 - All other projects: UiT template
- Researchers can submit their plans for review.
- We check compliance with requirements and best practice recommendations.

Senior Data Project

Three years project ([link](#))

Helping senior researchers approaching retirement in preparing their research data for archiving

Covering all scientific disciplines at UiT

Focus in 2017:

- Faculty of Biosciences, Fisheries and Economics
- Tromsø Museum

Focus in 2018:

- Faculty of Humanities, Social Sciences and Education
- Faculty of Science and Technology

1 Subject Librarian (50%) and 1 consultant (50%)



Meeting researchers

Enquiries from researchers, research groups, heads of departments ++, often after courses:

- Course or presentation at department or research group
- Support and collaboration on larger projects
- ...



Storage services

TERMINALSERVERTJENESTEN

Brukerveiledning - Innlogging



ResearchData

Søk om lagringsplass for dine
forskningsdata



**TJENESTER FOR SENSITIVE
DATA (TSD)**

Informasjon - Be om tilgang



NIRD

National Infrastructure for
Research Data



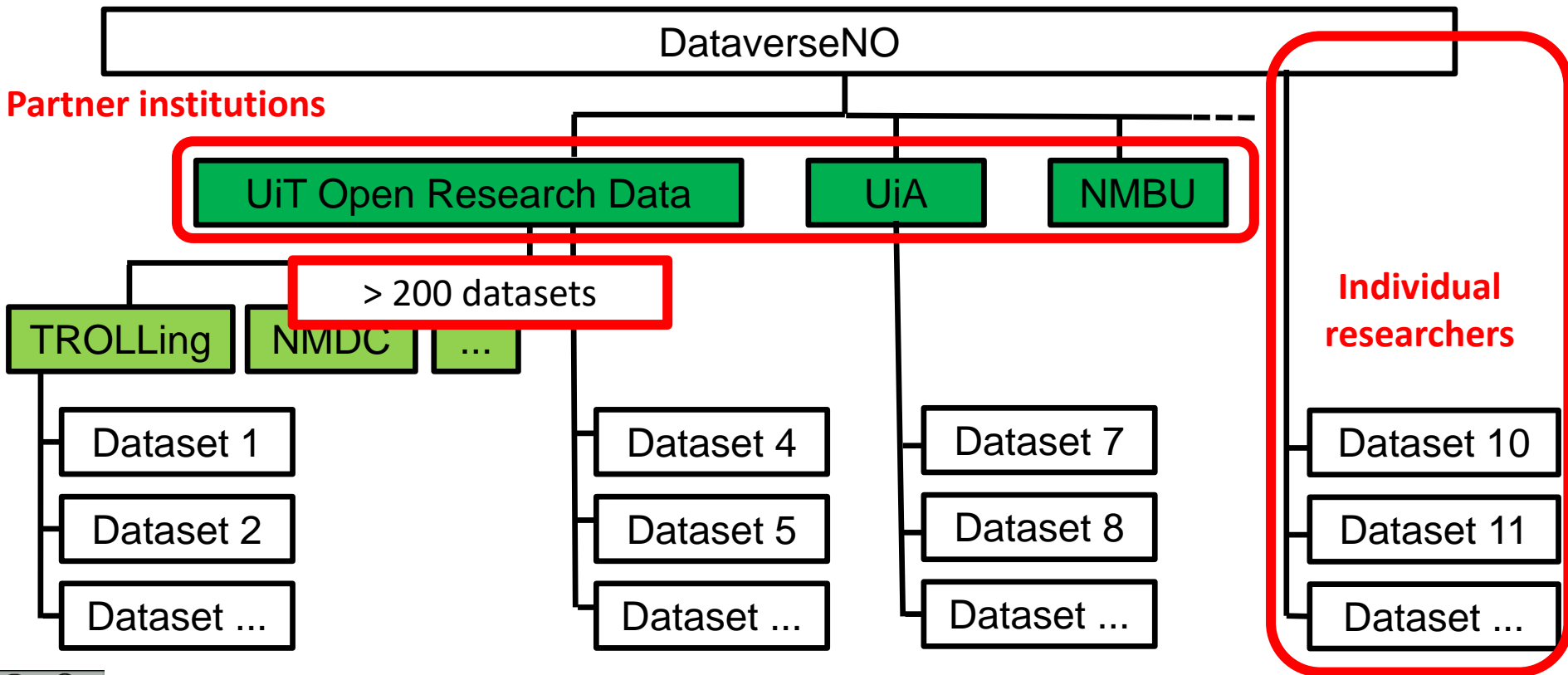
Archive services

- Requirements from funders or publisher?
- Personal / sensitive data? →
- Well established domain specific archive
- Open data?
→ Institutional archive



UiT Open Research Data
support transparent and reproducible research

UiT Open Research Data under the DataverseNO umbrella



Common user guides for DataverseNO



Deposit Guide

info.dataverse.no

★
About

★
Deposit

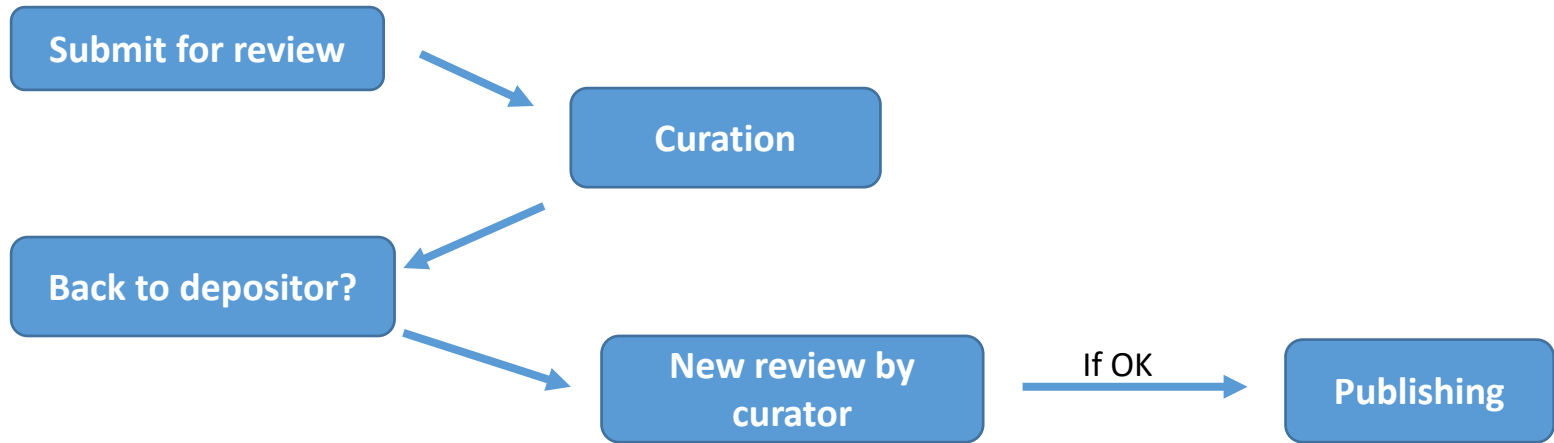
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Admin

🏠 > Deposit >

Deposit

- [Prepare your data for depositing](#)
- [Deposit your data](#)
 - [DataverseNO Deposit Agreement](#)
- [Refer to your data](#)

Publishing data in UiT Open Research Data



Data curation

- Carried out by subject librarians at the UiT Library
- Adequate metadata?
- Appropriate keywords?
- Can the files be opened?
- Consistent and understandable file names?
- Persistent / preferred file formats?
- Is the dataset documented in a ReadMe file?
- Clear user license (default CC0)?

Support for curators: Curator Guide

info.dataverse.no

★
About

★
Deposit

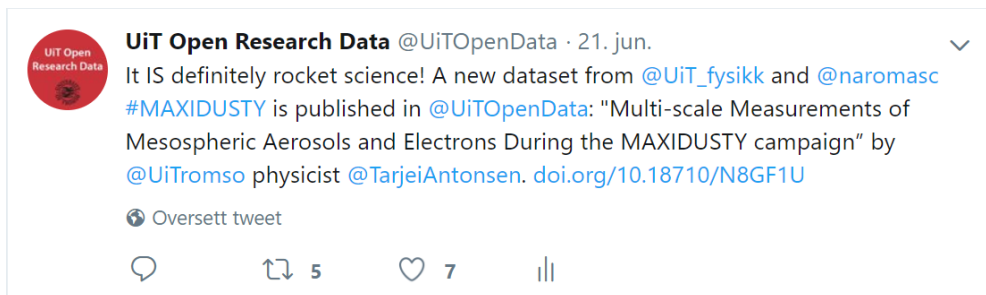
★
Admin

🏠 > Admin > Curator Guide >

Curator Guide

- ✓ **Curation of datasets**
- ✓ **Reading access to unpublished dataset**
- ✓ **Reading access to locked file(s) in published dataset**
- ✓ **Edit access to a dataset**
- ✓ **Moving datasets**
- ✓ **Deleting published datasets**

Promoting good RDM and data sharing



European Open Data Champions

Inspiration from influential European academics and information professionals on Open Data

Name: Prof Laura A. Janda

Position: Professor of Russian Linguistics

Institution: UiT The Arctic University of Norway

Country: Norway

More info: [Home Page](#); [Other](#)

ORCID ID: <http://orcid.org/0000-0001-5047-1909>

"By sharing our data, and doing this in an open, public, community fashion, we can determine the best practices for our field"



UiT

**NORGES
ARKTISKE
UNIVERSITET**

Open Science and Research Data Management at UiT The Arctic University of Norway

A presentation at the Open Science Toolbox Start-up
Workshop, NTNU, 26 October 2018

Senior Advisor Stein Høydalsvik

Senior Research Librarian Philipp Konzett



References:

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