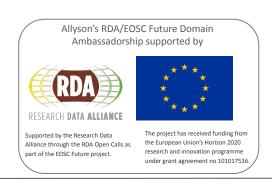


FAIRsharing.org

FAIRsharing for database description and discovery

Allyson Lister, Content & Community Lead













How can **policymakers** and **RDM professionals** help guide their **stakeholders** (e.g. RPOs, PIs, technical teams, researchers) to the **standards** and **databases** that align with their needs?

How can database developers increase the findability of their resources and discover new opportunities for collaboration?

FAIRsharing enables **FAIR** and open data by aiding the findability and describing the interoperability of **standards**, databases and policies.

A very brief overview of **FAIR** and **CARE**

Data that is discoverable and usable at scale

SPRINGER NATURE

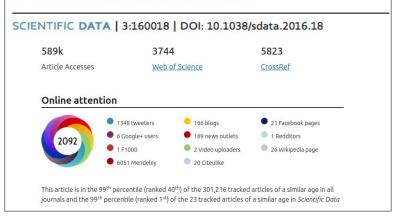
SCIENTIFIC DATA (1011) O DATA

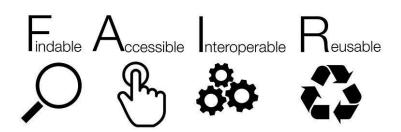
OPEN

» Research data
» Publication

Comment: The FAIR Guiding Principles for scientific data management and stewardship

Mark D. Wilkinson, Michel Dumontier, IJsbrand Jan Aalbersberg, Gabrielle Appleton, Myles Axton, Arie Baak, Niklas Blomberg, Jan-Willem Boiten, Luiz Bomino da Silva Santos, Philip E Boume, Jildau Bouwman, Anthony J Brookes, Tim Clark, Mercè Crosas, Ingid Dillo, Olivier Dumon, Scott Edmunds, Chris T Evelo, Richard Finkers, Alejandra Gonzalez-Beltran, Alasdair J G Gray, Paul Groth, Carole Goble, Jeffrey S. Grethe, Jaap Heringa, Peter A.C. 't Hoen, Rob Hooft, Tobias Kuhn, Ruben Kok, Joost Kok, Scott J. Lusher, Maryamn E. Martone, Albert Mons, Abel L. Packer, Bengt Persson, Philippe Rocca-Serra, Marco Roos, Rene van Schaik, Susanna-Assunta Sansone, Erik Schultes, Thierry Sengstag, Ted Slater, George Strawn, Moris A. Swertz, Mark Thompson, Johan van der Lei, Erik van Mulligen, Jan Velterop, Andra Waagmeester, Peter Wittenburg. Katherine Wolstencroft. Jum Zhao, and Barend Mons





A set of principles to enhance the value of all digital resources and its reuse by

humans and machines

The FAIR Principles: just guiding principles

A set of **principles** ... not a standard

To enhance the value of all digital resources and its reuse by humans and machines



A continuum of increasing reusability, via many different implementations

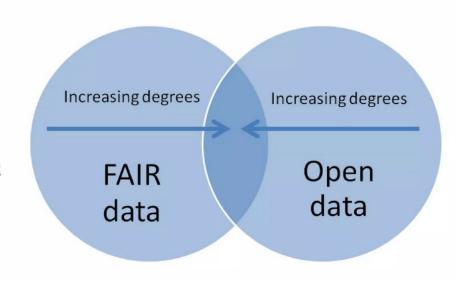
Relaunch a dialogue with researchers and policy makers.

FAIR and Open

Concepts of FAIR and Open should not be conflated.

Data can be FAIR or Open, both or neither

- The greatest potential reuse comes when data are both FAIR and Open
- Align and harmonise FAIR and Open data policy





FAIR session, Macquarie University, 7th August 2019

Remember that

mean open; and

FAIR does not

necessarily

that's OK!

Extending the reach of FAIR to other digital objects





PLOS COMPUTATIONAL BIOLOGY

♠ OPEN ACCESS

EDITORIAL

Ten simple rules for making training materials FAIR

Leyla Garcia, Bérénice Batut, Melissa L. Burke, Mateusz Kuzak, Fotis Psomopoulos, Ricardo Arcila, Teresa K. Attwood, Niall Beard, Denise Carvalho-Silva, Alexandros C. Dimopoulos, Victoria Dominguez del Angel, Michel Dumontier, Kim T. Gurwitz, Roland Krause, Peter McQuilton, Loredana Le Pera, Sarah L. Morgan, Päivi Rauste, Allegra Via, Pascal Kahlem, Gabriella Rustici, Celia W. G. van Gelder, Patricia M. Palagi [view less]

Published: May 21, 2020 • https://doi.org/10.1371/journal.pcbi.1007854

Check for updates

SPRINGER NATURE

scientific data



Introducing the FAIR Principles for **ARTICLE** research software

Michelle Barker 10 1 12 Neil P. Chue Hong 10 2, Daniel S. Katz 10 3, Anna-Lena Lamprecht 10 4, Carlos Martinez-Ortiz 65, Fotis Psomopoulos 66, Jennifer Harrow7, Leyla Jael Castro 68, Morane Gruenpeter9, Paula Andrea Martinez 10 & Tom Honeyman 11

https://doi.org/10.1371/journal.pcbi.1007854



Software



FAIR data stakeholders: it takes a village



Researchers and company scientists who generate and use data

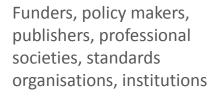


Programme and institute directors who set local policy, methodology, practice, resources and local sustainability, drive change management





Authorities who set community policy, practice, resources, compliance and global sustainability





Data Stewards and Research Software Engineers who support data and data analytics



Service providers who manage data and infrastructure from local to global from public to commercial

Personal, project, organizational, and public responsibilities

Learn more about FAIR



faircookbook.elixir-europe.org

faircookbook-ed@elixir-europe.org

FAIRsharing supports you to

and share data

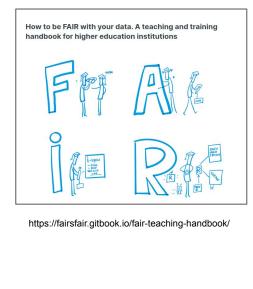
Choosing deposition resources

type of data (e.g., datasets

Informing you on which standards (e.g., minimal

Find more at





A deep dive into FAIR data

This website will take you on a deep dive into the subject matter of FAIR research data. Over the course of about two hours, it will show you that FAIR is not a time-consuming administrative mantra, but a set of principles that makes your research efficient, transparent and sustainable. Working in line with the FAIR principles to make your data more FAIR will improve your research data management and safeguard your research data for the future.

The aim here is to explore six key FAIRification practices, and show how they apply to your research. You will meet researchers working across Denmark in different research disciplines who share their thoughts and experiences on how they make their research data more FAIR.

Go through the course all in one sitting, or come back to each FAIRification practice as needed, it's up to you.

https://howtofair.dk/

Article Open Access Published: 19 May 2023

FAIR in action - a flexible framework to guide **FAIRification**

Danielle Welter, Nick Juty, Philippe Rocca-Serra, Fugi Xu, David Henderson, Wei Gu, Jolanda Strubel, Robert T. Giessmann, Ibrahim Emam, Yoiana Gadiya, Tooba Abbassi-Daloji, Ebtisam Alharbi, Alasdair J. G. Gray, Melanie Courtot, Philip Gribbon, Vassilios Ioannidis, Dorothy S. Reilly, Nick Lynch, Jan-Willem Boiten, Venkata Satagopam, Carole Goble, Susanna-Assunta Sansone & Tony Burdett ⊡

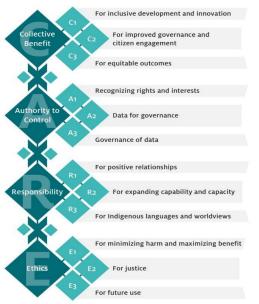
Scientific Data 10, Article number: 291 (2023) | Cite this article

9 Altmetric | Metrics

https://doi.org/10.1038/s41597-023-02167-2

Learn more about FAIR and CARE





Comment | Open Access | Published: 16 April 2021

Operationalizing the CARE and FAIR Principles for Indigenous data futures

Stephanie Russo Carroll . Edit Herczog, Maui Hudson, Keith Russell & Shelley Stall

Scientific Data 8, Article number: 108 (2021) | Cite this article

22k Accesses | 71 Citations | 71 Altmetric | Metrics

https://doi.org/10.1038/s41597-021-00892-0

The CARE principles complement the existing FAIR principles, which require data to be findable, accessible, interoperable and reusable. While the FAIR principles are about making it easier to share and reuse data, the CARE principles ensure that data is used ethically.

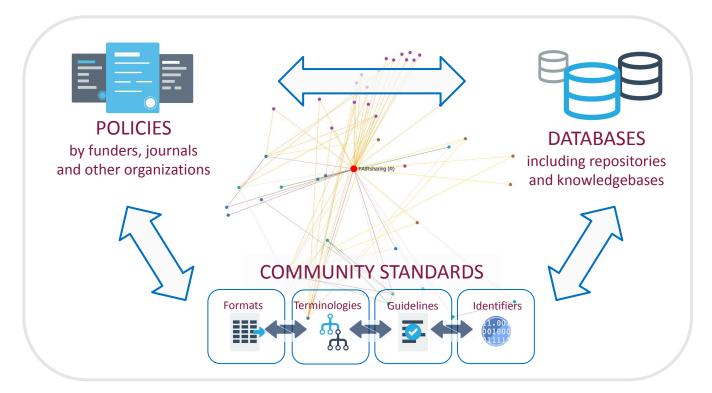
https://ardc.edu.au/resource/the-care-principles/



FAIRsharing is a way to find **standards**, **databases**, and **policies**; and to explore the connections among them.

Add your resources to FAIRsharing to increase their visibility within that research landscape.

An informative and educational resource, and a service



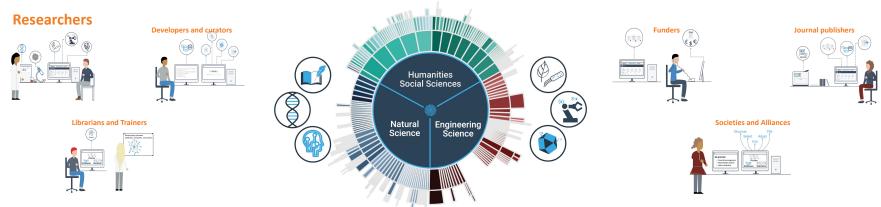
FAIRsharing provides curated descriptions and relationship graphs of

standards, databases and policies



Our mission and how we deliver it

Promote the *value* and *use* of standards, databases and policies in all disciplines, by engaging stakeholders across all sectors, through all stages of the research life cycle



Guides consumers to discover, select and use these resources with confidence.

Helps **producers** to make their resources more *visible*, more widely *adopted* and *cited*.

Provides **humans** and **tools** with *access* to trustworthy content to *enable* data management tasks.

FAIRsharing.org

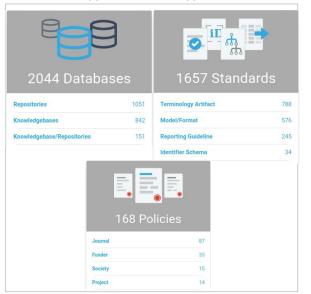
FAIRsharing in numbers: content, contributions, coverage

1279
Contributors
Our community of record maintainers and curators

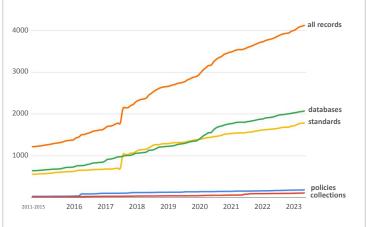
4021
Records
Descriptions of standards, databases and policies

198K Views Page visits since 2015

Types and subtypes



Growth since launch



Disciplines



Working with and adopted by all stakeholders, all disciplines

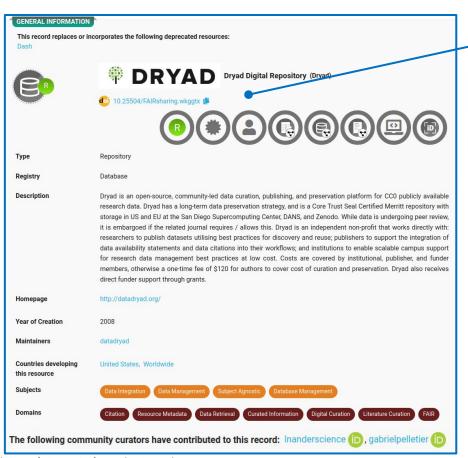
Users, adopters and collaborators include:



https://fairsharing.org/communities

FAIRsharing provides **metadata** about databases, standards, and policies, and curates the **relationships** among them all.

Metadata at-a-glance: record overview





DOIs minted for database, policy and standard records



Attribution for our maintainer community via ORCID



Attribution for funding, collaborating and developing organisations via ROR (where applicable)

Over 40 metadata fields:

- Research subjects and domains via community ontologies
- licence or terms of use
- datasets accessibility/openness
- accessibility mechanism
- policies (e.g. curation, preservation)
- PID schema
- data and metadata standards,
- and many others...

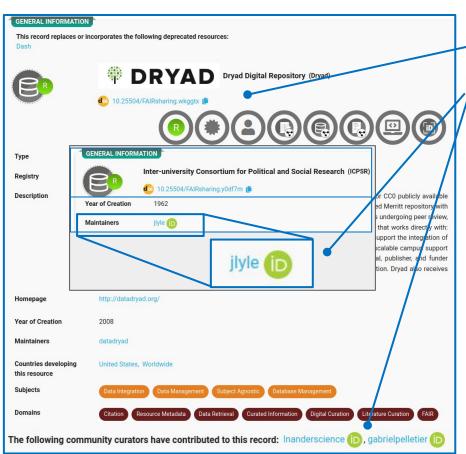
Want to know

FAIRsharing Blog

blog.fairsharing.org/?p=191



Metadata at-a-glance: record overview





DOIs minted for database, policy and standard records



Attribution for our maintainer community via ORCID



Attribution for funding, collaborating and developing organisations via ROR (where applicable)

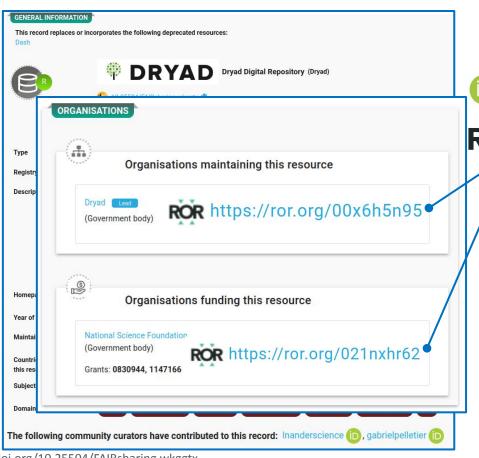
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- and many others...





Metadata at-a-glance: record overview





DOIs minted for database, policy and standard records



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Attribution for funding, collaborating and developing

organisations via ROR (where applicable)

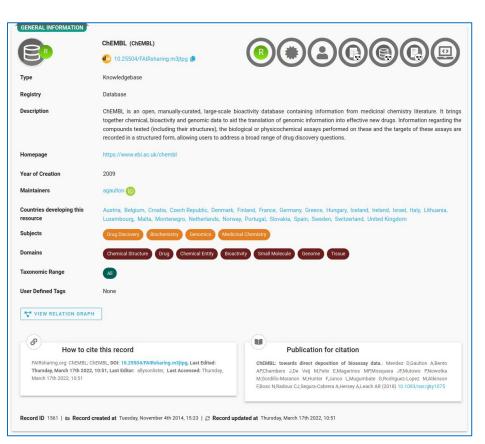
Over 40 metadata fields:

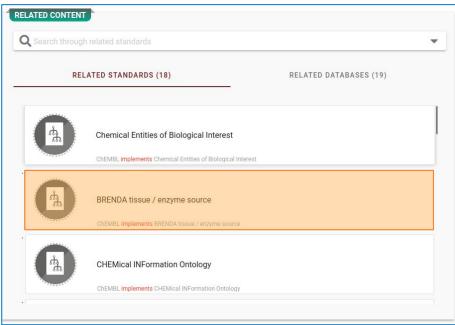
- Research subjects and domains via community ontologies
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- data and metadata standards,
- and many others...





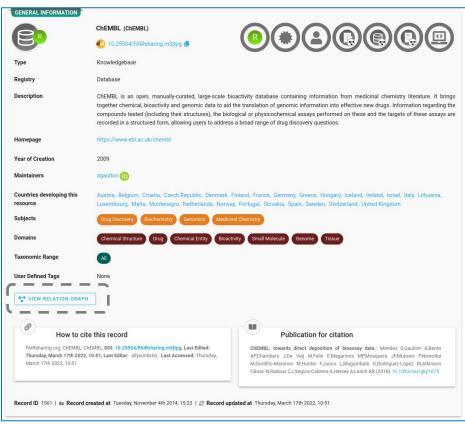
Metadata descriptions: relationships

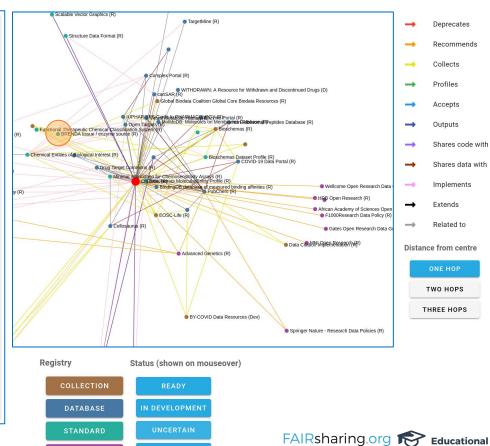




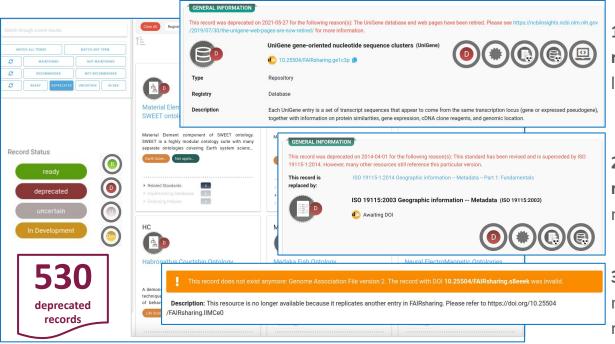
Metadata descriptions: relationships

POLICY





Tracking evolution: deprecation and tombstoning DOIs



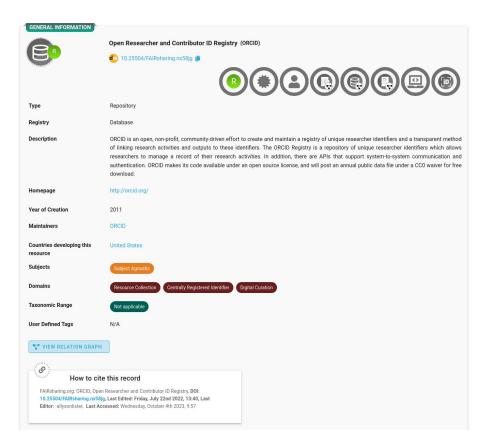
Deprecate a record when a resource has been retired and is no longer available

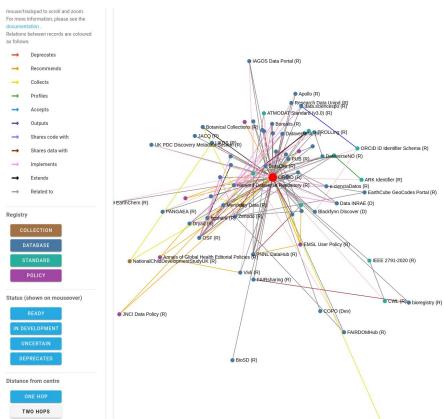
- **2.** Deprecate a record when a resource has been *superseded*, e.g., merged into another
- **3. Tombstone a record** when it should not have been added, e.g., when a resource is added twice or by mistake



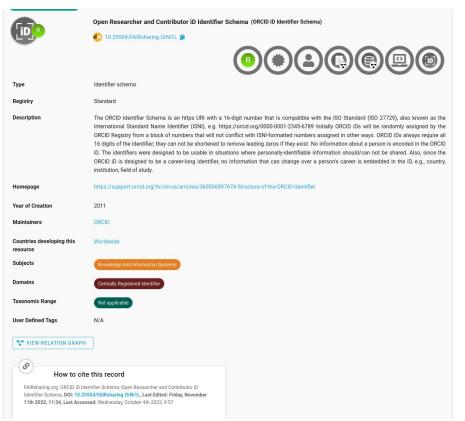
https://support.datacite.org/docs/tombstone-pages

ORCID Registry

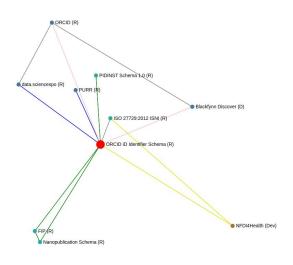




ORCID Identifier Schema







FAIRsharing allows you to explore the landscape of resources according to a number of different metadata fields.

Use our **Assistant** (in development) to be guided to the set of resources you are looking for.

The FAIRsharing Assistant provides guidance for finding resources

https://assist.fairsharing.org

FAIRsharing Assistant Beta



FAIRsharing is a curated registry of data and metadata standards, databases and data policies.

This Assistant will help you find the standards, databases and policies you need to help make your data FAIR.

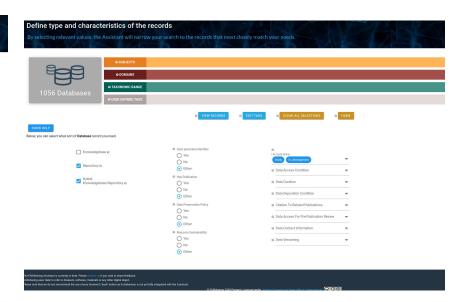
GET STARTED

PThe FAIRsharing Assistant is currently in beta. Please contact us if you wish to share feedback.

*FAIRsharing uses 'data' to refer to datasets, software, materials or any other digital object.

*Please note that we do not recommend the use of your browser's 'back' button as its behaviour is not yet fully integrated with the Assistant.

© FAIRsharing 2009-Present | Licenced under Creative Commons by Share Alike 4.0 International
© ① ① ②



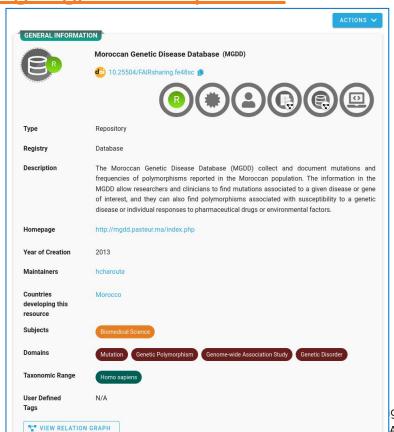
FAIRsharing allows you to discover resources by country

https://fairsharing.org/search?q=africa



https://fairsharing.org/3355 https://fairsharing.org/3681

https://fairsharing.org/3 https://fairsharing.org/1232 https://fairsharing.org/752 https://fairsharing.org/1260 https://fairsharing.org/1306 https://fairsharing.org/199 https://fairsharing.org/1515 https://fairsharing.org/1090 https://fairsharing.org/1212 https://fairsharing.org/1212 https://fairsharing.org/4089 https://fairsharing.org/4798



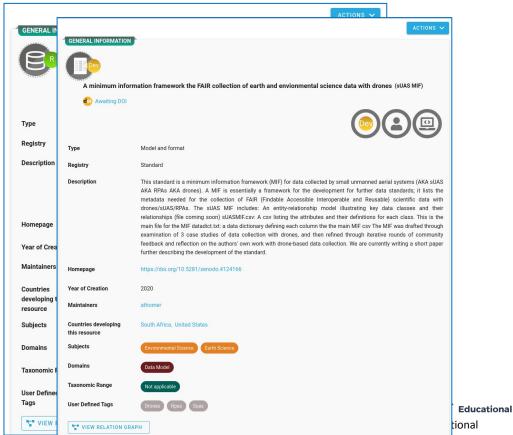
FAIRsharing allows you to discover resources by country

https://fairsharing.org/search?q=africa



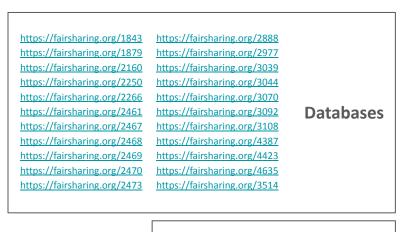
https://fairsharing.org/3355 https://fairsharing.org/3681

https://fairsharing.org/3
https://fairsharing.org/752
https://fairsharing.org/844
https://fairsharing.org/919
https://fairsharing.org/1090
https://fairsharing.org/1212
https://fairsharing.org/1212
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https://fairsharing.org/1212
https://fairsharing.org/4798



FAIRsharing allows you to discover resources by country

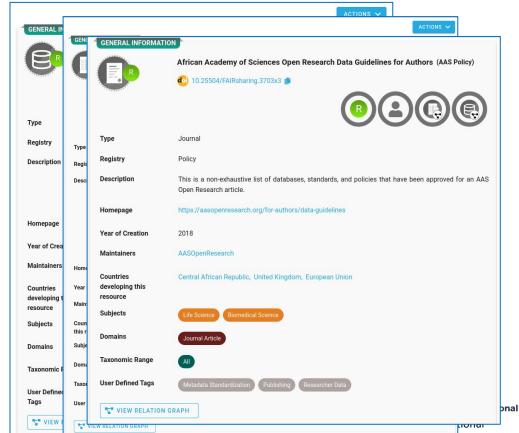
https://fairsharing.org/search?q=africa



https://fairsharing.org/3355 https://fairsharing.org/3681 Policies

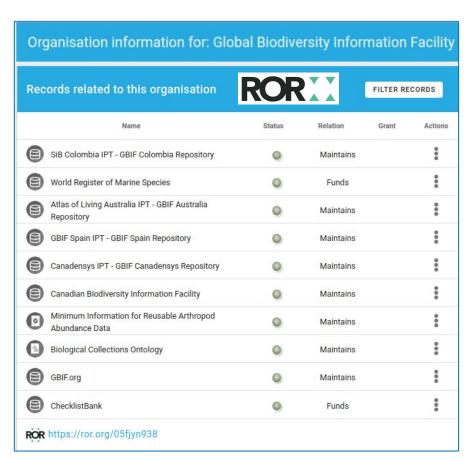
https://fairsharing.org/3
https://fairsharing.org/752
https://fairsharing.org/844
https://fairsharing.org/919
https://fairsharing.org/1306
https://fairsharing.org/1515
https://fairsharing.org/1090
https://fairsharing.org/1220
https://fairsharing.org/1220
https://fairsharing.org/1221

https://fairsharing.org/4798



FAIRsharing supports repository developers and other research-supporting organisations through increased **visibility** of their resources and the ability to **collect** related resources into their own 'slices' of FAIRsharing.

Organizations: dedicated pages



- These pages help organizations to show the standards, databases and policies they maintain, fund, collaborate on, or are associated with
- Integration with ROR repository for harmonization of display name of (relevant) organizations



Organizations: dedicated pages, also listing users



Organisation pages can also also lists their **members**, and vice versa



fairsharing.org/users/5832

Collections: tailored views for education and promotion

Collections are branded pages that *group* selected **standards** and/or **repositories** Initiatives and projects have created them for several purposes, e.g. to list resources:

EXAMPLES





Collection URL: fairsharing.org/IVOA

Developed by a SDO



Collection URL: fairsharing.org/CDISC





Collection URL: fairsharing.org/RDACovid19WG

Mapped to each other

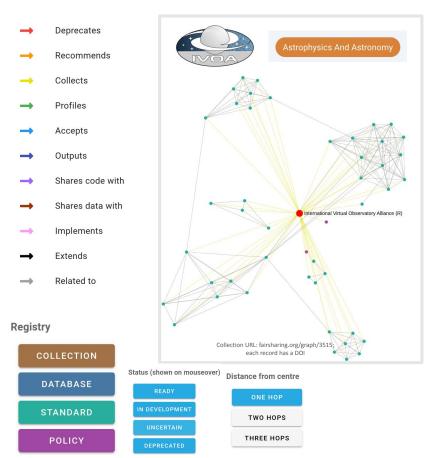


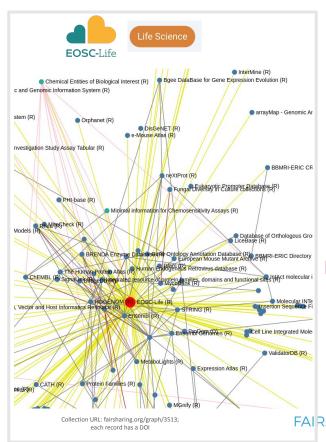
Collection URL:

fairsharing.org/CrosswalkOfMostUsedMetadataSchemesAndGuidelines



FAIRsharing makes your resource discoverable to an entire ecosystem of resources







The standards,
repositories and
policies each EOSC
Cluster uses or
endorses



Collections: evaluation and endorsement



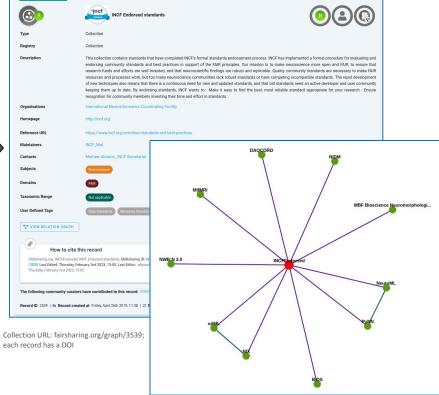


Paying it forward: How the neuroscience community builds on FAIRsharing to make digital objects more FAIR

In this guest blog post, INCF Director of Science and Training Mathew Abrams describes how the INCF makes use of FAIRsharing as part of the formal procedure it has in place for the evaluation and endorsement of community standards.







FAIRsharing is a registry of standards, databases and policies. Add your resources to improve **visibility** and highlight its connectivity and **interoperability**.

https://fairsharing.org/new

What to add

The FAIRsharing Team curates and integrates descriptions of community resources such as standards and databases, progressively linking both to policies. Our curation team keeps track of every record, but resource developers are the experts. We encourage you to take ownership of your resources' records and help us keep your standard, database or policy description up to date. If we already describe your resource, claim and then update it as necessary. If your resource is missing, please keep reading to start a new record submission.



Databases

Findable, accessible and organised collections of datasets, software, and other digital objects that can be browsed and downloaded. Please visit our documentation to learn more about the type of databases you can describe.



Requirements, specifications or guidelines that can be used for the description, interoperability, citation, sharing, publication, or preservation of all kinds of digital objects. Please visit our documentation to learn more about the type of standards you can describe.



Policies

Data policy statements implemented by an organisation such as a journal publisher, a project consortium, a funder or an institution. Please visit our documentation to learn more about the type of policies you can describe.



Collections

Groups of records spanning these three registries according to specific criteria (common standards. organisations or a particular journal's data policy). Please visit our documentation to learn more about collections.













No datasets, please

- · No files (excel, doc, csv, sql...), no data relating to an article publication:
- ✓ The resource should be an organised collection of data and datasets rather than
- ✓ The resource is findable. Users can access the database via an active website a are generally downloadable but not searchable, and therefore are not appropriate
- ✓ The resource is accessible. Irrespective of licence type, the resource is available. required)
- · Where should I store my dataset?
- > If you would like to find a home for your data, try browsing our complete subject database for your data type.

Get Started!

https://fairsharing.gitbook.io/fairsharing

How to Update a Record

We advise all maintainers to perform an annual "health check" of their records in addition to any ad hoc updates that might need doing. This section of our documentation takes you through editing each part of a FAIRsharing record, to help you complete your updates as quickly and as thoroughly as possible. Although our in-house curation team will check for any issues with the record and aim to keep it up to date, you are the expert on your resource, and therefore your contributions to the record are vital.

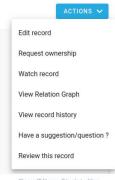


Remember, keeping your record up to date is important. The FAIRsharing community visits us to discover, select and use resources like yours, and having up-to-date information is vital for them to make an informed decision.

Updating a Record

To get started editing, ensure you are logged in and then choose "Edit Record" from your record's Action Menu

. Gaps in coverage of a domain. More generally, you can assess the completeness and coverge of your domain in FAIRsharing. Is it complete? If yes, then work towards enriching the metadata in existing records. Is it incomplete? Then start adding new records!

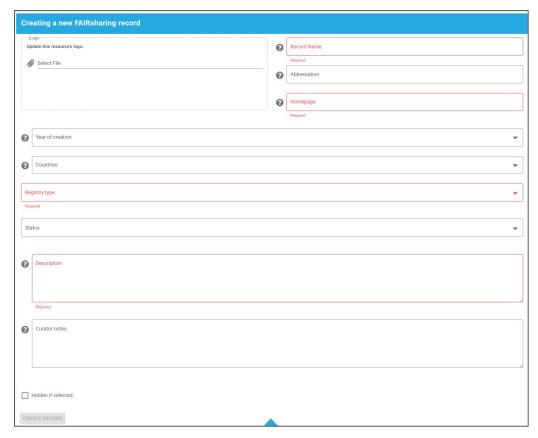


Choose "Edit record" to start editing.

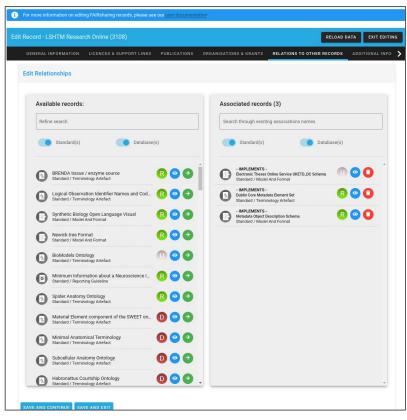
This will open up the Edit Interface for your record, such as this one shown here for the FAIRsharing record. Please note that the different portions of FAIRsharing records are represented via tabs in the Edit interface. This allows you to perform updates to your record in manageably-sized chunks, as you can work on and save the information in one tab before moving on to the next.

Educational itional

Creating a new record



Adding metadata to a record



FAIRsharing exposes the metadata around standards, databases and policies to both **humans** and **machines** in alignment with the FAIR principles.

Powering 3rd party tools

A growing number of tools and services access FAIRsharing API, and use it for look-up, selection and **content retrieval** for **standards** and **repositories** in:

- creation of data management plans
- enrichment of guidance and training material
- assessment of FAIRness

∽ eosc





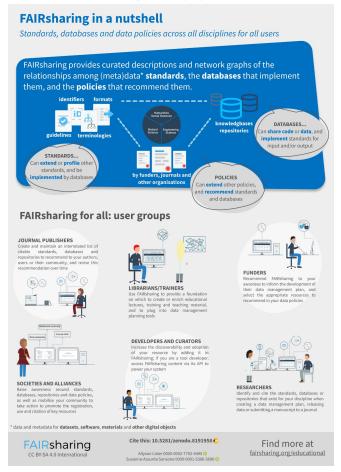


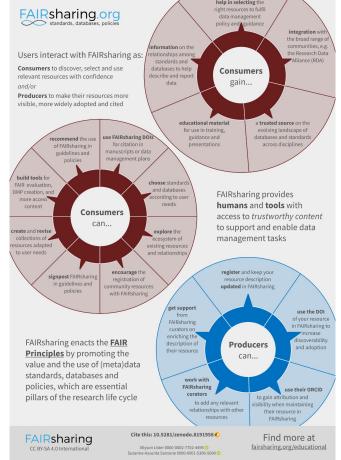
FAIR Metrics and Data Quality





FAIRsharing supports, and is supported by, its user community.





What can you do with FAIRsharing?

- Discover databases, standards, policies relevant to your domain
- Register your standards, databases and policies with
 FAIRsharing, as recommended by the DCC, the RDA and EOSC
- Volunteer as a FAIRsharing Community Champion, enriching content to ensure your stakeholders understand your policies
- Highlight FAIRsharing in your data policies and DMPs

What do you want to do with FAIRsharing?

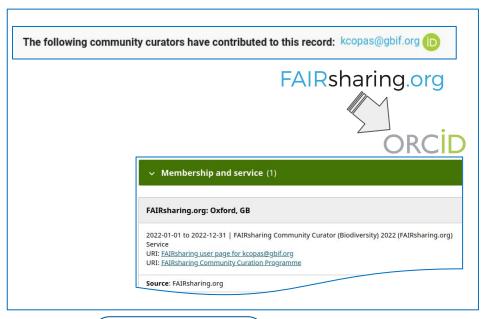
- What features would you like?
 - Map selection of resources by country ongoing
 - Advanced search ongoing
 - Assistant ongoing what use case do you have for it?
 - O What else?

FAIRsharing is manually curated by our in-house curation team, our **Maintainers**, and our **Community Champions**

Domain experts, from RDA, EOSC clusters and worldwide, who

- Help curate content, standards, repositories and policies relevant to their EOSC cluster, RDA group, research domain, or area of focus
- Contribute to educational material for the users
- Gain expertise, networking and attribution for their work, via ORCID





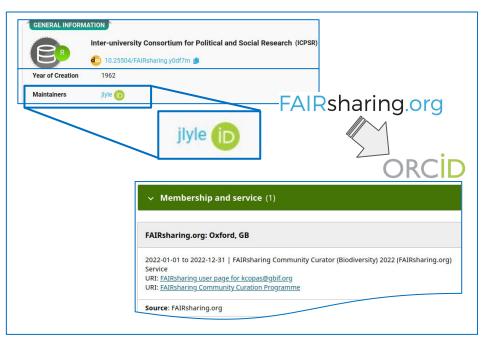


blog.fairsharing.org/?p=261



Identifying and crediting users: integration with ORCID





- Login is enabled via ORCID
- FAIRsharing is now also an ORCID trusted
 partner, via support of the Bodleian Libraries
 - This allows us to push users' contributions, as maintainer or curator of resources, to their ORCID profile
 - Building incentives and visible credit!





Opportunities to connect with each other at conferences and other events, to be part of a community

E.g. the RDA 20th Plenary, Gothenburg, March 2023

Infographics and factsheets by our Champions

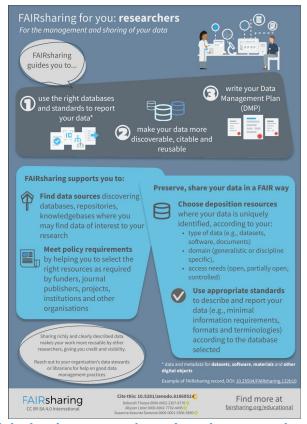


Series, focusing on:

- Content
- Users
- Functionalities
- Behind the scenes
- Tips



FAIRsharing for all



FAIRsharing.org Subject tags indicate the specific FAIRsharing displays the intended use of each database Subject agnostic is used to describe standards that are suitable for all Domain tags indicate the specific relevance to technology or protocol, e.g., magnetic resonance imaging, literature mining Taxonomy is used to classify organisms, where relevant FAIRsharing uses indicators to show the life-cycle status of each Ready when a resource is considered suitable for use database In development when a resource is being developed and may be used but may also be in a state of flux Deprecated when the community no longer mandates its use. This status is curated jointly with an Uncertain when curators cannot establish contact with the owners of a resource and believe a resource may have changed status Examples Collection of generalist repositories by the RDA Generalist Repository Comparison Chart Management Group List: fairsharing.org/3541 Graph: fairsharing.org/graph/3541 A knowledgebase for Astrophysics and Astronomy: 10.25504/FAIRsharing.5Sfaz2 A repository that shares its codebase: 10.25504/FAIRsharing.t2e1ss A knowledgebase for linguistics: 10.25504/FAIRsharing.429b28 A subject agnostic repository: 10.25504/FAIRsharing.132b10 Views of databases by type: fairsharing.org/databases/repositories fairsharing.org/databases/knowledgebases fairsharing.org/databases/knowledgebases and repositories Search databases using different options: fairsharing.org/#search Cite this: 10.5281/zenodo.8186961 40 **FAIRsharing** Find more at Gabriel Pelletier 0000-0003-3257-0545 0 fairsharing.org/educational CC BY-SA 4.0 International Allyson Lister 0000-0002-7702-4495 0

fairsharing.org/educational#researchers

fairsharing.org/educational#databases

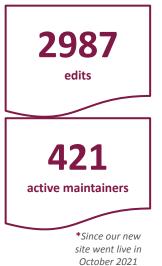
Community Champions

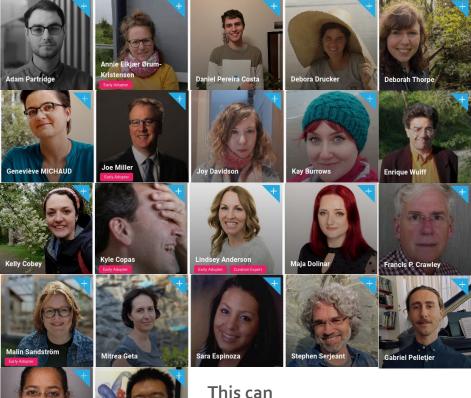
3264 edits 257 updated records 100 new records

> *Since they began in Autumn 2022

Our **Maintainers** and **Community Champions** are busy updating across all disciplines, according to their needs and interests

Record Maintainers





This can be you, JOIN US! A thriving community of domain and discipline experts who:

- 1 . **act as advocates** to promote the value of standards, databases and policies for digital objects (incl. data, software).
- 2 . **create educational material** describing these resources helping researchers and other stakeholders to find, use and adopt them.
- 3 . **enrich the content** of FAIRsharing, adding and enhancing the description and discoverability of these resources.





Thank you!



Stakeholder Advisors

- Amye Kenall, Research Square
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- Catriona MacCallum, Hindawi
- Dagmar Meyer, ERC, Executive Agency
- Dominic Fripp, JISC
- Emma Ganley, Protocols.io
- Geraldine Clement-Stoneham, Medical Research Council
- Helena Cousijn, DataCite
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- Lorenzo Feri, Elsevier
- Luiz Olavo Bonino, GO-FAIR
- Mark Leggott, Digital Research Alliance of Canada
- Marta Teperek, Open Science NL
- Michael Ball. Medical Research Council
- Mike Huerta, NIH National Library of Medicine
- Nick Everitt and Matthew Cannon, Taylor and Francis
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- Sarah Callaghan, Research Strategy & Policy Unit, University of Oxford
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- Theo Bloom, British Medical Journal
- Thomas Lemberger, EMBO Press
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WG

- Robert Hanisch, NIST
- Varsha Khodiyar, Independent Expert

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- Holly Murray, Health Data Research UK
- Peter McQuilton, GSK
- Rebecca Grant, F1000
- Simon Hodson, CODATA
- Allyson Lister, University of Oxford
- Susanna-Assunta Sansone, University of Oxford

Community Champions

fairsharing.org/community champions/our champions

Operational Team

FAIRsharing Registry: Connecting data policies, standards and databases RDA WG



www.rd-alliance.org/group/fairsharing-registry-connecting-data-policies-standards-databases.html



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fairsharing.org/communities#governance

