Meet & Greet

(Open) Science and Research Data Management

Raúl Aguilera Ortega
Library Service
Universidad Carlos III de Madrid

Alicia Fátima Gómez Sánchez
Library
IE University

IE UNIVERSITY LIBRARY

uc3m | Universidad Carlos III de Madrid
BIBLIOTECA

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Icons: https://www.freepik.es

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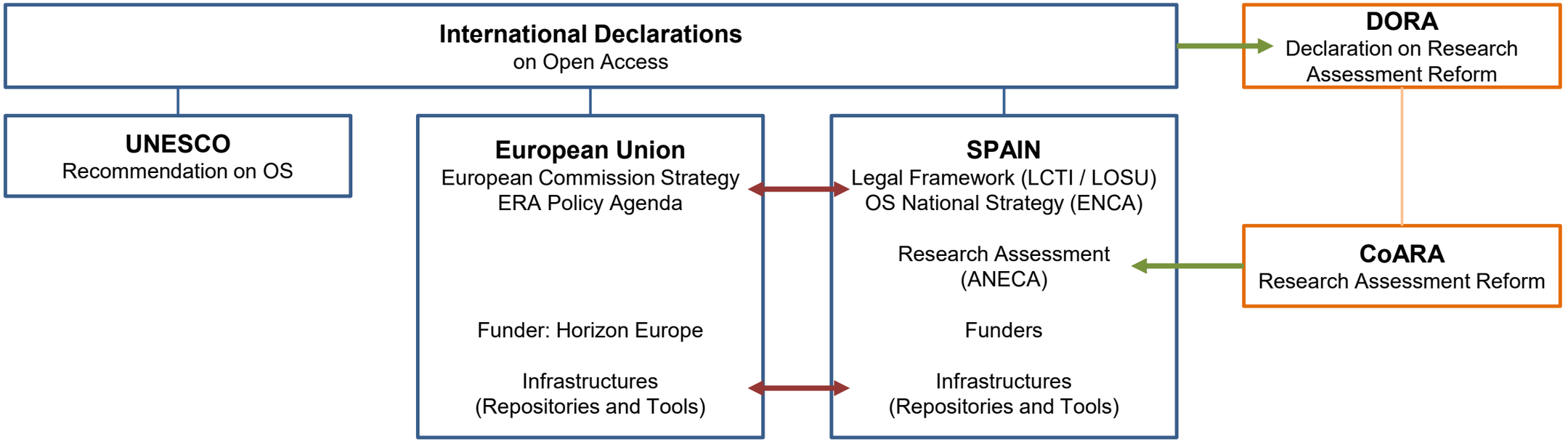
Key Concepts, Actors and Policies

(Open) Science: An Overview

Concepts, Actors and Policies

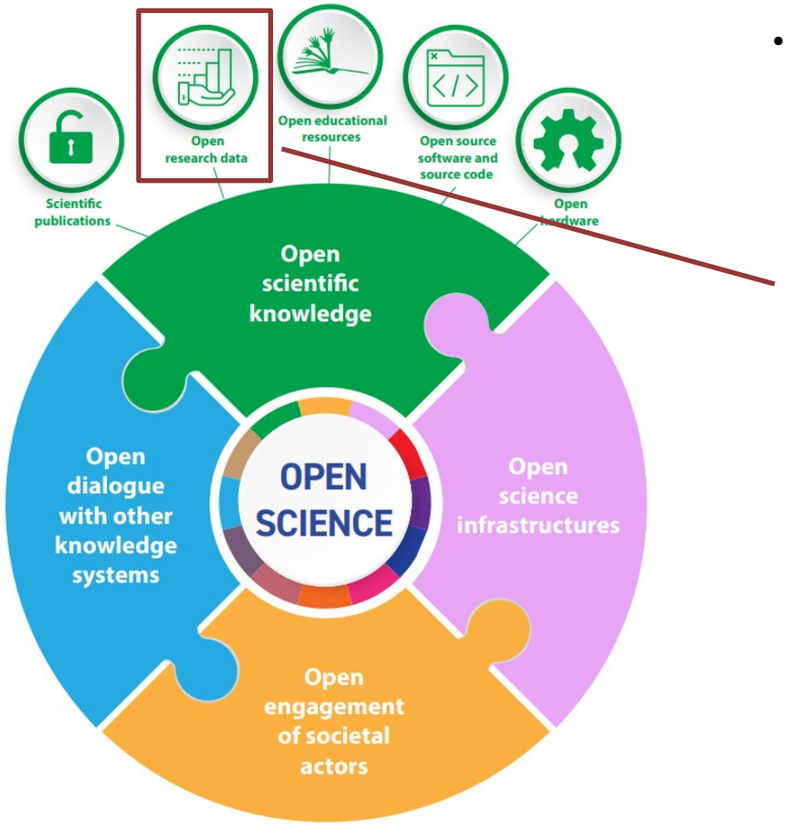


Open Science: A Concept

UNESCO Recommendation on Open Science (2021)

"First international standard setting instrument on Open Science"

Recommendation on Open Science (2021)
https://unesdoc.unesco.org/ark:/48223/pf0000379949.locale=en

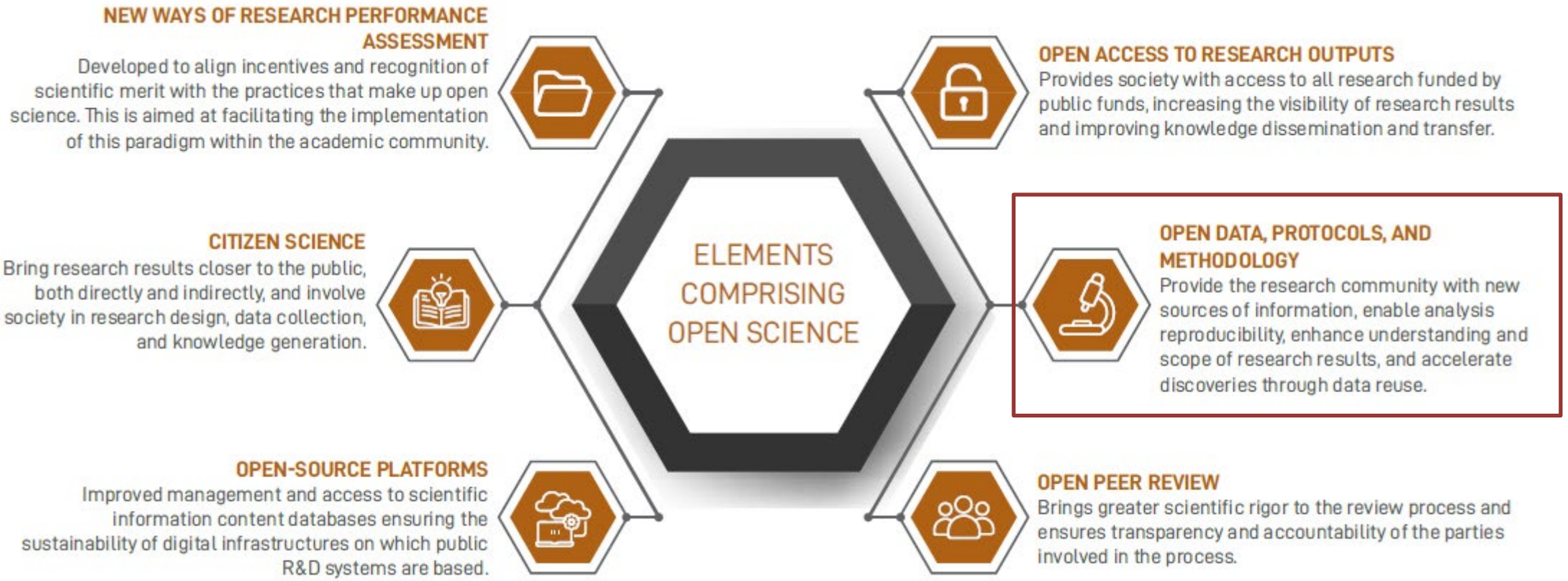


- **Open scientific knowledge** refers to open access to scientific publications, **research data**, metadata, open educational resources, software, and source code and hardware that are available in the public domain or under copyright and licensed under an open licence (…)

Open research data that include, among others, digital and analogue data, both raw and processed, and the accompanying metadata, as well as numerical scores, textual records, images and sounds, protocols, analysis code and workflows that can be openly used, reused, retained and redistributed by anyone, subject to acknowledgement. Open research data are available in a timely and user-friendly, human-and machine-readable and actionable format, in accordance with principles of good data governance and stewardship, notably the FAIR (Findable, Accessible, Interoperable and Reusable) principles, supported by regular curation and maintenance.

Open Science: A Concept

Spanish National Strategy for Open Science (ENCA) 2023-2027



FECYT (2023). *Spanish National Strategy for Open Science (ENCA) 2023-2027*
https://www.ciencia.gob.es/Estrategias-y-Planes/Estrategias/ENCA.html

European Union

Open Science in the European Commission Policies

ERA Policy Agenda 2025-2027 [proposal on 28th February 2025]

Priority Area 1: Deepening a Truly Functioning Internal Market for Knowledge

- Open Science as a structural policy involving action in ERA

Priority Area 2: Taking up Together the Green Transition and Digital Transformation and Other Challenges with Impact on Society, and Increasing Society's Participation in the ERA

Priority Area 3: Enhancing Access to Research and Innovation Excellence Across the Union and Enhancing Interconnections Between Innovation Ecosystems Across the Union

Priority Area 4: Advancing Concerted Research and Innovation Investments and Reforms

https://research-and-innovation.ec.europa.eu/news/all-research-and-innovation-news/commission-adopts-proposal-next-european-research-area-policy-agenda-2025-2027-2025-02-28_en

European Union

Open Science in the European Commission Strategy (2020-2024)

Open Science Facilitators

Open Science enablers

- **incentives and rewards to adopt Open Science practices**. (…) development of the Agreement for Reforming Research Assessment (ARRA) and the coalition of the signatories, the Coalition for Advancing Research Assessment (CoARA) (…)

- **legislative and regulatory environment** for practising Open Science (…)

- **Horizon Europe provisions** on Open Science

- Open Science **infrastructures and skills**:
  - the **European Open Science Cloud (EOSC)**, recognised as one of the Common European Data Spaces, enhancing the EU's leadership in the global data economy
  - **Open Research Europe** - An innovative Open Access publishing platform for research funded by all EU Programmes
  - **support for skills** and education for equitably practicing Open Science and FAIR research data management

European Commission (2024). *Strategy 2020-2024 – Our Digital Future*
https://research-and-innovation.ec.europa.eu/strategy/strategy-2020-2024/our-digital-future/open-science_en

European Union

Open Science and European Commission Research Funding

Horizon Europe 2021-2027

New elements in Horizon Europe

- **European Innovation Council**: Support for innovations with potential breakthrough and disruptive nature with scale-up potential that may be too risky for private investors. This is 70% of the budget earmarked for SMEs.
- **Missions**: Sets of measures to achieve bold, inspirational and measurable goals within a set timeframe. There are 5 main mission areas as part of Horizon Europe.
- **Open science policy**: Mandatory open access to publications and open science principles are applied throughout the programme.
- **New approach to partnerships**: Objective-driven and more ambitious partnerships with industry in support of EU policy objectives.

Open science *is embedded throughout Horizon Europe:*

- *in the work programmes,*
- *in the proposal evaluation,*
- *in the grant agreements,*
- *in the project execution and follow-up,*
- *and in the programme evaluation.*

https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en

Spain

Legal Framework

Law 14/2011, on June 1st, of Science, Technology and Innovation (updated on September 6th, 2022) > principles + article 37 / Link

Organic Law 2/2023, on March 22nd, of the University System
> article 12 / Link

Scientific knowledge as a public good

Public Administration and universities must promote Open Science and Citizen Science

Open access to publications, data, codes, methodologies + **research data according to FAIR principles** (Findability, Accessibility, Interoperability, Reusability)

The Version of Record (VoR) must be deposited in repositories (even if it cannot be available in open access)

Open Access must be taken into account in research assessment processes

Universities and publishers must be transparent in their subscription agreements

Libraries must provide access to open contents and training in Open Science

Compliance with **funder requirements**

Compatibility with **intellectual and industrial property rights** protection

Spain

National Strategy: RDM

Digital infrastructures for OS

Management of research data following FAIR principles.

Spanish National Strategy for Open Science (ENCA) 2023-2027
https://www.ciencia.gob.es/Estrategias-y-Planes/Estrategias/ENCA.html

State Plan for Scientific and Technical Research and Innovation (PEICTI) 2024-2027
https://www.ciencia.gob.es/Estrategias-y-Planes/Planes-y-programas/PEICTI.html

Open access
to scientific publications

Incentives,
recognition and training

OS considered one of the **framework** conditions

4 strategic axes with specific **expected outcomes** through **measures** including proposals on **how and when** to achieve them

European Union and Beyond

Towards a New Research Assessment Model

CoARA (Coalition for Advancing Research Assessment)

1. Recognise the diversity of contributions to, and careers in, research in accordance with the needs and nature of the research

2. Base research assessment primarily on qualitative evaluation for which peer review is central, supported by responsible use of quantitative indicators

3. Abandon inappropriate uses in research assessment of journal- and publication-based metrics, in particular inappropriate uses of Journal Impact Factor (JIF) and h-index

4. Avoid the use of rankings of research organisations in research assessment

5. Commit resources to reforming research assessment as is needed to achieve the organisational changes committed to

6. Review and develop research assessment criteria, tools and processes

7. Raise awareness of research assessment reform and provide transparent communication, guidance, and training on assessment criteria and processes as well as their use

8. Exchange practices and experiences to enable mutual learning within and beyond the Coalition

9. Communicate progress made on adherence to the Principles and implementation of the Commitments

10. Evaluate practices, criteria and tools based on solid evidence and the state-of-the-art in research on research, and make data openly available for evidence gathering and research

https://coara.eu/agreement/the-commitments/

Spain

Assessment Framework

ANECA (National Assessment and Accreditation Agency)

Open Science in Six-year Research Periods (*sexenios*) + Accreditations since 2024

- *Sexenios* are six-year research period assessments, based on general criteria, available on annual calls: this means an increase in the salary
- Inspiration: San Francisco Declaration on Research Assessment (DORA) + CoARA – Coalition for Advancing Research Assessment.

Assessment criteria until 2023	New assessment criteria in 2024	
Based on **quantitative metrics** (JCR, SJR) in most of the research fields. Some *ad hoc* criteria for fields where quantitative metrics are less determinant (i.e. Law and Humanities).	Keeps the quantitative metrics and other criteria as evidences of relevance and impact but sets **qualitative assessment in the centre of the process** (researchers are asked to highlight their actual contribution and to provide evidences of **social impact**.	
No reference to mandatory deposit of publications or data according to the Law of Science, Technology and Innovation (approved in 2011, modified in 2022).	**Mandatory deposit of publications or data** assessed according to the Law of Science, Technology and Innovation (approved in 2011, modified in 2022).	**Data considered eligible outputs**
No reference to open access in publications or data.	Contribution to **open science is worth 10%** of the total points. **Key role of data and other outputs** (considered equal to publications) with recognition of the **importance of FAIR principles**.	**Open Science is worth 10% of the total points**

Adapted from: Aguilera Ortega, R. Fernández Conti, S. (2024). *When Research Assessment Moves Forward (in Spain): Experiences from UAM and UC3M Libraries*. 11th UNICA Scholarly Communication Seminar: "Open Science and Academic Libraries: Organizational Challenges in an Evolving Research Landscape". https://hdl.handle.net/10016/45568

(Open) Science & RDM: Skills & Challenges

ResearchComp: a EU Framework

Competences on OS dimensions

- **ResearchComp is a tool that helps**
  - researchers assess and develop their own transversal skills
  - higher education institutions and training providers adapt their offer to researchers
  - employers to be aware of the wide set of competences of researchers
  - policy makers can monitor researchers' competences better, and can develop targeted policies in support of inter-sectorally mobile researchers

- **Structure**
  - 7 competence areas > 38 competences
  - 389 learning outcomes along 4 proficiency levels (foundational, intermediate, advanced, expert) similar to the A1-A2-B1-B2-C1-C2 model of language levels

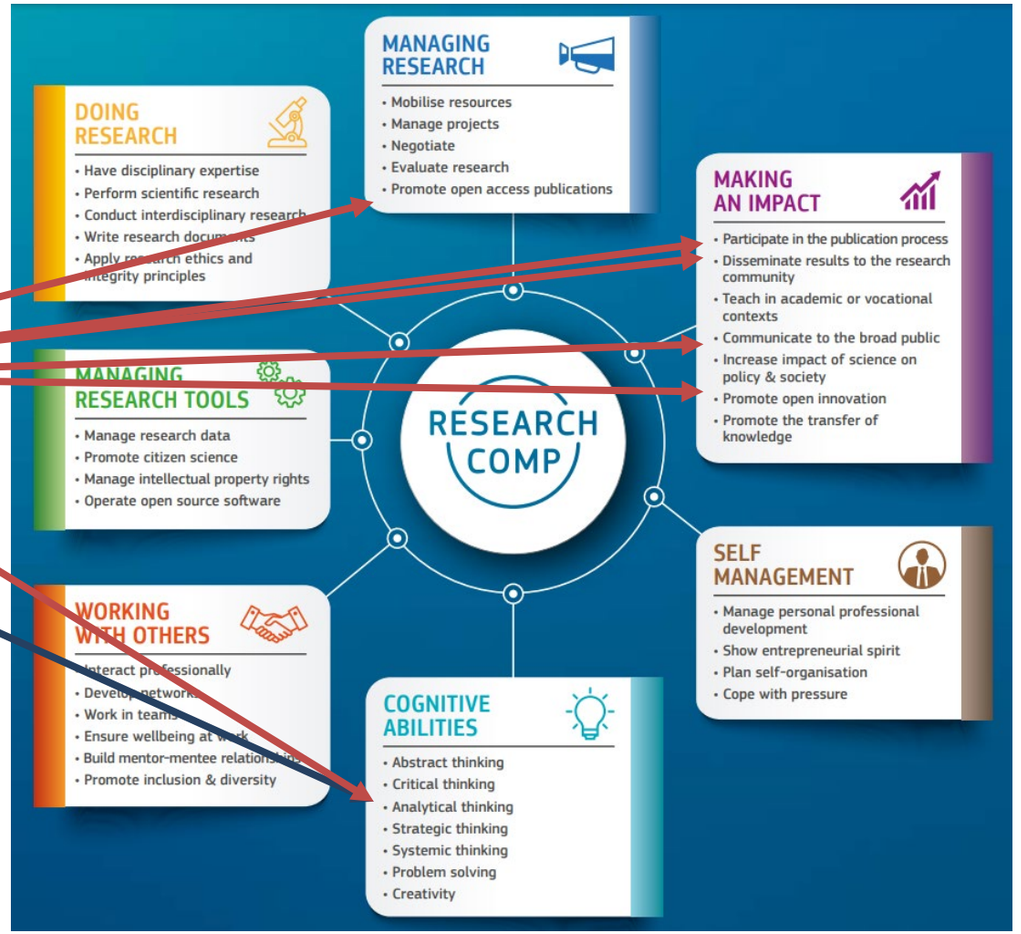
European Commission (2022). *ResearchComp: The European Competence Framework for Researchers*.
https://research-and-innovation.ec.europa.eu/jobs-research/researchcomp-european-competence-framework-researchers_en

ResearchComp: an EU Framework

Competences on OS & RDM dimensions

Competences
on OS dimensions

Competences
on RDM dimensions



European Commission (2022). *ResearchComp: The European Competence Framework for Researchers*.
https://research-and-innovation.ec.europa.eu/jobs-research/researchcomp-european-competence-framework-researchers_en

ResearchComp: an EU Framework

Competences on OS & RDM dimensions

Competences
on OS dimensions

Competences
on RDM dimensions

European Commission (2022). *ResearchComp: The European Competence Framework for Researchers*.
https://research-and-innovation.ec.europa.eu/jobs-research/researchcomp-european-competence-framework-researchers_en

Research Data Management

Horizon Europe: Data in the Standard Application Form

Part A: Application form

Section 2: Participants

List of up to 5 publications, widely-used datasets, software, goods, services, or any other achievements relevant to the call content.

Type of achievement	Short description
[Publication] *[Dataset]* *[Software]* *[Good]* *[Service]*	Key elements of the achievement, including a short qualitative assessment of its impact and (where available) its digital object identifier (DOI) or other type of persistent identifier (PID). Publications, in particular journal articles, are expected to be open access. Datasets are expected to be FAIR and 'as open as possible, as closed as necessary'.

Section 4: Ethics and Security

4. PERSONAL DATA				Page
Does this activity involve processing of personal data?			○ Yes ○ No	
If **YES**:	Does it involve the processing of special categories of personal data (e.g.: sexual lifestyle, ethnicity, genetic, biometric and health data, political opinion, religious or philosophical beliefs)?		○ Yes ○ No	
	If **YES**:	Does it involve processing of genetic, biometric or health data?	○ Yes ○ No	
	Does it involve profiling, systematic monitoring of individuals, or processing of large scale of special categories of data or intrusive methods of data processing (such as, surveillance, geolocation tracking etc.)?		○ Yes ○ No	
Does this activity involve further processing of previously collected personal data (including use of preexisting data sets or sources, merging existing data sets)?			○ Yes ○ No	
Is it planned to export personal data from the EU to non-EU countries?			○ Yes ○ No	
If **YES**:	Specify the type of personal data and countries involved:			
Is it planned to import personal data from non-EU countries into the EU or from a non-EU country to another non-EU country?			○ Yes ○ No	
If **YES**:	Specify the type of personal data and countries involved			

European Commission (2024). *Horizon Europe Programme. Standard Application Form (HE RIA, IA)*
https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/temp-form/af/af_he-ria-ia_en.pdf

Research Data Management

Horizon Europe: Data in the Standard Application Form

Part B: Technical description

Definitions

Deliverable	A report that is sent to the Commission or Agency providing information to ensure effective monitoring of the project. There are different types of deliverables (e.g. a report on specific activities or results, data management plans, ethics or security requirements).
Research output	Results generated by the action to which access can be given in the form of scientific publications, data or other engineered outcomes and processes such as software, algorithms, protocols and electronic notebooks.
Results	What is generated during the project implementation. This may include, for example, know-how, innovative solutions, algorithms, proof of feasibility, new business models, policy recommendations, guidelines, prototypes, demonstrators, databases and datasets, trained researchers, new infrastructures, networks, etc. Most project results (inventions, scientific works, etc.) are 'Intellectual Property', which may, if appropriate, be protected by formal 'Intellectual Property Rights'. Example: *Successful large-scale demonstrator: trial with 3 airports of an advanced forecasting system for proactive airport passenger flow management.*

Section 1.2: Methodology

- Describe how appropriate open science practices are implemented as an integral part of the proposed methodology. Show how the choice of practices and their implementation are adapted to the nature of your work, in a way that will increase the chances of the project delivering on its objectives *[e.g. 1 page]*. If you believe that none of these practices are appropriate for your project, please provide a justification here.

  ⚠ *Open science is an approach based on open cooperative work and systematic sharing of knowledge and tools as early and widely as possible in the process. Open science practices include early and open sharing of research (for example through preregistration, registered reports, pre-prints, or crowd-sourcing); research output management; measures to ensure reproducibility of research outputs; providing open access to research outputs (such as publications, data, software, models, algorithms, and workflows); participation in open peer-review; and involving all relevant knowledge actors including citizens, civil society and end users in the co-creation of R&I agendas and contents (such as citizen science).*

European Commission (2024). *Horizon Europe Programme. Standard Application Form (HE RIA, IA)*
https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/temp-form/af/af_he-ria-ia_en.pdf

Research Data Management

Horizon Europe: Data in the Standard Application Form

Part B: Technical description

Section 2.2: Measures to maximise impact

- Outline your strategy for the management of intellectual property, foreseen protection measures, such as patents, design rights, copyright, trade secrets, etc., and how these would be used to support exploitation.

  ⚠ *If your project is selected, you will need an appropriate consortium agreement to manage (amongst other things) the ownership and access to key knowledge (IPR, research data etc.). Where relevant, these will allow you, collectively and individually, to pursue market opportunities arising from the project.*

Section 3.1: Work plan and resources > list of deliverables

⚠ *Resources assigned to work packages should be in line with their objectives and deliverables. You are advised to include a distinct work package on 'project management', and to give due visibility in the work plan to 'data management' 'dissemination and exploitation' and 'communication activities', either with distinct tasks or distinct work packages.*

⚠ *You will be required to update the 'plan for the dissemination and exploitation of results including communication activities', and a 'data management plan', (this does not apply to topics where a plan was not required.) This should include a record of activities related to dissemination and exploitation that have been undertaken and those still planned.*

European Commission (2024). *HE Programme Guide* https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide_horizon_en.pdf

European Commission (2024). *Horizon Europe Programme. Standard Application Form (HE RIA, IA)* https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/temp-form/af/af_he-ria-ia_en.pdf

Research Data Management

Horizon Europe: Data in the Model Grant Agreement

Article 17: Dissemination, Open Science and Visibility > dissemination obligations

Metadata of deposited data must be open under a Creative Common Public Domain Dedication (CC0) or equivalent (to the extent legitimate interests or constraints are safeguarded), **in line with the FAIR principles** (in particular machine-actionable)

- Establish a **Data Management Plan** ('DMP') (and regularly update it)
- As soon as possible and within the deadlines set out in the DMP, **deposit the data in a trusted repository**; if required in the call conditions, this repository must be federated in the EOSC in compliance with EOSC requirements
- As soon as possible and within the deadlines set out in the DMP, **ensure open access** — via the repository— to the deposited data, under the latest available version of the Creative Commons Attribution International Public License (CC BY) or Creative Commons Public Domain Dedication (CC0) or a licence/dedication with equivalent rights, **following the principle 'as open as possible as closed as necessary'**, unless providing open access would in particular:
  - be against the beneficiary's legitimate interests, including regarding commercial exploitation, or
  - be contrary to any other constraints, in particular the EU competitive interests or the beneficiary's obligations under this Agreement; **if open access is not provided (to some or all data), this must be justified in the DMP**
- provide information via the repository about any research output or any other tools and instruments needed to re-use or validate the data.

https://rea.ec.europa.eu/horizon-europe-grants-reporting_en

Annotated version: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/guidance/aga_en.pdf

Research Data Management

Infrastructures & Services

Data Management Plans

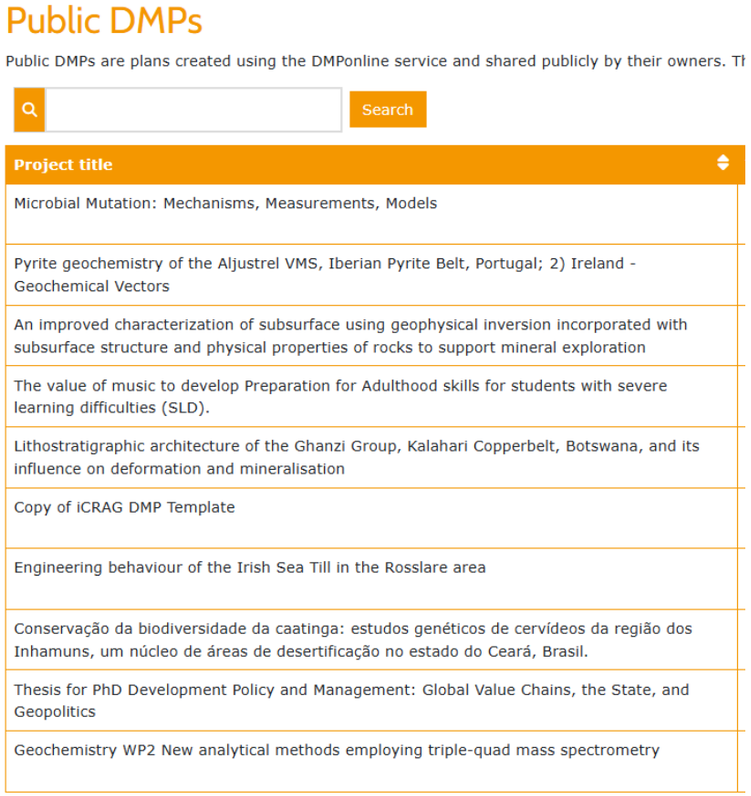
Establishing a **DMP** is **required by funders such as Horizon Europe** (Model Grant Agreement, article 17).

DMP tools allow researchers to generate, maintain (and publish if applicable) data management plans by using a variety of templates that usually cover:

- Description of the type of data to be collected or created
- Roles and responsibilities in data management
- A summary of the documentation accompanying the data
- Provisions on data storage and backup, data sharing and data preservation
- Considerations on copyright, ethics and legal compliance

There are many tools researchers can use, being DMPOnline (Digital Curation Centre, UK) one of the most widely used as this is available online for any researcher. **DMPOnline is recommended by IE University**.

Researchers can self-manage DMPs but **data librarians can train and help you**.



DMP Online
https://dmponline.dcc.ac.uk

Research Data Management

FAIR Principles

There are many tools to assist researchers in making their data FAIR compliant:
https://fairassist.org/#!/

Work closely with librarians when assessing the *fairness* of the data!

BE CAREFUL!

Data can be FAIR compliant but

- there may be errors in the data
- data may be incomplete or may nor reflect reality
- data may be obsolete or non relevant
- data may have been obtained against IPR or data protection regulations
- data may not declare what their sources are

Fairness is a formal indicator, not a quality indicator

Gómez, A. F. (2025). *FAIR in Practice Evaluación de los principios FAIR para datasets de Investigación*. https://hdl.handle.net/20.500.14417/3603

LIBER (2024). *A Guide to FAIR Practices in Research Libraries*. https://libereurope.eu/document/a-guide-to-fair-practices-in-research-libraries/a-guide-to-fair-practices-in-research-libraries_2024/

Research Data Management

FAIR Principles

HOW?

REPOSITORIES

Findable

- Persistent identifiers > DOI, Handle
- Repositories that follow international standards and allow record retrieval

Accessible

Repositories that allow metadata to be accessible (even if the data itself is not)

Reusable

- Data must be fully described (metadata).
- Data must include licenses that indicate reuse options.

Interoperable

Repositories that follow international standards (Dublin Core, OAI-PMH, OpenAIRE, etc.)

Research Data Management

FAIR Principles

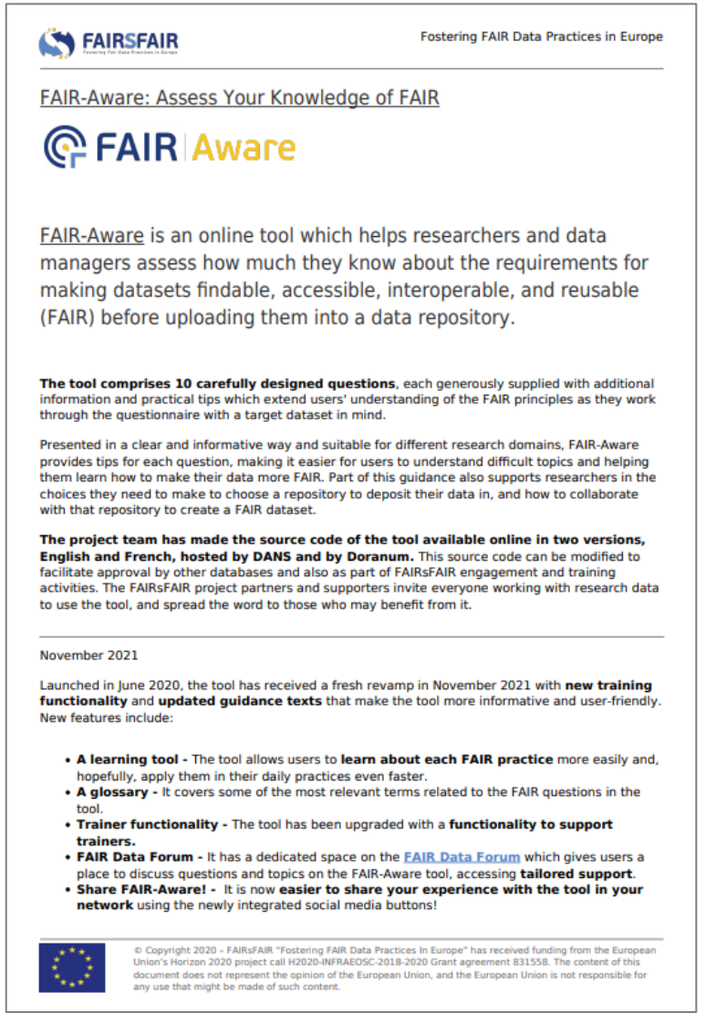
Tools to help with FAIR principles

Research Data Management

FAIR Principles

FAIR-Aware

https://www.fairsfair.eu/fair-aware



FAIRSFAIR

Fostering FAIR Data Practices in Europe

FAIR-Aware: Assess Your Knowledge of FAIR

FAIR Aware

FAIR-Aware is an online tool which helps researchers and data managers assess how much they know about the requirements for making datasets findable, accessible, interoperable, and reusable (FAIR) before uploading them into a data repository.

The tool comprises 10 carefully designed questions, each generously supplied with additional information and practical tips which extend users' understanding of the FAIR principles as they work through the questionnaire with a target dataset in mind.

Presented in a clear and informative way and suitable for different research domains, FAIR-Aware provides tips for each question, making it easier for users to understand difficult topics and helping them learn how to make their data more FAIR. Part of this guidance also supports researchers in the choices they need to make to choose a repository to deposit their data in, and how to collaborate with that repository to create a FAIR dataset.

The project team has made the source code of the tool available online in two versions, English and French, hosted by DANS and by Doranum. This source code can be modified to facilitate approval by other databases and also as part of FAIRsFAIR engagement and training activities. The FAIRsFAIR project partners and supporters invite everyone working with research data to use the tool, and spread the word to those who may benefit from it.

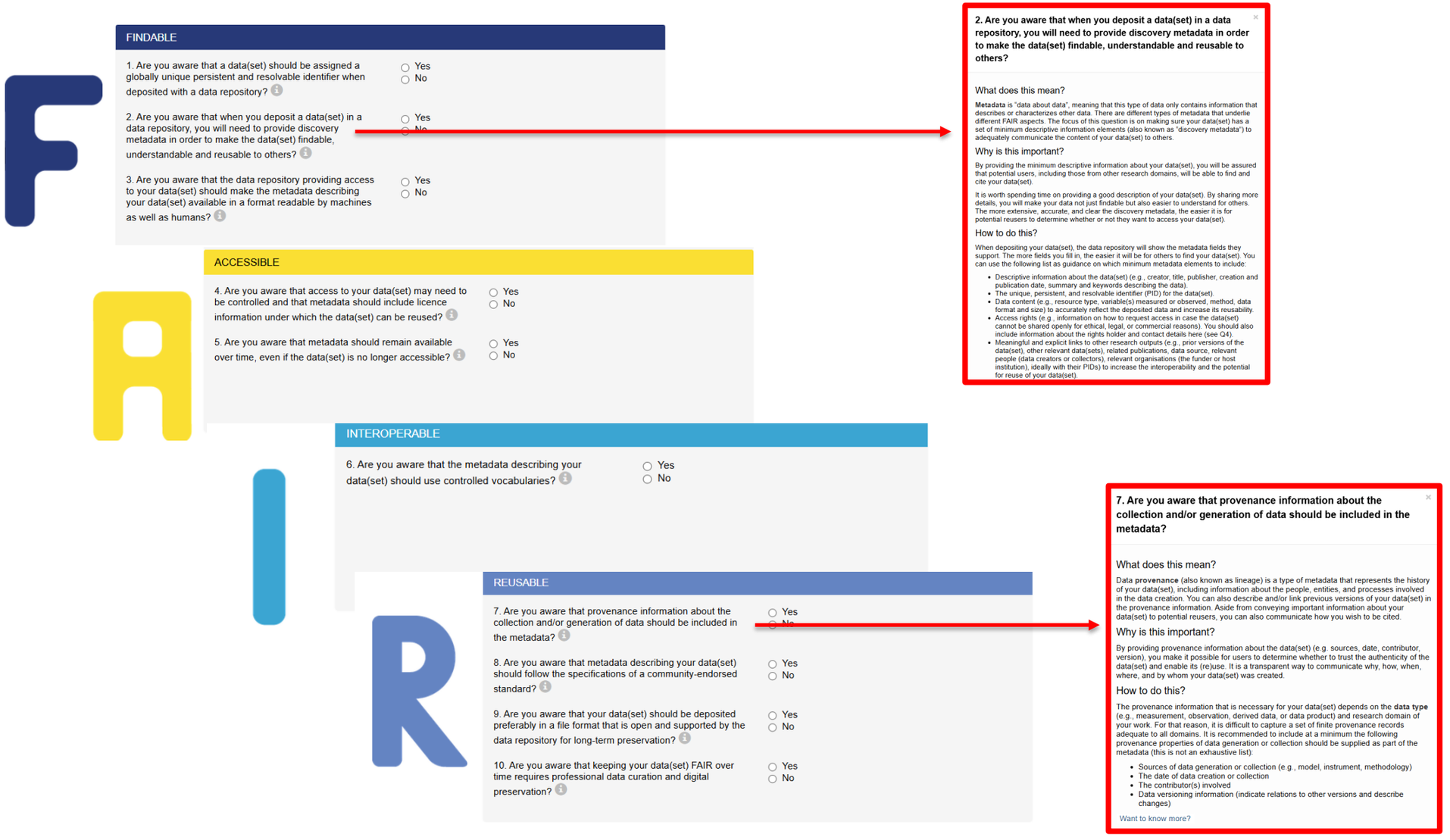
November 2021

Launched in June 2020, the tool has received a fresh revamp in November 2021 with **new training functionality** and **updated guidance texts** that make the tool more informative and user-friendly. New features include:

- **A learning tool -** The tool allows users to **learn about each FAIR practice** more easily and, hopefully, apply them in their daily practices even faster.
- **A glossary -** It covers some of the most relevant terms related to the FAIR questions in the tool.
- **Trainer functionality -** The tool has been upgraded with a **functionality to support trainers.**
- **FAIR Data Forum -** It has a dedicated space on the FAIR Data Forum which gives users a place to discuss questions and topics on the FAIR-Aware tool, accessing **tailored support**.
- **Share FAIR-Aware! -** It is now **easier to share your experience with the tool in your network** using the newly integrated social media buttons!

Research Data Management

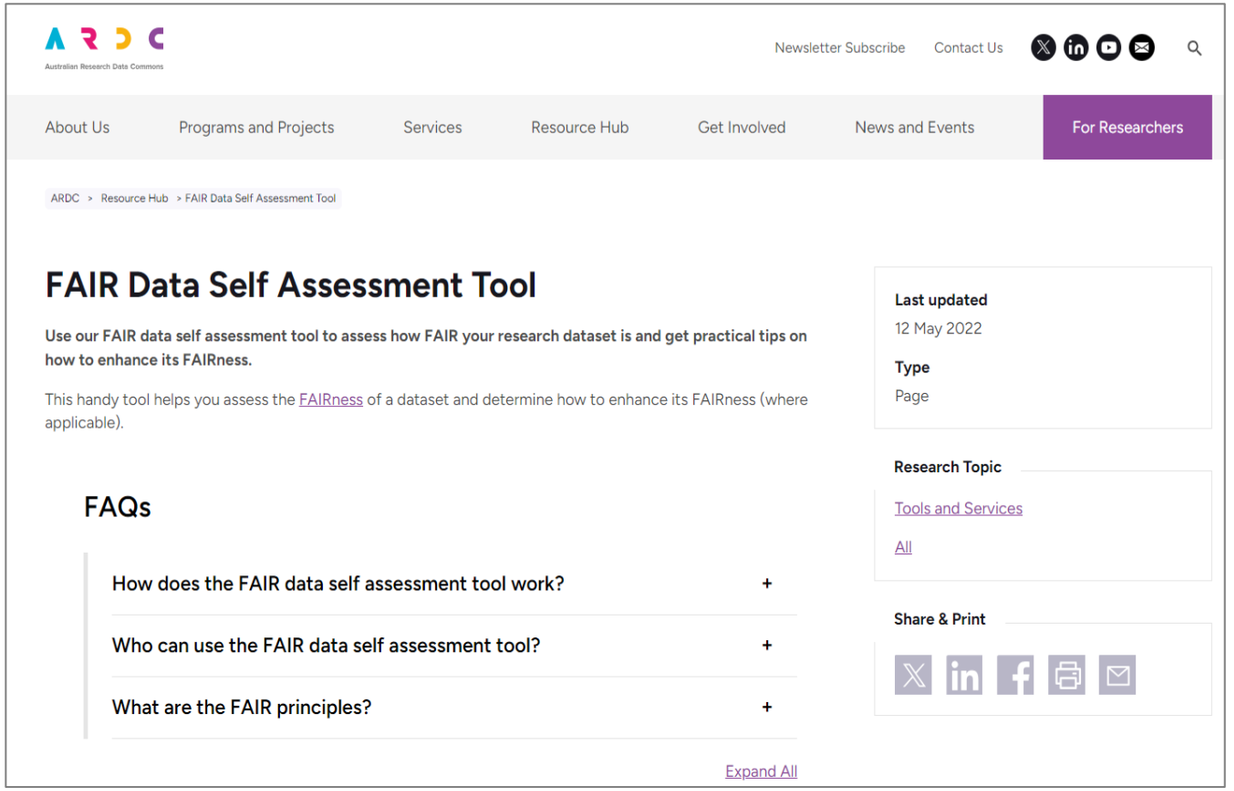
FAIR Principles



Research Data Management

FAIR Principles

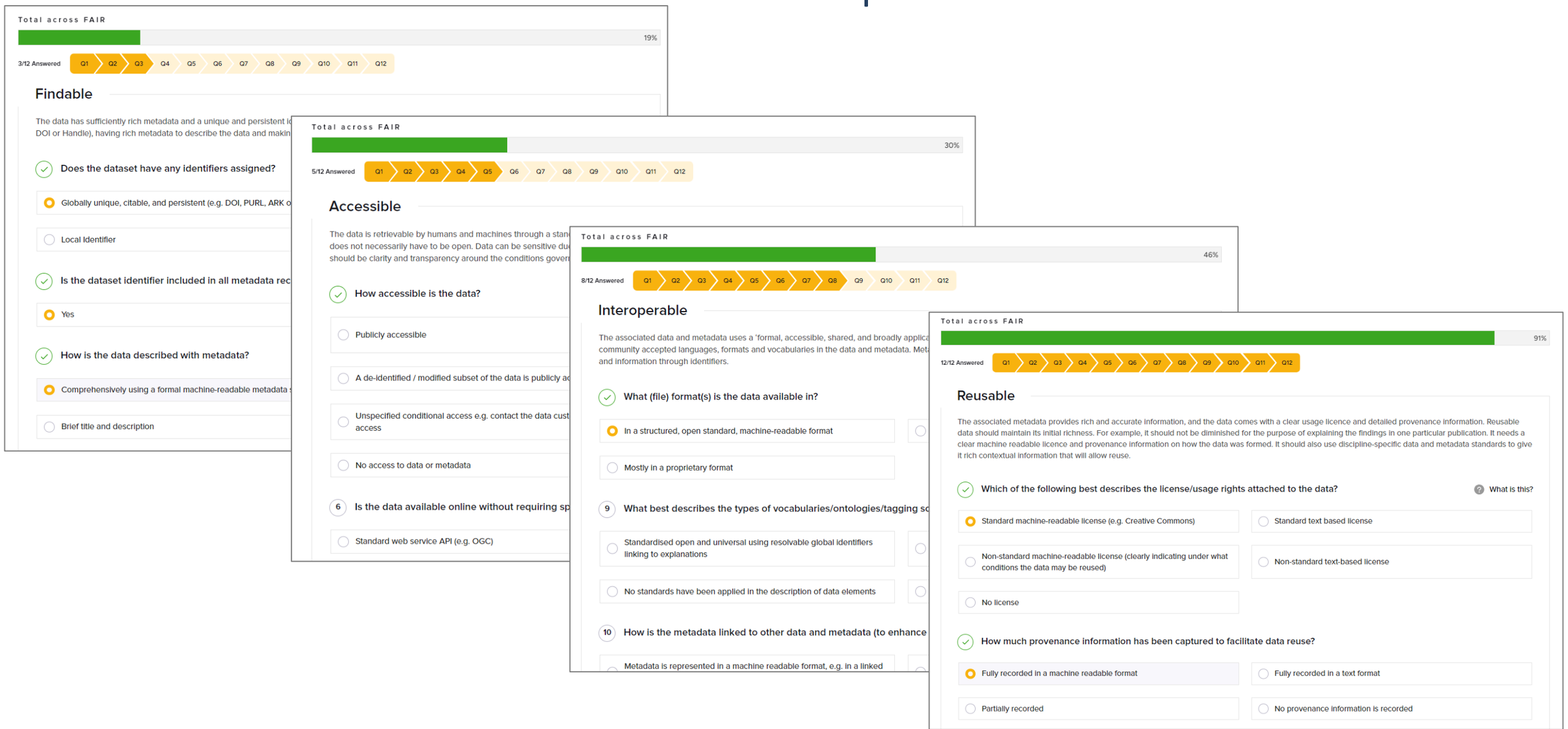
FAIR Data Self-Assessment Tool



https://ardc.edu.au/resource/fair-data-self-assessment-tool/

Research Data Management

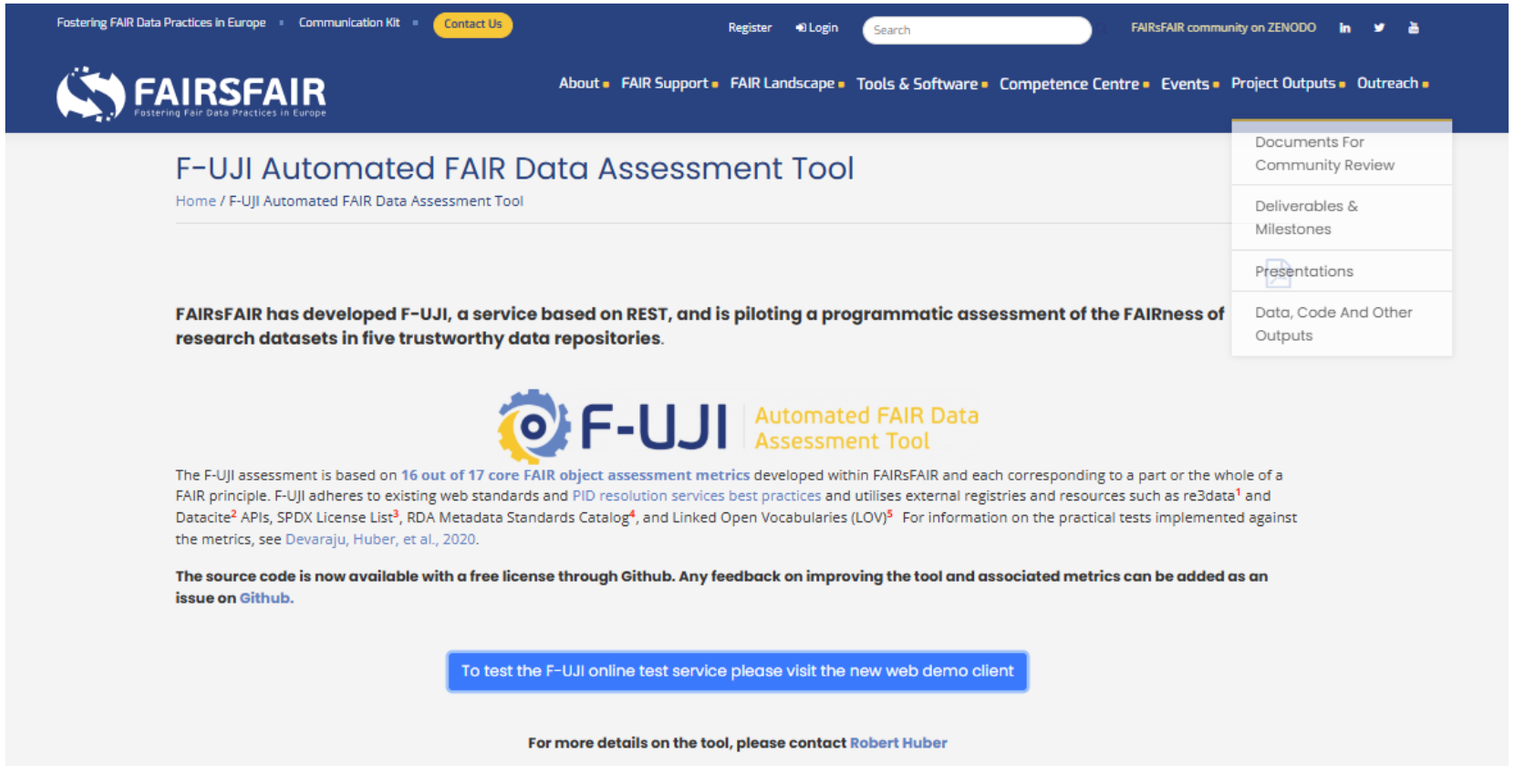
FAIR Principles



Research Data Management

FAIR Principles

F-UJI tool

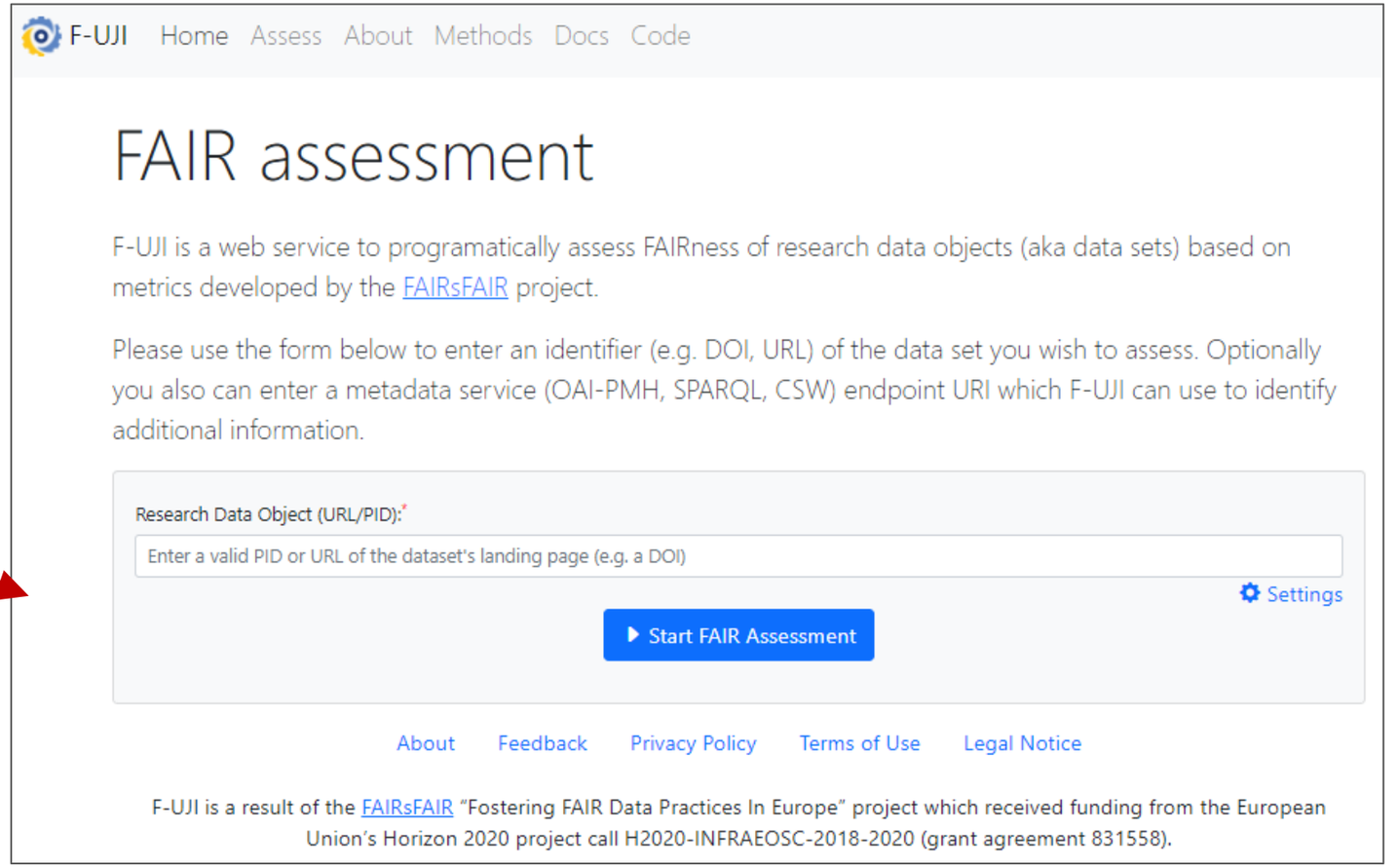


https://www.fairsfair.eu/f-uji-automated-fair-data-assessment-tool

Research Data Management

FAIR Principles

https://www.f-uji.net/



Research Data Management

FAIR Principles

Assessment Results:

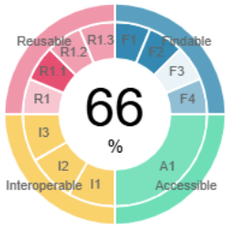
Evaluated Resource:

Biclustering of gene expression data by non-smooth non-negative matrix factorization - BMC Bioinformatics

Save | {JSON} | New

FAIR level:	moderate
Resource PID/URL:	http://doi.org/10.1186/1471-2105-7-78
DataCite support:	enabled
Metric Version:	metrics_v0.5
Metric Specification:	https://doi.org/10.5281/zenodo.6461229
Software version:	3.2.0
Download assessment results:	{JSON}
Save and share assessment results:	

Summary:



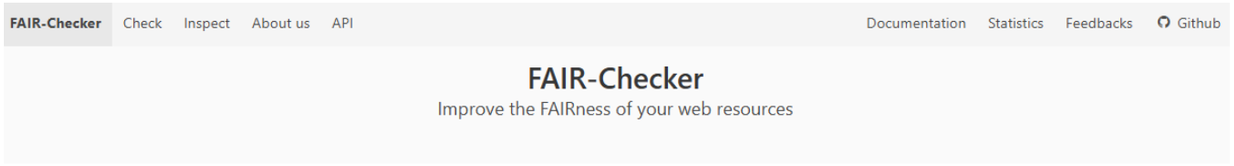
	Score earned:	Fair level:
Findable:	5 of 7	moderate
Accessible:	2 of 3	moderate
Interoperable:	4 of 4	advanced
Reusable:	5 of 10	initial

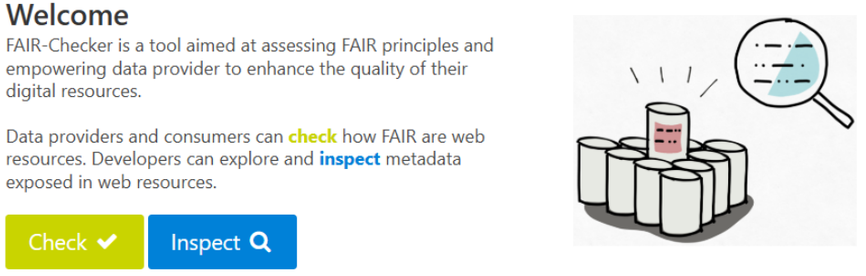
Evaluated dataset: http://doi.org/10.1186/1471-2105-7-78

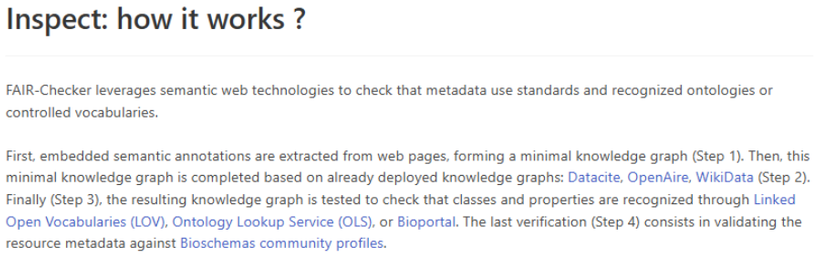
Research Data Management

FAIR Principles

FAIR Checker



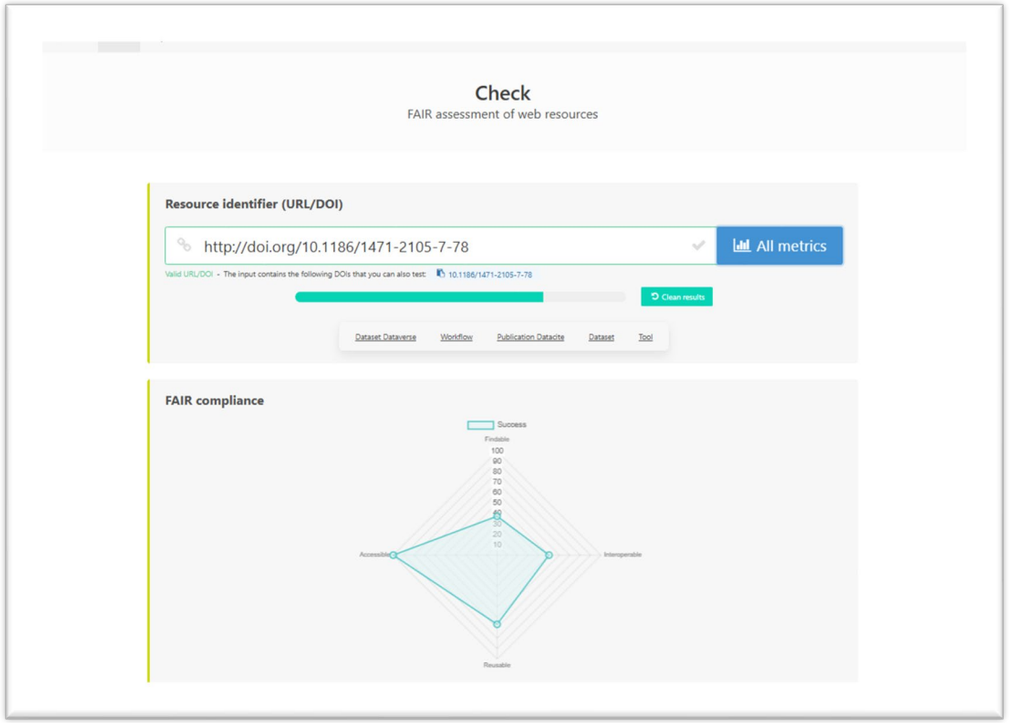




https://fair-checker.france-bioinformatique.fr/

Research Data Management

FAIR Principles



Evaluated dataset:
http://doi.org/10.1186/1471-2105-7-78

Detailed results Export

Principle	Test	Result	Recommandation	Details
F1A: Unique IDs	Check	FAIR principle F1A 2/2		
F1B: Persistent IDs	Check	FAIR principle F1B 0/2	To ensure that the used identification scheme is persistent, you should build your resource ID with a Read more	
F2A: Structured metadata	Check	FAIR principle F2A 1/2	You should provide discoverability oriented metadata with one of the following properties: Read more	
F2B: Shared vocabularies for metadata	Check	FAIR principle F2B 2/2		
A1.1: Open resolution protocol	Check	FAIR principle A1.1 2/2		
A1.2: Authorisation procedure or access rights	Check	FAIR principle A1.2 2/2		
I1: Machine readable format	Check	FAIR principle I1 1/2	You should provide discoverability oriented metadata with one of the following properties: Read more	
I2: Use shared ontologies	Check	FAIR principle I2 2/2		
I3: External links	Check	FAIR principle I3 2/2		
R1.1: Metadata includes license	Check	FAIR principle R1.1 2/2		
R1.2: Metadata includes provenance	Check	FAIR principle R1.2 2/2		
R1.3: Community standards	Check	FAIR principle R1.3 2/2		

Did not find your metadata term ? Please submit a request and let's discuss with the community ! Ask for a new term

For additional tips and recommendations, please look at the FAIR Cookbook: FAIR Cookbook

Research Data Management

Infrastructures & Services

Data Repositories

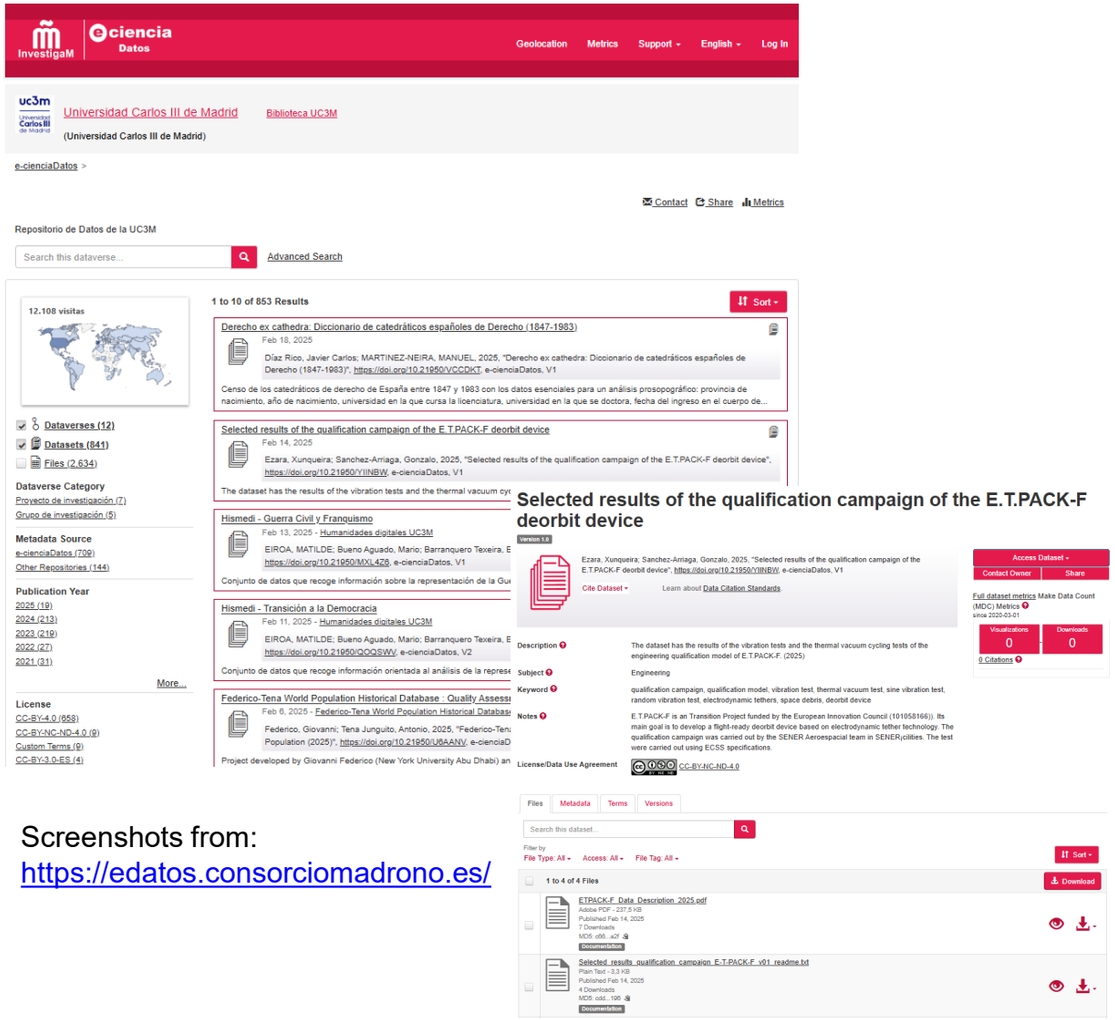
Depositing data in a trusted repository is **required by funders such as Horizon Europe** (Model Grant Agreement, article 17) and can also be **required by the law** (Spain, LCTI article 37; LOSU article 12). Data may be considered research outputs and their availability in open access may be rewarded in **assessment processes** (ANECA, *sexenios*).

Data repositories allow researchers to describe, store, preserve and disseminate research data. In compliance with intellectual property rights and data protection, data repositories permit publication in open access within a variety of licenses.

Datasets must comply with **FAIR principles**

There are many repositories that researchers can use (institutional, consortium based, subject repositories, general such as Zenodo…). **IE University is working on deploying a data repository in the upcoming months.**

Researchers can self-manage dataset deposit but **data librarians can train and help you**.



Screenshots from:
https://edatos.consorciomadrono.es/

Intellectual Property Rights

Licensing & Retaining Authors' Rights

- **Basic concepts** (under the Spanish Law: https://www.boe.es/eli/es/rdlg/1996/04/12/1/con)

Authorship (moral rights) → untransferable
An author is always the author

Exploitation (licensing) → transferable
An author may transfer some rights (including economic) to third parties

Authorship → co-authorship
Authors may be collective

Length → 70 years (as in most Western countries)
Heirs are the managers of deceased authors' rights

Intellectual Property Rights

Licensing & Retaining Authors' Rights

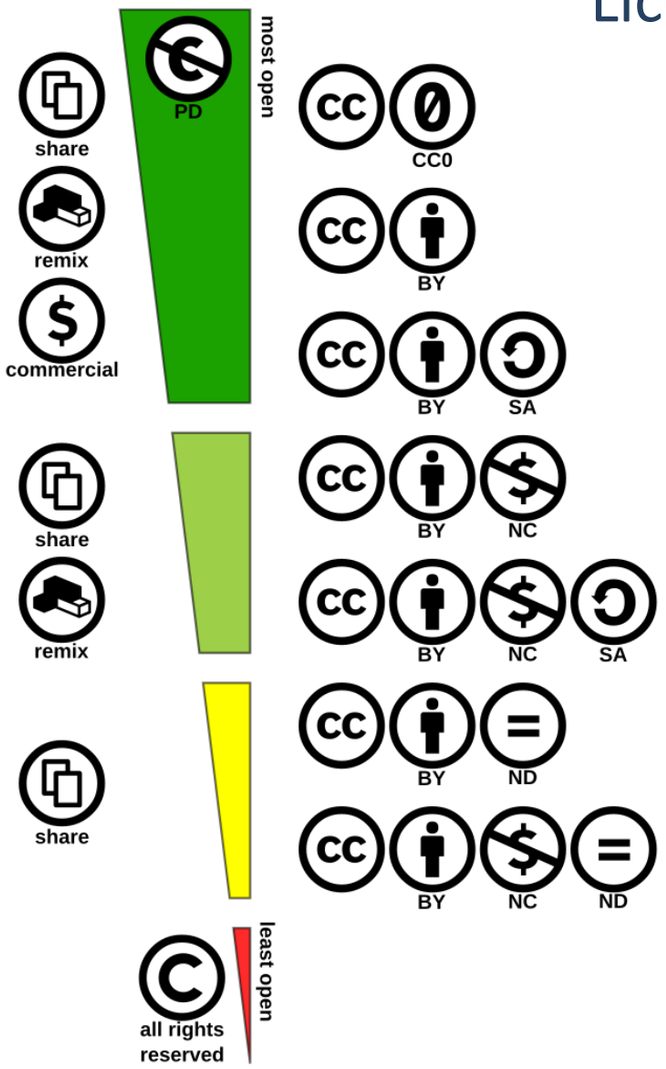


Imagen de Shaddim CC BY 4.0

- **Creative Commons licenses in data produced by researchers**
  - Authors may transfer some rights in advance with no need of any contract and retaining those rights at the same time
  - How CC licenses work? Information here
    - They combine attribution required (BY), derivative works non allowed (ND), commercial exploitation non allowed (NC) and obligation to share under the same license (SA)
    - Poles of the spectrum: Public Domain/CC0 | All rights reserved
- **Reusing data produced by providers (public or private)**
  - **Warning: check the license of the data you are using**

Privacy & Data Protection

Make Sure the Processing of Research Data is GDPR compliant

Key actors

Controller
Those that need to be protected for any legal or commercial reasons

Processor
Those that need to be protected for any legal or commercial reasons

Records of processing

GDPR, Chapter 4

Personal data

Consent is essential

Any information relating to an identified or identifiable natural person; an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person

GDPR, Article 4

Importance of special categories of data

GDPR, Articles 9-10

RIGHTS of access, rectification and erasure among others

GDPR, Chapter 3

Other sensitive data
Other confidential data

Those that may need to be protected for any legal or commercial reasons

Key actions (among others)

Anonymisation
Identification of individuals is irreversibly prevented

Pseudonymisation
Identification of individuals is possible. The personal data can no longer be attributed to a specific data subject without the use of additional information

Encryption
Technical protection measure that renders the data unintelligible

GDPR, Chapter 4, Section 2

Impact on OA and FAIR Data

Be aware that research data that cannot be made open access because of any GDPR compliance can still be FAIR (Findable, Accessible [metadata], Interoperable and Reusable] and stored and preserved in a trusted data repository

For personal data in research see: Crue (2024). *Guía para Investigadores y gestores de Investigación. Guía sobre la protección de datos en los proyectos de investigación* [Spanish only]
https://www.crue.org/wp-content/uploads/2024/09/Doc.-2-Guia-Proyectos-Investigacion.pdf

Annex A
Concepts, Actors & Policies in Detail

Open Science: A Concept

UNESCO Recommendation on Open Science (2021)

"First international standard setting instrument on Open Science"

Universal Declaration on Human Rights (1948)
https://www.un.org/en/about-us/universal-declaration-of-human-rights

Article 27
Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and **to share in scientific advancement and its benefits**.

Recommendation on Open Science (2021)
https://unesdoc.unesco.org/ark:/48223/pf0000379949.locale=en

- **Open Science** is defined as an inclusive construct that combines various movements and practices aiming
  - **to make multilingual scientific knowledge openly available, accessible and reusable for everyone**,
  - **to increase scientific collaborations and sharing of information for the benefits of science and society**,
  - and **to open the processes of scientific knowledge creation, evaluation and communication to societal actors beyond the traditional scientific community**.
- It comprises all scientific disciplines and aspects of scholarly practices, including basic and applied sciences, natural and social sciences and the humanities, and it builds on the **following key pillars**: open scientific knowledge, open science infrastructures, science communication, open engagement of societal actors and open dialogue with other knowledge systems

European Union

Open Science in the European Commission Policies

ERA Policy Agenda 2025-2027 [proposal on 28th February 2025]

Priority Area 1: Deepening a Truly Functioning Internal Market for Knowledge

OS & RDM

Structural policies:

- **Open science** - Enabling open science via sharing and re-use of data, including through the European Open Science Cloud (EOSC)
- **Research infrastructures** - Strengthening sustainability, accessibility and resilience of research infrastructures in the European Research Area
- **Gender equality, equal opportunities for all and inclusiveness** - Strengthening inclusive and intersectional gender equality in the ERA
- **Researchers' careers and mobility** and **Research assessment and reward systems** – Making research careers more attractive and sustainable as well as reforming research assessment
- **Knowledge valorisation** - Upscaling knowledge valorisation capacities and activities
- **Global engagement** - Global Approach to R&I

ERA Actions:

- Equity in Open Science
- Advancing the European Science for Policy (S4P) ecosystem
- Facilitating and accelerating the responsible use of AI in science in the EU
- Enhancing research security

https://research-and-innovation.ec.europa.eu/news/all-research-and-innovation-news/commission-adopts-proposal-next-european-research-area-policy-agenda-2025-2027-2025-02-28_en

European Union

Open Science in the European Commission Strategy (2020-2024)

access

infrastructures

collaboration

reproducibility

responsibility

engagement and social trust

Notable Open Science practices include:

- early and open sharing of research:
  - pre-registration, registered reports, **data deposition in shared repositories**, pre-prints
  - open collaboration within science and with other knowledge producers/users
- providing immediate and unrestricted open access to scientific publications, **research data, models, algorithms, software, protocols, notebooks, workflows**, and all other research outputs
- **ensuring verifiability and reproducibility** of research outputs
- practicing **responsible research output management** (publications, data, and other outputs) in line with the **FAIR (Findable, Accessible, Interoperable, and Reusable) principles**
- promoting public engagement in research and innovation, bolstering citizen science and enhancing public trust in science

European Commission (2024). *Strategy 2020-2024 – Our Digital Future*
https://research-and-innovation.ec.europa.eu/strategy/strategy-2020-2024/our-digital-future/open-science_en

Annex B
ResearchComp: RDM Competences in Detail

Research Data Management

ResearchComp on COGNITIVE ABILITIES > Analytical Thinking

3. Analytical thinking
Using logic and reasoning to develop alternative solutions, conclusions or approaches to problems and identify their strengths and weaknesses.

Foundational	Intermediate	Advanced	Expert
• Analyses basic information, data, and ideas. • Assesses and evaluates own findings and datasets.	• Critically analyses complex information, data and ideas from diverse sources. • Assesses and evaluates findings and datasets of others.	• Masters a broad range of analytical methods and actively seeks to learn new ones. • Supports less experienced researchers and staff to develop their critical analytical skills.	• Makes an outstanding use of logic and reasoning to analyse research problems. • Develops new analytical approaches and methods.

European Commission (2022). *ResearchComp: The European Competence Framework for Researchers*.
https://research-and-innovation.ec.europa.eu/jobs-research/researchcomp-european-competence-framework-researchers_en

Research Data Management

ResearchComp on MANAGING RESEARCH TOOLS > Manage research data

1. Manage research data

Produce and analyse research data originating from qualitative and quantitative research methods. Store and maintain the data in research databases. Support the re-use of research data and be familiar with data management principles, including FAIR (Findable, Accessible, Interoperable, and Reusable) principles. Make data as open as possible, and as closed as necessary.

Foundational	Intermediate	Advanced	Expert
• Identifies sources of information, and assesses if data is trustworthy, valid, reliable and pertinent. • Knows how to store and organise data in an accessible way digitally. • Uses, transforms, and analyses non-sensitive research data transparently and in accordance with legal and privacy requirements.	• Organises data sets to be findable, accessible, interoperable, and reusable (FAIR), and to be easily stored and retrieved in a structured environment. • Trains and empowers other team members to work with data in a structured, transparent, and accessible way.	• Applies data analysis tools, understands legal and ethical issues linked to the use of data, and integrates data management plans. • Transforms, organises, and analyses data in a research context, and applies metrics to evaluate the success of data initiatives. • Promotes FAIR principles within own academic community.	• Creates relevant data sets from different sources and develops effective methods making data more comprehensible for research. • Proposes new processes and practices in managing data, information and digital content in a structured digital environment. • Is known as influential advocate of FAIR principles.

European Commission (2022). *ResearchComp: The European Competence Framework for Researchers*.
https://research-and-innovation.ec.europa.eu/jobs-research/researchcomp-european-competence-framework-researchers_en

Intellectual Property Rights

ResearchComp on MANAGING RESEARCH TOOLS > Manage IPR

2. Manage intellectual property rights
Deal with the private legal rights that protect the products of the intellect from unlawful infringement.

Foundational	Intermediate	Advanced	Expert
• Understands basic concepts of data ownership rules as they apply to own research. • Knows what copyright, IPR, and licensing are, and seeks advice from more experienced researchers.	• Is familiar with the protection of research outputs, open and wider access, and the different licenses related to own research activity. • Advises peers and less experienced researchers and is the reference person about intellectual property.	• Values the relevance of closed and open access of research outputs to researchers and the wider society. • Engages with the local technology transfer office to facilitate the commercialization of intellectual property where • appropriate.	• Leads the development of new procedures for IP protection within the HE sector and professional associations/bodies. • Successfully protects and commercializes own research outputs.

European Commission (2022). *ResearchComp: The European Competence Framework for Researchers*.
https://research-and-innovation.ec.europa.eu/jobs-research/researchcomp-european-competence-framework-researchers_en

Privacy & Data Protection

ResearchComp on DOING RESEARCH > Have Disciplinary Expertise

1. Have disciplinary expertise
Demonstrate deep knowledge and complex understanding of a specific research area, including responsible research, research ethics and integrity principles, privacy and GDPR requirements, related to research activities within a specific discipline.

Foundational	Intermediate	Advanced	Expert
• Understands key concepts and relevant knowledge of own research area. • Keeps track of the latest advances within related fields. • Is familiar with RRI (Responsible Research and Innovation) and ethical requisites to develop research in own discipline. • Need guidance to implement GDPR and privacy requirements	• Makes original contributions to own research area. • Supports awareness of societal, political, ethical, and integrity related aspects of knowledge creation in own research area. • Includes GDPR and privacy requirements in own research activity	• Brings new knowledge to own and related disciplines and is aware of its impact on society. • Influences national and international policies related to ethics and integrity in own research area.	• Contributes with, and has a deep understanding of, novel developments in own and related research areas, pursuing whenever appropriate an interdisciplinary approach. • Influences national and international policies related to ethics and integrity in research.

European Commission (2022). *ResearchComp: The European Competence Framework for Researchers*.
https://research-and-innovation.ec.europa.eu/jobs-research/researchcomp-european-competence-framework-researchers_en

Ethics & Integrity

ResearchComp on DOING RESEARCH > Apply Research Ethics and Integrity Principles

5. Apply research ethics and integrity principles
Apply fundamental ethical principles and legislation to research and innovation, including issues of research integrity.
Perform, review, or report research avoiding misconducts such as fabrication, falsification, and plagiarism.

Foundational	Intermediate	Advanced	Expert
• Has a basic understanding of ethical conduct of research and of integrity principles. • Asks for expert advice when in doubt about ethical decisions	• Is well versed in the ethical conduct of research. • Provides advices about ethical issues of research to peers. • Is alert and attentive to falsification and plagiarism	• Engages actively in the works of various ethical committees. • Promotes public understanding of the ethical issues raised by research. • Helps less experienced researchers in the ethical conduct of research	• Actively contributes to develop ethical guidelines and systems to ensure ethical conduct of research in academia. • Advises policy makers on policies and procedures of own research/academic/ professional sector.

European Commission (2022). *ResearchComp: The European Competence Framework for Researchers*.
https://research-and-innovation.ec.europa.eu/jobs-research/researchcomp-european-competence-framework-researchers_en

Thanks!

raul.aguilera@uc3m.es

alicia.gomez@ie.edu

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