

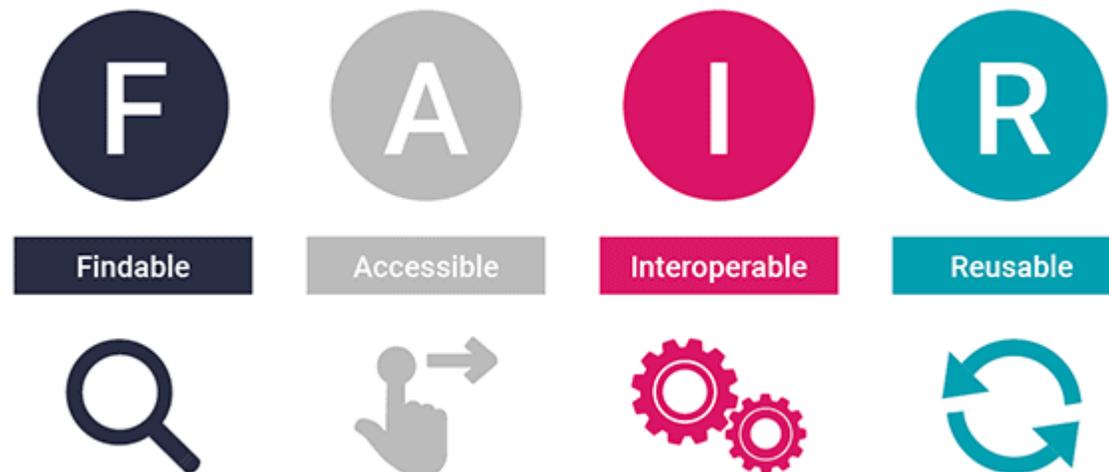
13th MEETING OF THE IHO MARINE SPATIAL DATA INFRASTRUCTURES WORKING GROUP

IHO MSDI WG13

Hybrid – Singapore, 9 – 13 May 2022

FAIR principles

The need for an IHO MSDIWG FAIR principles checklist?



FAIR Data Principles (Findable, Accessible, Interoperable, Re-usable) support knowledge discovery and innovation as well as data and knowledge integration, and promote sharing and reuse of data.

The FAIR principles do not strictly define how to achieve a state of "FAIRness". Rather they describe a continuum of features, attributes, and behaviors that will move a digital resource closer to that goal.

The principles help data and metadata to be 'machine readable', supporting new discoveries through the harvest and analysis of multiple datasets.

Benefits:

- Gaining maximum potential from data assets
- Increasing the visibility and citations of research Improving the reproducibility and reliability of research
- Staying aligned with international standards and approaches
- Attracting new partnerships with researchers, business, policy and broader communities
- Enabling new research questions to be answered
- Using new innovative research approaches and tools
- Achieving maximum impact from research

How to make data FAIR?

Findable

Assigning a globally unique and eternally persistent identifier (like a DOI or Handle), describing the data with rich metadata, and making sure it is findable through disciplinary discovery portals.

Accessible

Data and metadata should be retrievable in a variety of formats that are sensible to humans and machines using persistent identifiers.

Interoperable

The description of metadata elements should follow community guidelines that use an open, well defined vocabulary.

Reusable

The data should maintain its initial richness. The description of essential, recommended, and optional metadata elements should be machine processable and verifiable, use should be easy and data should be citable to sustain data sharing and recognize the value of data.



Example:



FAIR Principles

Compliance



Findability

Resource and its metadata are easy to find by both, humans and computer systems. Basic machine readable descriptive metadata allows the discovery of interesting data sets and services.

- ✓ F1. Resource is uploaded to a public repository.
- ✓ F2. Metadata are assigned a globally unique and persistent identifier.



Accessibility

Resource and metadata are stored for the long term such that they can be easily accessed and downloaded or locally used by humans and ideally also machines using standard communication protocols.

- ✓ A1. Resource is accessible for download or manipulation by humans and is ideally also machine readable.
- ✓ A2. Publications and data repositories have contingency plans to assure that metadata remain accessible, even when the resource or the repository are no longer available.



Interoperability

Metadata should be ready to be exchanged, interpreted and combined in a (semi)automated way with other data sets by humans as well as computer systems.

- ✓ I1. Resource is uploaded to a repository that is interoperable with other platforms.
- ✓ I2. Repository meta- data schema maps to or implements the CG Core metadata schema.
- ✓ I3. Metadata use standard vocabularies and/or ontologies.



Reusability

Data and metadata are sufficiently well-described to allow data to be reused in future research, allowing for integration with other compatible data sources. Proper citation must be facilitated, and the conditions under which the data can be used should be clear to machines and humans.

- ✓ R1. Metadata are released with a clear and accessible usage license.
- ✓ R2. Metadata about data and datasets are richly described with a plurality of accurate and relevant attributes.

FAIR data principles check list (draft version):

Findable

Findable means that either people or computers can find your data. This applies to data as well as metadata, which essentially describes other data.

- F1. (meta)data are assigned a globally unique and persistent identifier
- F2. data are described with rich metadata (defined by R1 below)
- F3. metadata clearly and explicitly include the identifier of the data it describes
- F4. (meta)data are registered or indexed in a searchable resource

Accessible

Accessible data does not mean that your data must be open for everyone to access, but rather that adequate authentication is needed to gain access to it.

- A1. (meta)data are retrievable by their identifier using a standardized communications protocol
- A1.1. the protocol is open, free, and universally implementable
- A1.2. the protocol allows for an authentication and authorization procedure, where necessary
- A2. metadata are accessible, even when the data are no longer available

Interoperable

Interoperability of data means that both people and machines can recognize and use certain data. Standardization and usage of recognizable file formats are essential to achieve this.

- I1. (meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.
- I2. (meta)data use vocabularies that follow FAIR principles
- I3. (meta)data include qualified references to other (meta)data

Reusable

Reusable data is the data that other scientists can easily use to understand and recreate the experiment.

- R1. meta(data) are richly described with a plurality of accurate and relevant attributes
- R1.1. (meta)data are released with a clear and accessible data usage license
- R1.2. (meta)data are associated with detailed provenance
- R1.3. (meta)data meet domain-relevant community standards