FAIR Data
A Quick Guide for Researchers

Maximize the potential of your research data by adhering to the **FAIR Principles**, for data that is Findable, Accessible, Interoperable, and Reusable.

Findable
Metadata and data should be easy to find – for both humans and computers. This means that your data should be accompanied by machine-readable metadata, and be assigned a persistent identifier such as a DOI.

Accessible
Your data should be easy to access once it has been found. For sensitive research data, this may mean implementing an authentication and authorization procedure.

Interoperable
This step is all about making sure your data can be easily integrated with other data. Your data should use an accessible, shared language for knowledge representation, and use vocabularies that follow the FAIR principles.

Reusable
To enable reuse, your data and metadata should have rich, meaningful descriptions, aimed at helping others with replication. Your data should meet any discipline-specific standards, and should be released under a clear, accessible license.

We know that making your research data FAIR is easier said than done, so here are some ideas to get you started:

1 Start with a management plan

An output management plan (OMP) is a useful starting point for collecting or creating data, software, research materials, and intellectual property. Creating a detailed OMP before you begin, and updating it regularly throughout the research cycle, will help ensure that your outputs are as open and FAIR as possible at the end of the project.

Some funders require grantees to share their OMP as part of their funding application, or after the funding has been secured.

When writing your OMP, consider:

- What outputs will you be creating or collecting? How will these be documented?
- What ethical or legal requirements, if any, apply to these outputs?
- How will you organize, store, secure, and share these outputs?
- What resources are required? Who is responsible?

Open Research Europe

European Commission

2 Describe your data clearly

Clearly and accurately describing how your data was created, how it is structured, and what it is means is crucial to making your data comply with the FAIR Guidelines. Someone who is not familiar with your data should be able to understand what it is about, using only the metadata and documentation provided. Remember, it's not just humans who need to find your dataset, but machines too!

Good metadata is clearly associated with the dataset it describes and is available in a machine-readable format such as text or RDF. Depending on your field of study, there may already be standards in place to guide how your data and metadata should be structured, formatted, and annotated.

3 Preserve your data

Data preservation ensures that your data will be accessible and reusable in the future. Best practices for data preservation include:

- Backing up data files regularly
- Storing master copies of data files in open formats
- Validating preserved data files regularly
- Using more than one form of storage for data files
- Appropriately securing data physically, and/or on any network or computer they are held on

Toolbox

- Cambridge Data Management Guide
- Australia ANDS Guide
- University of Manchester – Data Management Planning
- JISC Data Management Toolkit
- Frictionless Data Field Guide
- Open Data Institute
- Digital Curation Centre – Data Management Plans
- Go FAIR Initiative