

Open Science NL

Work programme 2024 -2025



Open Science NL work programme 2024-2025

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Introduction

Background

Since 2022 the Dutch government has made available substantial funding to support the transition to open science in the Netherlands. The aim of the investment is to make open science the norm. A budget of €20M a year is available for a period of 10 years (2022-2031). The Dutch Research Council (NWO) was asked to set up a dedicated organisational structure (a 'regieorgaan') to take responsibility for the allocation of these funds.

After a period of intensive and constructive consultation with the field, Open Science NL¹ was launched in March 2023 with the signing of a covenant² by 16 organisations in the Netherlands, including the Ministry of Education, Culture and Science.

Open Science NL will operate on the basis of two-year strategic cycles. Every two years, a work programme will be drawn up describing how the available budget will be spent and what funding instruments will be developed within that cycle. This model is inspired by the procedure followed by the European Commission in developing the European framework programmes. The advantage of the short, two-yearly cycles is that it allows emerging developments and new challenges to be quickly translated into funding instruments. The starting points for the Open Science NL work programmes are the strategic goals and objectives formulated in the National Programme Open Science (NPOS) 2030 Ambition Document and Rolling Agenda.³

Structure

This document outlines the first work programme, which covers the years 2024 and 2025.

The instruments within this work programme are divided among the following clusters:

1. Capacity building;
2. Open Science infrastructure;
3. Robust research processes;
4. Evidence base for Open Science;
5. Empowering communities.

Together, the proposed instruments address a comprehensive set of needs and range of areas relating to open science, and provide a strong basis from which the uptake of open science practices can continue to grow and flourish in the Netherlands.

Prioritisation

This initial work programme is closely linked to the strategic goals and objectives formulated in the National Programme Open Science (NPOS) 2030 Ambition Document and Rolling Agenda. However, the NPOS Rolling Agenda contains 4 strategic goals and 30 objectives. The objectives cannot all be entirely realised in the first work programme. Choices therefore have to be made, although an attempt has been made to cover as many topics as possible. The following considerations have been taken into account in prioritising the objectives to be addressed:

- **Bottlenecks:** prioritisation of funding for initiatives which address challenges that need to be tackled before subsequent issues can be addressed (e.g. establishing a national training programme for data professionals is a prerequisite for increasing their capacity locally and improving the FAIRness of datasets).

¹ [Announcement of the launch of Open Science NL](#)

² [Covenant Regieorgaan Open Science NL \(PDF\)](#)

³ Netherlands National Programme Open Science. (2022). Ambition Document Netherlands National Programme Open Science (Approved version). [Zenodo](#).

- **Implementation readiness:** the more mature ideas presented in the NPOS Rolling Agenda can be implemented expeditiously and can be funded without delay (e.g. supporting a national network of Citizen Science practitioners); ideas which need further research or consultation to translate them into suitable funding instruments cannot be funded immediately (e.g. harmonising the conditions for access to sensitive data).

Annex 1 provides an overview of how the available budget is allocated to specific funding programmes. Annex 2 summarises the budget spent in 2022. Annex 3 outlines how the proposed funding instruments are related to the objectives of the NPOS Rolling Agenda. Topics that are less well covered now can be included in subsequent work programmes. Annex 4 provides a list of abbreviations used in this document.

Accelerating the implementation

The NPOS Ambition Document was the subject of intensive consultation (78 institutions, networks, communities and individuals took part in the open consultation). The Rolling Agenda was then drafted by several teams of writers and was approved by the members of the NPOS Steering Committee, the Advisory Board and the Rolling Agenda editorial board.

Given the broad community support and enthusiasm for the ideas in the NPOS Rolling Agenda, it is important that spending of the available funds is not delayed further. To expedite the implementation of this work programme and to speed up financial investments in open science, the Open Science NL work programme 2024-2025 was reviewed and approved by the Open Science NL Steering Board without a new round of community consultation.

All future work programmes will be developed in close consultation with the community. Open Science NL has drawn up a dedicated strategy for [community engagement](#) aimed at effectively involving the community in the development of future work programmes.

Eligibility

The descriptions of each of the funding instruments proposed in this work programme indicate who the eligible applicants are. In the context of this work programme, the term "knowledge institutions" means all institutions listed in the NWO Grant Rules⁴ (universities, university medical centres, KNAW and NWO institutions and a few other organisations), plus universities of applied sciences. Research support organisations are eligible to apply for some of the funding instruments in this work programme. The eligibility of international applicants to act as co-applicants will be determined on a call-by-call basis, as deemed necessary and relevant.

In cases where a tender is issued, any parties able to meet the conditions described in the tender can apply. In future work programmes, exceptions may be made to eligibility criteria on a call-by-call basis with a view to including a broader set of parties, where appropriate and relevant. For example, the eligibility criteria might need to be expanded if a designated citizen science call is part of a future work programme.

Open Science principles and Intellectual Property

Unless specified otherwise, recipients of Open Science NL funding are obliged to follow NWO's rules with regard to Intellectual Property (IP) management and must ensure that any research outputs are made publicly available. Specifically, the recipients must comply with the [NWO research data management protocol](#), the NWO IP policy,⁵ the principles for socially responsible licensing⁶ and the [NWO Open Access Policy](#).

⁴ [Chapter 1.1: NWO Grant Rules](#)

⁵ [See chapter 4 of the NWO Grant Rules 2017 \(PDF\)](#)

⁶ [NFU factsheet on Socially Responsible Licensing \(PDF\)](#)

Long-term sustainability

Open Science NL cannot make structural long-term investments. However, providing funding to kick-start new initiatives could enable individuals and institutions to test and evaluate new approaches, and if successful develop cases for long-term sustainability, and gather evidence to convince the relevant stakeholders to commit to structural funding. Accordingly, applicants for all projects in chapters 1, 2 and 5 (with the exception of 5.1 and 5.2) will be expected to outline their long-term sustainability plans as part of the application process, and those plans will be evaluated during the assessment stage.

Assessment of proposals

Assessment procedures for the various funding instruments proposed in this work programme will be worked out as the calls for proposals/tenders are being drafted. Every application will be subject to (international) peer review by referees and/or assessed by independent assessment committees appointed by the Steering Board of Open Science NL, in accordance with NWO's Grant Rules. In line with open science principles, there is also the ambition to explore ways of applying open funding procedures, like open applications and possibly open peer review, in the assessment process.⁷ NWO has already been experimenting with some forms of open funding practices with its [Open Science Fund](#).

⁷ Horbach SPJM, Tijdink JK, Bouter LM. Research funders should be more transparent: a plea for open applications. *Royal Society Open Science* 2022; 9: [220750](#).

1. Capacity building

Investing in capacity building for open science is one of the essential requirements for putting open science into practice. In this document, capacity building refers to the process of enhancing the organisational or community-based knowledge, skills and abilities needed to adopt open science practices effectively. In other words, capacity building refers to investment in people and their skills. Capacity building initiatives provide much needed training and support to navigate the technical, legal, social, cultural and ethical aspects of open science, thereby enabling communities to overcome barriers and embrace new approaches. Ultimately, capacity building strengthens the foundations of sustainable open science ecosystems, which encompass not only specific research outputs (publications, data software and non-traditional research output, such as creative works, policy reports, etc.), but also research processes, infrastructures and research cultures.

Over the past few years NWO has already been investing in capacity building at the institutional level, mainly through calls to support [digital competence centres](#): Local Digital Competence Centres (LDCCs)⁸ and Thematic Digital Competence Centres ([TDCCs](#)). The four funding programmes proposed here will build on these earlier initiatives to further stimulate the capacity building for open science:

- 1.1. National Training Platform for Research Data Professionals – providing national-level training and community support for aspiring data professionals.
- 1.2. Strengthening local and thematic Digital Competence Centres – increasing software training capacity and investing in interoperability of research data.
- 1.3. Citizen Science Hubs – fostering the creation of regional hubs with citizen science and societal engagement expertise.
- 1.4. Enabling and strengthening institutional open publishing – supporting networks and building expertise in non-profit, university-based publishing venues.

Overall budget in 2024-2025: €22.4M

⁸ There are 23 Local Digital Competence Centres in the Netherlands. They are established at the following institutions: Erasmus University Rotterdam, Leiden University, Maastricht University, Radboud University, Tilburg University, TU Delft, TU Eindhoven, University of Amsterdam, University of Groningen, University of Twente, Utrecht University, VU Amsterdam, Wageningen University & Research, Amsterdam UMC, Erasmus MC, Leiden UMC, Maastricht UMC+, Radboud UMC, UMC Groningen, UMC Utrecht. There is one LDCC each for the KNAW Institutes, the NWO Institutes and the Universities of Applied Sciences.

1.1. National Training Platform for Research Data Professionals

Why

Researchers need the support of data professionals in putting FAIR data principles into practice. These professionals help researchers to use tools and infrastructure effectively to manage and share research data according to best practices. There is an urgent need to increase the numbers of such data professionals. The OECD recommended that institutions should have 3 FTEs of data professionals for every 100 researchers⁹ but a recent survey among Dutch knowledge institutions revealed that 95% of them have only 1 FTE or less of data/research support professionals for every 100-500 researchers.¹⁰

The first step towards increasing the number of data professionals is to ensure that training to become such a professional is available. There are already some courses for data professionals, such as the popular 'Essentials 4 Data Support' provided by Research Data Netherlands (RDNL),¹¹ but the capacity (number of places available each year) that RDNL can offer is unable to meet the current demand for training. There are also the 'DCC spring training days' organised in collaboration between the LDCCs and the National Coordination Point Research Data Management (LCRDM, the national network of experts in the field of research data management). Some training is also provided by a few other organisations (e.g. DANS, the Netherlands eScience Center and Health-RI), but the ad hoc nature of this training and its limited capacity is insufficient to meet the growing demand for training.

Furthermore, as concluded during [a workshop dedicated to data stewardship](#) attended by representatives of 30 Dutch organisations in April 2023, "there is a need for a nationally certified professional education for data stewards". There is currently no clear and accredited curriculum¹² for data professionals. Such a curriculum should be aligned with international efforts in this area (e.g. the activities of the EOSC Association,¹³ relevant EU-funded projects¹⁴ and initiatives of organisations such as Research Data Alliance¹⁵). Organisations providing training also need to be connected to the community of data professionals (such as the LCRDM network and [the Data Stewards Interest Group](#)) in order to facilitate lifelong learning and sharing between data professionals. Connecting the community of data professionals with the organisations providing them with training also ensures ongoing feedback and active development of training resources. In this way, training resources can adequately address the training needs of the community.

What

The aim of this funding programme is to create a National Training Platform for Research Data Professionals. The platform will foster the harmonisation and consolidation of existing organisations, communities and initiatives with the aim of increasing the capacity of data professionals. It will develop, provide and maintain accredited training and lifelong skill-building activities for data professionals in combination with community engagement activities. The initial focus will be on the development of a baseline curriculum and delivery of training for data professionals. Subsequently, more courses will be developed to cater for data professionals at different career stages and with different types of expertise (e.g., working with software, working with personal research data, technical expertise and databases). The platform will have a professional training team (with the necessary administrative and communication support), a convincing, sustainable business model and an inclusive governance structure.

⁹ OECD (2020), 'Building digital workforce capacity and skills for data-intensive science', OECD Science, Technology and Industry Policy Papers, No. 90, OECD Publishing, Paris, [DOI](#).

¹⁰ Ringersma, J. and Miedema, M., 2021. 'Do I-PASS for FAIR? Measuring the FAIR-ness of Research Organizations'. *Data Science Journal*, 20(1), p.30. [DOI](#).

¹¹ Mijke Jetten, Marjan Grootveld, Annemie Mordant, Mascha Jansen, Margreet Bloemers, Margriet Miedema, & Celia W.G. van Gelder. (2021). 'Professionalising data stewardship in the Netherlands. Competences, training and education. Dutch roadmap towards national implementation of FAIR data stewardship (1.0)'. [Zenodo](#).

¹² Accredited curriculum refers to a skills development programme which has received official recognition and approval from relevant authorities, ensuring its quality and adherence to established standards.

¹³ Especially the work of the [EOSC Association's Task Force Data stewardship, curricula and career paths](#).

¹⁴ [Skills4EOSC](#) is an example of such a project.

¹⁵ In particular, the [Research Data Alliance's Professionalising Data Stewardship Interest Group](#).

Eligibility

This project will be funded through a European tender. Any organisation able to meet the requirements can participate. Applicants must have experience in providing training for data professionals.

Alignment with relevant national and international initiatives

The platform is expected to bring together existing providers of training for data professionals and communities of data professionals, including the local digital competence centres (LDCCs). Furthermore, the curriculum developed as a result of this funding must align with the international work in this area and with domain- and discipline-specific training developed and delivered by the three thematic digital competence centres ([TDCCs](#)).

Connection to NPOS

This instrument relates to the following objective of the NPOS Ambition Document and Rolling Agenda: 4.6 – ‘In 2030, a professional community of well-trained data stewards has been established and there is enough structural capacity (in FTEs, as well as in expertise) at Research-Performing Organisations (RPOs) to facilitate making digital scientific objects FAIR. There is a nationally coordinated training programme for data stewards’.

Budget

€4.8M for 1 project for 4 years.

1.2. Strengthening local and thematic DCCs

Why

The professional capacity for effectively working with research software and data has been increased through the investment in building and expanding Local and Thematic Digital Competence Centres ([LDCCs and TDCCs](#)). However, two areas are still not adequately addressed: research software training and data interoperability.

Firstly, as research becomes increasingly reliant on computational methods, there is a need for a larger number of researchers with sufficient digital and computational expertise to make a maximum contribution to, and profit from, the use of open research software. To develop open, FAIR and sustainable software, best practices in software development, management, licensing and curation must be followed. Researchers are typically highly proficient in their own area of research, but usually lack formal qualifications or training in software development and management. There is therefore a demand for training of researchers in these two areas. However, there is a shortage of trainers to meet this demand, particularly when it comes to introductory and foundational skills.

Secondly, while the tools to share data in repositories and to create persistent links are now widely available – addressing the ‘Findability’ and ‘Accessibility’ aspects of the FAIR principles – attention to the interoperability aspects is lagging behind. Without addressing all four of the FAIR principles, FAIR data cannot be truly ‘Reusable’: they cannot be integrated with other data and workflows for analysis, storage and processing (e.g. due to lack of metadata or incompatibility of file formats, but also due to incompatible or unclear licensing), but also represent a challenge in terms of their reuse by practitioners and other non-research stakeholders. The EOSC FAIR Working Group’s FAIR in Practice Task Force reported that funding community efforts is essential to improve the interoperability of research data¹⁶ – and recommended that communities should define and implement standards for the tools and workflows they use when working with data. Moreover, given that science crosses national borders, for the successful implementation of metadata standards and ontologies, communities need to collaborate internationally and align their efforts with research infrastructures where data are produced, stored and shared.

What

The aim of this funding programme is to expand local and thematic DCCs with research software training capacity and expertise in ontology and/or metadata (knowledge of metadata schemes and experience with ontologies and semantic modelling). The expanded software training capacity, brought together in a national training programme and network, will help increase the number of researchers and research support staff that can be trained in the area of open research software. The investment in ontology and metadata expertise will help address the data interoperability aspects of the FAIR principles.

The funding will cover the following specific points:

- Every LDCC (including the DCC for the Universities of Applied Sciences) will be able to apply for 0.5 FTE trainer capacity for open source software skills and 0.5 FTE community manager capacity focusing on interoperability, who will work closely with researchers and existing professionals locally (e.g. data librarians, data stewards) and connect them with metadata and ontology experts within TDCCs to improve interoperability aspects of research data (1 FTE total).
- Every TDCC will be able to appoint domain-specific metadata and ontology experts (2 FTE in total) to support the local communities with the implementation of domain- and discipline-specific standards and tools, connect them with infrastructures and service providers and, crucially, facilitate international alignment (e.g. with European infrastructures, large projects contributing to the development of the European Open Science Cloud ([EOSC](#)), as well as organisations such as [Research Data Alliance](#), [FAIRsharing](#), [CODATA](#), etc.).
- One FTE will be appointed at the Netherlands eScience Center to bring together the software trainers in a national network and to facilitate a national training programme on open research software. This programme will include train-the-trainer activities, as well as collaboration on open training material development in alignment with the activities of [Research Software Training NL](#) – a network that brings

¹⁶ Six Recommendations for implementation of FAIR practice by the FAIR in practice task force of [the European open science cloud FAIR working group](#).

together and facilitates training organisations in the Netherlands in the areas of research software, programming skills, applied data science, computational skills and open source.

This will be an incidental (one-off), non-competitive call (but subject to quality assessment), with funding for four years.

Eligibility

All existing LDCCs, TDCCs and the Netherlands eScience Center.

Alignment with relevant national and international initiatives

Through their collaboration with The Carpentries – an internationally renowned coding and data science skills organisation – the Netherlands eScience Center already develops training materials and delivers courses for researchers and research support staff at Dutch research institutions. This initiative will explicitly further strengthen the collaboration between LDCCs and the Netherlands eScience Center around training in working with open research software, as well as the collaboration between LDCCs, the TDCCs and national and international infrastructures and communities dedicated to increasing the interoperability of research data.

Connection to NPOS

This instrument addresses the following objectives in the NPOS 2030 Ambition Document and Rolling Agenda:

- 0.2 – ‘In 2023, national Open Science-related networks are more closely connected to each other, and are in the position to influence, collaborate with and benefit from the NPOS’.
- 4.1 – ‘In 2025, there is national coordination on the implementation of standardised and machine-actionable FAIR digital research outputs and associated FAIR metadata, that connects local, domain-specific, national and international (e.g. EOSC) levels’.
- 4.3 – ‘In 2025, 40% of the digital scientific objects and corresponding meta-information in RPOs has been made FAIR, through mandated FAIR expert teams in RPOs, assisted by FAIR expert teams in domains; in 2030, this will be 75%’.
- 4.9 – ‘In 2030, there is sufficient capacity and expertise of research support staff to enable the use of open research software. There is a nationally coordinated training programme and a training network for researchers and support staff (following the train-the-trainer principle)’..

Budget

€15.3M total (€11.7M for knowledge institutions, via LDCCs; €3.1M for the three TDCCs; €0.5M for the Netherlands eScience Center) for 4-year projects.¹⁷

¹⁷ The budget is based on a maximum salary scale 12 for every position and a total of 30 FTE positions (23 FTEs at LDCCs, 6 FTEs at TDCCs and 1 FTE at the Netherlands eScience Center), with a maximum of €15k/year in material costs.

1.3. Citizen Science Hubs

Why

Societal engagement (including science communication) and citizen science are important components of Open Science.^{18,19} Their common denominator is bringing people outside of academic research closer to scientific research, and vice versa, through participatory and inclusive research practices. Meaningful societal engagement in research is realised when local factors (e.g. which problems do citizens face in this town?) and structural ones (e.g. do all engaged participants form equal partnerships, have access to resources and possess adequate skills?) are adequately addressed. However, participatory and inclusive research practices also require expert skills, which are not always readily available within knowledge institutions. In the Netherlands, structural embedding of participatory research practices for societal engagement, science communication and citizen science within knowledge institutions is often weak or only starting. There are a few organisations with sufficient resources and expertise. However, they are often focusing on either citizen science or societal engagement (including science communication), whereas it has been convincingly argued that citizen science and societal engagement share similar challenges and often require similar expertise. Internationally, [the Citizen Science Center Zurich](#) is an example of a local hub which bundles citizen science and societal engagement expertise under one roof. This creates an effective mechanism for supporting professional researchers by providing comprehensive guidance, advice, (digital) tools and assistance with methodology, processes and community management necessary to initiate and run participatory projects.

What

While it is clear that expertise in participatory research lies in different organisations and communities (also outside of academia), this instrument focuses on knowledge institutions. It is proposed that the current scope of existing local expertise in citizen science and societal engagement (including science communication) within knowledge institutions will be extended and geared towards bundling both areas of expertise (creating a 'hub'). This is seen as an important step not only towards institutionalising societal engagement in all its facets, but also towards improving the visibility of practices and methodologies and recognising and rewarding participatory research practices within knowledge institutions.

The proposed funding instrument is intended to support the establishment of five 'Citizen Science' hubs, covering different regions in the Netherlands, with the suggestion that the hubs should be collaboratively developed by universities and universities of applied sciences. Local hubs could then connect to the national citizen science network CS-NL (see 5.4) and relevant practitioners outside the hubs to integrate knowledge efficiently. Five hubs will be supported in this first round, with the possibility of organising more rounds in the years after 2025.

Eligibility

All Dutch knowledge institutions covered by the NWO Grant Rules.

Alignment with relevant national and international initiatives

The hubs will be tasked with stimulating regional connections around citizen science and societal engagement. National alignment between the hubs will be facilitated by the CS-NL network. Internationally, several European projects are currently working towards establishing citizen science hubs (examples are the EU-funded projects Time4CS and INCENTIVE, in which Twente University is the Dutch representative). Where appropriate, hubs are also expected to align with the European Citizen Science Association (ECSA).

Connection to NPOS

The proposed funding instrument supports realisation of the NPOS strategic goal of 'close collaboration between knowledge institutions, [...] and citizens to [...] optimise the processes of creating, sharing and communicating knowledge for the benefit of society'. The regional hubs will also contribute to achieving the following objectives in the NPOS Ambition Document and Rolling Agenda:

- 1.1 – In 2025, RPOs, RFOs, and HEIs recognize the value and impact of Societal Engagement approaches to science, policy and society. Participatory and inclusive research practices are embedded

¹⁸ [UNESCO Recommendation on Open Science, UNESCO Recommendation on Open Science 2021](#)

¹⁹ [NPOS2030 Ambition Document and Rolling Agenda](#).

- 1.5 – In 2030, capacity for Societal Engagement has been built up [...] with dedicated support [...] within institutions’.

Budget

€2M for 5 hubs (€400k/hub) for 4-year projects.

1.4. Enabling and strengthening institutional open publishing

Why

For many years the Netherlands has been a front-runner when it comes to Open Access (OA). It is expected that in 2023 around 95% of scientific papers published by authors with a Dutch affiliation will be available Open Access. That does not mean all issues associated with Open Access publishing have been resolved. New challenges and ambitions have emerged. For example, there are concerns about the dependence of (Dutch) academic institutions on commercial publishers, the unsustainable rise in the costs associated with OA publishing, and the lack of equity of the dominant pay-to-publish model (especially for low-income countries and less well funded institutions). These issues have given rise to a renewed interest in the diamond open access business model (reading as well as publishing is free for readers and authors²⁰) and institutional publishing through open access university presses and library publishing services.

In recent years, there has been a notable rise in institutional publishing entities within Dutch universities, also known as 'New University Presses' and 'Library-Led Publishing.' These entities differ from traditional for-profit publishers in several respects: they focus primarily on digital publishing; immediately release all the works they publish, including books and journals, open access; operate as non-profit organisations; and have strong connections with, or are an integral part of, their respective university libraries.

This growing network of fully open access presses in the Netherlands can serve as a hub for innovation and experimentation in open publishing. These publishing ventures frequently adopt more inclusive open access models, such as diamond open access, and could also consider expanding into other types of publication (e.g. data publications, registered reports, replication studies and preprints). Despite the progress that has been made, these emerging presses at universities can be seen as being in the start-up phase. To foster a more robust, efficient and sustainable network of fully open access publishers based at universities, there is a need for increased coordination and capacity building, as well as exchange of knowledge and practices in various aspects of the publishing process.

What

The aim of the proposed funding instrument is to strengthen and support the community of institutional open publishing initiatives. One project will be awarded to set up a network, enable knowledge sharing, and foster collaboration between experts and organisations involved in existing initiatives and infrastructures, with the aim of making them more resilient and sustainable in the long-term. Open Science NL intends to work closely with this community in order to learn what is needed to further support non-profit, community-driven open access models in future work programmes.

Eligibility

This is a targeted grant opened to the New University Presses/Library-based Publishing community. Applications will be assessed by external reviewers.

Alignment with relevant national and international initiatives

Firstly, this initiative will empower the recent developments to strengthen institutional publishing and diamond OA. Similar initiatives have sprung up in the [England](#), [Scotland](#), and [Ireland](#), where university presses and library-based publishers have joined forces and created networks. Secondly, the rise of institution- and library-based publishing is part of a global movement, the importance of which has been underscored in the recent [Council Conclusions on Open Scholarly Communication](#), in which the European ministers of Science call on member states to counter the growing and financially unsustainable dependency on commercial publishers by investing in not-for-profit, academic-led publishing initiatives.²¹ This grant, which will promote and stimulate open publishing, is directly related to the developments around recognition and rewards of open publishing practices in the Netherlands (a connection with funding programme 5.5 is encouraged).

Connection to NPOS

This initiative is related to the following objectives of the NPOS2030 Ambition Document and Rolling Agenda:

²⁰ The most comprehensive analysis of the diamond OA publishing landscape to date is [the OA Diamond Journals Study commissioned by cOAlition S](#).

²¹ PDF <https://data.consilium.europa.eu/doc/document/ST-9616-2023-INIT/en/pdf>

- 3.2 – In 2027, the digital infrastructure ...supports existing open archives, repositories and infrastructures for publication’.
- 3.3 – ‘In 2030, all scholarly output from publicly financed knowledge institutions from the Netherlands is freely and sustainably available and reusable under an open licence, where possible without an embargo period’.

Budget

€300k for one project in 2025.

2. Open Science Infrastructure

Infrastructure, defined here as tools, software, workflows, resources, technical platforms and digital services essential for the implementation of open science, provides the necessary framework to facilitate the management, sharing, access, and reuse of scientific data, software, publications, hardware, and other research outputs, tools and methods. Investing in robust infrastructures that enable open science practices contributes to making research outputs findable and accessible to non-academics, thereby increasing the societal impact of academic knowledge. Furthermore, such infrastructure enables compliance with open science principles and standards, such as open access publishing or data and software sharing, and fosters transparency, reproducibility, and innovation within and outside of the scientific community. Overall, interoperable and sustained infrastructures are a fundamental requirement for the successful adoption and implementation of open science practices. Lastly, interoperable and sustained infrastructures can be integrated within a single network (federation), thereby enabling collaboration and more efficient use of resources.

There will be one call in this category:

- 2.1. – Open Science Infrastructure Programme, with a broad scope encompassing every aspect of open science (open access, FAIR data and software, citizen science, etc.).

Overall budget in 2024-2025: €17.5M

2.1. Open Science Infrastructure Programme

Why

Open science infrastructure is defined here as tools, software, workflows, resources, platforms and digital services that enable the practice and advancement of open science. As stated in the [UNESCO Recommendation on Open Science](#): “open science services should be viewed as essential research infrastructures, governed and owned by the community and funded collectively by governments, funders and institutions”. Establishing a funding programme to support digital infrastructure for open science would enable research communities in the Netherlands to benefit from optimal conditions for practising open science and would help deliver on several of the objectives of the NPOS 2030 Ambition Document and Rolling Agenda.

What

The Open Science Infrastructure Programme will support the development of digital infrastructures that enable open science practices. The scope of the programme will cover the entire spectrum of open science and is intentionally broad to be inclusive of various digital infrastructure needs of the community and to stimulate creativity. Individual proposals can target specific types of infrastructure (e.g. non-profit, community-driven open access publishing platforms/infrastructure), specific research outputs (e.g. software, data, publications, hardware, policy reports, creative works, replication studies) or specific open science practices (e.g. citizen science, societal engagement, reproducibility, pre-registration, open peer review). Furthermore, proposals can be generic (domain- and discipline-agnostic), as well as limited to specific domains of research.

Projects that facilitate integrations between existing services, enable interoperability, facilitate connection with discipline-specific tools, or make the existing services more sustainable will be encouraged in particular. Funding can also be used for pilot projects to develop new infrastructures, provided it is shown, that new tools or services are needed. Priority will be given to tools and services that serve larger communities.

Eligibility

All Dutch knowledge institutions covered by the NWO Grant Rules, as well as research support organisations SURF, Netherlands eScience Centre, National Library, Health-RI.

Alignment with relevant national and international initiatives

It is anticipated that projects awarded in this programme will facilitate the interoperability and integration (federation) of new and existing tools and services. This is particularly important in the innovation and improvement projects (for which only consortia are eligible to apply). Integration and federation of services based on an agreed interoperability framework is also the ambition of the European Open Science Cloud (EOSC). Besides the EOSC, there are several national and European platforms dedicated to bundling information on specific topics, including Publinova (NL) and eu.citizen-science (EU), whose work can be built upon. Accordingly, the approach aligns with national and European efforts.

Connection to NPOS

This programme addresses the following objectives of the NPOS 2030 Ambition Document and Rolling Agenda:

- 1.4 – ‘In 2030, Citizen Science-generated data, knowledge, insights and practices are easily gathered, hosted and aggregated via data infrastructures and technical tools, such that these data are integrated into mainstream processes for research, policy-making and decision-making’;
- 3.2 – ‘In 2027, the digital infrastructure for scientific publications and metadata is sustainable and preferably open, and supports publication, (re-)use and analysis by anyone. This includes the development of a national publication platform and an Open Knowledge Base, as well as support for existing open archives, repositories and infrastructures (such as Publinova) for publication, data, software and other scholarly outputs’.
- 3.4 – ‘In 2030, there will be a public platform for scientific publications, that allows everyone in the Netherlands to re-use global scholarly output for their professional and societal engagement practices’.
- 4.4. – ‘In 2027, Dutch FAIR research services and infrastructure are efficiently organised and connected, closely linked to the European digital infrastructure. There are FAIR data service infrastructures based upon major data sharing initiatives (e.g. SURF, DANS), including a network of FAIR data portals as part of EOSC’.

- 4.7 – In 2030, the Dutch open science community has access to a robust, cost-effective, and sustainable research software ecosystem, which allows for publication and archiving of software in online software repositories (e.g. GitHub, Gitlab) by RPOs, as well as integration and interoperability with existing national, international, and domain-oriented archives and Current Research Information Systems’.

Budget

€17.5M for two calls (7.5M in 2024 and 10.0M in 2025).

3. Robust research processes

One of the goals of open science is to increase the robustness of research by increasing the transparency of the underlying research processes. If research is robust, results of studies should be both reproducible (the same results are obtained when the same data is re-analysed) and replicable (the same results are obtained when new data is collected and analysed again with the same methods and protocols). [It should be noted that these terms can be interpreted differently between disciplines].²² Replication and reproducibility can be achieved only when the underlying research process is available to others. Transparent research also facilitates collaboration and knowledge sharing among researchers. In addition, enhancing reproducibility and replicability increases public trust in science. Replication studies are necessary to verify the results of previous studies or to test their generalisability. However, such studies are rare, since funding calls usually focus on novel research. It is therefore essential to encourage and support replication studies.

Furthermore, to facilitate reproducibility of research results, it is essential that research outputs are not only openly available, but also that the software needed to produce, process and analyse research results is sustained. NWO grantees are already required to make their research outputs openly available. However, when it comes to research software, simply archiving research software in a repository does not ensure its sustainability and reusability. Moreover, there is currently little funding available for sustaining existing research software because funding is mainly allocated to the creation of new tools.

Accordingly, two funding programmes are proposed to stimulate more robust research processes:

- 3.1. – Replication Studies Programme – facilitating replication studies.
- 3.2. – Research Software Sustainability Programme – enhancing existing research software for wider community reuse, ensuring transparent and reproducible research outcomes.

Overall budget in 2024-2025: €11.2M

²² Plesser HE (2018) Reproducibility vs. Replicability: A Brief History of a Confused Terminology. *Front. Neuroinform.* 11:76. DOI. [10.3389/fninf.2017.00076](https://doi.org/10.3389/fninf.2017.00076)

3.1. Replication Studies Programme

Why

In [a report published in 2018](#), the Royal Netherlands Academy of Arts and Sciences (KNAW) recommended that funding agencies should increase funding for replication studies. A replication study is a study that tries to repeat an earlier study, using similar methods to collect, process and analyse new data. In the same report, KNAW concluded that “replication studies are a normal and essential part of science” and “are an important tool for improving scientific knowledge, scientific methods and the functioning of scientific disciplines, and they should be conducted more frequently and systematically than is currently the case.” Encouraging replication aligns with the principles of open science by stimulating the sharing of research data, code, analytical tools and methodologies, and by promoting collaboration and the overall transparency and robustness of the research process.

Between 2016 and 2019, NWO and ZonMw ran a Replication Studies programme with a total budget of 3 million euros available over three funding rounds.⁴⁵ With that competitive call, open to researchers in the medical sciences, social sciences, and (at a later stage) humanities, researchers could apply for projects to carry out replication research. Two types of projects were eligible for funding: replication with existing data (repeated analysis with the same data as in the original study) and replication with new data (analysis with new data collected using the same research protocol as the original study). The evaluation of the programme was positive, with a recommendation to repeat the call and expand it to other research disciplines. Therefore, it is timely and pertinent to revive the NWO Replication Studies.

What

For this funding instrument, there will be a competitive call for proposals along the lines of the previous NWO Replication Studies programme, taking into account lessons learned from that previous experience.⁴⁶ One of the main recommendations in the evaluation of the NWO Replication Studies programme was to make the programme accessible to a wider variety of research disciplines, with a note that this could be achieved by working with a richer definition of replication studies that would be eligible for the programme and allowing researchers more room to address specific issues relating to replication in their field. The call will therefore be open to researchers from all research disciplines. Attention will be paid to ensuring that the language used in the call is understandable and inviting to every discipline. In addition, through metadata research, the call will reflect the challenges faced in different fields and in different research traditions when it comes to replication, and the ways in which replication research can contribute to building on existing knowledge.

Eligibility

Researchers and professional support staff affiliated with Dutch knowledge institutions covered by the NWO Grant Rules.

Alignment with relevant national and international initiatives

This initiative builds directly on the earlier NWO Replication Studies programme and its evaluation.

Connection to NPOS

This programme addresses the following objective in the NPOS 2030 Ambition Document and Rolling Agenda:

- 2.1 – In 2025, replication and reproducibility of scientific claims are recognized and rewarded as crucial parts of the research process. Good practices are collected and shared, and dedicated funding instruments have been established for replication and reproduction.

Budget

€5.2M, to fund projects between €75K and €250K with a maximum duration of 2 years.

3.2. Research Software Sustainability Programme

Why

The G6 Statement on Open Science from 2021²³ affirmed the importance of software as a central component of research, emphasising that “rarely any research is conducted nowadays that does not rely on software”. Some research software developed as part of individual research projects has reuse potential well beyond its original aims. Unlocking broader audiences for such software – and thereby enhancing its longer-term impact and success – requires making investments that emphasise the long-term sustainability of research software.²⁴

Sustainable research software is built on principles of good software engineering practices and it requires community engagement, team work and collaboration among researchers, research software engineers and user communities. In turn, such a collaborative approach facilitates knowledge sharing and the exchange of best practices that equip researchers with the skills and experience to develop higher-quality software that is easier to maintain, share and reuse.

Current funding mechanisms in the Netherlands (and elsewhere) tend to focus on enabling novel research. There is a need for funding mechanisms that instead favour a community-driven approach to software development and that promote a culture of building upon existing efforts (where appropriate) to build better and more broadly used research software. In early 2023, the Netherlands eScience Center issued [a call for proposals](#) for sustainable software to support communities of researchers who required their software to meet higher quality standards to ensure the continuity and advancement of their research in the longer term. However, that call could only support two projects and was therefore of limited reach, while the demand for such support is high.

Importantly, open and reproducible research is dependent on accessible and well-maintained research software. By ensuring the long-term availability and reusability of open research software, a funding programme specifically devoted to research software sustainability contributes to the integrity, transparency and robustness of research. Ultimately, investment in high-quality, open and reusable research software provides recognition and rewards to the people who develop and maintain research software and is an acknowledgement of the importance of sustainable software development for advancing scientific research for the benefit of science and society and maximising the return on previous investments.

What

The aim of this funding instrument is to increase the reusability of existing open research software. Projects will be in scope for funding where the proposal provides evidence of an established or growing demand for further development and adaptation of the software and where further software development is in line with the needs of a specific research community. This will be a competitive funding instrument open to teams of researchers, research software engineers and other relevant support staff and partners. Given the current scarcity of funding for research software sustainability and the demand for such funding from the research community, this should ideally be a recurrent call. Beneficiaries will be asked to present plans for the long-term sustainability of the software; these plans will be evaluated as part of the grant assessment process.

Eligibility

This is a targeted grant opened exclusively to the Netherlands eScience Centre, which will set up and run the programme.

Alignment with relevant national and international initiatives

This funding programme will be implemented and executed by the Netherlands eScience Center, which will be able to provide in-kind support (through their team of highly skilled research software engineers) and expertise in software sustainability and community building around open source software. This will further strengthen collaboration and facilitate knowledge and experience sharing between researchers and professional support staff affiliated with knowledge institutions and the expert research software engineers based at the

²³ [G6 statement on Open Science, Brussels \(2021\) \(PDF\)](#).

²⁴ According to the Amsterdam Declaration on [Funding Research Software Sustainability](#), research software sustainability is the process of developing and maintaining software that continues to meet its purpose over time.

Netherlands eScience Center. The call itself will build upon earlier successful calls issued by the German Deutsche Forschungsgemeinschaft (DFG),^{25,26} UK Research and Innovation (UKRI)²⁷ and the Netherlands eScience Center.

Connection to NPOS

This programme addresses the following objectives in the NPOS 2030 Ambition Document and Rolling Agenda:

- 4.8 – “In 2030, all Researchers are optimally equipped to use, develop, share, and benefit from open research software. There are dedicated funding instruments for the development of open research software”
- 4.10 – “In 2030, research based on the use of research software (...) is transparent, verifiable, reproducible, and reusable. Both research and support staff are recognized and rewarded for their active involvement in the development, maintenance, and application of research software”.

Budget

€6M to fund 24 projects, each of €250k and a duration of 12-24 months.

²⁵ DFG's 2016 call "[Research Software Sustainability](#)".

²⁶ DFG's 2022 call "[Research software – Quality Assured and Re-usable](#)".

²⁷ UKRI's call "[Software for research communities](#)".

4. Evidence base for Open Science

Having an inclusive evidence base for open science is essential for validating the progress, impact and effectiveness of open science practices and initiatives and for informing policy and funding decisions. An evidence base for open science consists of the findings from empirical research into the impact of open science practices on research quality, collaboration, integrity and transparency. A robust evidence base should allow for the identification of best practices and possible solutions in open science and an understanding not only of what works best to guide researchers, institutions and funders in implementing effective open science strategies and policies, but also how to increase equity and diversity in research. Gathering evidence is, moreover, important for the success of advocacy efforts. Research-backed arguments can be more persuasive in convincing institutions and other stakeholders of the importance of embracing open science practices, of recognising and rewarding open science contributions and of the benefits of making research more equitable and diverse. To summarise, a solid and robust evidence base for open science serves as a foundation for promoting open science, fostering collaboration, enhancing the quality and trustworthiness of research and making the research process itself more inclusive, diverse and equitable.

The Open Science NL Work Programme 2024-2025 proposes three distinct and complementary activities aimed at strengthening the evidence base for open science:

- 4.1.– Research on Open Science – aimed at researchers who wish to do research on various aspects of open science.
- 4.2.– Designing participatory citizen science calls.
- 4.3.– Monitoring and evaluation – national-level activities aimed at tracking progress of open science uptake and implementation.

Overall budget in 2024-2025: €3.3M

4.1. Research on Open Science²⁸

Why

Open science plays an important role in improving the transparency and reproducibility of research, fostering innovation and collaboration, and accelerating the progress of science for the benefit of science, society and nature. Accordingly, the Netherlands is making a substantial commitment to and investing heavily in open science. In the spirit of transparency and of enabling evidence-based decisions, policies, solutions and practices, it is essential to conduct research on open science itself. Do open science practices improve as a result of funding instruments aimed at stimulating these practices? Are some initiatives and interventions more successful than others? Are there unintended negative consequences of open science? Are some fields or disciplines underfunded or overemphasised? Do open science practices promote the underlying values of making research more equitable and accessible? Do they lead to more reproducible research? Are FAIR datasets more reusable? Does open science increase public trust in science? These are the types of questions that can be addressed by doing research on open science.

What

The Research on Open Science programme will stimulate research which helps identify problems, suggest solutions or evaluate solutions in areas related to open science. The intention is to organise an open call: no prescribed themes as long as the proposals fall within the open science agenda. Examples of topics of research which could be addressed by this funding scheme are:

- Identifying problems: e.g. what are the barriers to open science implementation;
- Proposing solutions: e.g. proposing how best to measure the impact of research outputs such as datasets, software, hardware and societal engagement or identifying best ways to reward open research practices;
- Evaluating solutions: e.g. evaluating the effectiveness of open science policies or funding interventions aimed at stimulating open science practices, studying the consequences and effectiveness of the reform of research assessment (rewarding responsible and open research practices) or evaluating various open peer review practices.²⁹

For this recurring and competitive call, applicants will be encouraged to submit proposals for research into these or other topics relating to open science.

Eligibility

Researchers and professional support staff affiliated with Dutch knowledge institutions covered by the NWO Grant Rules.

Alignment with relevant national and international initiatives

This call falls within the broader topic of 'research on research'. As such, this initiative is aligned with NWO's intention to invest more funding in research on research (further alignment with NWO's 'research on research programme' will be sought as the call is developed), as well as with international developments (e.g. the [Wellcome Trust's Research on Research Awards](#) and the activities of the dedicated [Research on Research Institute](#)).

Connection to NPOS

This funding instrument is directly related to the following objective of the NPOS2030 Ambition Document and Rolling Agenda:

- 0.4– 'In 2025, Open Science practices and interventions are continuously and thoroughly monitored and assessed to understand their impact. Funding instruments for meta-research are implemented and harmonised and are taken into account in the process of the Rolling Agenda'.

²⁸ In its new strategy, NWO has announced that it will increase its support for *Research on Research*. It is expected that a recurring yearly funding instrument will be developed with a budget of €1M a year. The focus of that call will be more general in nature, and not specifically aimed at open science practices. Close collaboration with the NWO and ZonMw initiatives should be considered.

²⁹ Open peer review urgently requires evidence: [A call to action](#).

Budget

€2.8M; maximum €250k per project with a maximum project duration of 4 years.

4.2. Designing participatory citizen science calls

Why

Internationally, funding organisations are establishing designated funding schemes for research performing organisations to run citizen science projects.³⁰ Typically, however, it is scientists that take the lead in both designing and implementing research projects. Involving non-traditional stakeholders such as citizens, citizen representatives, patient organisations, municipalities etc. in researcher-led research projects frequently leads to power struggles and non-traditional stakeholders often feel they are not equal partners. Consequently, researchers and the citizen science community are currently actively discussing how to alter the power relationship between knowledge producers and non-traditional stakeholders in favour of the latter.^{31,32}

Research is needed to identify the challenges associated with running citizen science calls and, more specifically, to propose solutions and strategies aimed at designing fully participatory citizen science calls.

What

For this funding instrument, there will be a tender procedure to contract an organisation to facilitate a co-creation trajectory with the aim of designing a citizen science call. This trajectory can be seen as “a collaborative study to set up a citizen science call”. The focus of this study will be to map and evaluate the possibilities and constraints in relation to involving non-traditional stakeholders in leading the research process (e.g. legal issues) and to propose concrete solutions. The goal is to make recommendations on how citizen science can be embedded more broadly within NWO and, in particular, to design a designated citizen science call within the Dutch Research Agenda (NWA). This trajectory will involve planning, communication, setting up working groups, conducting workshops with participants (from inside and outside of knowledge institutions) and producing a report with concrete recommendations.

Eligibility

This project will be funded through a tender. Any organisation able to meet the requirements can participate. Applicants must have experience in facilitating multi-stakeholder engagement in research and innovation and expertise in participatory methods, dialogue and co-creation.

Alignment with relevant national and international initiatives

Several international research funders already fund or are preparing to fund participatory projects. Several funders also involve citizens in the design of funding areas, strategies or programmes (e.g. NWA and pilots by the EU-funded [Pro-ethics project](#)).

Connection to NPOS

The proposed research addresses the following objective of the NPOS 2030 Ambition Document and Rolling Agenda:

- 1.1 – ‘...Dedicated funding programmes and policy instruments serve to support and sustain Societal Engagement initiatives at all scales in all domains of knowledge production’.

It also addresses strategic goal 2, Towards Inclusive and Transparent Scientific Processes, by creating ‘more openness about intermediate steps in the scientific process’.

Budget

€100k for 1-1.5 years.

³⁰ Mutual Learning Exercise- Citizen Science; [Thematic report: Ensuring good practices and impacts, p.39-46](#).

³¹ [Kennis en krachten gebundeld - citizen science in Nederland](#) (final report of the NPOS working group citizen science, 26 October 2020).

³² Rathenau Instituut (2021). Moving forward together with open science – Towards meaningful public engagement with research (authors: Scholvinck, A.M., W. Scholten, P. Diederren)

4.3. Monitoring and evaluation

Why

With the launch of Open Science NL, the Dutch government is making substantial investments to accelerate the implementation of open science. One of the tasks assigned to Open Science NL is to monitor, evaluate and report regularly on the progress of open science in the Netherlands.³³

Monitoring and evaluation (M&E) activities, such as measuring the quality level of open access publications or published research datasets and software, are essential to enable assessment and reporting of progress (tracking the implementation of open science practices and initiatives over time). Moreover, monitoring and evaluation promote accountability and transparency in the implementation of open science.

What

This instrument will fund a pilot project aimed at establishing a robust and context-specific framework for a national-level M&E system for open science. The scope of the M&E exercise should encompass open science research outputs in the broad sense (open access publications, but also conference proceedings, book chapters, research data, research software, creative works, policy reports etc.), and should ideally also allow for reporting at an organisational level (funder, knowledge institution, infrastructure etc.). In addition to outputs, the monitoring mechanism should seek to assess the implementation of open science practices by evaluating (both quantitatively and qualitatively) researchers' commitment to open science and possible challenges and barriers they face.

The project is not expected to duplicate existing efforts, but rather to build upon, strengthen and complement what is already in place, for example the national open access monitor and the work of the Netherlands Research Portal.³⁴ As part of this project, both national-level stakeholder consultations and discussions with key international stakeholders will be conducted to reach a consensus on a core set of robust and context-specific open science measures, which include a balanced set of responsible quantitative and qualitative metrics. Quantitative indicators to be used and produced as part of this project should be openly available (meta)data. The project is expected to deliver recommendations for the next steps towards a national M&E system for open science.

Eligibility

This project will be funded through a European tender. Any organisation able to meet the requirements can participate. Applicants must have experience in the monitoring and evaluation of academic research practices.

Alignment with relevant national and international initiatives

This project aligns with the initiatives to monitor the progress of Open Science being taken in many countries, including Ireland and France, and, at the European level, by the EOSC Association.³⁵ This project is expected to build on the recommendations of international bodies, such as [the UNESCO Working Group on Open Science Monitoring Framework](#).

Connection to NPOS

This funding is directly related to the following objective of the NPOS2030 Ambition Document and Rolling Agenda:

- 0.4 – ‘In 2025, open science practices and interventions are continuously and thoroughly monitored and assessed to understand their impact’.

Budget

€0.4M for 2 years.

³³ Note that evaluation of specific funding instruments is deemed to be beyond the scope of the national-level monitoring and evaluation (individual funding instruments are evaluated as part of the regular NWO process).

³⁴ [Feasibility study Open Knowledge Base \(1.0\)](#).

³⁵ [The French Open Science Monitor](#), [The Irish National Open Access Monitor](#), [EOSC](#).

5. Empowering communities

Communities are groups of people who share particular attitudes and common interests. In the case of this Work Programme, this means an interest in open science. They can be formed by and for researchers, research support staff, policy officers and practitioners (also outside of knowledge institutions). Community members come together, exchange ideas, and collaborate in searching for solutions to challenges and problems they have in common. Communities play a key role in the transition to open science as catalysts for collaboration, inspiration, and (bottom-up) initiatives.⁶⁴ Communities foster a sense of peer support, ownership and engagement that encourages active participation in open science initiatives. By ensuring that diverse perspectives and voices are heard, collaboration within communities can lead to innovative approaches and to more relevant and impactful solutions that are tailored to the needs and priorities of community members. Importantly, empowered communities become advocates, raising awareness about the benefits of open science practices and promoting its values and principles. Empowering and supporting community efforts is therefore a priority.

Five instruments are proposed to empower open science communities:

- 5.1. – Open Science Festival – organisation of the annual national event dedicated to open science.
- 5.2.– Open Science meetings – funding for communities to stimulate discussion about open science.
- 5.3.– A national Open Science Communities network (OSC-NL).
- 5.4.– Citizen Science Netherlands network (CS-NL) – funding to facilitate the network of citizen science and societal engagement experts (within and outside of knowledge institutions).
- 5.5.– Recognising and Rewarding Open Science.

Overall budget in 2024-2025: €4.5M

5.1. Open Science Festival

Why

The National Open Science Festival has been organised annually since 2021, initially by NPOS. It gives researchers, professional support staff, policy makers and other stakeholders interested in open science the opportunity to connect with peers and to learn about open science practices and policy. The event is also an important vehicle for Open Science NL to engage with the community and acquire useful input for the development of funding incentives. Given the important role of the event for empowering and engaging with the community and making open science practices more visible, and the popularity of the event, Open Science NL proposes continuing to support the organisation of the festival on a yearly basis.

What

The National Open Science Festival will be organised annually as the flagship national event on open science for researchers, professional support staff, policy makers and anyone else interested in open science. Open Science NL will oversee the organisation and the programme of the festival, while outsourcing some elements of the organisation to other parties.

Eligibility

This funding instrument will be managed directly by Open Science NL.

Alignment with relevant national and international initiatives

The National Open Science Festival brings together all stakeholders and initiatives interested in open science and facilitates knowledge and experience sharing by connecting people and organisations.

Connection to NPOS

This instrument is directly related to the following NPOS objectives:

- 0.2 – ‘In 2023, national Open Science-related networks are more closely connected to each other, and are in the position to influence, collaborate with and benefit from the NPOS.’
- 0.3 – ‘In 2023, there is broad awareness of Open Science practices at all levels (strategic, tactical and operational) within the Dutch knowledge institutions. There are funding instruments that focus on collecting, developing and sharing examples/good practices of Open Science practices and processes, both within academia and with societal partners.’
- 0.6 – ‘There is continuous effort in raising and maintaining awareness on Open Science through events (e.g. the Netherlands National Open Science Festival: MEET SHARE INSPIRE CARE)’.

Budget

€300k (€100k per year)

5.2. Open Science meetings

Why

Many communities related to open science are currently forming, consolidating or expanding, across all relevant research performing organisations and supporting institutions. Bottom-up support will benefit these communities and the connections between them by allowing open science practices to blossom and spread faster. Communities also benefit from being able to exchange ideas on topical issues and on how to address new challenges as they arise. This all points to the need for an instrument that facilitates community meetings.³⁶

What

The proposed instrument will allow communities to apply for funding to organise small-scale meetings on a topic of their own choosing. Proposals submitted by communities will be assessed by the Open Science NL office solely against administrative criteria. Proposals can be submitted at any time and successful applications will be funded on a first-come, first serve basis. The instrument will initially be run for two years, and will then be evaluated. The instrument is inspired by [NWO-ENW's Scientific Meetings and Consultations](#).

Eligibility

Researchers and professional support staff affiliated with Dutch knowledge institutions covered by the NWO Grant Rules.

Alignment with relevant national and international initiatives

The aim of this initiative is to stimulate collaboration and knowledge exchange between and within communities, organisations and initiatives related to open science.

Connection to NPOS

This instrument addresses the following objective of the NPOS2030 Ambition Document and Rolling Agenda:

- 0.2 – 'In 2023, national Open Science-related networks are more closely connected to each other, and are in the position to influence, collaborate with and benefit from the NPOS'.

Budget

€0.6M (€0.3M in 2024 and €0.3M in 2025).

³⁶ The need for a small budget to accommodate the organisation of bottom-up conferences and meetings is further affirmed by the fact that Open Science NL (and NWO) have already been contacted by various organisations and communities for support.

5.3. A national Open Science Communities network (OSC-NL)

Why

Local Open Science Communities (OSCs) have emerged as a bottom-up initiative of individuals who actively participate in and collectively advocate for open science practices. Due to the organic growth of these communities, OSCs are typically based within a single knowledge institution. To further support local OSCs, Open Science NL has already committed targeted funding (from budget that was already available in 2022) to twelve existing OSCs (see Annex 2). However, the national network (Open Science Communities Netherlands (OSC-NL)) has only just started and is based on the efforts of volunteers, which are not enough to effectively support sharing of knowledge and experiences between the local OSCs. National collaboration is urgently needed to consolidate local efforts to facilitate the long-term sustainability and local embedding of OSCs (and thus ensure that the local communities receive sufficient institutional support when the incidental funding from Open Science NL runs out).

The OSC-NL network is presently growing and now spans over 2000 individuals working at Dutch knowledge institutions. It introduces newcomers to the concepts of open science and to a broad range of open science practices. OSC-NL also organises events and activities to make open science more visible and accessible, and provides policy advice. However, OSC-NL's coordinating and supporting activities are currently performed on a voluntary basis and are in need of professionalisation.

What

The proposed funding for the OSC-NL network will be allocated on a non-competitive basis and intended to ensure the continuity and expansion of the network's coordinating team. Efforts will be focused on supporting the successful embedding of local OSCs within knowledge institutions and developing their long-term sustainability plans. OSC-NL will support the creation of branches in institutions which do not yet have an active OSC (e.g. Universities of Applied Sciences, NWO and KNAW institutions). Funding is initially set for four years, with the intention that the network will find sustainable funding sources other than Open Science NL. Since Open Science NL intends to fund another national network, namely Citizen Science Nederland (CS-NL), it is recommended that OSC-NL and CS-NL should collaborate and share knowledge where appropriate. OSC-NL will also be required to submit yearly reports on its progress, especially with regard to their path to self-sustainability.

Eligibility

This is a targeted grant opened exclusively to the current OSC-NL organisation. Applications will be assessed by external reviewers.

Alignment with relevant national and international initiatives

OSC-NL will play an important role in facilitating the connection between local OSCs. It will also connect with other national organisations, such as the [Dutch Reproducibility Network](#), the [Netherlands Research Integrity Network](#), Citizen Science Nederland (CS-NL), and international networks, such as [the International Network of Open Science & Open Scholarship Communities \(INOSC\)](#).

Connection to NPOS

This instrument addresses the following objective of the NPOS2030 Ambition Document and Rolling Agenda:

- 0.5 – 'In 2025, all Open Science Communities (OSCs) are thriving, and form an entry point of research community engagement for NPOS actions. The scope of OSCs has extended beyond academia and includes all research performing organisations (e.g. Universities of Applied Sciences). There is structural financial support available to warrant the capacity for community building and community management in a sustainable manner'.

Budget

€0.4M for 4 years (2024-2027). Note that €650k was spent in 2023 for local OSCs (see also Annex 2).

5.4. Citizen Science NL network

Why

In the Netherlands, professionals with skills and experience in setting up, running and maintaining citizen science projects are scattered across projects, a few institutes and other organisations. To ensure that all citizen science researchers and practitioners in academia, society, policy and the private sector can effectively share knowledge, and to further develop best practices, a national network called Citizen Science Nederland ([CS-NL](#)) was initiated in 2022. CS-NL is an active network with more than 300 members encompassing diverse stakeholders and organisations, from universities and patient and advocate organisations to individuals knowledgeable about citizen science. However, the network has been underfunded and has therefore focused primarily on internal communication up to now. The availability of a dedicated professional national network is crucial for the effective sharing of knowledge and professionalisation of citizen science. This was noted in the NPOS Ambition Document, and also by the [Mutual Learning Exercise \(MLE\)](#) on citizen science initiatives conducted by the EU in 2023. It is therefore proposed that the existing CS-NL network will be maintained, expanded and further professionalised (also in terms of its internal and external communication).

What

To build on existing expertise and networks, it is proposed that the allocation of funding for the CS-NL network will be non-competitive and that CS-NL's coordinating team will be retained and expanded. Funding is initially set for four years, with the intention that the network will find sustainable funding sources other than Open Science NL. This grant would allow CS-NL to hire ~2 FTEs for 4 years, thus enabling it to take the lead in organising symposia, workshops and training and to continue building a community of practice. CS-NL will be asked to submit yearly reports on its progress, with a focus on developing a path to self-sustainability.

It is suggested that this four-year grant should be used to –address the following issue. Citizen science and societal engagement face similar challenges and often require similar expertise. Societal engagement in this context implies a dialogue, participation and/or engagement, and not a dissemination role. In the Netherlands, however, practitioners of citizen science and societal engagement (including parts of the science communication field) often form separate communities in which people 'label' their activities differently. Open Science NL sees it as important to find possible overlap between these communities and to focus on the common goals. CS-NL will therefore be asked to develop a strategy to address this issue and organise activities that bring these fields closer together.

Eligibility

This is a targeted grant opened exclusively to the existing CS-NL. Applications will be assessed by external reviewers.

Alignment with relevant national and international initiatives

This call aligns with activities in several other countries that have formed national citizen science networks, including (but not limited to) Belgium (Scivil), Denmark (Citizen Science Netværket), Germany (Buerger schaffen Wissen) and Austria (Citizen Science network Austria).

Connection to NPOS

This instrument addresses the following objectives of the NPOS2030 Ambition Document and Rolling Agenda:

- 1.2 – 'In 2025, there is a strong and active national Citizen Science practitioners network'.
- 1.5 – 'In 2030, capacity for Societal Engagement has been built up [...] and training, skills development, and knowledge exchange have been facilitated and implemented, [...]'

Budget

€1.1M for 4 years (2024-2027).

5.5. Recognising and Rewarding Open Science

Why

The transition to open science requires a cultural shift which cannot rely solely on the motivation of individual researchers.³⁷ If open is to become the new normal, it is essential that researchers are recognised and rewarded for putting open science into practice. For research performing institutions, this means including open science in the evaluation of performance and career development. For funders, it means including open science practices in the criteria for funding proposals and as part of the assessment of the researchers. Although stimulating open science practices is part of the new roadmap of the [Dutch programme on Recognition & Rewards](#), progress can be accelerated. In particular, the inclusion of criteria related to open science in the hiring, promotion and tenure policies of institutions is urgently needed.

What

It is a non-competitive funding call which will allow all knowledge institutions that have signed up to the Dutch Recognition & Rewards programme to receive €50k for the development of a concrete implementation plan, with dedicated roles and responsibilities for embedding open science within the institutional hiring, promotion and tenure policies and procedures, as well as for including professional support staff and their contributions in research. The funding is intended to provide an additional impetus for embedding open science in current institutional recognition and rewards programmes and to facilitate the connections between existing experts within the institution (HR, open science experts, researchers, policy officers etc.). The institutions are further expected to proceed with the implementation of the plans to which they have already committed by adopting the national Recognition & Rewards roadmap.

In addition, €150k is earmarked for the appointment of a project manager (host organisation still being discussed) to facilitate national coordination and organisation of workshops and events to exchange practices and to stimulate alignment of policies, procedures and evaluation criteria. As part of the national coordination, it will be also investigated how to engage the Universities of Applied Sciences in the Dutch Recognition & Rewards programme.

This call will be run in close collaboration with the Dutch Recognition & Rewards programme.

Eligibility

All knowledge institutions that have signed up to the Dutch Recognition & Rewards programme: universities, university medical centres, KNAW and NWO institutes and the 'philosophical' universities.

Alignment with relevant national and international initiatives

The [Dutch Recognition & Rewards programme](#) was drawn up by the national coalition of organisations committed to changing research evaluation. At a European level, the Coalition for Advancing Research Assessment ([CoARA](#)) has taken the lead in reforming research assessment. Other relevant initiatives are three European-funded projects that work on recognition and rewards for Open Science: [GraspOS](#), [OPUS](#) and [PathOS](#).

Connection to NPOS

This initiative directly addresses the fourth Requirement to realise Open Science in the NPOS Ambition Document and Rolling Agenda: Make Open Science rewarding through incentives.

Budget

€1.4M (25 institutions * 50k + 150k national coordination) in 2024 in non-competitive grants for 1 year.

³⁷ [Blog post by Brian Nosek](#).

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Annex 1: Allocated Budget

The table below outlines the budget to be *allocated* in years 2023-2025, in millions of euros (€M).³⁸

	2023	2024	2025
Implementation costs (6% of total budget a year)	€1.2 M	€1.3 M	€1.3 M
1. Capacity building			
1.1. National Training Platform for Research Data Professionals		€4.8 M	
1.2. Strengthening local and thematic DCCs		€15.3 M	
1.3. Citizen Science Hubs		€2.0 M	
1.4. Enabling and strengthening institutional open publishing			€0.3 M
2. Open Science Infrastructure			
2.1. Open Science Infrastructure Programme		€7.5 M	€10.0 M
3. Robust research processes			
3.1. Replication Studies Program			€5.2 M
3.2. Research Software Sustainability Programme			€6.0 M
4. Evidence base for Open Science			
4.1. Research on Open Science			€2.8 M
4.2. Designing participatory citizen science calls		€0.1 M	
4.3. Monitoring and evaluation		€0.4 M	
5. Empowering communities			
5.1. Open Science Festival	€0.1 M	€0.1 M	€0.1 M
5.2. Open Science meetings		€0.3 M	€0.3 M
5.3. A national Open Science Communities network (OSC-NL)	€0.7 M	€0.4 M	
5.4. Citizen Science network NL		€1.1 M	
5.5. Recognising and rewarding Open Science		€1.4 M	
Total per year	€2.0 M	€34.7 M	€26.0 M
Total			€62.6³⁹ M

³⁸ *Allocated* means that a funding instrument will open with that budget in the year mentioned. In the next phase, applications are submitted and *assessed*. Depending on the opening date and the time required for a thorough assessment procedure, the funding is then *awarded* in either the year mentioned or the next. After funding is awarded, the funds will be *disbursed* in yearly instalments.

³⁹ Additional €2.6M were made available on top of the €60M budget as a result of wage and price compensation.

Annex 2: Overview of budget spent 2022

The budget available for Open Science NL is €20M per year from 2023 onwards. But a sum of €4M was already made available by OCW in 2022. These funds were earmarked for setting up Open Science NL and for supporting initial concrete activities. In order to prevent the actual spending of these funds having to wait until the actual launch of Open Science NL and the Steering Board taking office, NWO's Executive Board asked the NPOS Steering Committee to make a proposal for the spending of this first instalment. The following initiatives were awarded funding:

	Aim	Beneficiary	Amount (in M€)	Instrument	Alignment with NPOS goals
1	Capacity building data stewardship and research software expertise	LDCCs at universities & UMCs	1.9	Non-competitive call	Towards FAIR Research Outputs - Data
2	Empowering OS communities	All universities with an OSC	0.7 ⁴⁰	Non-competitive grant	Towards Transparent Processes
3	Proof of concept Open Knowledge Base	SURF	0.2	SURF grant letter	Towards Open Scholarly Communication
4	Publishing platform Publinova	VH/SURF	0.2	SURF grant letter	Towards Open Scholarly Communication/ Towards Societal Engagement
5	Diamond Open Access Platform Open-journals.nl	KNAW-HUC	0.5	Non-competitive grant	Towards Open Scholarly Communication
6	Start-up costs 'regie-organ''	NWO	0.5	Not applicable	Coordination NPOS Governance & Organisation

⁴⁰ Total budget for this instrument was €1.2M. Remainder comes from the 2023 budget.

Annex 3: Mapping the OSNL Work Programme 2024-2025 against the NPOS objectives

The table below explains how the NPOS objectives are addressed in the Open Science NL Work Programme 2024-2025.

NPOS Objective	Explanation	Relation to the Open Science NL Work Programme 2024-2025 and 2022 budget spent
1 – Governance	In 2022, a clear governance structure has been realised for the National Programme/ Initiative on Open Science (e.g. Regieorgaan OS), in which all relevant stakeholders have a role.	This is directly addressed in the Covenant Regieorgaan Open Science NL ⁴¹ , which has been signed by all relevant stakeholders.
0.2 - Connect national Open Science-related networks	In 2023, national Open Science-related networks are more closely connected to each other, and are in the position to influence, collaborate with and benefit from the NPOS.	This is addressed through: <ul style="list-style-type: none"> - Funding for Open Science communities (Annex 2). - Funding of a national Open Science Communities network (OSC-NL) - Funding for the organisation of the yearly Open Science festival. - Dedicated strategy for community engagement. - Funding for the Citizen Science NL network (CS-NL)
0.3 - Collaboration between stakeholders on sharing Open Science practices	In 2023, there is broad awareness of Open Science practices at all levels (strategic, tactical and operational) within the Dutch knowledge institutions. There are funding instruments that focus on collecting, developing and sharing examples/good practices of Open Science practices and processes, both within academia and with societal partners.	This is addressed through: <ul style="list-style-type: none"> - Funding for local Open Science Communities (Annex 2), funding of a national Open Science Communities network (OSC-NL) - NWO's Open Science Fund. - Funding for the organisation of the yearly Open Science festival. - Funding for the Citizen Science NL network (CS-NL).
0.4 - Open Science monitoring and assessment	In 2025, Open Science practices and interventions are continuously and thoroughly monitored and assessed to understand their impact. Funding instruments for meta-research are implemented and harmonised and are taken into account in the process of the Rolling Agenda. Evidence-informed and open indicators of science have been developed, are openly available for analysis (see objective 3.2) and are used in evaluations.	This is addressed through: <ul style="list-style-type: none"> - Dedicated task and funding for Monitoring and Evaluation. - The Research on Open Science programme.
0.5 - Strengthen Open Science Communities (OSCs)	In 2025, all Open Science Communities (OSCs) are thriving, and form an entry point of research community engagement for NPOS actions. The scope of OSCs has extended beyond academia and includes all research performing organisations (e.g. Universities of Applied Science). There is structural financial support available to warrant the capacity for community building and community management in a sustainable manner.	This is facilitated through dedicated funding for the Open Science Communities (Annex 2) and the national Open Science Communities network (OSC-NL) .
0.6 - Awareness of Open Science	There is continuous effort in raising and maintaining awareness on Open Science through events (e.g. the Netherlands National Open Science Festival: MEET SHARE INSPIRE CARE).	This is addressed through: <ul style="list-style-type: none"> - Funding for the organisation of the Open Science Festival. - Funding for the community to organise Open Science meetings.

⁴¹ [Covenant Regieorgaan Open Science NL \(PDF\)](#).

		<ul style="list-style-type: none"> - In general, Open Science NL's funding programmes will raise awareness of the importance of open science and make diverse areas of open science visible.
1.1 - Recognition of the value and impact of Societal Engagement/ Citizen Science	In 2025, RPOs, RFOs, and HEIs recognize the value and impact of Societal Engagement approaches to science, policy and society. Participatory and inclusive research practices are embedded as part of mainstream research, funding, education and innovation processes. Dedicated funding programmes and policy instruments serve to support and sustain Societal Engagement initiatives at all scales in all domains of knowledge production.	<p>This is addressed through:</p> <ul style="list-style-type: none"> - Supporting for the Citizen Science NL network (CS-NL). - Funding support for regional 'hubs' for citizen science and engagement. - The Designing participatory citizen science calls initiative is needed to gain more insight in what is needed to establish an inclusive and dedicated citizen science funding programme.
1.2 - Strong National Citizen Science practitioners network	In 2025, there is a strong and active national Citizen Science practitioners network that collaborates closely with the Centre for Science Communications & Public Engagement and the Open Science Communities network, has a diverse range of members across the Quadruple Helix, and facilitates knowledge exchange, transdisciplinary collaboration, the further development of best practice and new innovations, and the formation of new multi-stakeholder initiatives across a wide range of domains.	<p>This is addressed through:</p> <ul style="list-style-type: none"> - Funding support for the Citizen Science NL network (CS-NL) - Funding for a national Open Science Community network (OSC-NL)
1.3 - Involvement of societal partners in academic process	In 2030, stakeholders from across all sectors of society and all components of the Quadruple Helix have clear pathways to participate in open and collaborative processes of scientific knowledge creation, evaluation, and communication to the benefit of society and its members, in all domains of research. There is a central online repository of consolidated research and best practice made widely available to all actors (see also objective 3.4).	<p>This is addressed through:</p> <ul style="list-style-type: none"> - Support for the Citizen Science NL network (CS-NL) (fostering and deepening the connections between the societal actors and researchers). - Establishment of regional expertise 'hubs' for citizen science and engagement (fostering the connection between the societal partners and researchers regionally).
1.4 - Infrastructure for Societal Engagement	In 2030, Citizen Science-generated data, knowledge, insights and practices are easily gathered, hosted and aggregated via data infrastructures and technical tools, such that these data are integrated into mainstream processes for research, policy-making and decision-making.	<p>This is addressed through:</p> <ul style="list-style-type: none"> - Designated citizen science-specific infrastructure needs can be part of the Open Science Infrastructure Programme. - The Citizen Science NL network (CS-NL) serves as a knowledge infrastructure. - The regional expertise 'hubs' for citizen science and engagement serves as a knowledge infrastructure.
1.5 - Capacity for Societal Engagement support within institutions and in society	In 2030, capacity for Societal Engagement has been built up such that a wide range of different stakeholders & actors have been identified and engaged, their needs addressed in context, and training, skills development, and knowledge exchange have been facilitated and implemented, with dedicated support embedded within institutions, and support secured for the ongoing development of new resources and novel applications.	<p>This is addressed through:</p> <ul style="list-style-type: none"> - The regional expertise 'hubs' for citizen science and engagement can coordinate and facilitate capacity building regionally. Training and skills development will be an important pillar of such hubs. - The Citizen Science NL network (CS-NL) will coordinate capacity building further.
2.1 - Replication and reproducibility of scientific claims are recognized and rewarded	In 2025, replication and reproducibility of scientific claims are recognized and rewarded as crucial parts of the research process. Good practices are collected and shared, and dedicated funding instruments have been established for replication and reproduction.	<p>This is addressed through:</p> <ul style="list-style-type: none"> - the Replication Studies Programme. - Additionally, other Open Science NL funding programmes aimed at improving the openness of scholarly communication and research software or the FAIRness of data will indirectly contribute to more reproducible research practices. - Furthermore, NWO recently funded the establishment of the Netherlands Reproducibility Network (NLRN) in 2023.

2.2 - Uniformity between R&R policies of stakeholders in the Netherlands regarding OS practices	In 2026, there is uniformity between policies of stakeholders in the Netherlands regarding the Recognition & Rewards of sharing intermediate steps of scientific processes. Pioneers of these practices are recognized as academic leaders.	This is addressed through: <ul style="list-style-type: none"> - the Recognising and Rewarding Open Science initiative. In addition, it is also partially addressed by the NWO Open Science Fund, which recognises open science leaders and pioneers. - The Open Science NL Research Software Sustainability Programme aims to recognise and reward those who develop and maintain open research software.
2.3 - Infrastructure for transparent research processes	In 2030, there is (a network of) infrastructure(s) that sustainably and efficiently connects the different intermediate outputs in the scientific process (e.g. grant applications, protocols, notebooks, reviews), to make them easily findable, searchable and reusable.	Nationally this objective is – at least initially – realised through the establishment of the Netherlands Research Portal which has replaced NARCIS since July 2023'. This objective can be further facilitated through the Open Science Infrastructure Programme .
2.4 - Decoupling publication and review	In 2030, publication, review and curation are decoupled. Preprints are the norm, and (post-publication) peer review platforms are recognized and supported.	This objective is indirectly addressed through: <ul style="list-style-type: none"> - the Recognising and Rewarding Open Science initiative. - However, more discussions are needed how these global ambitions can be supported from a national level. Within the Enabling and strengthening institutional open publishing initiative these discussions could be facilitated.
2.5 - Embed Open Science principles at the core of educational curricula	In 2030, Open Science principles are embedded at the core of educational curricula for Bachelor/Master students, researchers, support staff and societal partners, both in content and form. This includes educational assignments, academic leadership courses, and information skills courses.	Education curricula are the responsibility of knowledge institutions.
3.1 - National coordination for open scholarly communication	From 2023 onwards there is national coordination for the systematic steering and monitoring of innovations towards just and open scholarly communication. This includes quality assurance, cost control, supportive policies at national and at the institutional level, and further development of guiding principles for safeguarding public values and digital sovereignty.	This is addressed through: the Enabling and strengthening institutional open publishing initiative.
3.2 - Infrastructures for scientific publications and metainformation	In 2027, the digital infrastructure for scientific publications and metadata is sustainable and preferably open, and supports publication, (re-)use and analysis by anyone. This includes the development of a national publication platform and an Open Knowledge Base, as well as support for existing open archives, repositories and infrastructures (such as Publinova) for publication, data, software and other scholarly outputs.	Nationally this objective is at least provisionally facilitated through: <ul style="list-style-type: none"> - the Netherlands Research Portal - Additional challenges can be addressed through the Open Science Infrastructure Programme. - Discussion about the provision of a national publication platform should be closely aligned with the recent announcement by the EC to open up its platform Open Research Europe to other funders and countries (OSNL is involved in these discussions).
3.3 - Towards immediate Open Access through multiple routes	In 2030, all scholarly output from publicly financed knowledge institutions from the Netherlands is freely and sustainably available and reusable under an open licence, where possible without an embargo period. This includes a harmonised multi-route approach (green, diamond, as well as gold Open Access) which emphasises sustainability, cost-effectiveness and public values.	The realisation of this ambition is the joint responsibility of all research funding and performing institutions in the Netherlands. OSNL facilitates this for the time of this working programme through the: <ul style="list-style-type: none"> - Open Science Infrastructure Programme - the proposed initial action Enabling and strengthening institutional open publishing.
3.4 - Making scientific publications available to the general public	In 2030, there will be a public platform for scientific publications, that allows everyone in the Netherlands to re-use global scholarly output for their professional and societal engagement practices.	This objective needs further elaboration. Initial activities in this area, however, can already be supported from the Open Science Infrastructure Programme .

4.1 - National coordination on FAIR data	In 2025, there is national coordination on the implementation of standardised and machine-actionable FAIR digital research outputs and associated FAIR metadata, that connects local, domain-specific, national and international (e.g. EOSC) levels.	The National Coordination Point Research Data Management (LCRDM) already plays an important coordinating role in the implementation of FAIR Data. Open Science NL is not convinced that <i>additional</i> national coordination efforts in this area are needed. Instead, Open Science NL proposes to strengthen and consolidate the existing national initiatives through the National Training Platform for Research Data Professionals and Strengthening local and thematic DCCs
4.2 - Policy on research software	In 2025, there is wide-spread attention for the efficiency, effectivity, openness, integrity, consistency, and sustainability of open research software in relation to infrastructural facilities and environmental impact. There are institutional policies, aligned with international developments, and guidelines for research software management and ecological implications of open research software.	To facilitate the development of policies on research software nationally, OSNL is involved in discussions initiated by the Netherlands eScience Center on institutional research software policy alignment. OSNL is also involved in efforts aiming at global alignment on software policies led by the Research Software Alliance (ReSA).
4.3 - Implementation of FAIR data and corresponding meta-information in RPOs	In 2025, 40% of the digital scientific objects and corresponding meta-information in RPOs has been made FAIR, through mandated FAIR expert teams in RPOs, assisted by FAIR expert teams in domains; in 2030, this will be 75%.	Open Science NL agrees that additional efforts are much needed to improve the FAIRness of data. The following funding instruments are directly aimed at increasing the FAIRness of datasets: <ul style="list-style-type: none"> - the National Training Platform for Research Data Professionals (training of data professionals is a pre-requisite to building FAIR data expert capacity, - the Strengthening local and thematic DCCs (direct focus on metadata and standardisation)
4.4 - Data services and infrastructure	In 2027, Dutch FAIR research services and infrastructure are efficiently organised and connected, closely linked to the European digital infrastructure. There are FAIR data service infrastructures based upon major data sharing initiatives (e.g. SURF, DANS), including a network of FAIR data portals as part of EOSC.	This objective is facilitated through the Open Science Infrastructure Programme .
4.5 - Harmonise conditions for access to sensitive data	In 2027, it will be possible to share FAIR research objects ('as open as possible, as restricted as necessary'); Dutch stakeholders have harmonised the conditions for access to sensitive data. There is a national data governance expert platform to design and implement nationally harmonised policies for access to FAIR data, with specific attention to sensitive data.	Nationally, SURF, ODDISEI and Health-RI are already playing a role in addressing this objective. Further research is needed to determine the remaining gaps, which could be addressed by additional funding instruments. This objective can also be facilitated through the Open Science Infrastructure Programme .
4.6 - Research data support capacity building	In 2030, a professional community of well-trained data stewards has been established and there is enough structural capacity (in FTEs, as well as in expertise) at Research-Performing Organisations (RPOs) to facilitate making digital scientific objects FAIR. There is a nationally coordinated training programme for data stewards.	This objective is addressed by the two previous NWO local DCCs calls, the Strengthening local and thematic DCCs call and also through the National Training Platform for Research Data Professionals proposed in this work plan.
4.7 - Infrastructure for research software	In 2030, the Dutch open science community has access to a robust, cost-effective, and sustainable research software ecosystem, which allows for publication and archiving of software in online software repositories (e.g. GitHub, Gitlab) by RPOs, as well as integration and interoperability with existing national, international, and domain-oriented archives and Current Research Information Systems.	This objective is addressed by the Open Science Infrastructure Programme .
4.8 - Research Software Capacity building for researchers	In 2030, all researchers are optimally equipped to use, develop, share, and benefit from open research software. There are dedicated funding instruments for the development of open research software.	This objective is directly addressed through Strengthening local and thematic DCCs and the Research Software Sustainability Programme .

4.9 - Research software support capacity building	In 2030, there is sufficient capacity and expertise of research support staff to enable the use of open research software. There is a nationally coordinated training programme and a training network for researchers and support staff (following the train-the-trainer principle).	This objective is directly addressed through Strengthening local and thematic DCC . Furthermore, the Netherlands eScience Center currently manages the Research Software Training NL network.
4.10 - Recognition of research software	<p>In 2030, all research based on the use of research software (including data, publications, methods, and analyses) is transparent, verifiable, reproducible, and reusable.</p> <p>Both research and support staff are recognized and rewarded for their active involvement in the development, maintenance, and application of research software.</p>	<p>This objective is indirectly addressed by the Recognising and Rewarding Open Science initiative.</p> <p>Furthermore, this objective is facilitated through the Research Software Sustainability Programme and the Replication Studies Programme.</p>

Annex 4: List of abbreviations

COARA	Coalition for Advancing Research Assessment
CS-NL	Citizen Science Nederland
CWTS	Centre for Science and Technology Studies
DCC	Digital Competence Centre
DFG	Deutsche Forschungsgemeinschaft
ENW	Exacte en Natuurwetenschappen (NWO domain science)
EOSC	European Open Science Cloud
FAIR	Findable, Accessible, Interoperable, Reusable
FTE	full-time employee
HEI	Higher education institution
INOSC	International Network of Open Science & Scholarship Communities
KNAW	Royal Netherlands Academy of Arts and Sciences
LDCC	Local Digital Competence Centres
MLE	Mutual Learning Exercise
NARCIS	National Academic Research and Collaborations Information System
NPOS	National Programme Open Science
NWA	Nationale Wetenschapsagenda (Dutch Research Agenda)
OA	Open Access
ODDISEI	Open Data Infrastructure for Social Science and Economic Innovations
OECD	Organisation for Economic co-operation and development
OSC	Open Science community
OSC-NL	Open Science Communities Netherlands
R&R	Recognition & rewards
RDNL	Research Data Netherlands
ReSA	Research Software Alliance
TDCC	Thematic Digital Competence Centre
UKB	Samenwerkende Nederlandse Universiteitsbibliotheken en Nationale Bibliotheek (partnership of Dutch University Libraries and The Royal Library of the Netherlands)
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNL	Universiteiten van Nederland (Universities of the Netherlands)