



Norwegian Ministry
of Education and Research

Strategy

National strategy on access to and sharing of research data



Summary

1 Research data should be shared and reused more widely

The digital transformation is bringing change to the world of research. Work processes are being redesigned and new ways of improving research quality and increasing knowledge-intensive value creation are emerging. More open access to, and wider reuse of, research data promotes scientific advancement in that it equips individual researchers with a larger pool of data, facilitates replication and quality assurance of previous research findings, and prevents re-funding of the same type of data collection multiple times. A stronger culture of sharing enables students to work with interesting, relevant data and to contribute to research as well. Better access to research data can boost innovation and value creation by enabling actors outside the research community to find new areas of application. It can contribute to smarter service development in the public sector, new opportunities for business activity and expanded job creation. Another benefit that is important in its own right is that greater transparency and insight into research can help to increase confidence in researchers and research findings.

In order to make research data more available and increase reuse, researchers need the competence and tools to manage data in a sound, secure manner throughout all steps of the research process. They must be able to find – and obtain access to – relevant data among the existing sources. They must have the infrastructure needed for collecting, analysing, archiving and sharing data, as well as access to clear information about this infrastructure. The infrastructure in place must lay a foundation for cooperation and knowledge-sharing that extends across countries and sectors. It should be easy for international researchers to find Norwegian data sets. User groups in the business or public sectors will have some needs that coincide with the needs of researchers. In order to achieve a strong culture of openness combined with essential security safeguards, for instance with regard to protection of personal data, it is important to direct adequate resources and attention towards ethical, legal and administrative considerations as well as the technical aspects of data management.

This strategy will enhance research quality and increase knowledge-intensive value-creation by establishing basic principles for the management and curation

of publicly funded research data, by clarifying what is expected of research institutions, and by presenting measures that create a better foundation for building on previous research efforts and compiling research data in new ways.

In Part I, the strategy deals with increased accessibility to and reuse of publicly funded research data. It describes the state of affairs on which the policy is based and the current situation at the research institutions. Three basic principles relating to the accessibility and sharing of research data are set out. The most important barriers to access and reuse of research data and measures to resolve these are described. The needs for a change in the underlying culture, increased competence, data management plans, better technical infrastructure, improved national coordination among subject fields and sustainable funding models are addressed.

Part II of the strategy deals with researchers' access to public data that comprise an important source of data for research purposes. The issue is discussed at a general level with special focus on two key areas. The first concerns researcher access to registry data under Statistics Norway. The second involves researcher access to data from health registries, biobanks and health surveys.

This strategy does not cover research data from privately funded research and development activity. According to the basic principles (see Section 3), in cases where private actors are granted public funding for research or cooperate with public research institutes, universities, university colleges or hospitals on research and innovation projects that are publicly funded, it is possible to restrict access to data to protect trade secrets or when this is necessary in connection with commercialisation of results. There may nonetheless be circumstances in which private actors find it desirable to share their data. Considerations relating to efficiency and replicability will also be pertinent for private actors, who may find it constructive to spread their risk by collaborating on investments in the data to be shared, and competing for the use of the data rather than for access to it. It will be up to private actors to assess this from case to case. The strategy's principles, instruments and follow-up may thus be of relevance to private actors as well. Instruments such as information, standards and tools for open data may be made freely available and may also be of interest to private actors. Last, but not least, it is of benefit to the business sector that publicly funded research data are more openly available, that research results are as solid as possible, and that public research funding is used efficiently.

The strategy is part of the follow-up to Meld. St. 27 (2015–2016), *Digital agenda for Norway – ICT for a simpler everyday life and increased productivity* (abridged version available in English). In the aim of increasing accessibility to open, public data, the Storting decided that strategies or action plans should be drawn up for the following five socio-economically valuable sectors: culture, public expenditure, transport and communications, maps and property (geodata) and research.

Developments are taking place at a rapid pace and there is still much to learn about how increased digitalisation and data sharing will affect research and the conditions underlying it. This strategy therefore applies for the period from 2018 to 2021. It will then be evaluated appropriately before being re-approved in keeping with new experience and understanding.

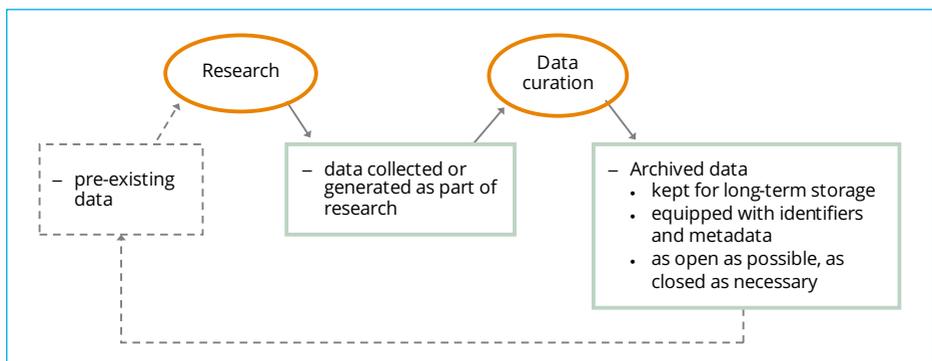
This English translation includes the summary of the basic principles, general expectations and measures set out in the strategy. More detailed discussion and clarification is provided in the subsequent sections of the strategy, which have not been translated.

2 What does “publicly funded research data” mean?

In this strategy, *publicly funded research data* refers to:

- (i) data collected or generated for use for or as a result of publicly funded research, and
- (ii) data underpinning publications that are the result of publicly funded research, regardless of the source of the data.

Figure 1 Data life cycle in research



Public data refers to all information produced, collected or paid for by public sector entities. Such data may be openly available or restricted. Much of this data has not been collected primarily for the sake of research, but may still represent an important source of data for research.

3 Basic principles

This strategy sets out the following three basic principles for publicly funded research data in Norway:

Basic principle 1: Research data must be as open as possible, as closed as necessary. When no legitimate considerations prevent it, research data must be made openly accessible. Considerations relating to security, protection of personal privacy, intellectual property rights, trade secrets, etc., will entail in some cases that research data cannot be made fully openly accessible. Some of this research data may nonetheless be made accessible to specific users according to defined access criteria. The need for restrictions may also change over time, allowing the data to be made accessible at a later point.

Basic principle 2: Research data should be managed and curated to take full advantage of their potential. Research data must be adapted for searchability and retrieval and, when relevant, structured for genuine reusability. This means, among other things, that the data must be equipped with reliable meta-data and published under a license that clearly specifies how the data can be used. Access to research data must be provided at the lowest possible cost and under the same terms for all user groups fulfilling the criteria for access.

Basic principle 3: Decisions concerning archiving and management of research data must be taken within the research community. Researchers are part of a wider community – locally together with the heads of their institutions, nationally and internationally – where good research practice, including data sharing, is constantly evolving. Preparing research data for reuse is resource-intensive, so it is important to conduct suitable cost-benefit analyses on which data will generate sufficient added value to justify use of the necessary resources. The authorities cannot issue guidelines for which data to archive and the extent to which such data are to be adapted for reuse. Assessments and decisions of this type must be taken by those most directly responsible for the data. However, there is little doubt that making research data accessible for reuse will also benefit the government administration and the business sector greatly.

Research groups must keep this in mind when weighing the costs of organising reusable data against the benefits.

4 Government expectations and measures

Change in culture, incentives and competence

If researchers are to succeed in increasing access to and sharing research data, effective support services, information, training and incentives must be introduced to remove some of the barriers. To support a desired change towards giving greater recognition and credit to data management and curation activities in connection with applications for research funding and positions, steps must be taken to make data sets citable and work with research data more visible.

The Government expects:

- the research institutions to work to raise the competency of their staff and students by providing training in data management and reuse of data;
- the research institutions to consider taking part in national and Nordic cooperation with a view to establishing educational programmes for research data management and stewardship (core data experts and the like).

The Government will:

- ask the new agency for higher education and research services to disseminate information on current requirements, regulatory frameworks and resources related to the management of research data;
- assign the new agency for higher education and research services the responsibility for coordinating efforts to assess how national research data archives can best provide researchers and students with training in their respective services;
- ask the new agency for higher education and research services to establish a foundation for citation of data sets and crediting of data work by issuing permanent digital object identifiers (DOI) and digital researcher IDs (ORCID);
- ask the new agency for higher education and research services to compile statistics that clearly display the establishment and reuse of research data.

Stipulations to draw up data management plans

Researchers are facing stricter requirements and greater expectations concerning research data management from scientific journals, research funders and their own institutions. As from 2017, open access to research data and

stipulations to draw up data management plans have been made standard requirements under the EU Framework Programme for Research and Innovation, Horizon 2020. In its updated policy for open access to research data, the Research Council of Norway requires projects that generate data to provide data management plans at the contract phase. The individual research institutions will need to have good procedures and guidelines in place to meet these requirements.

The Government expects:

- the research institutions to develop procedures for (i) approving data management plans and (ii) determining whether a given research project is of a type for which an individual data management plan is not necessary or suitable.

The Government will:

- ask the Research Council of Norway to widely publicise its requirement regarding provision of a data management plan approved by the research institution at the time a contract is signed, when this is relevant;
- ask the Research Council of Norway to continue to play an active national and international role in promoting access to and reuse of research data;
- ask the research institutions to draw up guidelines on research data that are to be stored, made accessible and adapted for access and to indicate which solutions should be implemented for management of different data sets;
- ask the new agency for higher education and research services to help providers of national research data archive services to align their efforts and, in cooperation with the research institutions, to work to develop solutions for data management plans that are as compatible as possible and comply with international standards.

Better technical adaptation and better national coordination between subject fields

There is a need for greater coordination among providers of national research data archives to ensure that their services are more easily navigable for users. A consolidated overview of information about Norwegian researchers' publications and data sets should be available. Ensuring that research data are retrievable and reusable across different ICT systems will require better technical adaptation and reliable metadata that comply with international standards.

The Government expects:

- research institutions, administrators of research data infrastructure and researchers to work towards standardisation and harmonisation that facilitate sharing and reuse of data in accordance with international standards and best practice in different subject areas (for example, by establishing national, subject field-based communication arenas).

The Government will:

- ask the new agency for higher education and research services to help to design information about national research data archives and services to present these services as an easily navigable whole that is openly accessible to all researchers and research-performing institutions;
- ask the new agency for higher education and research services to take responsibility for drawing up a report on how to implement a national knowledge repository.

Sustainable funding and operation of national research data infrastructure and research data archives

There are a number of potential funding sources for infrastructure for storing and providing access to research data. However, it is not always clear which funding model will be most effective in ensuring long-term, sustainable operations in each individual case. In addition to dedicated funding instruments for establishing infrastructure, there is a need for knowledge on how various revenues and costs associated with working with research data can be combined in effective, sustainable business models.

The Government expects:

- the development of self-service solutions, when feasible, to reduce the costs of operating research data infrastructure by simplifying processes for depositing and accessing research data and metadata.

The Government will:

- continue the National Financing Initiative for Research Infrastructure;
- ask the Research Council of Norway, in cooperation with the new agency for higher education and research services and representatives of the research institutions, to draw up a report and provide advice on sustainable business models for the operation of research data infrastructures and research data archives.

Better framework for the use of public data in research

Data sets such as different types of registry data generated by different public actors may be highly relevant to research. Some of these data sets are open and easily accessible to researchers whereas access to other data sets may be restricted for a variety of reasons. This may be due to technical limitations, data that contain information requiring complete or partial restriction, or costs related to further processing of the data before they can be opened to access. It is an important goal to make it easier for researchers to gain access to this type of data.

The Government will:

- ask public actors to facilitate the reuse of data for research, innovation and value creation when upgrading and developing data storage systems;
- emphasise access to data for research in efforts involving relevant changes in the statutory framework.

Better interplay between public data and research data

Archived, retrievable research data represent a wealth of information that can enhance public administration and thereby generate better services for society. There is a need for broader national coordination to ensure that archive-worthy research data are stored and managed in a manner that maximises the potential benefits to public administration. This will require dialogue between researchers, representatives of the public administration and owners and operators of national infrastructures for the storage of both research and public data.

The Government will:

- consider whether to establish a national forum for the reuse of research data comprising representatives of relevant public sector entities in order to obtain advice on questions concerning coordination, data quality, access control, routines and the funding of national data infrastructure to serve researchers, public administrators, trade and industry and the population at large.

Easier access to data for research purposes from Statistics Norway

One of the tasks of Statistics Norway is to provide information for statistical analysis for research purposes within the framework of protection of personal privacy, statistical confidentiality and other factors. Data from Statistics Norway are used in numerous research projects. It is an objective of this strategy to facilitate access to data for research purposes from Statistics Norway.

The Government expects:

- the research institutions to improve competency in requesting data from Statistics Norway among their own researchers and support personnel.

The Government will:

- examine potential funding models for access to data for research purposes from Statistics Norway that satisfy considerations relating both to efficient use of resources for data access and to the societal benefits of research;
- support training measures for researchers and support personnel under the direction of Statistics Norway;
- consider proposals from the committee reviewing the statistics act and input from the consultative review process with the aim of improving researchers' access to data from Statistics Norway.

Easier, more secure access to health data

Norway has an extensive knowledge base of various types of health data compiled over a long time span through activities carried out by its national health services, among others. The Government's action plan on the follow-up of the Health&Care21 strategy attaches importance to making health data more accessible for research purposes. The health data committee was appointed to provide recommendations for a better, more efficient system for processing health data for statistics, planning, health analyses, quality improvement, research, innovation and business development. The committee recommended specific measures to make access to health data simpler and more secure.

The Government expects:

- those responsible for health registry data management and Statistics Norway to work via the Health Data Programme to facilitate a greater degree of secure, effective data analysis across data sources.

The Government will:

- consider the proposals from the health data committee and input from the consultative review process with a view to establishing a simpler, more secure system for access to health data;
- consider instituting a platform for health analyses, cf. the report commissioned from the Norwegian Directorate of eHealth on the establishment of such a platform.

Published by: Norwegian Ministry of Education and Research

Public institutions may order additional copies from:
Norwegian Government Security and Service Organisation
E-mail: publikasjonsbestilling@dss.dep.no
Internet: www.publikasjoner.dep.no
Telephone: + 47 222 40 000

Publication number: F-4442 E
Cover photo: Colourbox
Print and design: Norwegian Government Security
and Service Organisation 01/2018 – Impression 50

