FAIRsharing.org

Try our new release!
beta.fairsharing.org

Promoting the discovery of data standards, policies and databases across all research domains

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10.25504/FAIRsharing.2abjs5

wellcome

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FAIRsharing in a nutshell:

scope and **mission**

The AgBioData RCN

What's an RCN?

Research **C**oordination **N**etwork -
Funded by National Science Foundation

… supporting groups of investigators to **communicate and coordinate** their research, training and educational activities across disciplinary, organizational, geographic and international boundaries.

Overarching RCN Goal:

Make agricultural genetics, genomics and breeding (GGB) data easier to find and use, and available for the long term

When: Sept 1 2021 - Aug 31 2024 (3 years)

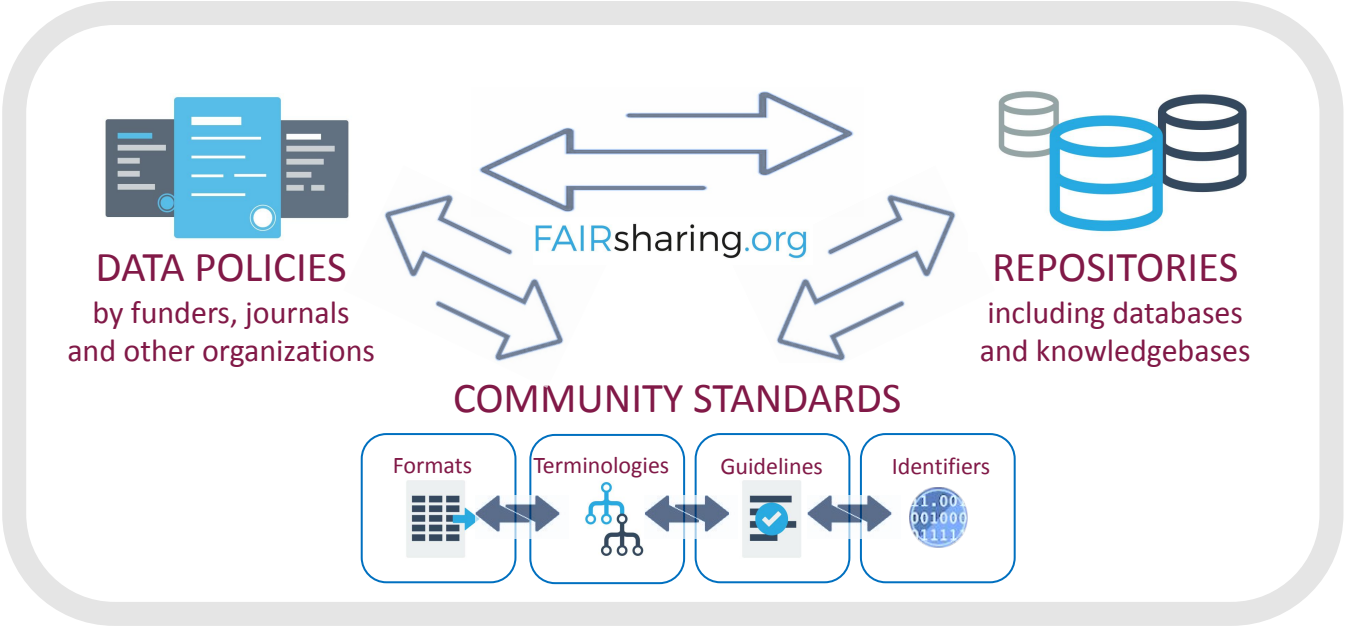
Funding: includes a full time Program Coordinator, in-person meeting in year 2, sustainability planning

Eva Huala

12

https://youtu.be/Sx3mZENaTro

A global resource for all disciplines



An informative and educational resource of three *curated* and *interlinked* registries of standards, repositories and policies; three key elements of the FAIR ecosystem

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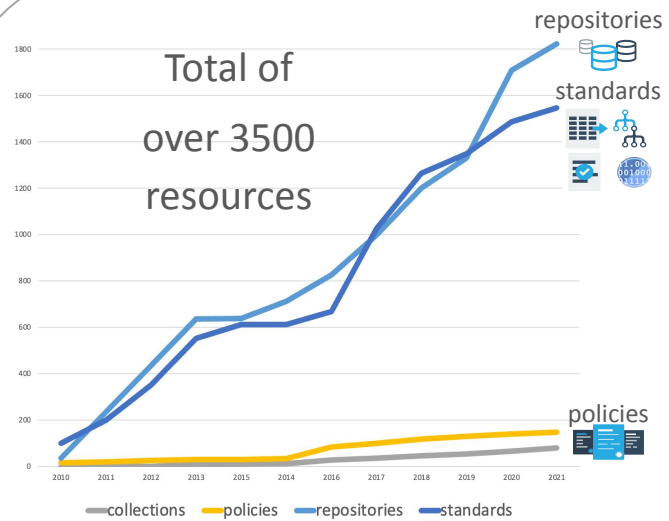
Promoting the value of repositories, standards, policies



Fosters a culture change where the use of these resources for FAIRer data is pervasive and seamless

Researchers in academia, industry, government

Developers and curators of resources

Journal publishers or organizations with data policy

Research data facilitators, librarians, trainers

Learned societies, unions and associations

Funders and data policy makers

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

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

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My funder's data policy recommends the use of established standards, but which are widely endorsed and applicable to my **crop** data?

Which are the **mature standards** and **standards-compliant databases** that we should recommend to our authors?

We need a standard for **sharing social science data**, what's out there and who should we talk to?

I have some old **rice genomic data** in format X, which is now **deprecated**; what format has replaced X?

The FAIRness of FAIRsharing: increasing your...

Findability

Discovery of your resource via

- standard search
- traversal of our relationship graph

Your stakeholders can use FAIRsharing to find your resource through multiple routes, both directly and via related records

Interoperability

Navigate relationships to see which resources

- utilise the standards you implement
- retrieve data from you

This information can advertise e.g. vocabularies you implement and help identify possible collaborations

Accessibility

- FAIRsharing summarises access methods and protocols
- Users can see your resource metadata, even if your service is unavailable

Reusability

- Showcase your community certifications
- Provide licencing information

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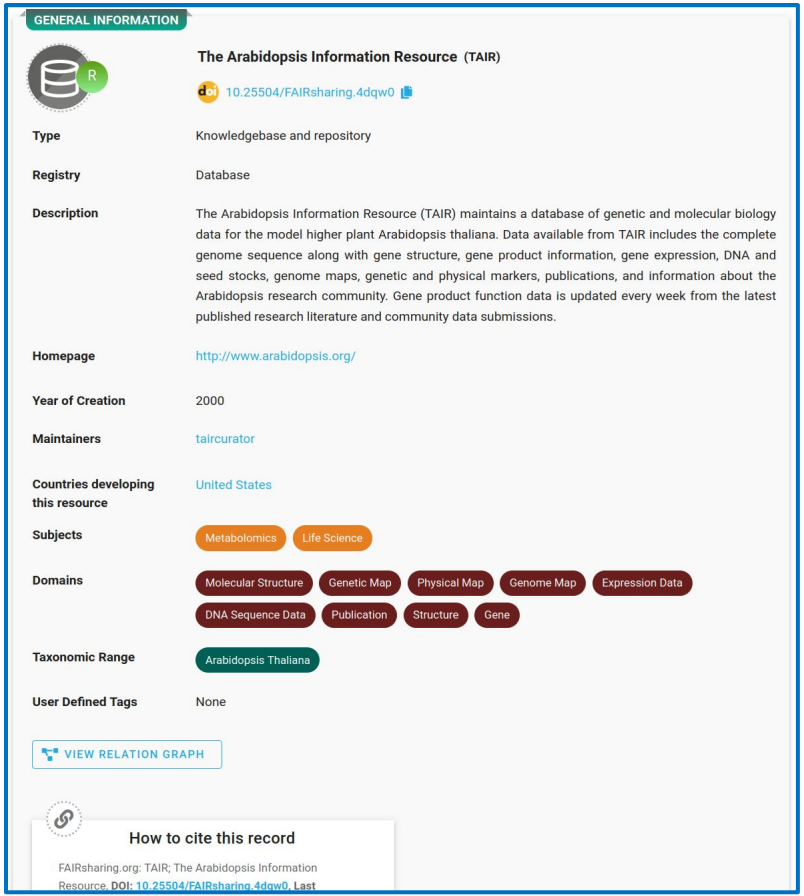
A FAIRsharing record:

at-a-glance view

Records have >40 descriptors



Including:

- Description
- Country
- Date of creation
- Subject(s) coverage
- Maintainer(s)
- Funder(s)
- Organization(s)
- Support details
- Access
- Licence(s)
- Publication(s)
- Related records (standards and databases, and policies)

DOI: https://doi.org/10.25504/FAIRsharing.4dqw0

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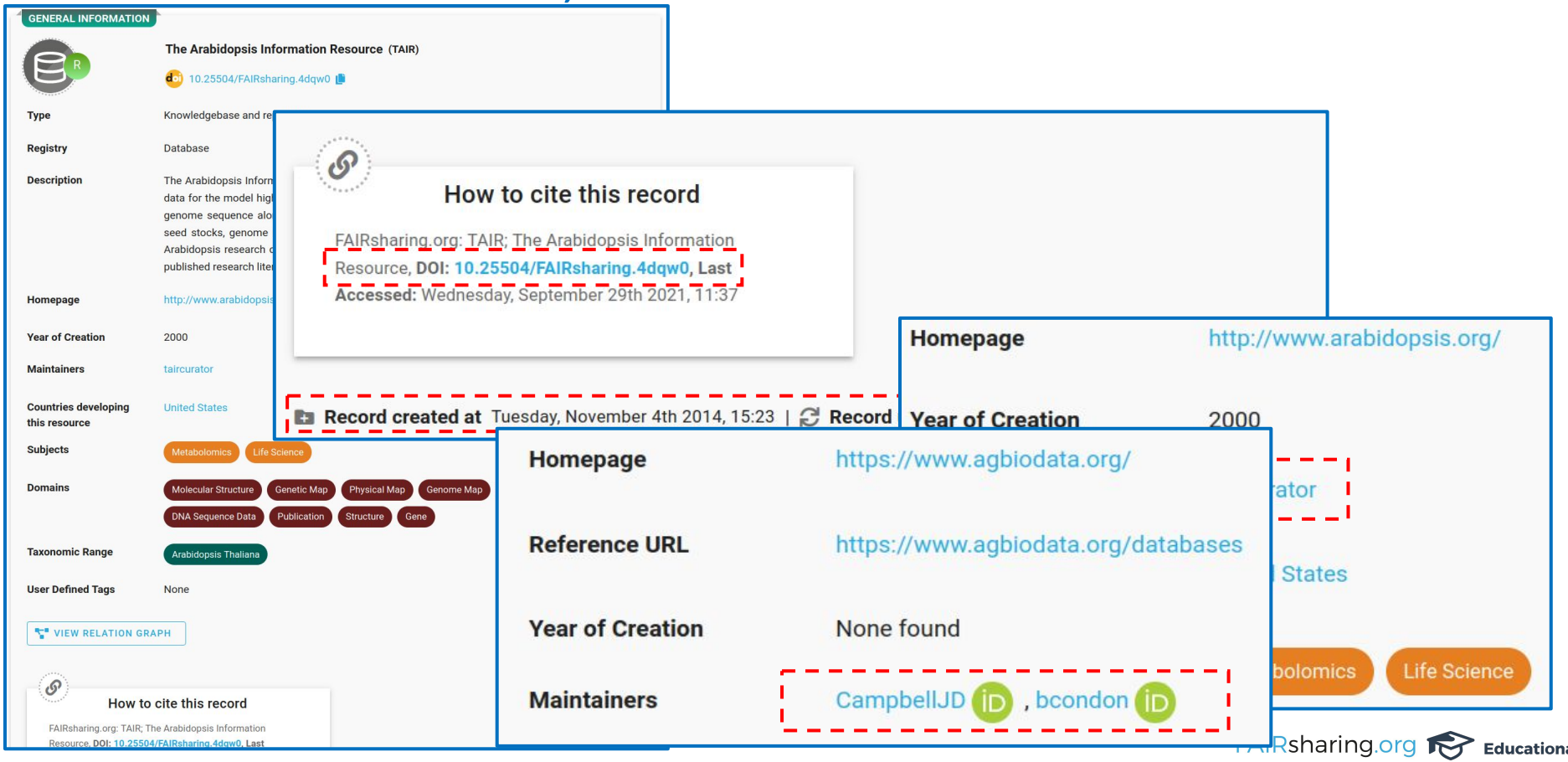
Records are citable; maintainers identified and credited



DOI: https://doi.org/10.25504/FAIRsharing.4dqw0 URL: https://beta.fairsharing.org/AgBioData

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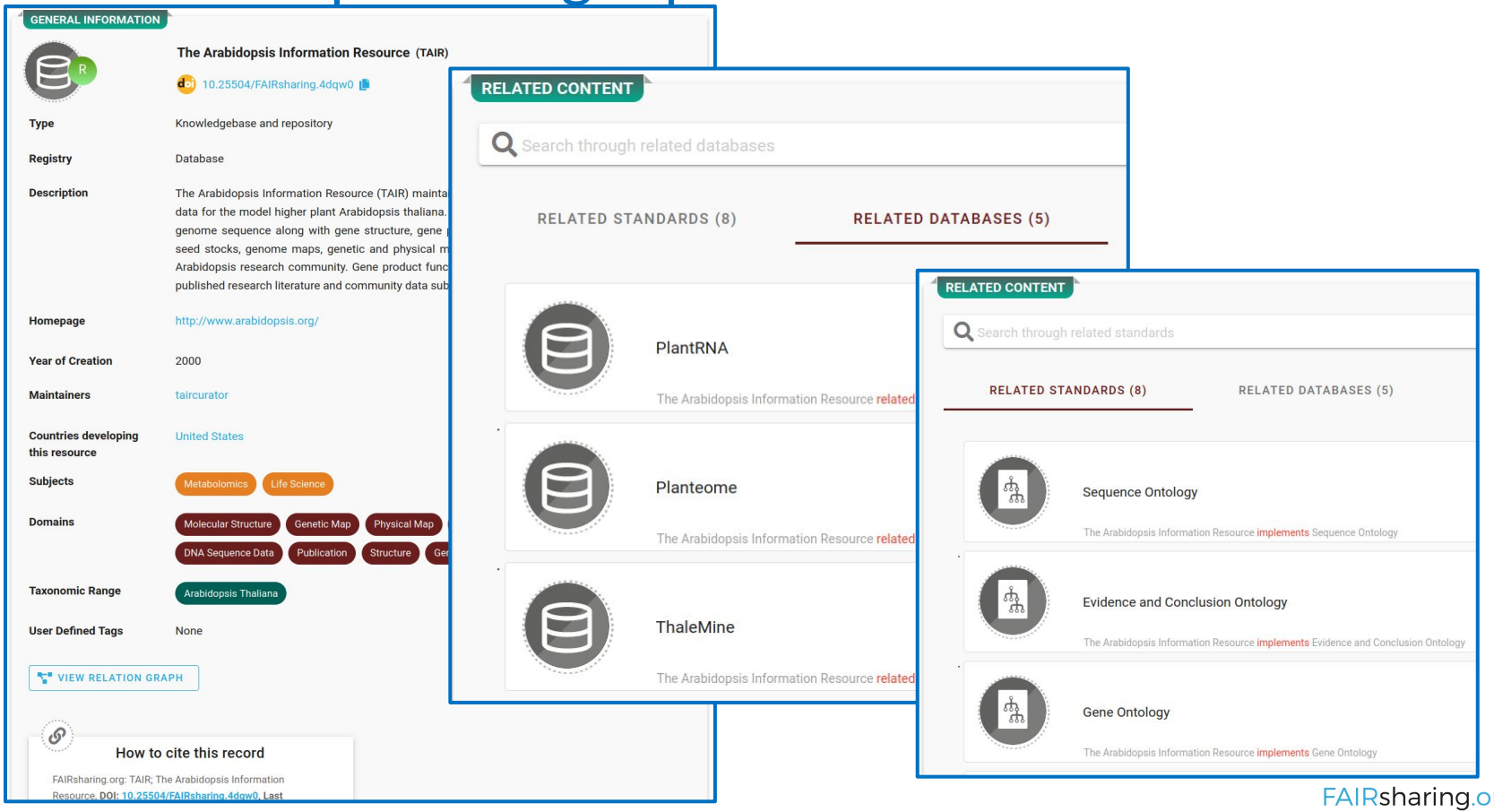
Relationships among repositories and standards are tracked



DOI: https://doi.org/10.25504/FAIRsharing.4dqw0

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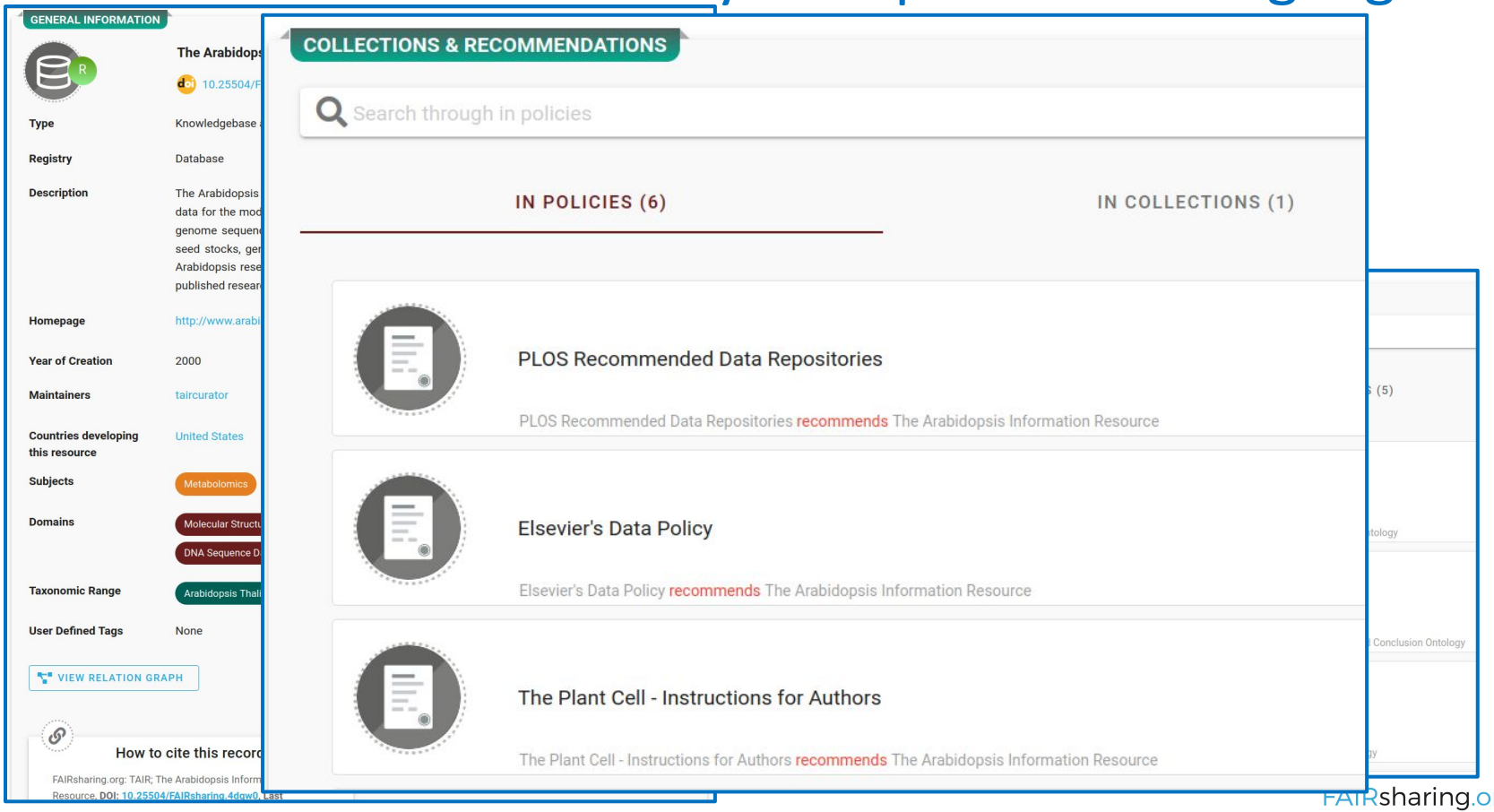
Recommendations by data policies are highlighted



DOI: https://doi.org/10.25504/FAIRsharing.4dqw0

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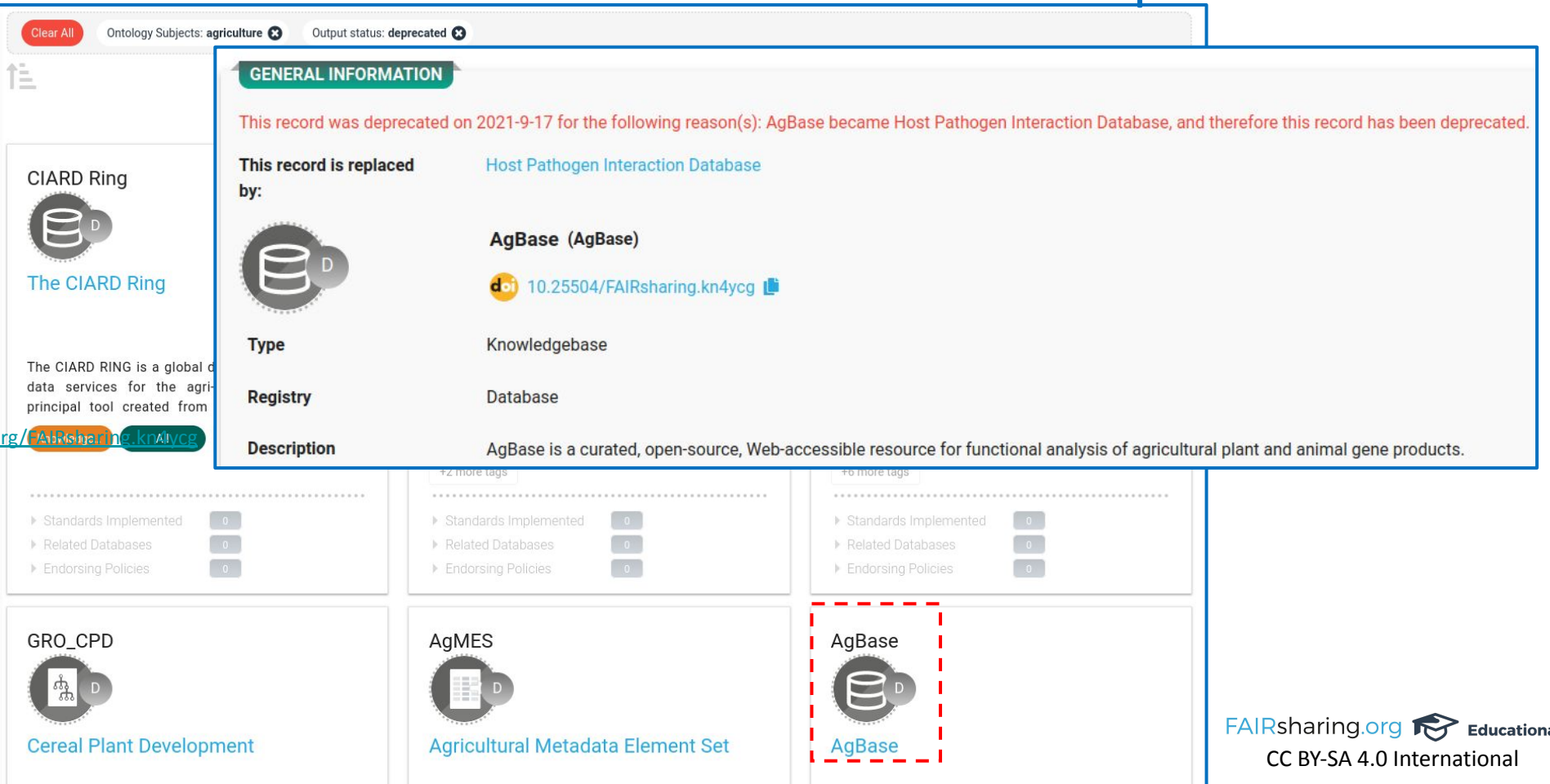
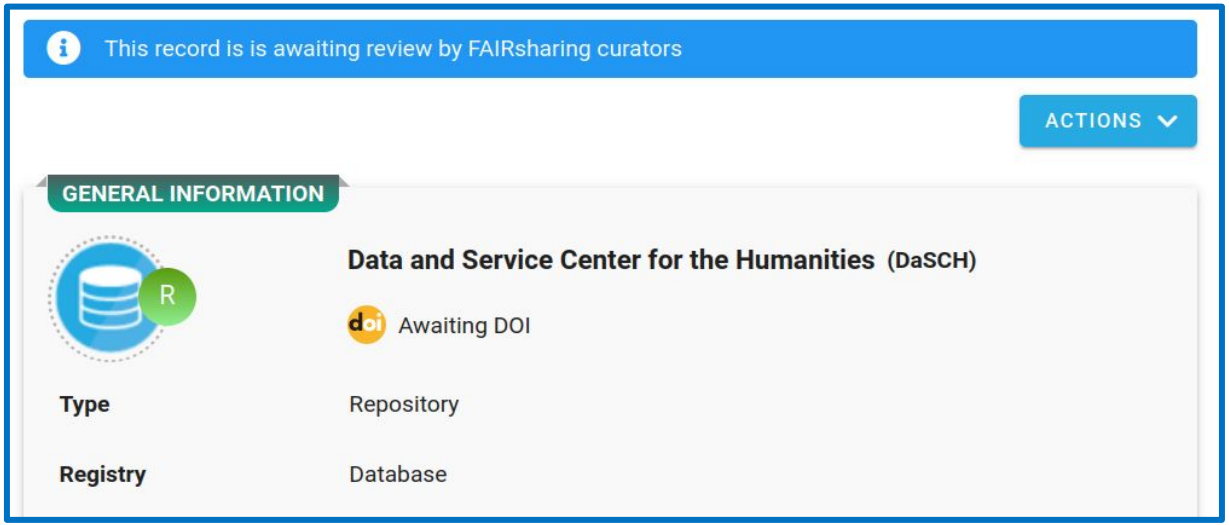
Evolution is monitored and reasons provided





In-house curation and the 'life cycle status' tags

Life cycle tags:

- R — Ready for use, implementation, or recommendation
- Dev — In development
- U — Status uncertain
- D — Deprecated as subsumed or superseded

- Every edit is checked by the in-house curation team
- Maintainers are notified via email when their record is updated

The value of tracking

the **relationships** between

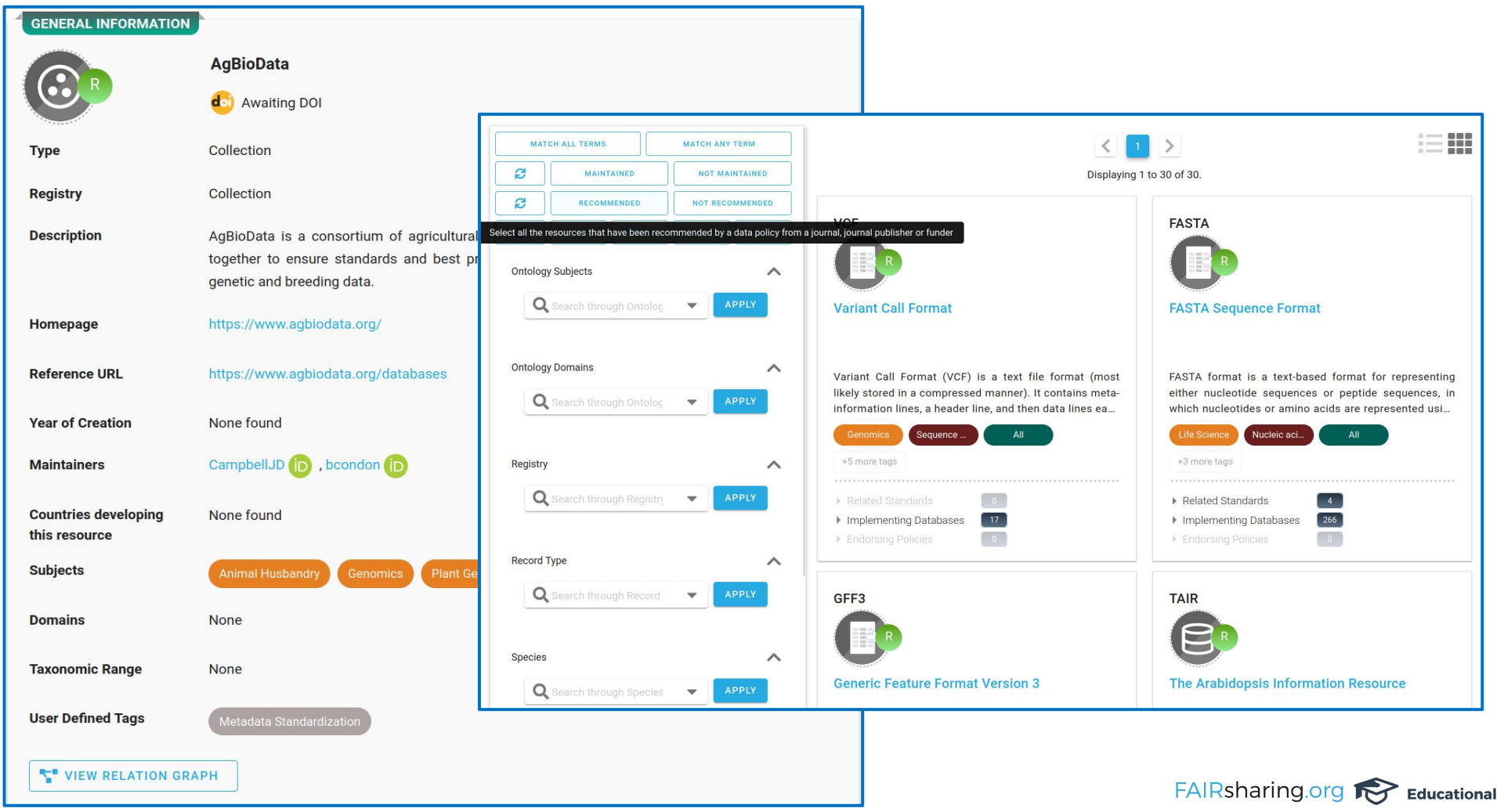
repositories, **standards** and **policies**

Emerging data types Working Group

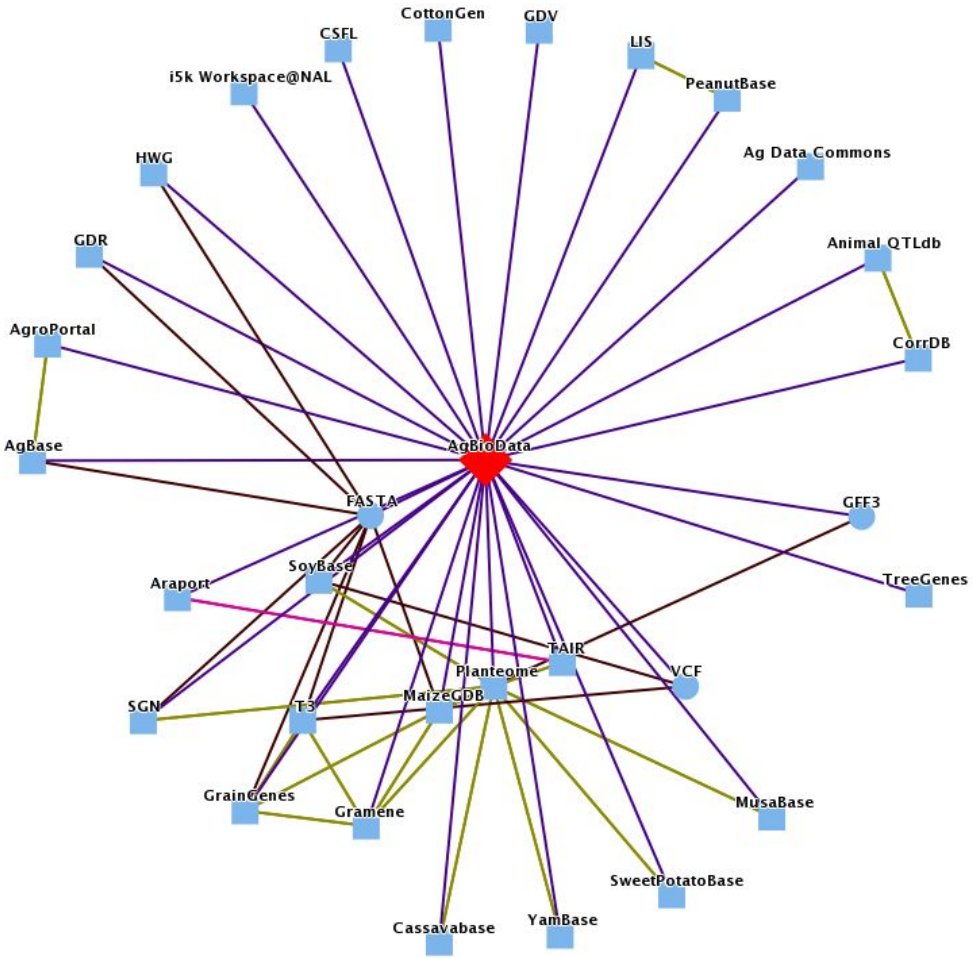
- Novel data types often results from novel scientific methods
- The goal of this working group is
  - To select the most relevant new data types for AgBioData members
  - Identify the specific challenges to make this data type FAIR
  - Pass results onto other working groups (eg. metadata, data federation) in following years to develop best practices
  - We could form a new issue WG after 6 month
- Example new data types
  - High-throughput phenotyping data
  - Metabolomic data
  - Image data
  - Microbiome data

Sook Jung

https://youtu.be/Sx3mZENaTro



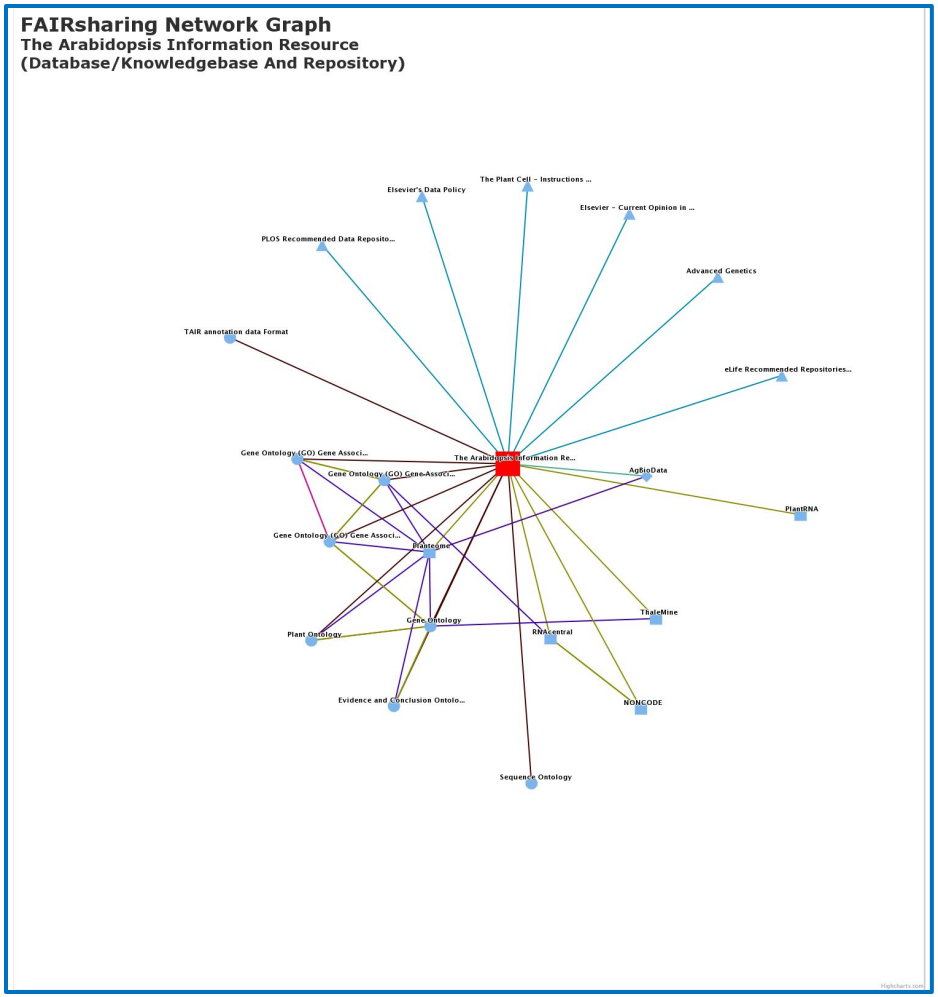
URL: https://beta.fairsharing.org/AgBioData



https://beta.fairsharing.org/graph/3520

AgBioData Graph

- What does it show you?
  - How your resource is related to other resources within the collection
  - Traversal to other, related, graphs
- How can it be improved?
  - Add all connections your resource has to other data standards, databases and policies
  - Add connections to each other (do you share data? Use a common format?)

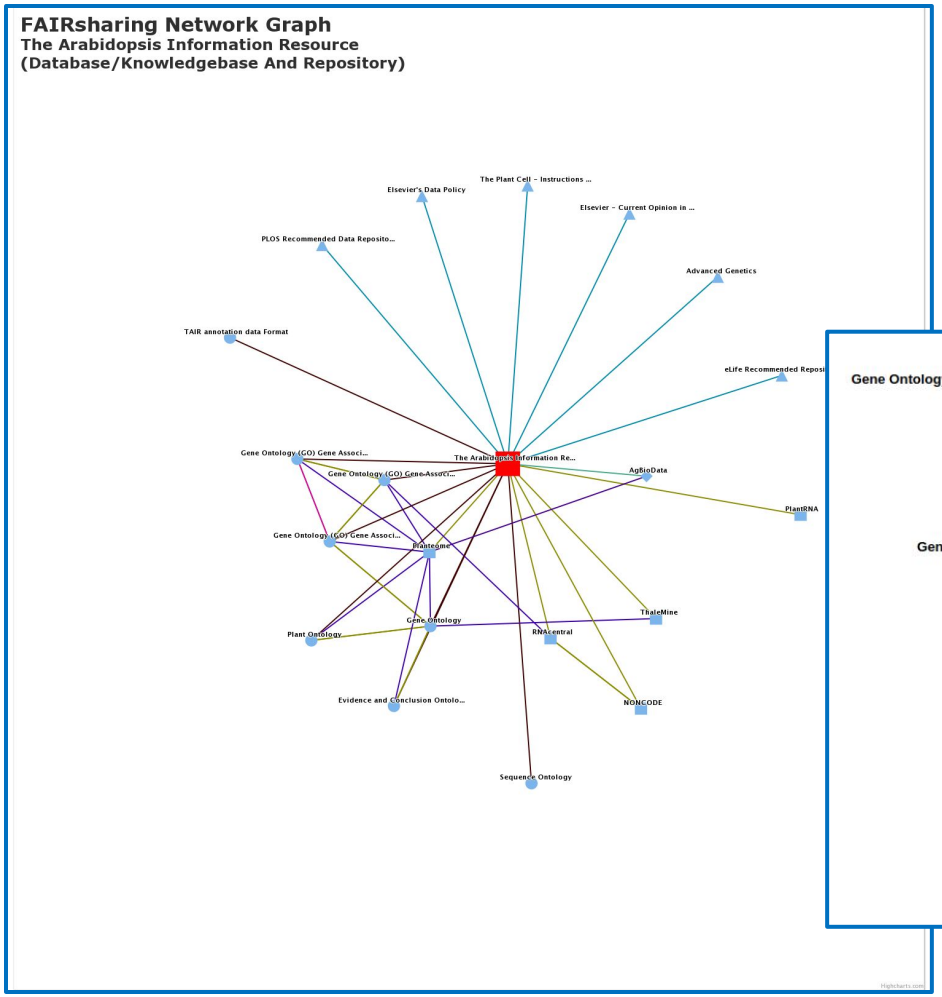


Relationship graphs

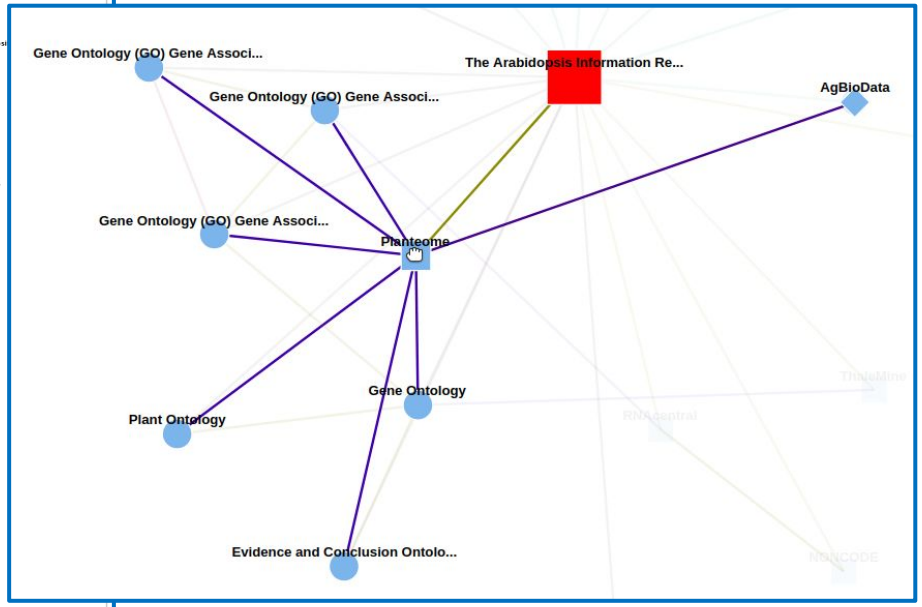
Shows other records related to TAIR:

- standards TAIR implements,
- repositories TAIR has a relationship with (e.g. share data with, import data from)
- policies that recommend TAIR

URL: https://beta.fairsharing.org/graph/1649



Relationship graphs: how resources in your network are connected



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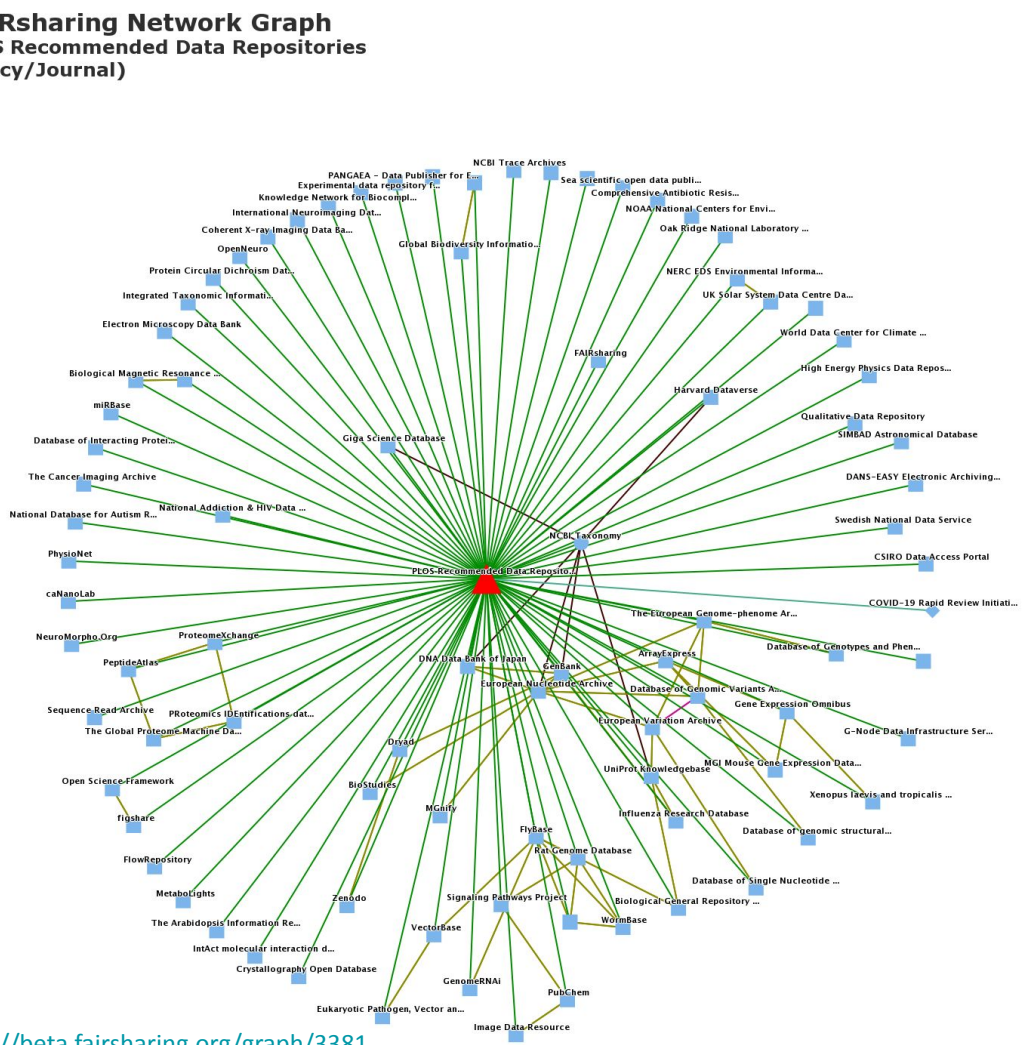

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Relationship graphs: policy recommendations

Examples of how *consumers* and *producers*

of standards, repositories and policies

use FAIRsharing and **benefit** from it

Metadata Working Group

- Long-standing WG that has explored existing metadata standards for a variety of data types.
- Mission is to improve use of standardized metadata, which is critical especially for finding and relevant datasets and sharing and reuse of data.
- Proposed activities:
  - Document recommended metadata standards for member databases.
  - Develop a metadata assessment tool.
  - Work with member databases to document metadata practices.

Ethy Cannon

https://youtu.be/Sx3mZENaTro

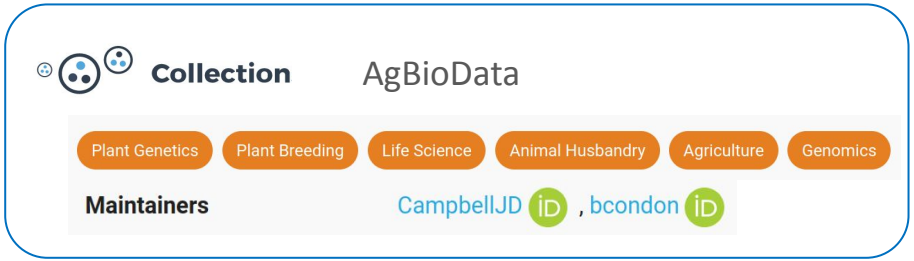
Organizations: tailored views for education and promotion

Many groups and projects have created

Collections

These are are branded pages that group selected **standards** and/or **repositories** relevant to their community and/or developed by them

EXAMPLES

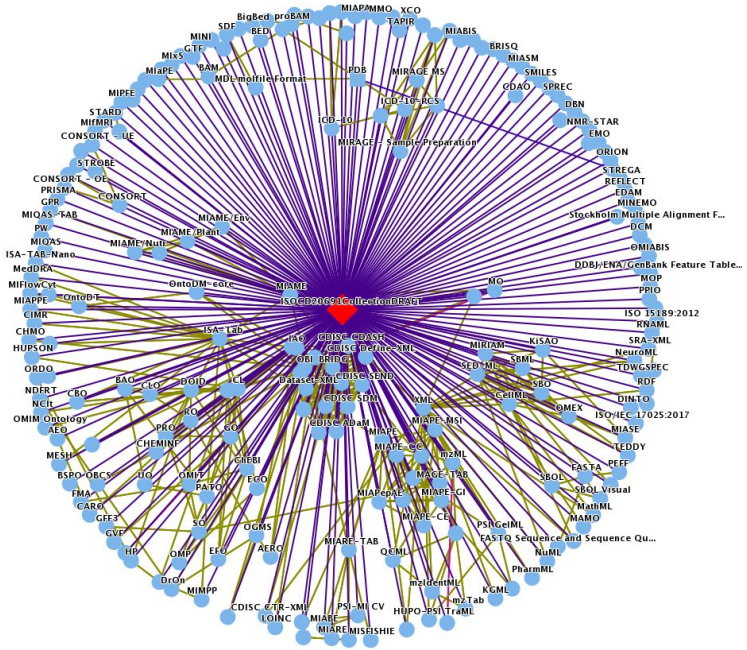


URL: beta.fairsharing.org/AgBioData

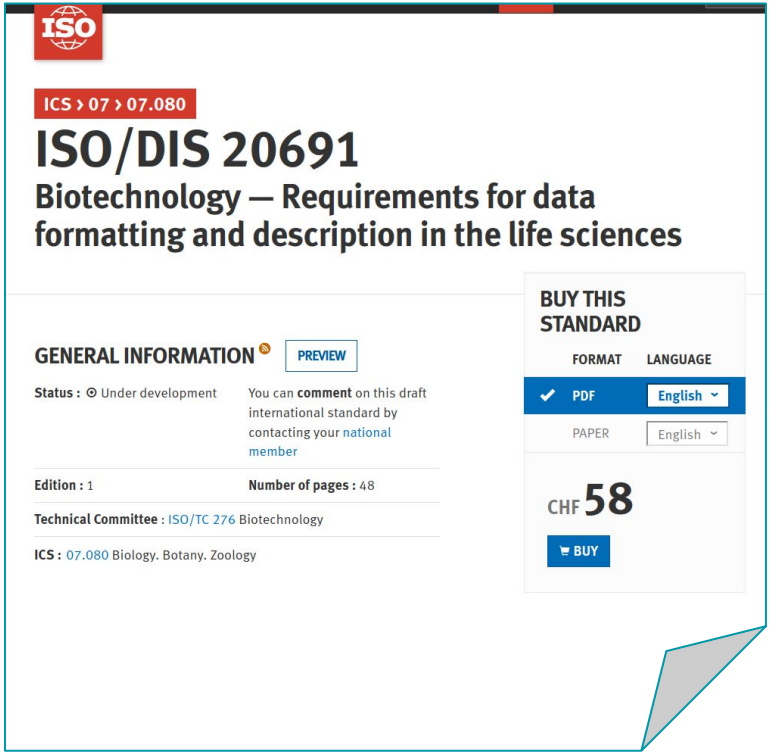
URL: beta.fairsharing.org/GBIFPortals

Researchers: ‘live’ graphs complement textual material

To discover and search the 230 related **standards** part of the specification developed by the ISO Technical Committee on Biotechnology Processes



URL: beta.fairsharing.org/ISOCD20691CollectionDRAFT



URL: https://committee.iso.org/standard/68848.html

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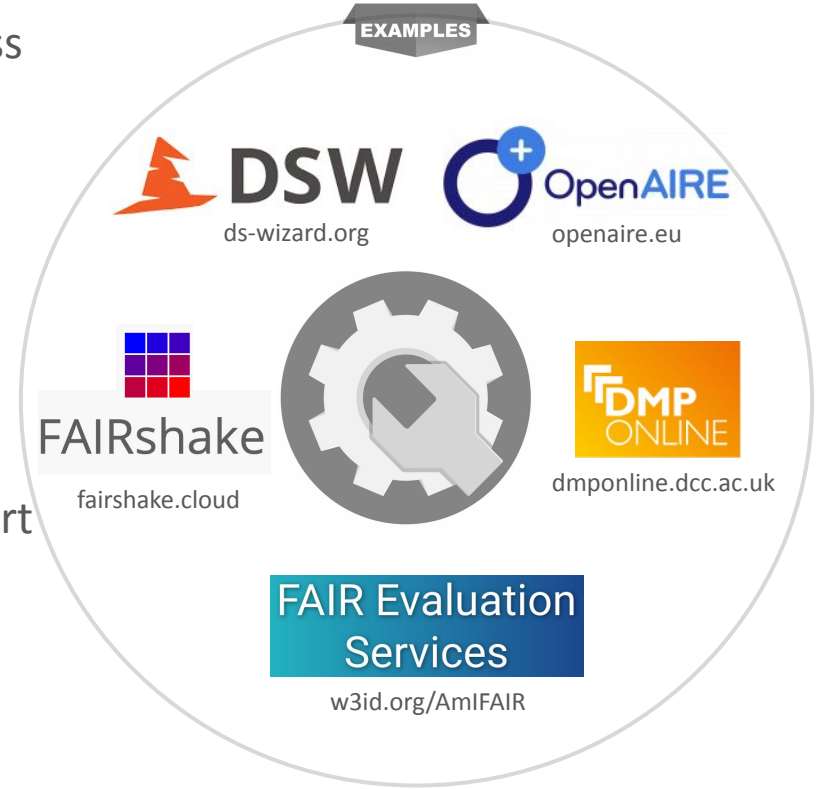
Services: curated content to power 3rd party tools

A growing number of **FAIR-enabling Services** access FAIRsharing API, and use it as **look-up** and **select** service for **standards** and **repositories** for:

- data management plans and guidelines
- FAIR assessment

A new, in-development **Data Discovery Service**, part of ELIXIR-driven EOSC-Life and BY-COVID projects:

- register repositories' access methodologies, e.g. schema.org, bioschemas, OAI-PMH
- enable (meta)data harvesting



FAIR in practice:

FAIRsharing implementation

and collaborations

Implementation Working Group

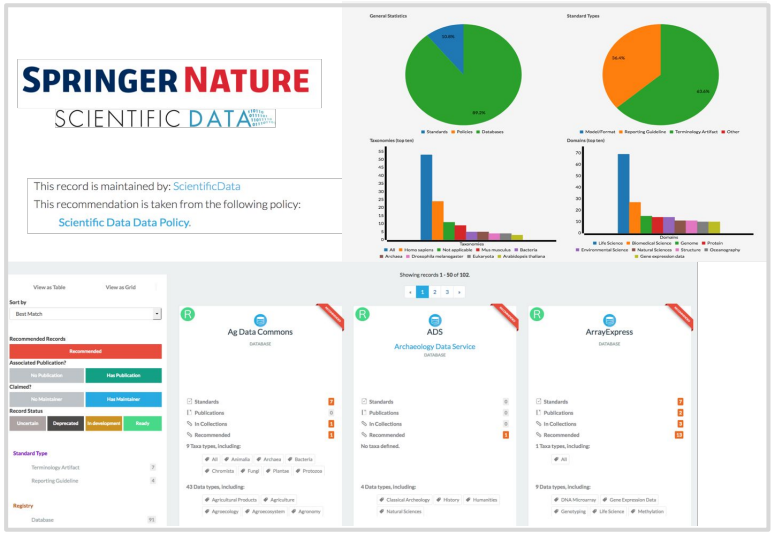
- Starts during Q1 of Year 2, with AgBioData members, stakeholders, data generators, agricultural scholarly publishers, major federal & private funding agencies
- Working group will implement community-wide Aim 1 deliverables and develop effective mechanisms
  - Develop effective mechanisms and strategies to implement the FAIR data management
  - Publish an initial set of recommendations/roadmap for funders and journals to support and encourage FAIR data compliance.

Jacqueline Campbell

NSF

https://youtu.be/Sx3mZENaTro

Policy makers: policies registration and dashboards



Scholarly publishers use FAIRsharing to:

- **list** standards and repositories they recommend in their data policy,
- **discover** new resources and **monitor** their evolution to **refine** or **update** their policies

EXAMPLES

SPRINGER NATURE · Taylor & Francis · WILEY · OXFORD UNIVERSITY PRESS · THE ROYAL SOCIETY PUBLISHING · AGU ADVANCING EARTH AND SPACE SCIENCE · ELSEVIER · F1000 FACULTY OF 1000 · Hindawi · EMBOpress · eLIFE · CAMBRIDGE UNIVERSITY PRESS

The FAIRness of FAIRsharing: nuts and bolts

Findability

Sitemap.xml, JSON

Markup with Schema.org for search indexes

DOI unique persistent identifiers for each record

ORCID for authors

Interoperability

JSON markup

Standardized semantics

Cross-links to records in other registries (*ongoing*)

ROR for organizations (*ongoing*)

FundRef for funders (*ongoing*)

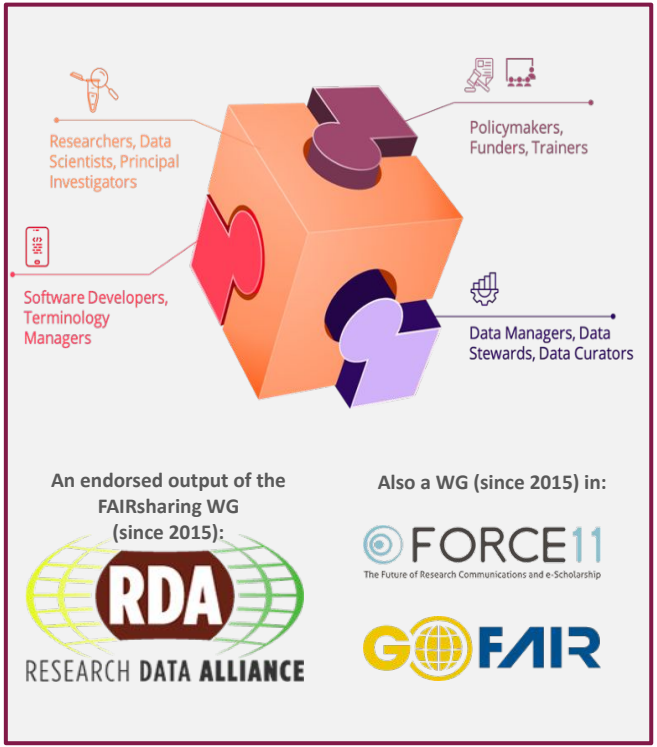
Accessibility

REST Web Services

Reusability

CC BY 4.0 license

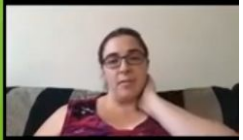
Users, adopters, communities and working groups



Help us help you!

Recruitment Working Group

- **Aim:** Expand the network to include key stakeholders
- **Goal:** Broadening participation in the AgBioData network
- Focus efforts to recruit & engage participants
  - Underrepresented groups (NIFA Tribal Colleges)
  - Junior researchers (graduate students/postdocs)
- Identify relevant groups/organizations, establishing contacts, & gathering/reporting on metrics
- WG will meet virtually & at the beginning of each year
  - To recruit data generating scientists &/or stakeholders for each working group (Program Coordinator will play a role in this work)
  - End of year 2, recruit people from agricultural scholarly publishers, major federal & private funding agencies to join the **Implementation Working Group**



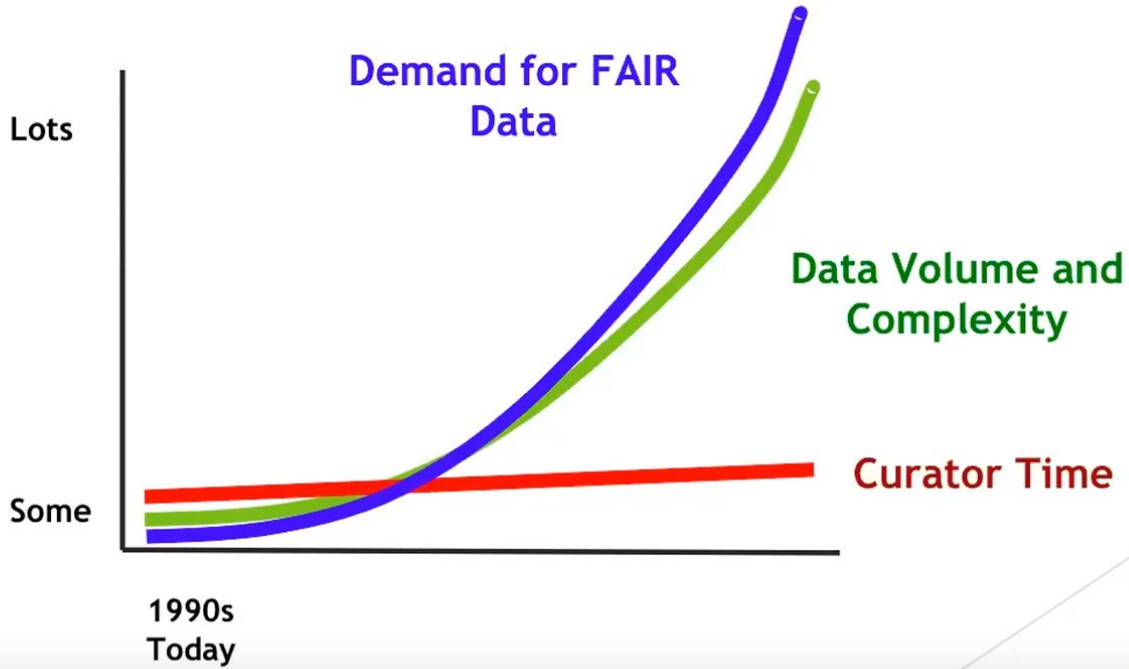
Jacqueline Campbell

Help us to help you promote your repository

- You are the expert, producer, owner or maintainer
  - Use your ORCID to be recognised and credited
- You know more about the key features and descriptors
  - Identify the community standards you use, key to FAIRness
  - Describe the relationships, if any, with other repositories
- Your descriptive record in FAIRsharing informs user decisions
  - Add rich metadata to help with visibility and user selection
  - Indicate if you have any global certifications, or community badges of adoption and recommendation

What is AgBioData?

Genetic, Genomic and Breeding Data



Lisa Harper

https://youtu.be/Sx3mZENaTro

Community Curators: in development

- Do you have a broad and deep understanding of the standards and databases most relevant in your field?
- Be a recognized contributor of the FAIRsharing community
  - How would you like to be recognised?
- Help your community
  - Record maintainers only describe those resources they are directly involved with
  - Community curators can manage the entire ecosystem of records within your domain of interest
- Access all records in your discipline and create new ones
  - Work with existing maintainers
  - Suggest new maintainers for the internal FAIRsharing Curation team to contact
- Gain on-the-job curation expertise
- Engagement and networking with a community of like-minded people
- Become an expert on data and metadata standards, databases, repositories and data policies in your area

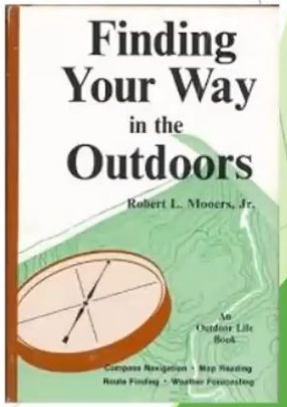
Outreach

and

related projects

Education Working Group

- FAIR Data Management Guide
  - Researcher-focused
  - What GGB databases are out there? Which should I use?
  - Where and how should I submit my data of type X?
  - Checklist of FAIR data procedures
  - Start general, then add specifics by data type as time allows
- FAIR data curriculum
  - Foundational knowledge of FAIR and GGBs
  - Graduate student courses
  - Workshops at Conferences
  - Online, at your own pace
- FAIR data summer workshop



NSF

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Meg Staton

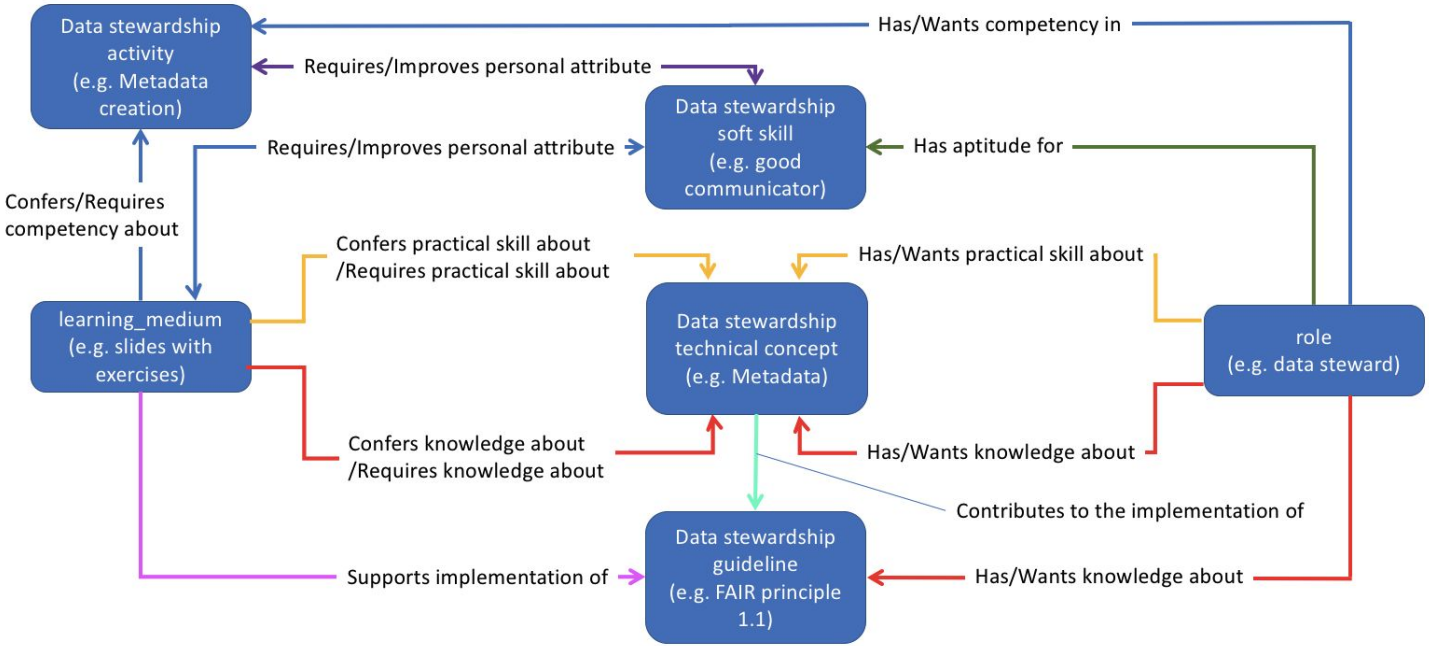
https://youtu.be/Sx3mZENaTro

Plans for FAIRassist: FAIRsharing educational component

- **It will *explain* and *guide* stakeholders to make the best use of functionalities and content offered by FAIRsharing**
- It will serve both types of users:
  - Consumers (all users) of resources, from one or more registries
  - Producers (some users) of one or more (types of) resource
- It will have two elements:
  - **Educational Guidance** - *visual storytelling via infographics*
    - Targeted advice that explains how and when FAIRsharing helps them
  - **Resources Finder** - *wizard*
    - Decision tree, developed in phases, that guides users to discover, filter, select a subset of resources

terms4FAIRskills

Competencies, skills and knowledge associated with making and keeping data FAIR



https://terms4fairskills.github.io/

FAIR cookbook

FAIRplus

elixir

Hands-on recipes to make and keep data FAIR

What is it?

An online, 'live' resource for the **life sciences**

A collection of **recipes** that cover the operation steps of FAIR data management

Who is it for?

Anyone who needs practical assistance in their FAIRification journey or creates FAIR guidance and educational material

Who developed it?

+50 researchers and **data management** professionals in the life sciences, from **academia** and **industry**

Including ELIXIR members

https://fairplus.github.io/the-fair-cookbook/content/home.html

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Operational Team

- **Allyson Lister,** Content and Community Lead
- **Milo Thurston**, Technical Lead
- **Ramon Granell,** Data Enrichment & Quality Manager
- **Delphine Dauga**, Data Curator Manager
- **Hossein Mirian**, Web Developer
- **Dominique Batista**, Research Software Engineer
- **Massimiliano Izzo,** Research Software Engineer
- **Philippe Rocca-Serra**, Co-Founder
- **Susanna-Assunta Sansone**, PI and Founder

Executive Advisors

- **Varsha Khodiyar**, HDRUK
- **David Carr**, independent expert
- **Chris Graf**, Springer Nature
- **Marta Teperek**, Data Stewardship Coordinator, TUDelft
- **Robert Hanisch**, Director, NIST Office of Data & Informatics
- **Peter McQuilton**, GSK

Stakeholder Advisors

- **Emma Ganley,** Director of Strategic Initiatives, Protocols.io
- **Michael Ball,** Biotechnology and Biological Sciences Research Council (BBSRC)
- **Theo Bloom,** British Medical Journal (BMJ)
- **Nick Everitt and Matthew Cannon,** Taylor and Francis
- **Wei-Mun Chan,** eLife
- **Geraldine Clement-Stoneham,** Head of Knowledge Management and Scholarly Communication, Medical Research Council (MRC)
- **Helena Cousijn,** DataCite
- **Scott Edmunds,** GigaScience, Oxford University Press
- **Dominic Fripp,** JISC, UK
- **Simon Hodson,** CODATA
- **Iain Hrynaszkiewicz,** PLoS
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- **Amye Kenall,** VP of Publishing and Product, Research Square
- **Adam Leary,** Oxford University Press
- **Thomas Lemberger,** EMBO Press
- **Luiz Olavo Bonino,** GO-FAIR
- **Kiera McNiece,** Cambridge University Press
- **Dagmar Meyer,** European Research Council (ERC), Executive Agency
- **Marina Soares E Silva, Ilaria Carnevale and Sarah Callaghan,** Elsevier
- **Imma Subirats,** Information Management Officer, FAO of the United Nations
- **Molly Cranston and Guillaume Wright**, F1000Research
- **Kathryn Sharples**, Wiley
- **Catriona MacCallum**, Hindawi

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Thank you!

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