

NATIONAL POLICY ON OPEN ACCESS TO RESEARCH MATERIALS AND METHODS: POLICY COMPONENT 1 – OPEN ACCESS TO RESEARCH DATA (draft)

Editorial Board:

Mari Elisa Kuusniemi, Susanna Nykyri, Seliina Päällysaho, Tomi Rosti (chair), Anne Sunikka

TABLE OF CONTENTS

- AIMS 3
- INTRODUCTION 3
 - Freedom of Research and the Responsibility of Researchers 3
 - The International Context 4
 - Risks and Threats..... 4
 - Structure and Background 5
 - Implementation and follow-up..... 5
 - Glossary 6
- STRATEGIC PRINCIPLES..... 8
 - Principle 1 8
 - Principle 2..... 8
 - Principle 3 9
- POLICY COMPONENT ON OPEN ACCESS TO RESEARCH DATA..... 10
 - Objectives and Required Actions 10
 - Objective 1 10
 - Objective 2 11
 - Objective 3 12
 - Objective 4 12
 - Objective 5 13
- SOURCES..... 14
- Appendix 1: Actions Timeline 2021–2025 16
- Appendix 2: Members of the Working Group 18

AIMS

Research materials and methods are as open as possible and as closed as necessary. Materials are managed appropriately in order to achieve the FAIR principles. Research methods and materials, including research data, are recognised as independent research outputs.

INTRODUCTION

This policy applies to research materials and methods as well as open access to the same.

On a general level, open research materials and methods improve the possibilities for verifying research and promote re-use of existing materials and methods. Openness makes it possible to increase global equality since collected materials and applied methods are made available to researchers worldwide, thus enhancing research activities and the emergence of new innovations. However, open materials also involve important ethical and legal issues that researchers need to be aware of.

Freedom of Research and the Responsibility of Researchers

This policy is the result of cooperation within the Finnish research community and thus a shared vision for the direction of open access to research materials and methods. Its aim is to achieve openness in a way that supports and increases the freedom of the researcher and their ability to share research-based knowledge. Researchers' task is to conduct the best quality research, which in turn includes responsible management of research materials and methods. A repository is selected for research materials and methods that best suits each type of material. Use of open research data and methods may be unrestricted or restricted, and a request for authorisation from the researchers who have collected the material may be required.

The research community must guarantee incentives and structures for opening research materials and methods in a way that supports researchers' work and equality and respects the work they do with regards to producing research materials and methods.

The International Context

This policy has been drawn up using the extensive domestic and international work that is and has been carried out to promote transparency of research materials. Good summaries of this work are, for example, (LERU 2018)¹ and (EC 2018)².

By ensuring that the Finnish policy is in line with international developments, the Finnish research community is involved in creating shared international practices in this rapidly developing and expanding field. Finland has extensive representation in the EOSC (European Open Science Cloud) community, which ensures a European dialogue. The Finnish research community is part of a dialogue through which it can acquire good practices and be involved in creating functional solutions.

Risks and Threats

This policy includes identified risks. The opening of research materials and methods is founded on good data management. Implementing good scientific practices and good data management requires resources during the entire life cycle of research materials and methods, which in turn requires a commitment from organisations to maintain these. In addition, researchers are concerned about opening sensitive and confidential research materials and methods. In this context, different degrees of openness should be taken into account, and in some cases it is sufficient to open descriptive data. Opening research data and methods raises legal issues as well as the legal protection of researchers.

Research funders require open research materials and methods, and applicants risk lower levels of funding if the services and expertise necessary for openness are unavailable or insufficient.

¹[LERU \(League of European Research Universities\) 2018: Open Science and its Role in Universities: A Roadmap for Cultural Change](#)

²[European Commission 2018: Turning FAIR into Reality. Final report and action plan from the European Commission expert group on FAIR data](#)

Structure and Background

This policy has been drawn up by the Finnish research community. A working group assembled by the open data expert panel at the Federation of Finnish Learned Societies' Open Science and Research Coordination has been responsible for its progress, and the work has been guided by the Open Science National Steering Group. This policy component supports the [Declaration of Open Science and Research 2020-2025](#).

This policy on open access to research materials and methods consists of strategic principles for the whole policy, as well as policy components that define objectives and measures for each field. The strategic principles define the general conditions for the pursuit of open access to research materials and methods. They spell out important principles for the research community, which must be adhered to in order to achieve openness. The strategic objectives set out in policy components are mainly time-bound goals, and they are accompanied by concrete measures. The changing international environment affects objectives and measures more quickly than principles.

Implementation and follow-up

The Finnish research community as a whole is responsible for implementing The Policy for Open Access to Research Materials and Methods. The Open Science Coordination at the Federation of Finnish Learned Societies oversees its follow-up. The Coordination is also responsible for supporting and promoting continuous discussion in order to achieve the objectives and ensuring that the policy is up-to-date. The policy will be revised in 2024. The mechanisms for following up research materials and methods are still being developed.

Glossary

This glossary has been created with the readability and adequate comprehension of this document in mind. It should not be interpreted as the working group's proposal for concepts, terms and definitions. The vocabulary in this area is different in different disciplines. There is also a great deal of variation in usage in legislation. The terms may even be defined in completely opposite ways in different contexts. Due to the variation among disciplines, a well-established vocabulary will never emerge, and those who work on the subject will have to define the terms as they see fit.

Research material is a resource used by a researcher or group during the research process, i.e. basic scientific research material in digital, analogue or physical form. Research material is a broader concept than research data and covers, for example, source literature (e.g. documents) and samples (e.g. blood samples, mosses).

Research data are research materials that have been collected, observed, measured or created to verify research results. Research data may be in digital, analogue or physical form (e.g. laboratory journals).

Metadata refers to information on the context, content and structure, management and processing of research data and information describing its compilation.³

Open research data means – in this policy component – that research data is findable, available, usable and shareable for other researchers. Open access to research data requires good and responsible data management, but research data does not need to be fully available, and its use may have been restricted through licenses⁴ or may be subject to an appropriate research permit.

Responsible use of research data containing personal, sensitive or confidential information requires that the researcher complies with both legislation and good research ethics. In such cases, however, it is often possible to open descriptive data, i.e. metadata.

Good and responsible management of research data: In this policy component, good management of research data means that research data and related descriptive data (metadata) are “created, preserved and organised in a manner which ensures that data remain accessible and reliable, and data protection and security are maintained over the whole data life cycle”.⁵ Furthermore, good management of research data in this specific context means that

³ [Translated from The Helsinki Term Bank for the Arts and Sciences \(in Finnish\)](#)

⁴ [Ball, A. \(2014\). 'How to License Research Data'. DCC How-to Guides. Edinburgh: Digital Curation Centre.](#)

⁵ [Finnish Social Science Data Archive: Data Management Guidelines](#) (accessed 29.6.2020)

at all stages of the research process, the “as open as possible” principle, the FAIR principles, and the principle of responsibility are taken into account. **Good research data management is a necessary prerequisite for open access.** Good research data management is assessed on the basis of the following perspectives:

1. The principle of **as open as possible, as closed as necessary**⁶ requires that everything that can be made public and reusable is made so. At the same time it requires that data which cannot be made public and distributed is stored securely. Deciding what belongs to the previous and the latter is ultimately a matter for the researcher, with the support of their own organisation. Not opening data always requires justification.
2. **The FAIR principles**⁷ refer to the quality of data in terms of its further use. The goal of the principles is to make research data:
 - Findable,
 - Accessible,
 - Interoperable,
 - Re-usable.

Research data and metadata that comply with the FAIR principles are semantically interoperable, i.e. so well structured, described, tagged, licensed and securely stored that they are machine-findable and -readable. Data fully in line with the FAIR principles is not yet possible in most disciplines because of lacking knowledge and services or the nature of the data.

3. In the context of this policy component, **responsible data management** means:
 - knowledge of and compliance with the principles of the relevant discipline
 - knowledge of and compliance with research ethics
 - knowledge of and compliance with legislation
 - knowledge of and compliance with information security and data/privacy protection

All forms of open materials require responsible management of research data. This in turn requires that research materials, research data and metadata are sustainably managed with information security, privacy, and research ethics in mind. Responsible data management and resulting possibility of open access to research materials are part of good scientific practice.

⁶ [European Commission, DG Research & Innovation \(2016\). Guidelines on Fair Data Management in Horizon 2020.](#)

⁷ [The FAIR-principles](#)

STRATEGIC PRINCIPLES

Principle 1: Research materials are opened only responsibly

Ensuring and following up the implementation of the principle:

- A. Initial review: The Open Science Coordination in coordination with The Finnish National Board on Research Integrity (TENK) will investigate the fulfillment of good scientific practice
- B. Continuous review: The Open Science Coordination will follow up the achievement of good scientific practice in cooperation with The Finnish National Board on Research Integrity (TENK).

Principle 2: Researchers have access to data management infrastructure and services, and they are developed in a researcher-driven manner.

Ensuring and following up the implementation of the principle:

- A. Initial review: During 2021 The Open Science Coordination will, in cooperation with research organisations and service providers, define an appropriate level for research infrastructures and services.
- B. Continuous review: By 2022 The Open Science Coordination will, in cooperation with research organisations, draw up a maturity level survey⁸, which can be used in the organisations' regular self-assessment. The goal of the self-assessment is to develop services and infrastructure. The Ministry of Education and Culture will observe the development of the organisations during the university performance target negotiations.

⁸ [Rans, J and Whyte, A. \(2017\). Using RISE, the Research Infrastructure Self-Evaluation Framework. Digital Curation Centre, Edinburgh.](#)

Principle 3: The researcher's work in promoting good data management practices and opening of research materials is valued in researcher merit criteria

Ensuring and following up the implementation of the principle:

- A. Initial review: By 2022 The Open Science Coordination will issue a recommendation on good practices, on how the promotion of good data management and work on opening research data are taken into account in research work and merit criteria.
- B. Continuous review: The Open Science Coordination will develop, in cooperation with research organisations, indicators and a shared knowledge base which support the implementation of the recommendation. The implementation in research organisations will be observed through regular maturity level surveys.

POLICY COMPONENT ON OPEN ACCESS TO RESEARCH DATA

This national policy component is a signpost for the advancement of open access to research data shared by the Finnish research community.⁹

The policy component on open access to research data primarily concerns data that has been produced within or used as part of a research or development process on or after 1.1.2021; and where

- the researcher is working in or affiliated to a Finnish research organisation or is funded by a Finnish research funder.

or

- a research or development project where the research data is collected or used is located in a Finnish research organisation or is funded by a Finnish research funder.

Objectives and Required Actions

Objective 1: By 2023 all starting research and development projects will have Data Management Plans as part of normal quality management. These Data Management Plans take into account the needs of different scientific disciplines and research life cycles. A well executed Data Management Plan is a prerequisite for open access.

Required Actions

- By 2022, research organisations provide guidelines, practices and training in data management planning for students, researchers and staff.

⁹ Research community is defined according to the *Declaration of Open Science and Research 2020–2025* (2020, 5).

- By 2023, research organisations integrate the design and maintenance of Data Management Plans into research and documentation services at each stage of the material's life cycle.
- By 2023, research organisations ensure that thesis supervisors are able to assess and comment on Data Management Plans.
- By 2023, research organisations support research design in such a way that data management and support costs are taken into account.
- Institutions of higher education include data management in undergraduate, graduate, and postgraduate curricula.

Objective 2: By 2023, research organisations have operating models, through which relevant parties agree on the rights, conditions, and licenses concerning the use of research data. A license specifying sharing and re-use is chosen for all opened research data.

Required Actions

- The Open Science Coordination will launch a review on legal issues in open science no later than 2021, seeking solutions with the Finnish research community and creating national recommendations for contract models.
- By 2022, research organisations have published clear basic principles on the rights and responsibilities related to research data. Advice and guidance are available for special cases.
- By 2022, research funders and organisations will instruct researchers either that research data should have an appropriate license or that social impact should be achieved through commercialisation.
- By 2022, research organisations will, through multi-professional collaboration, provide comprehensive teaching, training and advice on research data rights and open science licences.

Objective 3: Research data produced in research and development projects ending by 2024 have been documented in such a way that it supports re-use, findability, interoperability and availability.

Required Actions

- By 2022, research organisations will introduce support services and incentives for researchers for documenting metadata.
- By 2023, research organisations will provide comprehensive training, support, and skills development on research data documentation for different target groups, taking into account the needs of different disciplines and the life cycle of research. Research organisations will also provide tools for implementing documentation of research data.
- By 2023, research organisations will support research planning in such a way that the costs of documentation of materials can be taken into account.
- By 2023, research organisations will draw up their own quality indicators for good data management based on the national maturity level model for the transparency of research data. The organisations will use these indicators to monitor their progress in good data management.

Objective 4: By 2022, it will be possible to save and store all research data used in the Finnish research community in such a way that the life cycle of research data and good data management is taken into account.

Required actions

- By 2022, Finnish research organisations will analyse existing services for saving, sharing and storing as well as support services, and identify deficiencies related to existing services. The organisations initiate necessary development measures to rectify these deficiencies.
- By 2025, research organisations will, on the basis of the surveys and recommendations mentioned above, produce and provide adequate services and guidance regarding data storage in accordance with the principles of good data management for researchers and research groups.

Objective 5: Organisations support and develop new professional roles and multi-professional cooperation in order to develop education and new services

Required Actions

- The organisations will provide, according to the need of their community and independently or in cooperation, training on good data management for researchers and students at all career stages, teachers, supervisors and support staff by 2022.
- By 2023 necessary professional roles will be described and possible career paths for them will be created. Vocational training will be developed.
- The structure and content of skills and services will be developed in national and international cooperation.

SOURCES

International Sources

- Ball, A. (2014). DCC How-to Guides: How to License Research Data. Digital Curation Centre, Edinburgh. <http://www.dcc.ac.uk/resources/how-guides>
- European Commission (2018): *Turning FAIR into Reality. Final report and action plan from the European Commission expert group on FAIR data.* <https://op.europa.eu/en/publication-detail/-/publication/7769a148-f1f6-11e8-9982-01aa75ed71a1/language-en/format-PDF/source-80611283>
- European Commission (2018): Prompting an EOSC in Practice. Final report and recommendations of the Commission 2nd High Level Expert Group on the European Open Science Cloud. <https://op.europa.eu/en/publication-detail/-/publication/5253a1af-ee10-11e8-b690-01aa75ed71a1>
- European Commission, DG Research & Innovation (2016): *Guidelines on Fair Data Management in Horizon 2020.* https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf
- Directive of the European Parliament and of the Council 2019/1024 on open data and the re-use of public sector information <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019L1024&qid=1596524018997&from=EN>
- FORCE11 Group: *Guiding Principles for Findable, Accessible, Interoperable and Re-usable Data Publishing.* <https://www.force11.org/fairprinciples>
- League of European Research Universities (LERU, 2018): *Open Science and its Role in Universities: A Roadmap for Cultural Change.* <https://www.leru.org/publications/open-science-and-its-role-in-universities-a-roadmap-for-cultural-change>
- Rans, J and Whyte, A. (2017). *Using RISE, the Research Infrastructure Self-Evaluation Framework.* Digital Curation Centre, Edinburgh. www.dcc.ac.uk/resources/how-guides
- RDA FAIR Data Maturity Model Working Group (2020): *FAIR Data Maturity Model: specification and guidelines.* Research Data Alliance. <https://doi.org/10.15497/RDA00045>
- *UK Concordat on Open Research Data (2016):* <https://www.ukri.org/files/legacy/documents/concordatonopenresearchdata-pdf/>

Finnish Sources

- Avointiede.fi (2019): Central policies and publications of the Open Science and Research Initiative: <https://avointiede.fi/en/policies/policies-open-science-and-research-finland/open-science-and-research-initiative>
- Avointiede.fi (2019), *Additional instructions for planning the management of sensitive and confidential data*: <http://doi.org/10.5281/zenodo.3247282>
- Avointiede.fi (2020): Policy for Open Access to Scholarly Publications – National Policy and Executive Plan by the Research Community in Finland 2020–2025. <https://doi.org/10.23847/isbn.9789525995206>
- Finnish Committee for Research Data (2018): *Tracing Data: Data citation roadmap for Finland*. <http://urn.fi/URN:NBN:fi-fe201804106446>
- Fuchs, S. & Kuusniemi, M. E. (2018): *Making a research project understandable - Guide for data documentation*. <http://doi.org/10.5281/zenodo.1914401>
- Parland-von Essen, J., Fält, K., Maalick, Z., Alonen, M., & Gonzalez, E. (2018). *Supporting FAIR data: Categorization of research data as a tool in data management*. *Informaatiotutkimus*, 37(4). <https://doi.org/10.23978/inf.77419>
- Finnish Social Science Data Archive: *Data Management Guidelines*. <https://www.fsd.tuni.fi/aineistonhallinta/fi/>
- UNIFI (2018): *Open Science and Data Action Programme*. https://www.unifi.fi/wp-content/uploads/2019/04/UNIFI_Open_Science_and_Data_Action_Programme.pdf

Appendix 1: Actions Timeline 2021–2025

2021

- A shared specification of the appropriate level for research infrastructures and related services.
- A joint survey on legal issues in open science, solution seeking and recommendations for contractual models.
- Support services and researcher incentives for documentation of metadata
- Analysis of services for saving, sharing, and storing, launch of necessary development measures.

2022

- A shared maturity level survey model as a tool for self-assessment in organisations.
- Shared recommendations for the acknowledgement of work on data management and opening research data as well as related solutions for merit criteria.
- Organisations have comprehensively designed instructions and training for data management and implement them.
- Organisations have clear basic principles for agreements on rights and responsibilities concerning research data.
- Organisations have drawn up guidelines on the licensing or commercialisation of research data.
- Suitable locations for saving and storing research data which takes its life cycle into account and follows good data management.

2023

- Research and development projects have Data Management Plans which take into account the needs of disciplines and the life cycle of research data.

- Organisations have included the preparation and maintenance of Data Management Plans as part of research and service processes.
- Thesis supervisors are able to evaluate and comment on Data Management Plans.
- Research planning includes preparation for the costs of data management and support (including the costs of documentation).
- Organisations have operating models for agreements on research data.
- License selection is implemented for research data that is to be opened.
- Organisations offer comprehensive documentation support, services and tools that take into account the needs of different disciplines and the research life cycle.
- Organisations have prepared quality indicators for data management as part of developing their self-assessment.
- Descriptions of professional roles and creating career paths.
- Development of vocational education and training

2024

- Research data is documented as part of the finalisation process of research and development projects
- Organisations have instructions and adequate support services for researchers and research groups for saving and storing research data (including long-term storage).

Appendix 2: Members of the Working Group

Name	Surname	Organisation
Nina	Edgren-Henrichson	The Society of Swedish Literature in Finland
Pamela	Gustavsson	The Society of Swedish Literature in Finland
Nina	Järviö (secretary -03/2020)	TSV
Meri-Tuulia	Karakainen	University of Turku
Miki	Kallio	University of Oulu
Anu	Kantola	Natural Resources Institute
Liisa	Karlsson	University of Helsinki
Olli-Pekka	Kaurahalme	University of Turku
Joona	Koiranen	Metropolia University of Applied Sciences
Mari Elisa	Kuusniemi	University of Helsinki/Tuuli
Heidi	Laine	CSC
Kristina	Linnovaara	The Society of Swedish Literature in Finland
Riku	Louhimo	Finnish Institute of Occupational Health
Juuso	Marttila	University of Jyväskylä
Juhani	Naskali	University of Turku
Anssi	Neuvonen	VTT
Maria	Niku	The Finnish Literature Society
Susanna	Nykyri	Tampere University
Turkka	Näppilä	Tampere University
Pekka	Orponen (chair -05/2020)	Aalto University & Finnish Committee for Research Data
Seliina	Päällysaho	Seinäjoki University of Applied Sciences
Antti	Pursula	CSC
Maria	Rehbinder	Aalto University
Mari	Riipinen	University of Turku
Sulevi	Riukulehto	Ruralia Institute, University of Helsinki

Name	Surname	Organisation
Tomi	Rosti (chair 05/2020-)	University of Eastern Finland
Matti	Ruuskanen	University of Turku
Toni	Saari	University of Eastern Finland
Jussi	Salmi	University of Turku
Nina-Mari	Salminen	Natural Resources Institute
Hannele	Seppälä	Finnish Education Evaluation Centre
Janne	Seppänen	University of Jyväskylä
Tiina	Sipola	University of Oulu
Anne	Sunikka	Aalto University
Anna	Suorsa	University of Oulu
Ville	Tenhunen	University of Helsinki/Tike
Antti	Tuomi-Nikula	Finnish Institute for Health and Welfare