DMP workshop for Life Science Projects, 7-8 June 2021

# Data Management Resources and Regulations at NTNU

**Eivind Coward**

K. G. Jebsen Center for Genetic Epidemiology / Bioinformatics Core Facility / ELIXIR Norway
NTNU

Slides kindly provided by **Ingrid Heggland**, NTNU University Library / Research Data

# Research Data @NTNU

- Central support service for research data
  - Coordinated by the library in close collaboration with IT
  - Support for data management troughout the data lifecycle

https://innsida.ntnu.no/researchdata

research-data@ntnu.no

# Open Science at NTNU

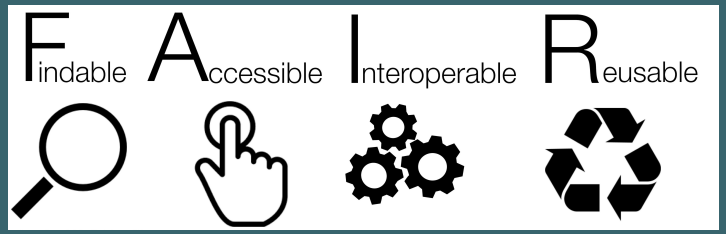
OPEN SCIENCE NTNU

- New Open Science policy from 2021
  - Open Access (publications) from 2014
  - (Open) research data from 2018

- NTNU University Library point of contact and coordination of Open Science
  - Support, tools and guidance
  - Collaboration with other departments, faculties and institutes

# Research data at NTNU: policy

- **As open as possible, as closed as necessary**
- **Data should be:**




- All research projects should have a DMP
- NTNU guarantees for access to basic infrastructure and support
- The researcher is responsible for the quality and handling of data

Open Data

# Research Data

FOR EMPLOYEES

## What is Research Data @NTNU?

- a central support service for research data
- a service for researchers and students at NTNU
- a contact point for faculties and institutes at NTNU
- a collaboration between the University Library and NTNU IT


### NTNU requires good research data management

Research data at NTNU should be managed according to best practice, and be as open as possible, as stated in the Policy and Plan of action for research data.

### Data Management Plan (DMP)

All research projects at NTNU should develop a Data Management Plan describing how the research data will be managed.

### NTNU Open Research Data

Research data at NTNU can be published and shared openly in our repository for research data, NTNU Open Research Data.

## Data Management

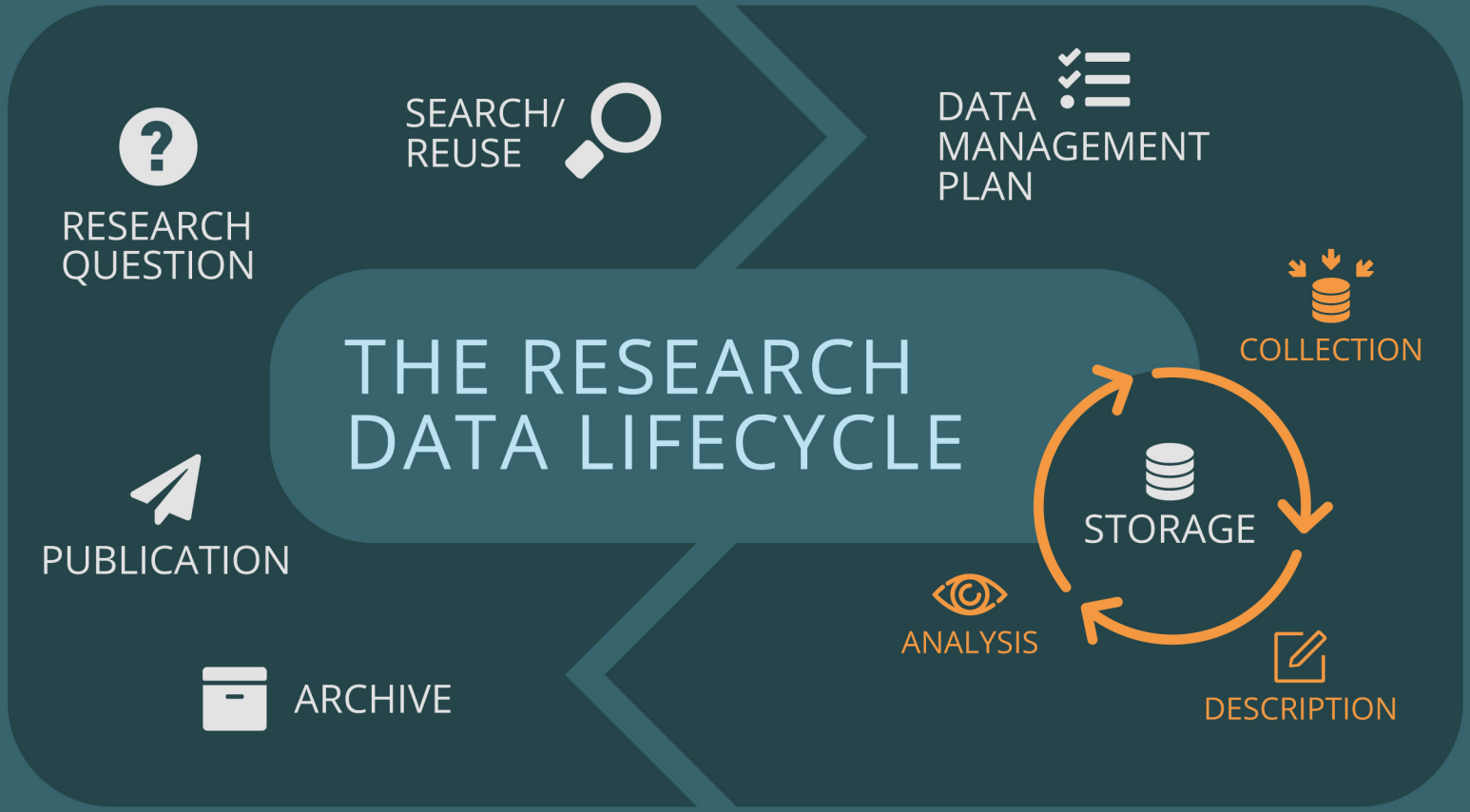
- Search for data
- Data Management Plan (DMP) and planning
- Storage and active management of research data
- Archiving and publishing of research data
- Training, guidance and support

### Useful resources

- ELIXIR Norway - support and tools for life science research
- Course in data management on FOSTER e-learning platform (EU project)
- MOOC on Open Science from TUDelft
- PhD on Track
- Mantra Research Data Management Training
- MOOC on Research Data Management and Sharing from Coursera
- Cessda Data Management Expert Guide

### Contact

If you can not find the information you are looking for, please send an email to research-data@ntnu.no




NTNU | Norwegian University of Science and Technology

# What should a DMP include?

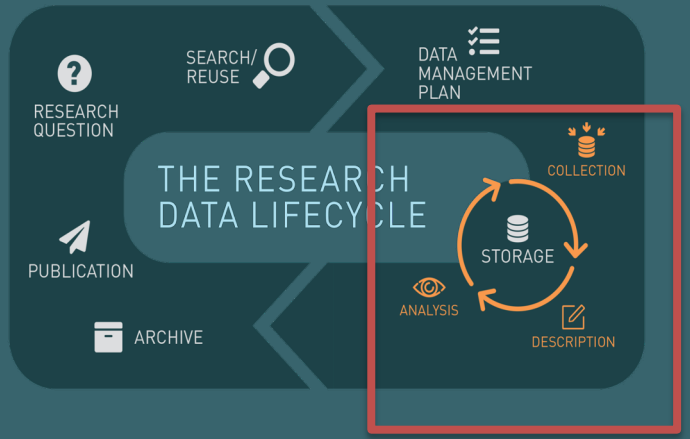
- Data collection, methods
- Description of data, formats, organising, metadata
- Storing, archiving, backup, sharing
- Intellectual rights, licenses, privacy, ethics
- Costs, responsibility


- Guidelines, tools and support at NTNU:
  - https://innsida.ntnu.no/wiki/-/wiki/English/Data+management+plan

# Active storage of data

- Storage during the project period
  - Confidentiality, Integrity, Accessibility (CIA), data volume etc…

- Storage guide for NTNU:
  - https://innsida.ntnu.no/wiki/-/wiki/Norsk/Lagringsguide



# Information security and sensitive data

- Sensitive (research) data
  - Data requiring protection: Confidential data
    - Personal information
    - Trade secrets
    - Commercial purposes, patents etc
    - Etc…


- Research collecting personal data:
  - Projects at NTNU must be reported to NSD
    - Exception: Healt research at the

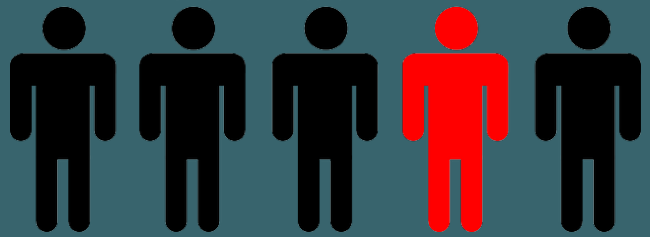
https://innsida.ntnu.no/wiki/-/wiki/English/Collection+of+personal+data+for+research+projects

# WHAT IS PERSONAL DATA?

## Any information that identifies a physical person, directly or indirectly

Examples:

- Name, ID-number, address, telephone number etc.
- IP-adress, location information
- Also images, sound, video, email, voice



## Special categories of personal data:

- Race or ethnic origin
- Political opinions, religion, philosofical beliefs, union memebership
- Sexual orientation and activity
- Health data
- Criminal offence data
- Genetic and biometric data (where used for identification purposes), examples include fingerprints, DNA, voice, gait etc.

# Storage: Information Security

- All information (including research data) should be classified, to help choose the correct storage
  - Open, Internal, Confidential, Strictly confidential


https://innsida.ntnu.no/wiki/-/wiki/Norsk/Informasjonsklassifisering+-+informasjonssikkerhet

STORAGE

# Storage guide

## What physical storage media can I use?

Physical storage media refers to local storage and processing of information, for instance your computer (Mac, PC or hard drive).

| Information classification: | Public | Internal | Confidential | Highly confidential |
|---|---|---|---|---|
| Privately owned laptop | **OK** | NO | NO | NO |
| Privately owned desktop | **OK** | NO | NO | NO |
| NTNU-acquired desktop (self-administered) | **OK** | **OK** | NO | NO |
| NTNU-acquired laptop (self-administered) | **OK** | **OK** | NO | NO |
| NTNU-administered desktop – encrypted | **OK** | **OK** | **OK** | NO |
| NTNU-administerd laptop – encrypted | **OK** | **OK** | **OK** | NO |
| USB drive/external hard drive | **OK** | **OK** | NO | NO |
| USB drive/external hard drive - encrypted | **OK** | **OK** | **OK**(1) | **OK**(2) |

*(1) The data must be stored in encrypted form on the storage media and the password kept in a separate location. Read more about how to encrypt files.*

*(2) The entire drive/disc must be encrypted with a strong password (read more on how to make passwords). The password must be kept in a separate location.*

## Storage services and collaboration platforms

Storage services and collaboration platforms refer to cloud services or servers at NTNU.
Click on the different solutions for more information.

| Information classification: | Public | Internal | Confidential | Highly confidential |
|---|---|---|---|---|
| Personal cloud storage (dropbox, google drive ++) | **OK** | NO | NO | NO |
| NTNU Home directory («M:-drive») | **OK** | **OK** | **OK** | **OK (1)** |
| NTNU Shared directory (T:-drive, group, project, etc.) | **OK** | **OK** | NO | NO |
| NTNU-administered Dropbox (contact Orakel) | **OK** | **OK** | NO | NO |
| NTNU-Box | **OK** | **OK** | NO | NO |
| Office 365 (SharePoint, Teams, Onedrive) | **OK** | **OK** | **OK**(1) | NO |
| NTNU NICE-1 - Storage solution with added security | **OK** | **OK** | **OK** | **OK (1)** |
| HUNT Cloud | **OK** | **OK** | **OK** | **OK (2)** |
| UiO TSD | **OK** | **OK** | **OK** | **OK** |
| NIRD (tidligere Norstore, driftes av Uninett Sigma2) | **OK** | **OK** | NO | NO |

*(1) Data must be encrypted. Read more on how to encrypt O365 files using AIP here or how to encrypt other files with 7-Zip*

*(2) Risk level is assesed on individual basis, see the HUNT information page for more information.*

https://innsida.ntnu.no/wiki/-/wiki/English/Data+storage+guide

STORAGE

# Storage guide

## Storage services and collaboration platforms #

Storage services and collaboration platforms refer to cloud services or servers at NTNU.
Click on the different solutions for more information.

| Information classification: | Public | Internal | Confidential | Highly confidential |
|---|---|---|---|---|
| Personal cloud storage (dropbox, google drive ++) | **OK** | NO | NO | NO |
| NTNU Home directory («M:-drive») | **OK** | **OK** | **OK** | **OK (1)** |
| NTNU Shared directory (T:-drive, group, project, etc.) | **OK** | **OK** | NO | NO |
| NTNU-administered Dropbox (contact Orakel) | **OK** | **OK** | NO | NO |
| NTNU-Box | **OK** | **OK** | NO | NO |
| Office 365 (SharePoint, Teams, Onedrive) | **OK** | **OK** | **OK**(1) | NO |
| NTNU NICE-1 - Storage solution with added security | **OK** | **OK** | **OK** | **OK (1)** |
| HUNT Cloud | **OK** | **OK** | **OK** | **OK (2)** |
| UiO TSD | **OK** | **OK** | **OK** | **OK** |
| NIRD (tidligere Norstore, driftes av Uninett Sigma2) | **OK** | **OK** | NO | NO |

*(1) Data must be encrypted. Read more on how to encrypt O365 files using AIP here or how to encrypt other files with 7-Zip*

*(2) Risk level is assesed on individual basis, see the HUNT information page for more information.*

STORAGE

# HUNT Cloud

- Secure solution for data storage and computing with sensitive data
- Developed from 2013 to provide secure storage, access control and a flexible analysis platform for health data in HUNT (Helseundersøkelsen i Nord-Trøndelag)
- Services provided to researchers all over Norway
- ISO certification

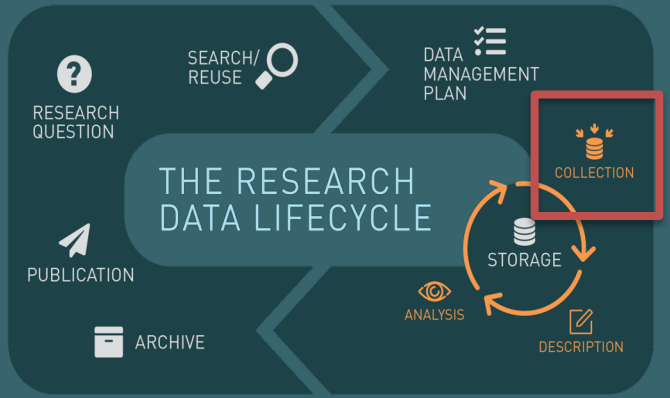
https://www.ntnu.no/hunt/huntcloud

# Data collection

This guide is an overview of tools available at NTNU for collection of data, focused on collection of personal data, sound and video recordings. The overview will help you make correct choices for managing data in your research or student project.

Interview with recording of sound and/or video #

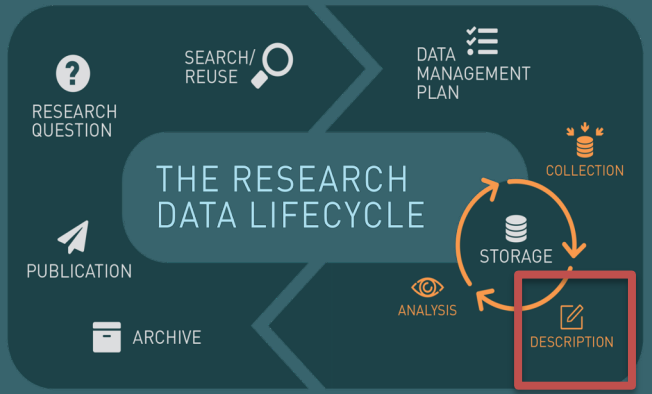
| Information classification: | Public | Internal | Confidential | Highly Confidential |
|---|---|---|---|---|
| Zoom | **OK (1)** | **OK (1)** | NO | NO |
| Teams | **OK (1)** | **OK (1)** | NO | NO |
| Nettskjema-Diktafon App (X) | **OK** | **OK** | **OK (2)** | **OK (2)** |
| External dictaphone | **OK** | **OK** | **OK** | NO (3) |




https://innsida.ntnu.no/wiki/-/wiki/English/Data+collection

# Describing data

- Make sure to keep all information that is necessary to understand and (re)use the data (both for others and your future self)
- **Metadata** and documentation should be developed during the project (much more work to do after the fact)
- Use standards where possible
- Name, structure and version files clearly and distinctly

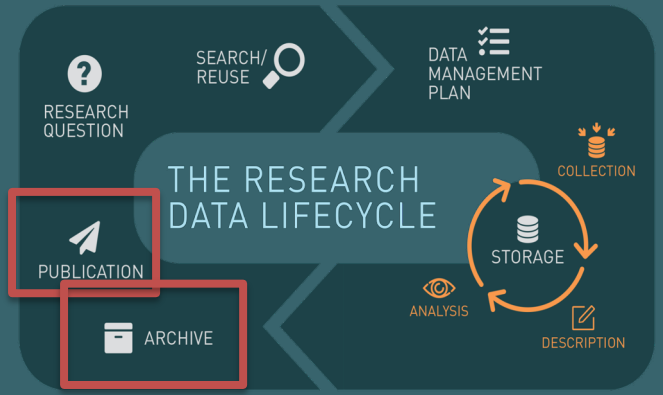


# Archive and/or publish data

- Archiving can be closed (restricted) or open (publishing)
  - Check requirements (funders, journal, institution)
  - Verifiability and reuse of data

- More info and advice:

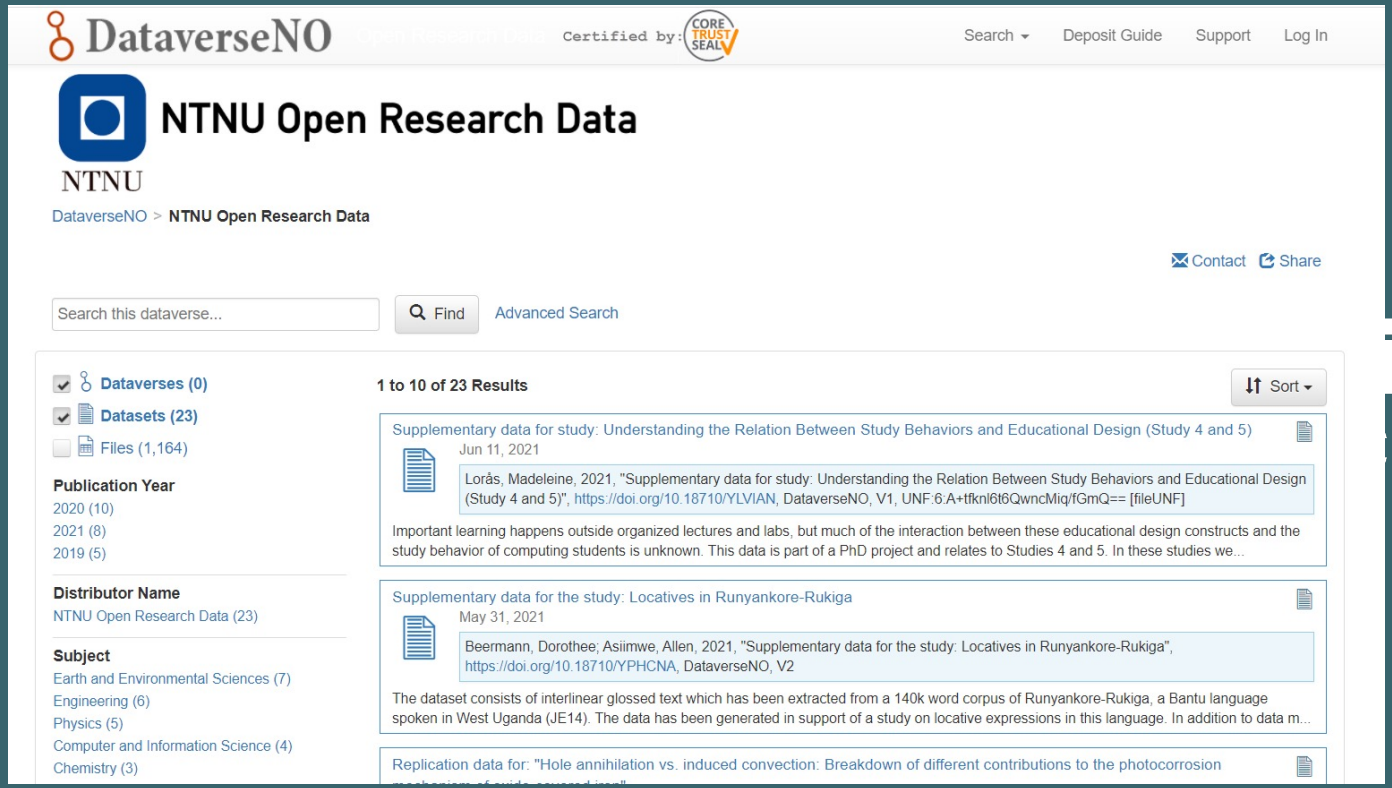
https://innsida.ntnu.no/wiki/-/wiki/Norsk/Arkivere+forskningsdata



# Open data: How to publish?

- Data repository (recommended)
  - Subject specific
  - Institutional
    - NTNU Open Research Data (DataverseNO), BIRD
  - General
- Publishing in data journal (often in addition to repository)
  - Example: Scientific Data (Springer Nature)
- Supplement to paper or in publisher/journal repository
- Blog, ResearchGate, etc (preferably not…)

ARCHIVING




HIVING

https://dataverse.no/dataverse/ntnu

# IPR: Intellectual Property Rights

- In general, NTNU retains rights to research results generated using NTNU's resources
- In commissioned/sponsored research, a formal contract regulates IPR
  - Academic freedom is still ensured
    - "NTNU's employees may not enter into agreements with third parties that violate the university's academic freedom and responsibility to make results from NTNU available so that they can be used as widely as possible in society and industry."

# IPR and external partners

- Be aware of formal agreements/contracts
  - Confidentiality!
- Plan ahead (if possible)
  - Example: patents
- Resources and help:
  - https://innsida.ntnu.no/wiki/-/wiki/English/Intellectual+property+rights
  - https://innsida.ntnu.no/kommersialisering
  - https://www.ntnutto.no/patenting-and-ip/

# NTNU IT – Research Support

## RSE

Research Software Engineering

## LAB

Laboratory Instrumentation and Support

## Mime

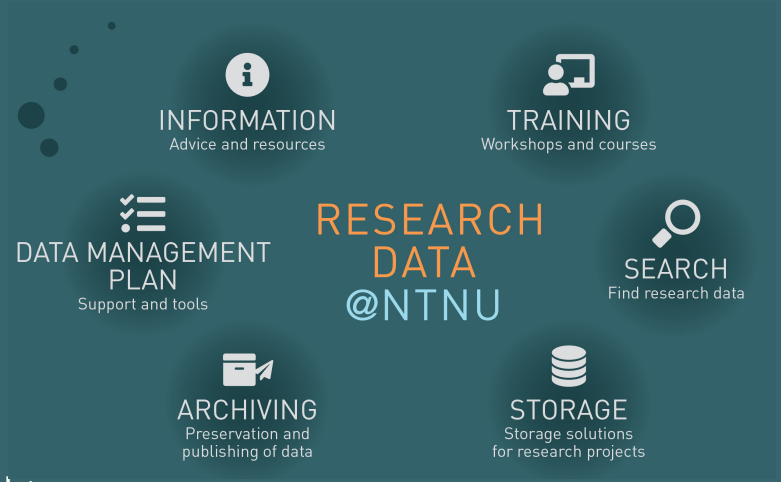
IT support for PhD students

## HPC

High Performance Computing

# Resources and support

- NTNU's pages about publishing: https://innsida.ntnu.no/publisering
- NTNU's pages about research data: https://innsida.ntnu.no/researchdata




- Questions (or feedback)?
  - Help from the library, in particular related to the publishing fund: publishing@ub.ntnu.no
  - Help with research data, from the library and IT: research-data@ntnu.no