FAIR Data

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What is “FAIR data”?

- FAIR Data proposes a certain **philosophy** to communities to enable the **production** of **quality** scientific data and encourage knowledge to be accessible in a clearer and simpler way.

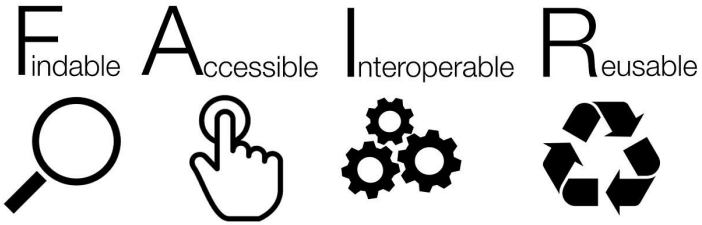
- **Findable** - The first step to (re)use data is to **find** it. Metadata and data must be easy to find for both **humans** and **machines**. Machine-readable metadata is essential for the **automatic** discovery of datasets and services and is therefore an essential component of the FAIRification process.
- **Accessible** - Once the user finds the required data, they need to know how they can **access** it, which may include **authentication** and **authorisation**.
- **Interoperable** - Typically, data must be **integrated** with other data. In addition, data must interoperate with **applications** or **workflows** for analysis, storage and processing.
- **Reusable** - The ultimate goal of FAIR is to optimise the **reusability** of data. To achieve this, metadata and data must be well described so that they can be **reproduced** and/or combined in different environments.

This facilitates the **reproducibility** of the data generated.

Principles and sub-principles - Findable

The first step in (re)using data is to find it. Metadata and data must be easy to find for both humans and computers. Machine-readable metadata is essential for the automatic discovery of datasets and services and is therefore an essential component of the FAIRification process.

- **F1: (Meta) data are assigned globally unique and persistent identifiers**
- **F2: Data are described with rich metadata**
- **F3: Metadata clearly and explicitly include the identifier of the data they describe**
- **F4: (Meta)data are registered or indexed in a searchable resource**



FAIR principles

- Transform **principles** into **indicators**
- **Technically:** How can we implement them?
- RDA Indicators, FAIRsFAIR indicators, etc

F	F1	F1-01M	Metadata is identified by a persistent identifier	Recommended
	F1	F1-02M	Metadata is identified by a universally unique identifier	Recommended
	F1	F1-01D	Data is identified by a persistent identifier	Mandatory
	F1	F1-02D	Data is identified by a universally unique identifier	Mandatory
	F2	F2-01M	Sufficient metadata is provided to allow discovery, following domain/discipline-specific metadata standard	Recommended
	F2	F2-02M	Metadata is provided for the discovery-related elements defined by the RDA Metadata IG, as much as possible and relevant, if no domain/discipline-specific metadata standard is available	Recommended
	F3	F3-01M	Metadata includes the identifier for the data	Mandatory
	F4	F4-01M	Metadata or landing page is harvested by general search engine	Recommended
	F4	F4-02M	Metadata is harvested by or submitted to domain/discipline-specific portal	Recommended
	F4	F4-03M	Metadata is indexed in institutional repository	Recommended

RESEARCH DATA ALLIANCE

- Generic tests Vs. domain specific

Implications and analysis tools

- Which elements, components are affected?
- According to "**FAIR Data principles**":
    1. **Data:** use a proper format
    2. **Metadata:** community standard. Machine-actionable (JSON, XML, RDF...)
    3. **PIDs:** Persistent Identifier (e.g. DOI). Provided by an accepted authority.
    4. **Repository/Data service:** indexed and machine-actionable, specific technical features
    5. **Added value:** data as research product
- FAIR EVA: Evaluator, Validator & Advisor - fair.csic.es

FAIR metrics and Data Quality TF

- Working group to define how to **assess** data **quality** and **FAIRness** within EOSC.
- Taking into account the current state of the art and the generic and community context.
- **FAIR**
  - Different **tools** available, different implementations
  - **Ambiguous results** that can confuse funders, researchers, publishers...
  - Proposed **governance** model
  - Flexible perspective: FAIR **Principles**
  - Adapted to communities and possible types of users

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