NTNU Open Data
NTNU's policy for open research data 2018-2025

Background

Making research data accessible and reusable contributes to increased reproducibility and transparency in science and may prevent the same data from being collected several times. Open data also create the basis for new and innovative digital services that have the potential to be of great societal value. It is reasonable to expect publicly funded research to be useful for society. Thus, there is considerable national and international awareness regarding open research data.

The Royal Norwegian Ministry of Education and Research is responsible for developing a strategy to make research data accessible. The European Commission and the Research Council of Norway already require a plan describing how to make data from research projects accessible. In the years to come, the demands for data from publicly funded research to be open will increase.

NTNU's *Publishing Policy 2014-2020* states that "knowledge is to be available". The *Action Plan for Open Access to NTNU's research publications 2016-2020* is part of the follow-up of the publishing policy and requires NTNU to investigate a model for safe storage and sharing of open research data. In 2016-2017, a pre-project, anchored in the University Research Committee (FU) at NTNU, looked at international and national trends and documented needs and practice at NTNU[1].

Follow-up of policy

Central and local action plans with goals and measures to follow up this policy must be prepared.

Expenses related to basic management, storage and publishing of research data should typically be covered by the individual research projects and will usually be considered a legitimate cost in applications for funding. Open access to research data should normally entail free use externally. Covering actual costs related to special preparation of data sets and similar should still be possible.

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[1] [Forprosjekt "Åpen tilgang til forskningsdata"]

NTNU's policy for open research data

Defining research data

Research data can be both digital and analogue. Examples include documentation of procedures, collected interview data, large response data sets, continuous data streams from sensors, archive material and sensitive personal data, but also physical objects or digital representations of these. The Norwegian Research Council distinguishes between *secondary data* (or *input data*) and *output data.*[2] Secondary data are information that already exists in different formats and that can be an entry point to or the basis of new research. Output data are data generated through research and can later serve as secondary data for other research.

NTNU's policy does not automatically include all forms of data collected or produced in relation to the research activities of employees, but primarily output data from research projects that are fully or partially publicly funded, externally or internally. This type of research data should be stored and managed in a secure manner and made accessible to others.

NTNU's policy for open research data is based on the definition by the Norwegian Research Council:

The term "research data" is defined in this policy to mean the registration/recording/reporting of numerical scores, textual records, images and sounds that are generated by or arise during research projects.

Overarching principles

NTNU's policy for open research data is based on the following principles:

1. NTNU's research data should be openly accessible by default. Data are exempt when required due to safety, privacy, legal or commercial concerns.

2. Research data should be made openly accessible as early as possible in the research process, without coming in conflict with the researcher's use, quality control and possible commercial use of the data.

3. Research data published from NTNU must be clearly labelled with provenance and ownership.

4. Research data must be findable, accessible and usable without system restrictions and should be reusable by others. NTNU adheres to the FAIR principles for research data management and will use research data licences required by these.[3]

5. Research data must be stored with the aim of being accessible in the long term. Classification and metadata must as far as possible follow international standards, and formats must be updated over time if necessary. Data management throughout the life cycle must be in accordance with current legislation and requirements from funding agencies, governments and relevant stakeholders.

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[2] https://www.forskningsradet.no/en/Article/Open_access_to_research_data/1240958527698
[3] FAIR: Findable, Accessible, Interoperable, Re-usable; https://www.force11.org/group/fairgroup/fairprinciples

6. NTNU will make sure that researchers have access to suitable services and infrastructure for secure storage and sharing of research data. NTNU will contribute to the development of appropriate national and international solutions within the field.

7. The individual researcher is responsible for managing research data in accordance with applicable regulations, principles and requirements. The procedures must be documented in a data management plan.

Ownership of research data

As for scientific publications, the main principle for research data is that the institution retains the intellectual property rights and the author/researcher the copyright. Normally NTNU does not own research data produced by students or guest researchers, unless this has been agreed on, for example through externally funded projects.

As a rule, NTNU owns all research data collected and processed by personnel employed or contracted at the institution. This gives NTNU the right to openly publish the material, but does not preclude

- the researcher from claiming an embargo (delayed open publishing) on the content, but normally not for the metadata.
- NTNU from refraining to use its right to open publishing of the material. However, this does not affect the ownership of the data. If the researcher still publishes the material openly through a publisher, the publisher must also give NTNU the right to share this material openly.

Issues regarding rights and ownership must be clarified and secured in an agreement in cases where data are used for commercial and patenting purposes. Agreements must also be made in situations where NTNU's own researchers utilize other's data.

Data management

A. Data security and access

All research projects must have a Data Management Plan (DMP) fulfilling the requirements of the funding bodies.

Research data must be stored in secure archives, either centrally at NTNU or in national or international archives approved by NTNU.

Research data must be stored/archived as long as they are of value to the researcher and a broader research community, and as long as indicated by the funding agency, patents, embargo demands, legislation or other governmental requirements. The minimum storage period for research data is three (3) years after publishing, but in most cases, data will be stored past the minimal requirement of three years. If research data are to be deleted or destroyed, due either to expiration of the agreed period for storage or to legal concerns, this must be done in compliance with applicable regulations and research ethics guidelines as well as requirements from the funding agency and collaborating partners, and with a special focus on confidentiality and security.

A plan for management of research data considered to have a long-term value should be developed. Data identified as of no long-term value should also have a plan for management and possible destruction after a certain time.

Research data must be correctly classified regarding security requirements and be accompanied by standardized, categorized metadata. Metadata should follow international standards and include a description of the data quality. Often a data set will be clearly defined, but in some cases, it is necessary to specify what an instance of a data set includes.

In general, research data should be made accessible as early as possible, after a period of right of first use for the researchers themselves. Data used as the basis of scientific publications should preferably be made accessible at the time of publication. Other data that may be of interest for other research should be made accessible within a reasonable amount of time, and never later than three years after the project has ended.

Research data should be accessible to an international research community. NTNU is committed to universal design of net-based services. The use of open standards and preparation of research data in line with requirements for universal design is a prerequisite.

When research is supported via a contract or agreement which includes specific provisions on ownership, storage and access to research data, these will have precedence.

B. Sensitive data

Sensitive research data are customarily exempt from the principle of open access when required by considerations regarding safety, privacy, legal or commercial issues. These research data must still be accompanied by metadata that can be included in retrieval systems, both to make a closed data set discoverable and to provide contact information to the manager of the data set.

Some types of data should not be stored, but destroyed in accordance with relevant agreements and regulations after the end of the use phase.

NTNU provides further guidelines regarding management of research data that include sensitive and confidential information, and which archives are suitable for storage. Non-sensitive data which should be open should still be distributed through controlled channels and not be vulnerable to theft (violation of IPR), inappropriate copying (licence violations) or alteration (breach of integrity).

Roles and responsibilities

Researcher

The individual researcher is responsible for data management in accordance with NTNU's principles. This implies a duty to develop a Data Management Plan (DMP) early in the research project and no later than six (6) months after start-up, as well as making data available to the institution after completion.

In projects with several contributing researchers and shared research data, the project manager is responsible for developing a DMP and making sure that data from the project is archived and made accessible in accordance with NTNU's principles and current guidelines.

Faculty

The faculty must acquaint the researchers with NTNU's policy for open research data and the associated guidelines, as well as current regulations in relation to data management. The faculty also must make sure that students and research fellows receive the necessary training.

The faculty is responsible for developing further data management guidelines within disciplines where this is needed.

The faculty must have procedures for archiving of research data when employees leave or change jobs, so that the material will be accessible in an appropriate manner.

NTNU

NTNU must make sure that researchers have access to secure and sound solutions for archiving and sharing research data and must offer information and guidance about these solutions.

NTNU is responsible for developing institutional regulations and guidelines for research data management, and for starting necessary joint initiatives within the field.

NTNU University Library (UB) has the operative responsibility for the long-term stewardship of the institutional research data. Our institutional archive, NTNU Open, should be used when appropriate, but UB can also approve, recommend and use other national and international solutions for archiving and sharing.