

# FAIRsharing content: **standards overview**

Core to research data management good practices

Guides users to **discover**, select, and use standards with more **confidence**

Assists producers to make their standards more **visible**, and more widely adopted

FAIRsharing promotes the **value** of standards, the backbone of the **FAIR Principles**



**FAIRsharing describes standards for all data, including datasets, software, materials and other digital objects**

Standards ...

Are a **collectively agreed-upon** set of requirements, specifications, guidelines or characteristics that can be used for the **description, structure, harmonisation, citation, sharing**, and/or **preservation** of all kinds of data\*

Help **machines** with computational accessibility, **interoperability**, and use of data with little/no human intervention; enable humans to understand and reuse **data at scale**

**FAIRsharing categorises standards with four types:**

**1**

**Reporting guidelines**

Outline in narrative form the necessary and sufficient information that should be reported about data, such as in itemised, prescriptive checklists; or the features and behaviours that should be followed, such as in general guiding principles

**Models and formats**

**2**

Define the representation of information for use by machines; these range from conceptual models to transmission formats, facilitating data retrieval and exchange between systems

**3**

**Terminology artefacts**

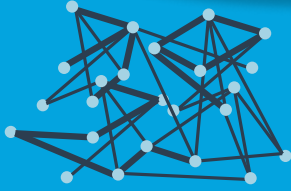
Add an interpretive, semantic layer for use by machines and humans; these range from controlled vocabularies (lists of terms, often with definitions) to ontologies (complex hierarchical groupings), providing unambiguous identification of concepts and aiding data querying

**Identifier schemata**

**4**

Are formal systems to identify information in a unique, machine-readable way; these persistent identifiers (PIDs), minted by recognised registries, build reliable and long-lasting links between data, people, organisations and infrastructures

FAIRsharing provides a snapshot of the **dynamic landscape** of standards



Tracks their **evolution**

Illustrates **relations** with other standards

Displays their **implementation** in databases

Monitors their **adoption** in data policies and guidelines

### Benefits for all

**Be familiar with standards at a level appropriate for your needs, e.g.**

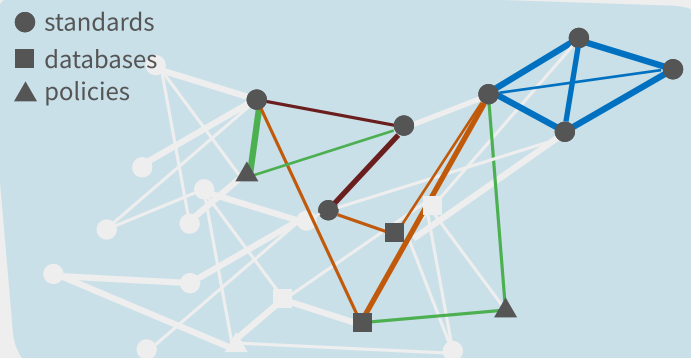
**Researchers** should understand the basics, to select the right set when defining a Data Management Plan (DMP).

**Tools and service developers, and data professionals** have a high familiarity with standards as implemented in data infrastructures to make them 'invisible' to researchers and other users of these systems.

**Trainers, guidance and policy makers** will have a strong grasp of standards to provide examples and recommend an appropriate set.

FAIRsharing visualises dependencies relating to standards, e.g.,

- many **standards** used in **combination** as 'packages', such as when a **terminology** is **related to a** given **format**
- how **standards** are **implemented by** **databases** and are **recommended by** **policies**



There is no central authority for standards, but there are two main producer groups:

- Standards Developing Organisations, with formal membership & development processes, create de jure standards often available for a fee.
- Grass-roots, open communities create freely available de facto standards via a more organic process, generally accepted through common use.
- As long as a standard is recognized by the research community and discipline you belong to, both types are suitable for enabling FAIR data.

Navigating the standards ecosystem is challenging

- Standards are often fragmented, with unnecessary duplications and gaps.
- High numbers of published standards in some research areas reflects the dynamic nature of technologies, data types, and needs of the research communities.
- Measuring the uptake is not trivial and achieving a full picture is practically impossible.

Several mappings are being created to enable crosswalking among standards.

**Do not be discouraged: it is always better to use a standard, even if imperfect, than none!**



**Subject tags** indicate the specific scientific significance, or domain, e.g., *Neuroscience*, *Linguistics*.

**Subject agnostic** is used to describe standards that are suitable for all research areas.



**Domain tags** indicate the specific relevance to technology or protocol, e.g., *magnetic resonance imaging*, *literature mining*.

FAIRsharing displays the intended use of each standard

FAIRsharing uses indicators to show the life-cycle status of each standard

- R** **Ready** when a resource is considered suitable for use
- Dev** **In development** when a resource is being developed and may be used but may also be in a state of flux
- D** **Deprecated** when the community no longer mandates its use. This status is curated jointly with an explanation and, where available, a link to the standard that has superseded it, or been merged with it
- U** **Uncertain** when curators cannot establish contact with the owners of a resource and believe a resource may have changed status

## Examples

A guideline for *Astrophysics and Astronomy*, DOI: [10.25504/FAIRsharing.RycpEU](https://doi.org/10.25504/FAIRsharing.RycpEU)  
 A model/format for generic use, DOI: [10.25504/FAIRsharing.hzdqz8](https://doi.org/10.25504/FAIRsharing.hzdqz8)  
 A terminology for *Linguistics*, DOI: [10.25504/FAIRsharing.8DCv6L](https://doi.org/10.25504/FAIRsharing.8DCv6L)  
 A general purpose standard, DOI: [10.25504/FAIRsharing.5bbab9](https://doi.org/10.25504/FAIRsharing.5bbab9)

Views of standards by type:  
[fairsharing.org/standards/identifier\\_schemas](https://fairsharing.org/standards/identifier_schemas)  
[fairsharing.org/standards/model\\_and\\_format](https://fairsharing.org/standards/model_and_format)  
[fairsharing.org/standards/reporting\\_guidelines](https://fairsharing.org/standards/reporting_guidelines)  
[fairsharing.org/standards/terminology\\_artefacts](https://fairsharing.org/standards/terminology_artefacts)

Collection of 15 research metadata schemas crosswalked to Schema.org by the RDA Research Metadata Schemas WG

List: [fairsharing.org/3641](https://fairsharing.org/3641)

Graph: [fairsharing.org/graph/3641](https://fairsharing.org/graph/3641)

