Policy recommendations and support programme

Policy Enhancement Recommendations

Based on the initial **landscape assessment** and the work of related initiatives, FAIRsFAIR prepared a series of practical recommendations for enhancing the broader policy environment to support the realisation of a FAIR ecosystem. The recommendations are presented under each of the three stages outlined by the Turning FAIR into Reality Report - that is, Define, Implement, and Embed & Sustain - to help assess progress towards the priority and supporting actions. A key aim for FAIRsFAIR is to amplify existing policy recommendations wherever possible rather than to duplicate what has already been done. In this respect, the initial set of recommendations builds upon recommendations made by a number of initiatives including EOSC-hub, EOSCpilot, RDA Europe, OpenAIRE, and FREYA. The recommendations are presented under each of the three stages outlined by the Turning FAIR into Reality Report.

Define - concepts for FAIR Digital objects and the ecosystem

FAIR Principles

- Cooperate with relevant initiatives to support funding bodies to characterise and, where needed, enhance policies to align with FAIR principles - either explicitly or implicitly
- Building on the work of other initiatives, agree on a common set of FAIR policy elements and work with stakeholders to employ them to describe their policies. The emphasis should be on describing those policy elements that may be considered 'rules' rather than simply suggested good practice to support machine-actionability.
- Working with research communities to define data outputs, policymakers should adopt standard descriptions to ensure that definitions provide clarity on the range of outputs that should be considered and what might be considered "FAIR enough".
- Policies themselves should be FAIR. PIDs should be assigned to clearly versioned policies. These PIDs should be included in the metadata records in registries such as FAIRsharing.org or other policy registry services.

Data Availability

- Standardised exceptions for not sharing data should be developed and promoted in associated policy guidance.
- Standard exceptions should be added to metadata schemas used by repositories for consistency.
- Working collaboratively, define and require standardised Data Accessibility Statements.
- Provide support to repositories and data stewards to develop tombstone metadata records that are maintained - even when data is no longer available - and to ensure that these metadata records are referenced in Data Availability Statements.

Licenses

- Working with relevant stakeholders, support adoption of rights and licensing documentation schemas for different types of research outputs as they are defined.
- Provide mechanisms to enable searching for data by license type in repositories.

- Provide legal guidance on choosing appropriate licenses during active stage of research and for assessing the compatibility of different license types when reusing multiple data outputs.

Implement - culture, technology and skills for FAIR practice

Data Management Plans

- Working with all stakeholders, ensure that data management planning is supported across the entire research lifecycle so that data can be "born FAIR" and kept "FAIR enough" over time. Require updating of DMPs over the research lifecycle leading to comprehensive, high-quality end stage DMPs that are included in end-stage reporting.
- Policies and related guidance should emphasise that data management planning and sharing data supports research integrity goals, enhances data quality and contributes to reproducibility and transparency.
- Support researchers to assess the potential risks, benefits and associated costs to enable the sharing of FAIR data as they draft their DMP.

Guidance and support

- Provide practical guidance to researchers and data stewards on how to implement FAIR within different domains – specifically on how to describe data using appropriate metadata standards, data tags and ontologies. Commitments are needed from all stakeholders to support and meet training needs relating to Open Science - for both researchers and data stewards.
- RDM support should place an emphasis on selecting which data to make and keep FAIR as well as advising on where data should be deposited.
- Provide guidance on how to cite a broader range of research outputs including data and software, as well as actors and enablers such as data managers, data stewards, funding bodies, research infrastructures and organisations.
- Where resources allow, RPO's should provide domain specific RDM support locally (research group, faculty/department). Where local support isn't feasible, the development of shared domain-specific resources should be supported and maintained with resources provided by all stakeholders.

Embed and Sustain - incentives, metrics and investment

Costs

- Building upon previous work on defining cost types work with funding bodies and research performing organisations to implement these in new grant applications. RPOs should monitor and review RDM costings over the life of the project and beyond to assess the effectiveness of current cost models.
- Working collaboratively on carefully scoped pilots, funding bodies, RPOs and repositories should assess and report on the costs of making and keeping data FAIR to build up a picture of how the costs might change over time and to leading to the

development of sustainable funding models.

Compliance

- Support stakeholders to consider compliance monitoring across the FAIR ecosystem using identifiers and knowledge graphs. An emphasis should be placed on rewarding good practice but, where necessary, the introduction of penalties for non-compliance should be considered.

Policy Support Programme

An open call for policy enhancement support was launched in late 2020. The call invited expressions of interest from policy makers at all levels to work with us to assess their current policies against our policy enhancement recommendations and to consider how the policies might be adapted to support the emergence of a FAIR ecosystem better. We aimed to work with a range of policy makers and made our selection to ensure there was representation from different stakeholder groups (national, funding body, organisational, research infrastructure), different stages of policy development, and geographic coverage.

Who did we work with?

Based on responses to the open call, we selected a cohort of 20 policymakers to work with over the second half of 2021 and early 2022. Our main focus was to ensure we had representation from different stakeholder groups (national level, funding bodies and research performing organisations) and stages of policy development. European policy makers were prioritised but we also included a few participants from beyond Europe to reflect the global nature of research.
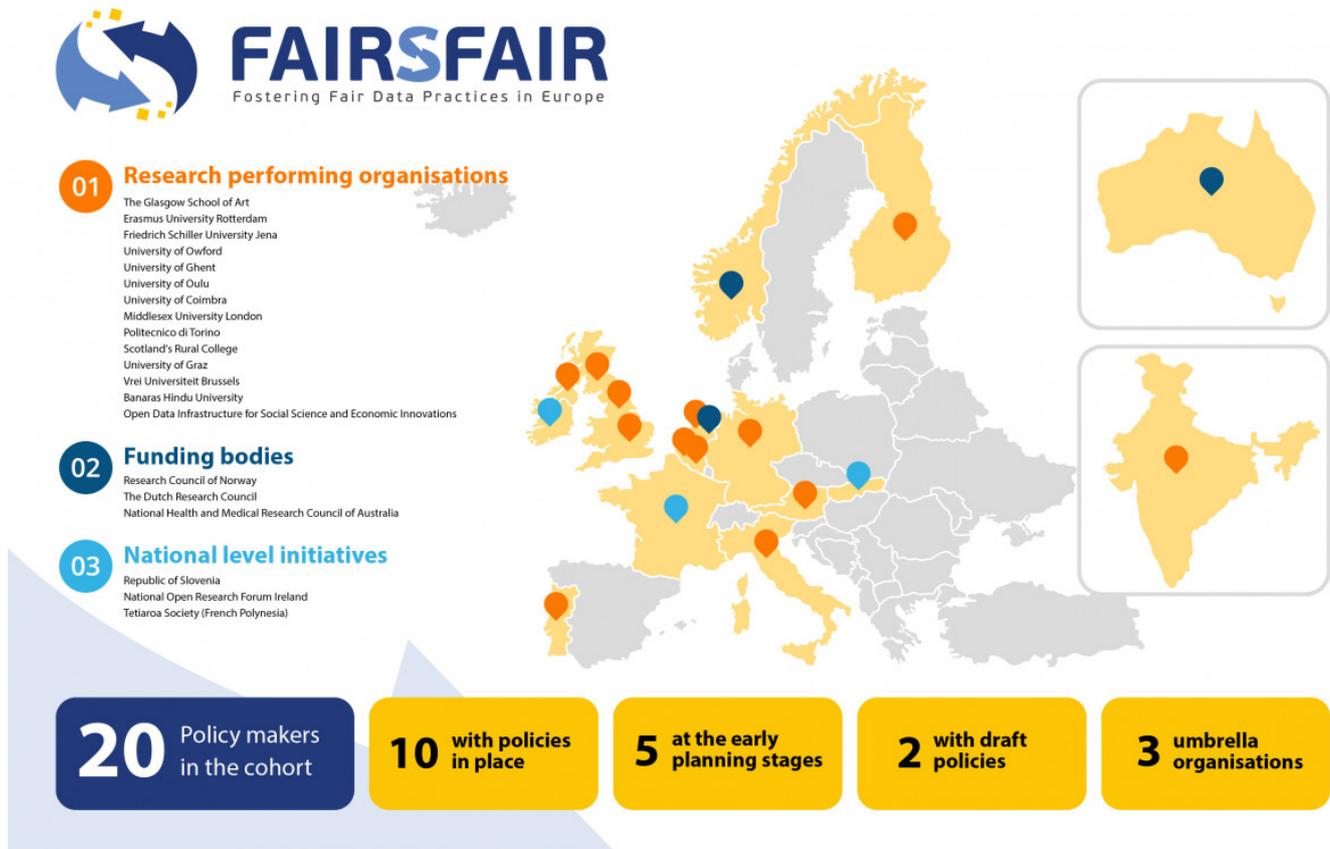
What support did we offer?

For those with policies or draft policies, FAIRsFAIR carried out a review of these against our set of policy enhancement recommendations and provided a summary report outlining the results and suggestions. For each policy, at least two reviewers carried out an assessment. The individual assessments were combined to allow us to see where there was agreement and where views differed among reviewers for each of the policy elements. A consensus meeting was held to allow us to explore the reasons for differing opinions. In many cases, differing views reflected a lack of clarity in the policy leading to varying interpretations of what the policy expected. Once consensus had been reached, the summary report was prepared to provide feedback to each of the policy makers and offer recommendations how to become more FAIR-enabling.

We also offered a series of four support workshops to help share good practices and support policy development and refinement.

- Workshop one presented an overview of the review approach and instruments used as well as providing a summary of the findings of the policy reviews and examples of good practice.
- Workshop two was optional and targeted to those in the earliest stages of policy development and provided an overview of good practice and tips to consider when starting to plan policy development.
- Workshop three aimed to help to progress our recommendation of making policies themselves FAIR and provided guidance on creating, updating and making structured policy descriptions

accessible.
- Workshop four provided and introduction to the Assessing Capability Maturity and Engagement with FAIR-enabling Practices (ACME-FAIR) framework along with practical advice on how to carry out a self-assessment of organisational FAIR-enabling practices.

Resources for policy makers

FAIR-enabling data policy checklist

FAIRsFAIR's landscape assessment found that data policies that are clear and easy to understand can positively influence researchers in making their data FAIR. To support this recommendation and drawing on the instruments used during our policy support programme, we developed an easy to use policy checklist which helps users assess whether elements of their data policies are FAIR-enabling as well as providing recommendations on what should be addressed in policies. The checklist is broken into three sections each dealing with a different aspect of the policy. These include:

Metadata sharing	The policy should make clear any expectations around metadata sharing in particular when the data cannot be shared openly or if data are no longer accessible. An emphasis should be placed on making clear whether metadata sharing is required or is suggested.		• The policy clearly states that sharing metadata for selected data outputs is required.
			• The policy encourages metadata sharing but does not require it.
			• The policy does not address metadata sharing or lacks clarity over what is expected of researchers when it comes to sharing metadata.
Data Management Plan (DMP)	Policies should provide clarity over whether there is an expectation for researchers to develop a DMP as part of their research.		• The policy makes clear whether a data management plan should be developed.
			• The policy does not clearly state whether a data management plan should be developed.
Timing of DMP	Where DMPs are required, policies should provide clarity over the timing of their preparation and delivery (pre award, in award, post award). If multiple versions are required at different stages, this should be made clear.		• The policy makes clear at what stage the DMP should be prepared.
			• The policy lacks clarity about when the DMP should be prepared.
			• The policy does not include an expectation for a DMP .

- Context of the policy such as the title and the year the policy came into effect
- Content of the policy focusing on suggested and required aspects of research data management and data sharing
- Support for adhering with the policy and compliance monitoring

A draft version of the checklist was open for public consultation until February 14, 2022 and the checklist has been refined based on feedback received. It is available both as an editable document and as a PDF file.
Download the [FAIR-enabling data policy checklist](#).

## Structured policy description template and related guidance

Building on the FAIR Data Policy Checklist, a structured policy description template was created to enable policy makers create and share structured versions of their data policies to support their reuse and

comparison by those monitoring the policy landscape. Download a **copy of the template** and follow the instructions in the Readme tab to start creating your own structured policy description.

The related **Creating and Sharing Structured Policy Descriptions - a step by step guide** helps policy makers to use the template and to make use of existing repositories and registries to make their structured descriptions accessible.
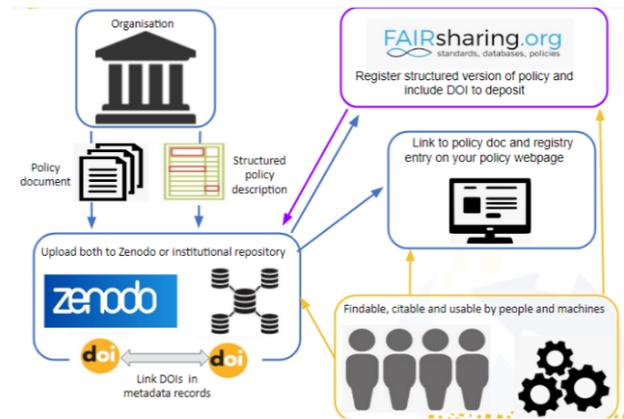
Discussions on monitoring the landscape

A workshop on Monitoring EOSC readiness in relation to FAIR data policies was delivered to augment the policy support programme. The target audience for this event included members of the policy support cohort but it was also open to a broader range of stakeholders who are interested in - or may need to contribute to - the ongoing monitoring of the landscape at different levels. The event shared recent work undertaken by the EOSC Association to define key performance indicators relating to monitoring EOSC readiness, shared the key aims of an EOSC Steering Board Survey on policy monitoring currently being carried out with Member States, and introduced solutions being developed by EOSC Future, FAIRsharing and FAIRsFAIR to support comparable policy monitoring moving forward. The slides and a recording of the workshop are available **here** .

Good practice examples

Browse through our selection of good practice examples. These examples were identified through our initial landscaping activity and our policy support programme.

Providing policy context

FAIRsFAIR

Example of good practice

THE GLASGOW SCHOOL OF ART

Research Data Management Policy

GSᵒFA

POLICY DETAILS:

Date of approval	25th October 2016
Approving body	Research and Knowledge Exchange Committee (RKEC)
Supersedes	n/a
Date of EIA	30th September 2016
Date of next review	September 2017
Author	Nicola Siminson
Responsible Executive Group area	Research & Doctoral Studies
Related policies and documents	GSA Data Protection Policy; GSA Research Ethics Policy; GSA Open Access Policy; GSA Records Management Policy; GSA Policy for Staff Electronic File Backup; GSA Information Technology Security Policy; GSA Staff Acceptable IT Use Policy; GSA Museum and Archive Collections Development Policy; GSA Library Collections Strategy
Benchmarking	n/a

Context:

- Date approved
- Date of review
- Approving body
- Related policies and documents

[Glasgow School of Art Research Data Management Policy](#)

Defining research data

Example of good practice

3. Definitions

Administering institutions: Organisations responsible for administering NHMRC grant applications, awards, reporting and other aspects of grant management.

Data/information: The terms 'data' and 'information' are often used interchangeably. Data can refer to raw data, cleaned data, transformed data, summary data and metadata (data about data). It can also refer to research outputs and outcomes. Likewise, information takes many different forms. Where information is in a form that can identify individuals, protecting their privacy becomes a consideration. 'Data' is intended to refer to bits of information in their raw form, whereas 'information' generally refers to data that have been interpreted, analysed or contextualised.

Data and information may include but not be limited to:

- what people say in interviews, focus groups, questionnaires/surveys, personal histories and biographies;
- images, audio recordings and other audio visual materials;
- records generated for administrative purposes (e.g. billing, service provision) or as required by legislation (e.g. disease notification);
- digital information generated directly by the population through their use of mobile devices and the internet;
- physical specimens or artefacts;
- information generated by analysis of existing personal information (from clinical, organisational, social, observational or other sources);
- observations;
- results from experimental testing and investigations; and
- information derived from human biospecimens such as blood, bone, muscle and urine.

DOI: Digital Object Identifier, a unique persistent identifier for a published digital object (report, publication, article) that is issued by the DOI Foundation and its authorised agencies.

Final Report: A report submitted at the completion of an NHMRC funded research project as required by the NHMRC Funding Agreement.

Institutional repository: An online repository (usually hosted by an institution) that is publicly accessible in which the metadata of publications/data and the publications/data themselves can be stored, managed and preserved for the long term.

Intellectual Property: "Intellectual property is the property of your mind or proprietary knowledge. It is a productive new idea you create. This can be an invention, trade mark, design, brand or even the application of your idea". (IP Australia, www.ipaustralia.gov.au)

Metadata: Underlying information that describes other data. It generally helps the user to understand what the data are, where they can be found and how they can be used. See Appendices 1 and 2 for further clarification.

NHMRC funded research: Research activity that is funded under a NHMRC scheme.

- Extensive
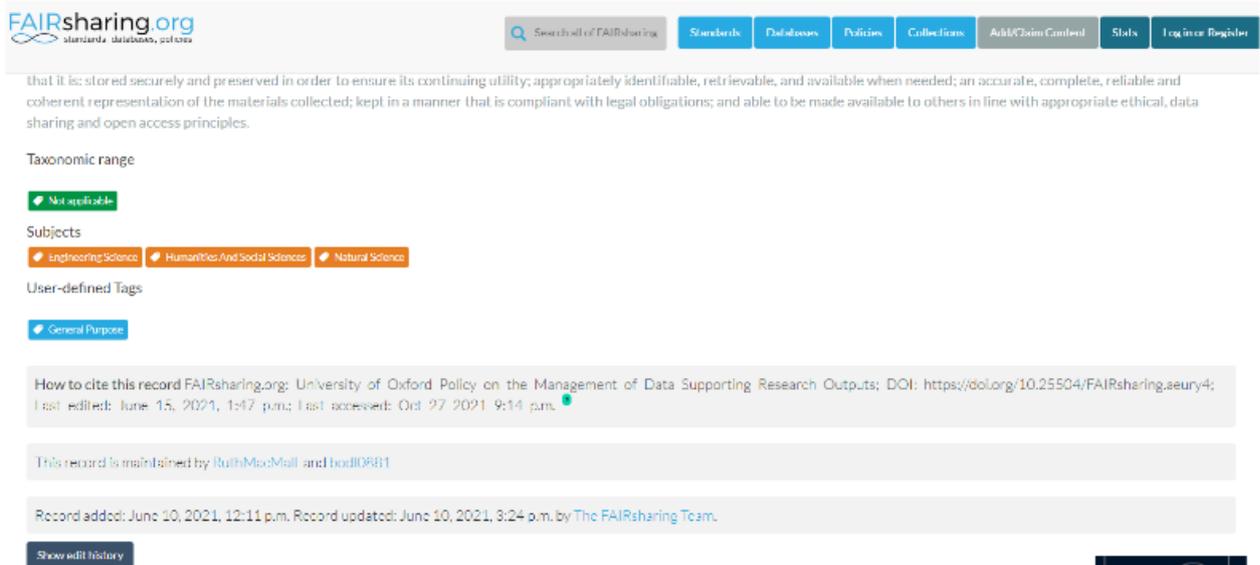- Covers digital and non-digital data
- Includes metadata

National Health and Medical Research Council Open Access Policy

Policy registration

University of Oxford Policy on the Management of Data Supporting Research Output - FAIRsharing record

Explaining FAIR

Example of good practice: explaining the FAIR principles in practical terms

In its DMP Guidelines for researchers[39], The Swiss National Science Foundation (SNSF) starts by stating "Managing and sharing research data as openly as possible is one of the principles of good scientific practice." SNSF also provides helpful advice on how to interpret the FAIR principles[40] in its guidance to support the implementation of the policy and makes clear its expectations on the part of researchers in receipt of funding as well as the data repository they select to deposit their data.

Swiss National Science Foundation Open Research Data

Swiss National Science Foundation explanation of the FAIR Principles

Clarity on data sharing expectations

Example of good practice

Research data management

Responsible research data management is an essential component of good research practice. In addition to being safely stored and carefully curated, research data should be made available for reuse as widely and as early as possible. The guiding principle in this respect is 'as open as possible, as closed as necessary.'

NWO therefore expects researchers to:

- Carefully manage all research data generated as part of NWO funded projects;
- Preserve these data for at least ten years, unless legal provisions or discipline-specific guidelines dictate otherwise;
- As a minimum, share the research data that underlie research publications alongside those publications, unless this is prevented for reasons of privacy, public safety, ethical restrictions, property rights or commercial interests;
- Deposit research data in a trusted repository in such a way that the data are as findable, accessible, interoperable and reusable (FAIR) as possible.

NWO understands research data as the evidence that underpin the answer to research questions, and can be used to validate findings.

- Clear on what data should be shared
- Clear about legitimate exemptions to sharing
- Clear on retention period of selected data

NWO expectations for research data management

Making exceptions to data sharing clear

Example of good practice: providing clear guidance on legitimate exceptions to data sharing

Funders such as the European Commission do reference FAIR specifically and provide detailed guidance to help with implementation. The guidance for the European Commission's H2020 Programme states that "If certain datasets cannot be shared (or need to be shared under restrictions), explain why, clearly separating legal and contractual reasons from voluntary restrictions." The guidance makes clear that researchers can have valid reasons for not sharing the resulting project data but that these should be clearly stated. The guidance helpfully separates out legal or contractual barriers to data sharing, as opposed to other reasons, which helps avoid easy opt-outs and unfounded data closure.

Guidelines for FAIR Data Management in Horizon 2020[42]

European Commission H2020 guidance

Updating DMPs

Example of good practice: providing clarity on DMP assessment	

The Wellcome Trust recently introduced outputs management plans as part of its application process. The outputs management plan and associated guidance[45] makes clear that in addition to research data, the effective management of other digital and non-digital outputs should be considered. Their guidance makes clear what is included, that the plan should be reviewed and updated over the life of the project, and that the plan will be reviewed as part of the proposal assessment.

'Anyone applying for Wellcome funding must consider their approach to managing and sharing anticipated outputs at the research proposal stage. In cases where these outputs are significant – generating data, software or materials that will hold clear value as a resource for others in academia or industry – applicants will need to include an outputs management plan explaining their planned approach. We will review this plan when making our funding decision. We will fund any justified costs for delivering the plan as part of funding the research… Researchers' approach to outputs management should be dynamic. Plans should reflect established best practice in the respective research field.'

How to complete an outputs management plan, Wellcome

Wellcome Outputs Management Plan

Clear roles and responsibilities

Example of good practice

August 20, 2020

6. ROLES, RESPONSIBILITIES AND MANDATES
The responsibility for research data management during and after a research project lies with Erasmus University Rotterdam and its researchers and should be compliant with codes for the responsible conduct of research.

6.1 EUR EXECUTIVE BOARD IS ACCOUNTABLE FOR:
The Executive Board bears final responsibility for the duties of care as stated in the Netherlands Code of Conduct for Research Integrity. By means of this policy and other related EUR guidelines, empowering organisational units, providing appropriate means and resources for research support operations, the upkeep of services, infrastructures, employee education and monitoring practices it will facilitate and stimulate good research data management at EUR.

6.1.1 ACADEMIC AFFAIRS (AA) IS RESPONSIBLE FOR:
Managing risks and revisions of this RDM policy.
Aligning this RDM policy with other EUR policies.

6.1.2 ERASMUS RESEARCH SERVICES (ERS) IS ACCOUNTABLE FOR:
Managing the EUR Digital Competence Center that will provide the 1st line of RDM support and function as a central hub to connect all RDM services and expertise at EUR and other DCC's.
Coordinating the 2nd line of RDM support provided by CIO, IT, Library and other EUR staff.

6.1.3 CIO, ERS, IT and LIBRARY ARE RESPONSIBLE FOR:
Facilitating good data management by providing a suitable research infrastructure.
Providing 2nd line of support.
Ensuring that all data, software codes and research materials, published or unpublished, can be securely stored for the period indicated by the depositor.
Ensuring that, as far as possible, data, software codes, protocols, research materials and corresponding metadata can be stored permanently.
Ensuring that it is clear how data, software codes and research material can be accessed.

6.2 RESEARCH DIRECTORS ARE ACCOUNTABLE FOR:
Faculty policies and guidelines in case these exist.
Research infrastructure being used according to good practices.
Ensuring that, in accordance with the FAIR principles, data is open and accessible to the extent possible and data remains confidential to the extent necessary.
Ensuring that all data, software codes and research materials, published or unpublished, are managed

Erasmus University Rotterdam

- Clear roles and responsibilities

- Board accountable for monitoring

[Research Data Management (RDM) policy of Erasmus University Rotterdam (EUR)](#)

Clarity on eligibility of RDM costs

Example of good practice: providing clarity on eligible costs	UK RI UK Research and Innovation
UK Research and Innovation (UKRI) provides extensive information about which RDM and data sharing costs can be recovered in grant applications. In its guidance it states that: 'Research Organisations are encouraged to seek to recover costs that will be incurred in relation to research data arising from Research Council grants. Such costs could be associated with the production, curation and sharing of the research data according to the guidelines (which may be data-specific) published by the Research Councils, and may for example include (but is not limited to) staff time, software, hardware and third-party storage services.' UKRI Guidance on best practice in the management of research data [47]	

[UKRI data management plan guidance](#)

Help to find data repositories

Example of good practice: taking the guesswork out of finding a suitable data repository	**NWO** Netherlands Organisation for Scientific Research
The NWO data management section[52] of its policy provides a link to repositories with a data Seal of Approval or CoreTrustSeal repositories[53]. In its DMP Guidelines for researchers[54], researchers can find examples of repositories that comply with the FAIR Data Principles and are non-commercial. NWO provides a checklist for repositories that are FAIR as well as a separate list for non-commercial ones, which provides practical guidance for researchers in selecting a suitable place of deposit. By removing the guesswork, NWO helps to ensure that the researchers it funds can meet their requirements and ensures that FAIR data production and reuse is supported. *NWO data management section*	

NWO guidance on research data management

Related deliverables and outputs

- **FAIR-enabling data policy checklist**. This checklists helps users assess whether elements of their data policies are FAIR-enabling as well as providing recommendations on what should be addressed in policies.
- **Structured policy description template**. This template enables policy makers to create a structured description of their data policy.
- **Creating and Sharing Structured Policy Descriptions - a step by step guide**. The document guides policy makers on using the structured policy template and making use of existing repositories and registries to make these descriptions accessible.
- **D3.1 FAIR Policy Landscape Analysis**. This document provides a snapshot of the data policy landscape at various levels (national, funder, publisher, institutional) in 2019 and identifies policy elements that support or hinder FAIR data practice.
- **D3.3 Policy Enhancement Recommendations**. Based on the outcomes of D3.1, FAIRsFAIR prepared a series of practical recommendations for policy enhancement to support the realisation of a FAIR ecosystem.