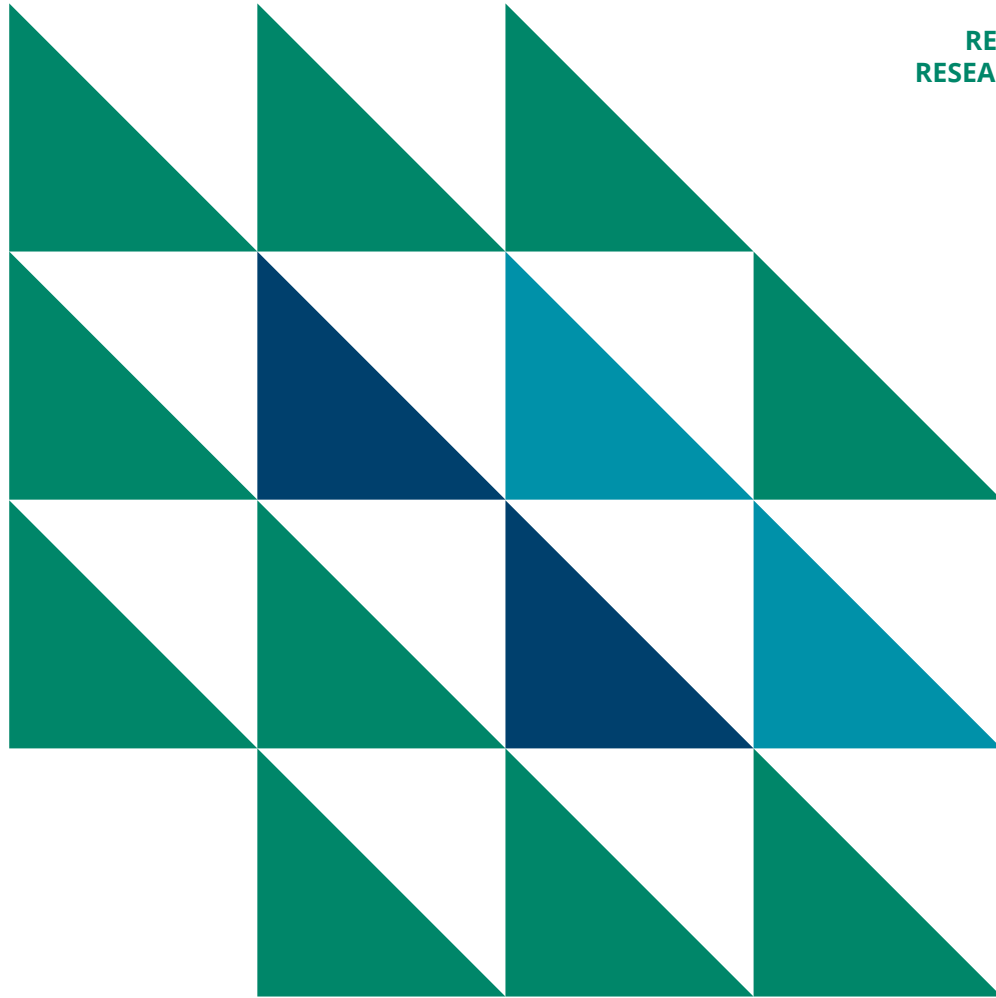# ROADMAP FOR THE FUNDING OF OPEN SCIENCE AND RESEARCH

RESPONSIBLE RESEARCH SERIES

The Responsible Research Series publishes declarations, policies, studies, recommendations and other documents relating to the openness, responsibility and accessibility of science and research. Publications also cover science communication and science-society interactions. The publication series is not a scientific peer-reviewed publication. The series is published by the Committee for Public Information (TJNK) and the Federation of Finnish Learned Societies (TSV).

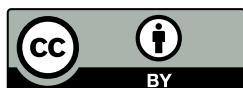## ROADMAP FOR THE FUNDING OF OPEN SCIENCE AND RESEARCH

CONTENTS

1. INTRODUCTION AND EXECUTIVE SUMMARY

OPEN SCIENCE emphasises the principles of diversity, transparency and responsibility in research, which are widely endorsed by the global academic community. Science benefits humanity and society when it is visible, open, public, and accessible.

The National Open Science and Research Steering Group initiated the creation of a roadmap for the funding of open science and research. To implement the roadmap, a working group was appointed in June 2023 for a two-year term. (For members of the working group, see chapter 8.) The roadmap responds to the mandate set by the National Open Science and Research Steering Group:

1. **To draft a funding model based on the Declaration for Open Science and Research, the policy components and the reference architecture**, proposing:

- how existing public funding channels for research and higher education could be adapted to better support openness, either

   a) through requirements for funding eligibility, or

   b) through additional conditions that influence the amount of funding;

- how openness can be taken into account in non-public funding channels (e.g. foundation funding);

- and what additional funding channels are needed to support the openness of science and research alongside existing ones.

2. **To develop an action plan proposing:**

- steps to implement the funding model;

- possible legislative changes required to implement the funding model;

- and actions by which the organisations represented in the working group can promote open science and research within their own budgets.

The roadmap is based on the guiding principles and commitments outlined in the Declaration for Open Science and Research 2025–2030, as well as the policy components and their objectives and actions that clarify the Declaration. The achievement of the objectives of the policy components in Finnish research organisations is supported and verified through a national monitoring process for open science and research, conducted every

two years. The new Declaration for the years 2025–2030[1] was approved by the National Open Science and Research Steering Group on 24 March 2025.

The roadmap also takes into account the Open Science and Research Reference Architecture 2024–2030, UNESCO Recommendation on Open Science and its associated guidance on open science funding, as well as the CoARA Agreement on reforming the responsible evaluation of researchers and research (2023)[2].

The aim of the roadmap is to ensure that the actors in the Finnish science and research community have sufficient, clear and interoperable tools and guidance to enable the sustainable implementation of open science and research, and the funding required to support it. The roadmap is grounded in the core values of science and research, such as academic freedom in research and teaching and adherence to good scientific practice. It is particularly guided by the key principles of open science and research, as set out in the Declaration for Open Science and Research 2025–2030. These values and principles underpin all components and recommendations of the roadmap and are essential prerequisites for its responsible implementation.

EXECUTIVE SUMMARY OF THE ROADMAP

The implementation of the roadmap is supported by the following actions:

1. The Ministry of Education and Culture will convene a **strategic group to develop an internationally competitive operational environment for responsible openness in research. This will be done through the vision for higher education and research, the higher education funding model, and permanent operational structures.**

2. Actors in the research community will allocate resources for the **development and maintenance of national infrastructures for openness** in accordance with the relevant recommendation.

3. The Open Science Coordination, the National Library of Finland, and the Finnish University Libraries Network (FUN) will jointly organise a broad discussion for research organisations, research funders, scholarly publishers, and researcher associations on the **allocation of funding for scholarly publishing**. In this discussion, the parties will agree on and define:

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1 The Declaration for Open Science and Research 2025–2030.
2 CoARA Agreement on Reforming Research Assessment (2023)

    a. the principles that individual actors will follow to jointly support diverse, economically sustainable, high-quality, and open scholarly publishing;

    b. the means by which especially those allocating funding for scholarly publishing can collaboratively promote diverse, economically sustainable, high-quality, and open publishing.

4. Research funders will apply the ***Open Science Practices of Research Funders* tool** to promote openness in science and research.

    a. Foundations will implement at minimum the recommendations of level 0 and aim to implement those of level 1.

    b. Public research funders will implement at minimum the recommendations of level 1 and aim to implement those of level 2.

5. Research organisations will follow the ***Recommendation on the Resourcing of Open Science Services and Activities in Research Organisations*** and ensure adequate resources for open science services and activities.

    a. Research organisations will identify and prioritise the most critical support services for openness that require development and resourcing.

    b. Research organisations will enable research, teaching, and other staff to dedicate part of their working time to advancing open science and research.

    c. Research organisations will make use of opportunities to organise open science and research services in collaboration with other organisations.

6. Actors in the research community will make use of the ***Recommendation on Good Practices for Using External Funding in Opening Science and Research*.**

    a. Research organisations and research funders, together with the Open Science Coordination, will jointly develop guidelines and training for researchers, teachers, and support services on collaboration in research and education with companies and other organisations, and on suitable funding mechanisms.

    b. Research organisations, in cooperation with research funders and the Open Science Coordination, will develop communication and training on open science targeted at companies.

c. The Open Science Coordination, in collaboration with the Finnish National Board on Research Integrity (TENK), will prepare model agreements and guidelines on legal and ethical issues related to collaboration with companies.

d. The Open Science Coordination will collect good examples from actors in the research community on the use of external funding to support open research and education.

The implementation and updating of the roadmap will be carried out in accordance with its governance model (see Appendix 1).

2. RECOMMENDATION FOR DEVELOPING THE FUNDING AND STRUCTURES OF HIGHER EDUCATION AND RESEARCH

RECOMMENDATION: **The Ministry of Education and Culture should convene a strategic group to develop an internationally competitive operational environment for responsible openness in research.**

The funding and structures of research and higher education must support the research community in developing towards a jointly defined and desired direction. This direction is regularly shaped for higher education institutions as part of the Ministry of Education and Culture's vision for higher education and research.

To ensure progress in responsible open science, it is essential to create incentives and structures that help the entire research community meet its statutory goals and obligations. The overarching aim should be:

Finland has an internationally competitive operational environment for responsible openness in research.

Without a coordinated operational environment, development is left to the responsibility of individual organisations. As a result, solutions often overlap and are incompatible with one another. This is economically inefficient and impedes the mobility of researchers and research data, while also weakening the appeal of the Finnish research community in the eyes of potential partners.

Sustainable funding and structures are needed to secure a nationally coherent knowledge base and infrastructure, and to ensure open and long-term access to research-based knowledge. These elements enable:

- multilingual and diverse scholarly publishing,
- high-quality and secure management of research data,
- societal impact of research,
- dissemination of research-based knowledge with equal access to lifelong and continuous learning.

In the current international context, in addition to openness, attention must also be paid to *research security* as a factor of international competitiveness, as well as to *responsible research assessment* and the *attractiveness of research as a career path*. This

requires taking into account not only openness, but also broader aspects of responsible science.

Tasks of the strategic group convened by the Ministry of Education and Culture:

To ensure an operational environment for responsible openness in internationally competitive research, it is recommended that a strategic group be formed of experts broadly representing the research community in open science and other areas of responsible science.

The group's **first task** is to consider how to promote responsible openness in the vision for higher education and research and in the funding model.

The **second task** is to design permanent operational structures that form a shared knowledge base and infrastructure for an operational environment supporting responsible openness. These structures must enable the continuous collaborative development of responsible science, wide participation of the research community, and interoperability of practices. This will enable the Finnish research community to respond rapidly to a changing environment.

3. RECOMMENDATION FOR THE DEVELOPMENT AND MAINTENANCE OF NATIONAL OPEN SCIENCE INFRASTRUCTURES

RECOMMENDATION: **The parties responsible for the resourcing and implementation of national open science and research infrastructures shall actively and consistently maintain and develop these infrastructures in a way that meets the needs of the research community and ensures their long-term sustainability.**

Open science and research require supporting infrastructures, such as tools, equipment, networks, databases, datasets, services, or research organisations[3]. The need to support the sustainable and community-driven governance of infrastructures for openness has been recognised in, for example, UNESCO's *Recommendation on Open Science* (2022)[4], the national *Policy Component on Open Access to Research Methods and Infrastructures* (2023)[5], and the *Barcelona Declaration on Open Research Information* (2024)[6].

The purpose of these infrastructures is to facilitate openness in science, research, and learning; promote collaboration in these areas; and strengthen capabilities and expertise for more open research, innovation, and education[7]. Open science infrastructures include, for example, significant scientific instruments and equipment, as well as data resources such as collections, scholarly journals, open publishing platforms, repositories, archives, and research data. These infrastructures may be either virtual or physical[8].

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3   Source: Suomen Akatemia, Tutkimusinfrastruktuurit, https://www.aka.fi/en/research-funding/funding-opportunities2/programmes-and-other-funding-schemes/research-infrastructures/ (visited 29.1.2025).

4   UNESCO (2022) Recommendation on Open Science.

5   Open research data and methods. National policy and executive plan by the higher education and research community for 2021–2025: Policy component 1 (Open access to research data) and 2 (Open access to research methods and infrastructures) https://doi.org/10.23847/tsv.669

6   Barcelona Declaration on Open Research information (2024) https://barcelona-declaration.org/ (visited 3.3.2025).

7   UNESCO (2022) Recommendation on Open Science.

8   UNESCO. (2022). Bolstering Open Science Infrastructures for All. UNESCO Open Science Toolkit.

Open science infrastructures can be broadly divided into three levels:

- **local infrastructures** within individual research organisations,
- **national infrastructures**, and
- **international infrastructures**, such as the European Open Science Cloud (EOSC).

Responsibility for the funding and implementation of national open science infrastructures lies partly with national actors (e.g. CSC or the Federation of Finnish Learned Societies), and partly with individual research organisations or consortia and networks of research organisations. Most open science infrastructures are ultimately funded by a government ministry. Some infrastructures may also receive international funding. Examples of national open science infrastructures include:

- *research.fi* portal

- *Fairdata services* and other centralised services for data and scientific computing

- *Journal.fi* and *Edition.fi* platforms

- *aoe.fi* portal

Examples of resourcing models for national infrastructures:

Responsible actor	Resourcing considerations
Individual research organisation	• Sufficient allocation from the organisation's budget for the development and maintenance of the infrastructure
Consortium of organisations	• Sustainable structure for infrastructure resourcing and development • Equitable sharing of financial responsibility
National actor	• Sustainable public funding for infrastructure development and maintenance

In allocating resources for infrastructures, it is also important to consider their development needs in relation to the promotion of openness. Key development needs include:

- A national legal support service for open science and research

- Development of interfaces between open science infrastructures (e.g. from *aoe.fi* to *research.fi*)

- Interfaces with international systems and infrastructures

- Harmonisation of metadata between different infrastructures

- Long-term preservation infrastructures for research out-puts other than data (e.g. *journal.fi* and *aoe.fi*)

- Integration of systems requiring authentication (e.g. *opin.fi*) with the forthcoming European digital wallet initiative (eWallet)

The prioritisation of development needs will be carried out as part of the next update of the Open Science and Research Reference Architecture.

4. ALLOCATION OF FUNDING FOR SCHOLARLY PUBLISHING

RECOMMENDATION: The National Coordination of Open Science and Research, the National Library of Finland, and the Finnish University Libraries Network (FUN) will jointly organise a broad-based discussion with research organisations, research funders, scholarly publishers, and researcher associations. In this discussion, the parties will agree on and define:

    a. the principles that individual actors will follow to collectively support diverse, economically sustainable, high-quality, and open scholarly publishing.

    b. the means by which actors who specifically allocate funding to scholarly publishing can jointly promote diverse, economically sustainable, high-quality, and open scholarly publishing.

There is a growing imbalance in the funding of scholarly publishing that is narrowing the field. The majority of the funding allocated to publishing flows to large international publishers, while domestic and other smaller publishers are often forced to operate at the limits of viability. This international concentration threatens the diversity of publishing formats, research published in national languages, and the long-term sustainability of national scholarly communication.

Currently, the funding for scholarly publishing is primarily allocated to:

- subscription fees paid for access to closed publications,

- article and book processing charges (APCs and BPCs) paid by researchers and their institutions for open access,

- transformative agreements between publishers and research organisations that provide access to the publisher's content and allow a limited number of open access publications in the publisher's journals.

One proposed solution is the internationally recognised *Diamond Open Access (OA)* model, in which publications are immediately open to both readers and authors without cost, and where costs, copyrights, and long-term preservation remain under the control of the scholarly community.

Because Diamond OA is not profit-oriented, its cost structure is manageable and transparent, providing a clearer understanding of the actual costs of publishing. This makes cost management and forecasting easier and enhances the long-term economic sustainability of scholarly publishing. In the absence of author fees, there is also no financial incentive for predatory journals or questionable publishing practices. Reducing predatory and grey area publishing improves the quality of published research.

Currently, only a small share of scholarly publishing funding is allocated to Diamond OA journals. Redirecting funding would support the quality assurance processes of cost-free open access publications and help ensure their viability.

IMPLEMENTATION OF THE RECOMMENDATION

Solving this imbalance requires a shared national vision of the values and goals that should be realised in open science—and particularly in scholarly publishing—and a commitment from all stakeholders. It is important that the following parties be represented in the discussions:

- **Research organisations**, as they allocate institutional funding to scholarly publishing.

- **Research funders**, whose funding is often used to cover publication costs.

- **Scholarly publishers**, whose operations are directly affected by the way publishing is funded.

- **Researchers**, who ultimately decide where to publish their work and whose opportunities to publish in suitable channels depend on how publishing is funded.

The natural organisers of these discussions are:

a. **The Open Science Coordination**, as the principles and mechanisms are based on the values and commitments set out in the Declaration for Open Science and Research.

b. **The National Library of Finland**, which coordinates the central FinELib consortium for scholarly publishing funding.

c. **University libraries**, as they manage publishing services in universities, which represent the largest share of institutional funding for scholarly publishing in Finland.

5. OPEN SCIENCE PRACTICES FOR RESEARCH FUNDERS

The purpose of the *Open Science Practices for Research Funders* tool is to promote responsible openness by creating, developing, and articulating shared funding practices. In addition to the practices presented in the tool, a responsible research funder also adheres to other practices that support research integrity, such as the principles of responsible researcher and research assessment, good scientific practice, academic freedom in research and teaching, and applicable legislation.

The *Open Science Practices for Research Funders* tool is designed for research funders and constitutes part of the roadmap for funding open science and research. It can also be used independently. The tool will be applied in the development of national open science and research monitoring as the monitoring scope expands to include research funders. Individual funders may use the tool for self-assessment and to develop their own operations.

The tool highlights funding practices that support openness in science and research. These practices are categorised into four themes:

- Open access to scholarly publications
- Openness of research data and methods
- Societal impact of research
- Transparency and culture of open scholarship within the funding body

The themes are based on national open science and research policy components.

Within each theme, the practices are divided into three levels:

- **Level 0** describes baseline practices currently recommended for all research funders.
- **Level 1** presents practices recommended for funders that actively promote openness and aligns with the requirements of the national open science policy components.
- **Level 2** presents aspirational practices that funders promoting openness are encouraged to aim for.

By including three levels, the tool accommodates the diversity of funders and enables different levels of ambition depending on the funder's type and current starting point.

The tool focuses on topics relevant to all research funders. Issues that apply only to specific funders—such as openness in infrastructure funding—are outside the scope of this tool.

The tool can also be applied to projects involving multiple or international research organisations or funders. If multiple funders and sites of research (i.e. participating organisations) are involved and no other agreement is made, each funder is responsible for the costs associated with the research organisation they fund, following that organisation's practices.

In international collaborations, the general practice is that each partner covers costs related to their own country. It is recommended that the division of openness-related and other costs be specified in the research plan and budget in advance to ensure that funding responsibilities are clear to all parties.

When planning collaboration, it is advisable to compare funding practices between partners and identify approaches that all can commit to. In addition, the practices of the host institutions (i.e. the participating research organisations) should be followed.

A. OPEN ACCESS TO SCHOLARLY PUBLICATIONS

Open access to scholarly publications means that research outputs are available free of charge and without restrictions, typically via the internet.

From the perspective of research funders, open access is essential for ensuring that research results are disseminated and utilised as broadly as possible. By using licences that enable openness, utilising opportunities such as self-archiving, and avoiding publication channels that impose embargo periods (i.e. delayed open access), research results can be made available to a wide audience as quickly as possible.

Level 0:

- The funder *recommends* that the grantee makes peer-reviewed scientific articles openly accessible and addresses open availability of research results in the publication plan.

- The funder *recommends* that the grantee uses an appropriate licence that enables openness.

- The funder *recommends* that the grantee considers the use of persistent identifiers and the possibility of long-term preservation when selecting a publication channel.

- The funder *recommends* that the grantee avoids publication channels that offer embargoed (i.e. delayed) open access.

- The funder provides information about options available to the grantee for covering open access publishing costs.

Level 1:

- The funder *requires* that the grantee makes peer-reviewed scientific articles openly accessible and addresses open availability of research results in the publication plan.

- The funder *requires* that the grantee uses an appropriate licence that enables openness.

- The funder *requires* that the grantee considers the use of persistent identifiers when selecting a publication channel. In addition, the funder *recommends* that the grantee considers the possibility of long-term preservation.

- The funder *requires* that the grantee avoids publication channels that offer embargoed (i.e. delayed) open access.

- The funder commits to covering the costs incurred by the grantee in complying with the above requirements.

Level 2:
- The funder monitors compliance with the above practices in funded projects, for example through reporting.

- The funder regularly analyses the impact of its funding activities on broader implementation of open scholarly publishing.

- The funder pilots new projects and practices that promote openness in scholarly publishing.

B. OPENNESS OF RESEARCH DATA AND METHODS

Openness of research data and methods increases the reliability and reproducibility of scientific research. In open science, data and methods are recognised as independent research outputs, and it is recommended that the research process be opened as broadly and as early as possible.

The internationally recognised FAIR principles have been developed to guide the production of research data and other research outputs. The aim of these principles is to make research data:

- Findable

- Accessible

- Interoperable

- Reusable

Openness of research methods is promoted in various ways across disciplines, for example by sharing methods such as open-source software on platforms commonly used in the field. Research funders support openness of data by, for instance, including costs related to data openness as eligible within research funding.

Open access to research data does not require that all data be fully open. By managing data according to the FAIR principles and by producing data management plans (DMPs) that justify any limitations to openness, long-term preservation and the reuse of data are made possible.

Level 0:

- The funder recommends that the grantee prepares a data management plan (DMP).

- The funder recommends that the grantee provides justification in the DMP if the open availability of the research data is restricted.

- The funder recommends that the grantee processes research data in accordance with the FAIR principles, in a way appropriate to their discipline.

Level 1:

- The funder requires that the host institution approves the grantee's DMP after the funding has been confirmed.

- The funder requires that the grantee provides justification in the DMP if the open availability of the research data is restricted.

- The funder requires that the grantee processes research data in accordance with the FAIR principles, in a way appropriate to their discipline.

- The funder commits to covering the costs incurred by the grantee in fulfilling the above requirements.

Level 2:

- The funder monitors compliance with the above practices in funded research projects, for example through reporting.

- The funder regularly analyses the impact of its funding activities on the broader openness of research data, methods, and infrastructures.

- The funder pilots new projects and practices that promote openness of research data or methods, such as dynamic data management plans or discretionary new funding mechanisms.

C. SOCIETAL IMPACT OF RESEARCH

The societal impact of research is a central goal of science policy and a key justification for public funding of research. Impact is a complex phenomenon shaped by the actions of both researchers and users of research. Societal impact can be promoted in various discipline-specific ways, such as:

- Science communication and science education through, for example, public lectures or open educational resources

- Facilitating researcher engagement in companies or other organisations to enable mutual exchange of knowledge and expertise

- Informing decision-making with research-based knowledge (e.g. expert hearings)
- Participatory science practices (such as citizen science)

From the perspective of research funders, societal impact demonstrates the effects of funding. Impact can be assessed in terms of both potential and realised effects after the research has been conducted. By encouraging practices that promote impact—along with the evaluation, discipline-specific approaches, and description of such practices—research funding becomes an integrated part of society.

Level 0:

- The funder recommends in its guidance documents that grantees promote societal impact in ways appropriate to their field.
- The funder recommends that the societal impact of research be described (see examples above).

Level 1:

- The funder requires in its guidance documents that grantees promote societal impact in ways appropriate to their field and takes this into account in assessment criteria and application guidelines.
- The funder requires that the societal impact of research be described.
- The funder commits to taking into account any costs related to promoting societal impact in its funding decisions.

Level 2:

- The funder monitors the implementation of the above practices in funded projects, for example through reporting, taking into account different time frames and mechanisms of impact.
- The funder regularly analyses the broad societal impact of its funding activities.
- The funder pilots new projects and practices that promote societal impact.

D. TRANSPARENCY AND CULTURE OF OPEN SCHOLARSHIP WITHIN THE FUNDING BODY

Transparency is one of the key prerequisites for the culture of open scholarship. It promotes the realisation of the principle of publicity and builds trust in funding mechanisms. However, it is not always possible to make the entire funding process fully transparent, and for example, in targeted or discretionary funding schemes, no public calls may be organised. Funders can

express their support for an open operating culture by endorsing or committing to national or international policy components for responsible openness.

By ensuring that applicants have equal and sufficient access to information about application criteria and processes in cases where calls are public, and by engaging with relevant national and international policies and networks, funders can contribute to an open operating culture that strengthens the credibility and fairness of research funding.

Level 0:

- In public funding calls organised by the funder, application criteria are openly available.
- The funder outlines in its guidance documents how funding is allocated (e.g. through public calls or targeted discretionary funding).

Level 1:

- The funder is committed to national and international open science and research policy components, such as:
  - Declaration for Open Science and Research (2025–2030)
  - Plan S (2018)
- The funder is committed to national and international policies for responsible assessment, such as:
  - CoARA (2023)
  - DORA (2012)
- The funder provides applicants with a general description of the principles underlying funding decisions (e.g. evaluation criteria, decision-making process).

Level 2:

- The funder provides feedback to applicants whose applications were not funded.
- The funder offers development suggestions to unsuccessful applicants for future application rounds.
- The funder participates in national or international networks promoting open science and research (e.g. the Coordination of Open Science and Research in Finland, CoARA working groups).
- The funder pilots new projects and practices that promote transparency and an open operating culture in funding, such as open peer review.

6. RECOMMENDATION ON RESOURCING OPEN SCIENCE SERVICES AND ACTIVITIES IN RESEARCH ORGANISATIONS

RECOMMENDATION: Research organisations support the development and resourcing of their open science and research activities through the following measures:

- Identifying and prioritising key open science support services in need of development and resourcing using this recommendation and the Open Science and Research Reference Architecture.

- Enabling research, teaching, and other staff to allocate working hours to the advancement of open science and research.

- Exploring opportunities to organise open science and research services in collaboration with other organisations.
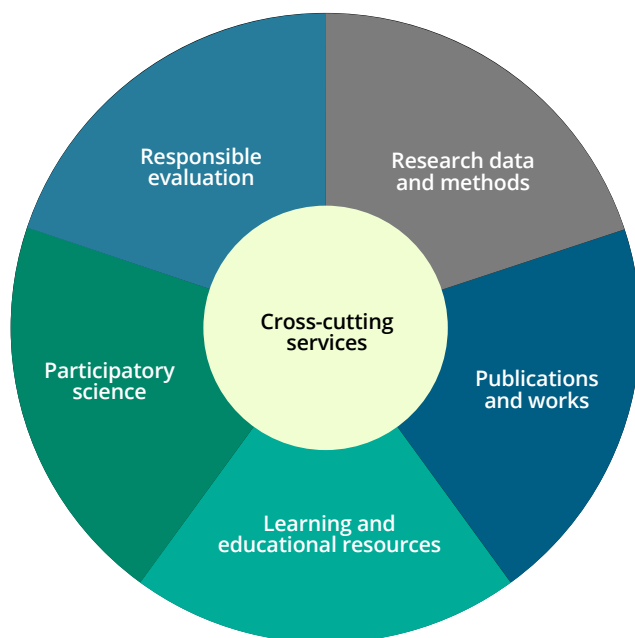
Service areas defined in the Open Science and Research Reference Architecture 2024–2030.

The Open Science and Research Reference Architecture 2024–2030 provides a detailed definition of essential service areas. Services related to open education primarily concern higher education institutions. Other services apply to all research organisations.

Open science and research support services, like all organisational services, require continuous development and maintenance. In addition to potential investment needs, sufficient baseline funding is essential. By ensuring appropriate resourcing for key open science services, research organisations improve their international interoperability and guarantee that services meet high European standards.

STAFF WORKING HOURS

In addition to dedicated open science support services, researchers, teachers, and other staff promote openness through their own activities. To enable such contributions, organisations should ensure that personnel have sufficient time allocated for open science tasks, such as:

- Participating in open science, research, and education networks

- Supporting open publishing by serving on editorial boards or conducting peer reviews

- Promoting open education by creating open educational resources or offering open courses and lectures

- Engaging in citizen science and other participatory research activities

- Sharing expertise related to open science, research, and learning.

COLLABORATION

Research organisations are encouraged to collaborate on the provision of open science support services and other open science activities. Such cooperation improves cost-effectiveness, enhances service production, and supports interoperability of systems and services.

Forms of collaboration may include:

- Shared open science support services

- Common platforms and systems

- Shared materials

- Knowledge exchange

- Joint communication and outreach

- Participation in open science networks.

Examples of successful collaboration between research organisations:

- DMPTuuli consortium, which maintains national data management tools

- Theseus publication archive for universities of applied sciences
- Finnish national chapter of CoARA (in Finnish) promoting responsible assessment.

Open science can also be promoted through cooperation with external stakeholders. Examples include:

- Collaborating with scholarly societies to ensure the quality of open educational resources
- Engaging small and medium-sized enterprises and associations in research data collection
- Partnering with public libraries in citizen science projects.

When collaborating with small or volunteer-based organisations, research institutions have a responsibility to offer support, such as:

- Monetary compensation
- Reciprocal access to institutional services
- Promoting the partner organisation's activities.

7. GOOD PRACTICES FOR USING EXTERNAL FUNDING IN OPENING SCIENCE AND RESEARCH

Science, research, and education are funded at both national and international levels not only by ministries, public funders, and foundations, but also by actors outside the research community. These include companies, associations, and public sector organisations. In some cases, open access to research outputs may be a requirement for public-sector funders, but openness can also benefit companies and associations by enabling wider adoption of technological solutions and fostering new partnerships.

Examples of how external funding can support open science, research, and education:

- Developing infrastructures that support openness (e.g. Punkkilive)

- Opening results, data, and other outputs of research or theses funded by companies

- Facilitating knowledge transfer and research engagement through researcher mobility to the private sector

- Opening educational resources or training materials funded by associations or companies.

Individual citizens can also contribute to funding, for example through crowdfunding research or research infrastructures. In the future, crowdfunding may become increasingly relevant for supporting and opening research and learning that addresses locally important topics.

International examples of crowdfunding in open science:

- Directory of Open Access Journals (DOAJ)

- SCOAP for Books

1. GOOD PRACTICES FOR RESEARCHERS, TEACHERS AND OTHER OPEN SCIENCE PRACTITIONERS

Researchers, research groups, teachers, and authors of open educational resources or theses who have received external funding can promote its use for advancing open science and research by:

- Using the national recommendation on openness in company collaboration when working with companies

- Clearly agreeing on ownership and usage rights of outputs created in collaboration, as early as possible

- Ensuring that theses are publicly accessible as required by law

- Advising thesis authors on how externally funded theses can be made openly available

- Raising awareness among partners of the possibilities to open up research outputs, educational resources, training materials, and/or theses—and communicating the benefits of openness, such as enhanced reputation and new collaboration opportunities.

2. GOOD PRACTICES AT THE LEVEL OF RESEARCH ORGANISATIONS

Research organisations can support their research, teaching, and administrative staff in these efforts by:

- Advising funding applicants on how to seek support for open research and assisting them in the application process

- Providing guidance, training, and support for opening outputs of externally funded research and education

- Sharing information about funding mechanisms that support research commercialisation and other forms of societal impact

- Offering contract templates for research and education collaborations with external partners

- Recognising diverse experience across sectors of society in merit assessments, recruitment, and career development in line with the development of responsible research assessment.

Research organisations can also engage with potential or existing partners—such as companies in their region or field—by:

- Raising awareness of possibilities to open jointly produced research outputs, educational resources, training materials, and theses, and communicating the benefits of openness

- Negotiating opportunities to fund infrastructures and services that support openness.

In addition, research organisations can participate in national-level collaboration by:

- Providing peer support to other organisations on utilising external funding for open research and education

- Contributing to the development and updating of national recommendations and guidelines that promote openness in industry collaboration and broader societal engagement
- Co-developing training for research organisations on industry collaboration, and for companies on open science
- Promoting the recognition of diverse career backgrounds in researcher evaluation within the CoARA network
- Increasing awareness within the research community by sharing experiences and best practices on using external funding to support openness in research and education.

3. GOOD PRACTICES FOR RESEARCH FUNDERS

Research funders can support these efforts by:

- Developing funding mechanisms that promote research commercialisation and enhance societal impact
- Participating in the development of training on industry collaboration for research organisations and open science training for businesses
- Using their networks to share information about open science and research practices, such as the national recommendation on company collaboration.

4. NATIONAL-LEVEL MEASURES

Within the national coordination of open science, support for other actors can be provided by:

- Participating in the development of training on industry collaboration for research organisations and open science training for businesses
- Collaborating with the Finnish National Board on Research Integrity (TENK) to produce model contracts and guidelines on legal and ethical issues related to industry collaboration
- Producing guidance for research organisations on how new funding models can support the principles of open science and research
- Collecting and disseminating good practices from research organisations on the use of external funding to support openness in research and education.

8. CONTRIBUTORS AND APPENDICES

The Roadmap for Open Science and Research Funding was pro¬duced by the Funding Open Science Working Group, established by the National Open Science and Research Steering Group, during 2023–2025.

The group was chaired by representatives Petri Mäntysaari (Finnish Union of University Professors), Anu Lahtinen (Finnish Association for Scholarly Publishing), Mikko Pohjola (Ministry of Agriculture and Forestry), and Susanna Nykyri (Tampere University and the Expert Panel on the Openness of Research Data). Ilmari Jauhiainen and Jonni Karlsson from the Federation of Finnish Learned Societies served as the secretaries of the working group.

The roadmap underwent a round of public feedback for the period of 28 October – 5 December 2024.

The working group that created the Roadmap for Funding Open Science and Research:

- Carita Aschan, Finnish Research Institute Partnership Tulanet
- Minna Abrahamsson-Sipponen, FUN Finnish University Libraries' Network
- Mira Juppi, Expert Panel in Open Education (deputy for Anna Lindfors from 20 August 2025)
- Mari Katvala, Expert Panel for Open Access to Scholarly Publications
- Kari Komulainen, Business Finland (deputy for Janne Viemerö from 31 January 2024)
- Leo Lahti, The Council of Rectors of Finnish Universities Unifi
- Sofia Lähdeniemi, Finnish National Agency for Education
- Anna Mauranen, Federation of Finnish Learned Societies
- Henriikka Mustajoki, National Open Science and Research Steering Group
- Laura Niemi, Expert panel for Open Scholarship
- Sanna Nieminen, Ministry of Finance
- Sami Niinimäki, Ministry of Education and Culture
- Liisa Näpärä, National Library of Finland
- Mikko Peltonen, Ministry of Agriculture and Forestry (deputy for Mikko Pohjola from 27 January 2025)
- Petro Poutanen, The Association of Finnish Foundations
- Kati Takaluoma, Ministry of Social Affairs and Health
- Jouni Tuomisto, Open Knowledge Finland
- Pekka Uotila, AMKIT-consortium
- Jussi Varkemaa, Research Council of Finland

- Mari Vuolteenaho, The Rectors' Conference of Finnish Universities of Applied Sciences Arene
- Ulla Äänismaa, Ministry of The Enviroment

Appendix 1: Governance Model for the Roadmap for Open Science and Research Funding

Appendix 2: Open Science Services of Research Organisations by Area

Appendix 3: Report on the Current State of Open Science and Research Funding

Open
Science

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