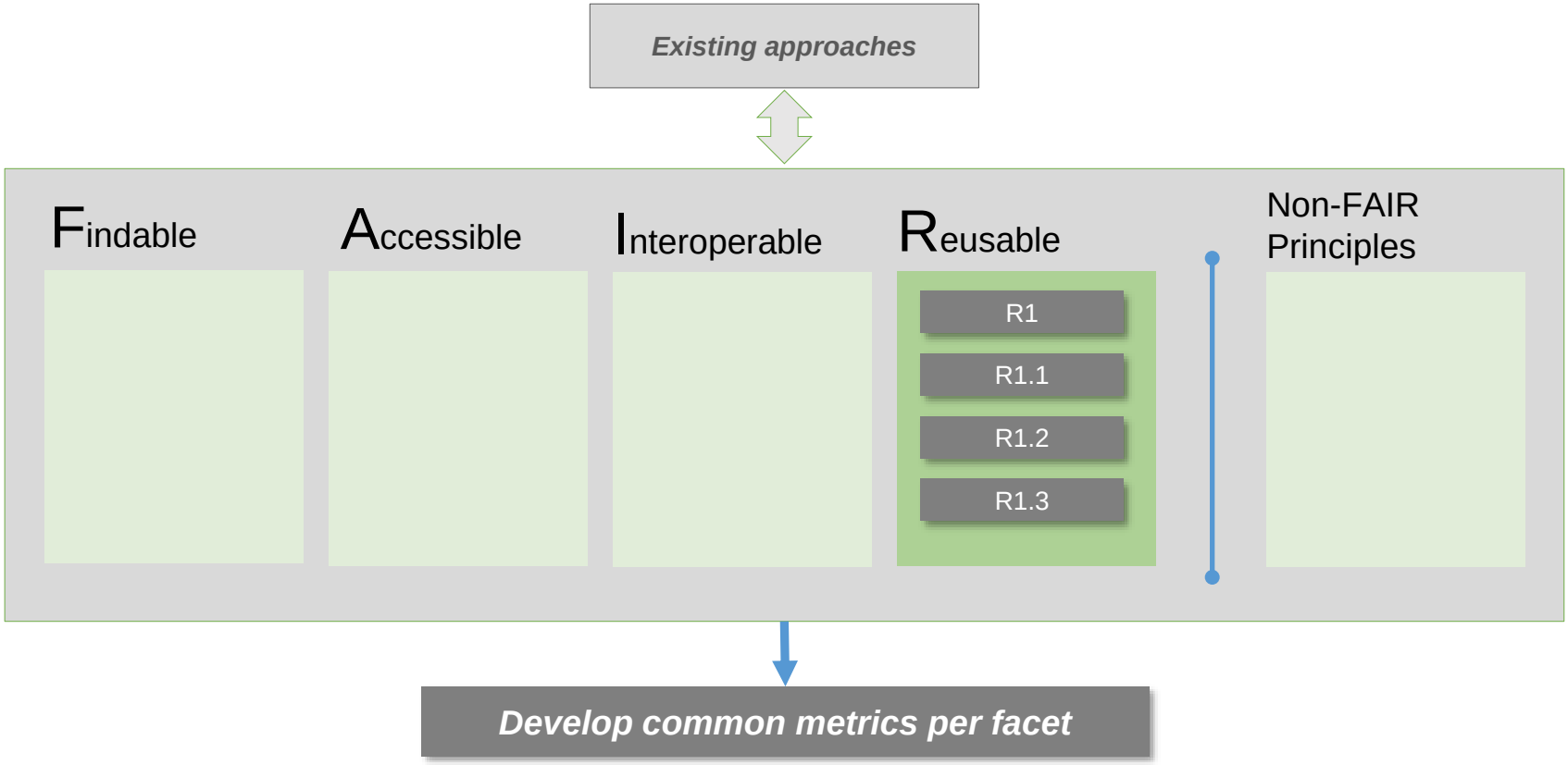
FAIR Principles

–

Reusable

Analysis of existing approaches


Existing approaches
Findable
Accessible
Interoperable
Reusable
R1
R1.1
R1.2
R1.3
Non-FAIR Principles
Develop common metrics per facet

FAIR Principles

To be reusable :

R1. meta(data) is richly described with a plurality of accurate and relevant attributes

R1.1. (meta)data is released with a clear and accessible data usage licence

R1.2. (meta)data is associated with detailed provenance

R1.3. (meta)data meets domain-relevant community standards

LEGEND

1	ANDS-NECTAR-RDS-FAIR data assessment tool	ARDC
2	DANS-Fairdat	DANS
3	DANS-Fair enough?	DANS
4	The CSIRO 5-star Data Rating tool	CSIRO
5	FAIR Metrics Questionnaire	The FAIR Metrics Group
6	Stewardship Maturity Mix	NOAA's CICS-NC, NOAA's NCDC
7	FAIR Evaluator	GO FAIR, LUMC CBGP, IDS, OeRC, IQSS
8	Data Stewardship Wizard	ELIXIR NL/CZ
9	Checklist for Evaluation of Dataset Fitness for Use	Assessment of Data Fitness for Use WG (WDS/RDA)
10	RDA-SHARC Evaluation	SHARC IG (RDA)
11	WMO-Wide Stewardship Maturity Matrix for Climate Data	The SMM-CD WG
12	Data Use and Services Maturity Matrix	The MM-Serv WG

Principle

 # Facet

1 Question
- Option #1
- Option #2
- Option #3

Potential Overlap

R1 meta(data) is richly described with a plurality of accurate and relevant attributes

2 Is there sufficient metadata available?
- No
- Yes

2 How is the data described with metadata? *F2*
- The data is not described
- Brief title and description
- Comprehensively, but in a text-based, non standard format
- Comprehensively, using a recognized formal machine readable metadata schema

2 Is there extensive metadata and rich additional documentation available? *R1.2, I3*
- No
- Yes

3 Did you provide enough information (metadata) about your data for others to understand and reuse your data?
- No
- Yes

9 Granularity of data entities in dataset is appropriate in Respect of Meta-Data Granularity
- No
- Somewhat
- Yes

9 Structure, size and MIME type of the dataset agrees with description of the dataset content
- No
- Somewhat
- Yes

9 Content of the dataset agrees with description of the dataset content

- No
- Somewhat
- Yes

9 Coverage (spatial, temporal, or other dimensions) adequate

- No
- Somewhat
- Yes

10 Which relevant actions have been undertaken by the researcher to enhance the data reuse potential

- Never /NA
- If mandatory
- Sometimes
- Always

10 Does the researcher provide information on methods and tools that permit the understanding, integrity, value and readability of data intended to be kept on the

- Never /NA
- Sometimes
- Always

11 Documentation

- Product information not publicly available online.
- Limited online documentation (e.g., User Guide).
- Document on how the data product was created and how to use it, is available online.
- Full documentation based on a standard template and available online.
- Previous + Online tutorial on using and analyzing the dataset; Complete production system information available online.

RESEARCH DATA ALLIANCE

• • •

12 Data Use

- No use or usability metadata/documentation is available to help users understand and use the data
- Use or usability metadata/documentation is available from local systems (e.g., product website)
- Standard-based use/usability metadata/documentation is available from enterprise systems
- Enterprise systems include online use/usability support services (online help, hints, etc.)
- Enterprise systems include advanced use/usability support service such as interactive visualizations of relationships (e.g., to papers, other products, researchers, etc.)

11 Metadata *R1.2, R1.3*

- Metadata not publicly available and/or not usable.
- Limited Metadata publicly available; Conforming to community-standard; Basic characteristics of dataset.
- Previous + Conforming to international standards in most aspects; limited quality and provenance metadata.
- Fully compliant with international standards; Rich metadata content; Basic granular-level metadata; Support dataset provenance.
- Previous + complete granular-level metadata; Metadata QC-ed and Regularly updated

R1.1 (meta)data is released with a clear and accessible data usage licence

1 Which of the following best describes the license/usage rights attached to the data?
- No licence
- Non standard text based licence
- Non standard machine readable licence (e.g.clearly indicatingunder what conditions the data may be used)
- Standard text based licence
- Standard machine-readable licence (e.g. Creative Commons)

2 Does the user license have any user restrictions for accessing the data?
- No
- Yes

2 Does the dataset have a user license?
- No
- Yes

3 Does the dataset have a usage licence?
- No
- Yes

4 Licensed - conditions for re-use are available and clearly expressed
- No
- License described in text
- Link to a standard license (e.g. Creative Commons)

5 Please provide the IRI for you usage license regarding the content returned from RESOURCE ID

7 The existence of a license document, for BOTH (independently) the data and its associated metadata, and the ability to retrieve those documents

9 Terms of usage (licenses, other conditions of reuse, data protection, ethical issues)
- No
- Somewhat
- Yes

R1.2 (meta)data is associated with detailed provenance

1 How much provenance information has been captured to facilitate data reuse

- No provenance information is recorded
- Partially recorded
- Fully recorded in a text format
- Fully recorded in a machine readable format

2 Is there extensive metadata and rich additional documentation available? *R1, I3*

- No
- Yes

3 Did you give detailed provenance information for the data?

- No
- Yes

4 Trusted - accompanied by, or linked to, information about how the data has been used, by whom, and how many times

- No information about usage
- Usage statistics available
- Clearly endorsed by reputable organization or framework

4 Assessable - accompanied by, or linked to, a data-quality assessment and description of the origin and workflow that produced the data

- No quality or lineage information
- Text lineage statement
- Formal provenance trace (e.g. PROV-O)

5 Please provide the IRIs (maximum 3) for the vocabularies being used to describe the provenance of the content resolved from RESOURCE ID

5 Please provide the IRIs (maximum 3) for the vocabularies being used to describe the domain information of the content resolved from RESOURCE ID

7 That there is provenance information associated with the data,

9 Citation exists, including authorship, year, comprehensive title, persistent identifier (e.g. DOI) *F1*

- No
- Somewhat
- Yes

10 Are the provenance and type of all data properly specified (origin of raw, primary, transformed, secondary..)

- Never /NA
- If mandatory
- Sometimes
- Always

8 How will you be making sure there is good provenance of the data analysis?

- We use lab notebooks
- We use an electronic lab notebook
- We use other arrangements

6 Transparency / traceability

- Limited product information available / Person-to-person
- Product information available in literature
- Algorithm Theoretical Basis Document (ATBD) & source code online / Dataset configuration managed (CM) / Unique Object Identifier (OID) assigned (dataset, documentati
- Operational Algorithm Description (OAD) online, OID assigned, and under CM
- System information online / Complete data provenance online

11 Metadata *R1, R1.3*

- Metadata not publicly available and/or not usable.
- Limited Metadata publicly available; Conforming to community-standard; Basic characteristics of dataset.
- Previous + Conforming to international standards in most aspects; limited quality and provenance metadata.
- Fully compliant with international standards; Rich metadata content; Basic granular-level metadata; Support dataset provenance.
- Previous + complete granular-level metadata; Metadata QC-ed and Regularly updated

R1.3 (meta)data meets domain-relevant community standards

3 Are the data stored and archived in preferred archival formats? *I1*

- No
- Yes

3 Do you make use of relevant community standards?

- No
- Yes

4 Loadable - represented using a common or community-endorsed (i.e. standard) format

- Bespoke format (text, binary)
- One standard format, denoted by a MIME-type
- Multiple standard formats

4 Usable - structured using a discoverable, community-endorsed (standard?) schema or data model

- No formal schema
- Explicit schema or data model, formalized in DDL, XSD, DDI, RDFS, JSON-Schema, data-package or similar
- Community-shared schema or data model , available from a standard location

5 Please provide the IRI that represents the certification from a recongized authority in your community or domain, indicating that the content of RESOURCE ID

7 Certification, from a recognized body, of the resource meeting community standards.

10 Do the data reuse control and data sharing arrangements meet the data protection and "local/national ethics requirements?

- Never /NA
- If mandatory
- Sometimes
- Always

RESEARCH DATA ALLIANCE

• • •

10 If relevant, has the researcher used valid and updated standards for data describing ? If so, are the data standards and particularly versioning data standards re

- Never /NA
- If mandatory
- Sometimes
- Always

9 Additional metadata adequate to respective research domain (if applicable)

- No
- Somewhat
- Yes

6 Usability

- Extensive product-specific knowledge required / No documentation online
- Non-standard data format / Limited documentation (e.g., user's guide) online
- Community standard-based interoperable format & metadata / Documentation (e.g., source code, product algorithm document, processing or/and data flow diagram) online
- Basic capability (e.g., subsetting, aggregating) & data characterization (overall/global, e.g., climatology, error estimates) available online
- Enhanced online capability (e.g., visualization, multiple data formats) / Community metrics of data characterization (regional/cell) online / External ranking

11 Metadata *R1, R1.2*

- Metadata not publicly available and/or not usable.
- Limited Metadata publicly available; Conforming to community-standard; Basic characteristics of dataset.
- Previous + Conforming to international standards in most aspects; limited quality and provenance metadata.
- Fully compliant with international standards; Rich metadata content; Basic granular-level metadata; Support dataset provenance.
- Previous + complete granular-level metadata; Metadata QC-ed and Regularly updated