

Implementation of the FAIR Principles with RADAR

Findable

F1	(Meta)data are assigned a globally unique and eternally persistent identifier.	<ul style="list-style-type: none"> DOI (DataCite) assigned to every published dataset Internal RADAR ID assigned to every archived dataset
F2	Data are described with rich metadata.	<ul style="list-style-type: none"> Generic RADAR metadata schema (10 mandatory, 13 optional fields) based on DataCite Metadata are automatically checked for completeness Optional discipline-specific annotations Descriptive and technical metadata stored with data as TAR files (BagIt, OAIS-compliant AIP)
F3	Metadata clearly and explicitly include the identifier of the data they describe.	<ul style="list-style-type: none"> Persistent identifier is mandatory; <identifierType> assigned automatically Optional alternative identifiers (e.g., institutional)
F4	(Meta)data are registered or indexed in a searchable resource.	<ul style="list-style-type: none"> Metadata searchable via the RADAR portal Indexed in DataCite, Google, etc. Harvesting via OAI-PMH and integration into search portals (e.g., BASE, B2Find) Daily RADAR Knowledge Graph (Schema.org) with SPARQL endpoint

Accessible

A1	(Meta)data are retrievable by their identifier using a standardized communications protocol.	<ul style="list-style-type: none"> (Meta)data accessible via landing page (https) Access via REST API Metadata harvestable via OAI-PMH (RADAR OAI provider)
A1.1	The protocol is open, free, and universally implementable.	<ul style="list-style-type: none"> Use of established, well-documented standards (https, REST, OAI-PMH)
A1.2	The protocol allows for an authentication and authorization procedure, where necessary.	<ul style="list-style-type: none"> Metadata openly available and reusable (CC0) RADAR role-based access control model enabling differentiated access to datasets Embargo options for time-restricted access (including indefinite)
A2	Metadata are accessible, even when the data are no longer available.	<ul style="list-style-type: none"> Landing page remains available even if dataset is no longer accessible

Interoperable

I1	(Meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.	<ul style="list-style-type: none"> XML-based metadata schema based on the DataCite Kernel, continuously developed Mappings to DataCite and Dublin Core Signposting approach supports machine readability and processing
I2	(Meta)data use vocabularies that follow FAIR principles.	<ul style="list-style-type: none"> ORCID for person identification ROR for organizations Crossref Funder Registry for funders GND authority data TS4NFDI terminologies (NFDI basic service) DFG subject classification (GEPRIIS)
I3	(Meta)data include qualified references to other (meta)data.	<ul style="list-style-type: none"> Linking to related (meta)data via persistent identifiers.

Re-Usable

R1	Meta)data are richly described with a plurality of accurate and relevant attributes.	<ul style="list-style-type: none"> Comprehensive dataset description using all elements, types, and attributes of the metadata schema
R1.1	(Meta)data are released with a clear and accessible data usage license.	<ul style="list-style-type: none"> Metadata licensed under CC0 (public domain) Mandatory dataset license (e.g., Creative Commons 4.0 or standard software licenses) Rights holder must be specified Acceptance of RADAR terms of use required
R1.2	(Meta)data are associated with detailed provenance.	<ul style="list-style-type: none"> Upload, archiving, and publication restricted to registered and authorized data providers Metadata schema supports detailed provenance information (e.g., contributors, data source, software, processing steps) Landing page includes citation recommendations
R1.3	(Meta)data meet domain-relevant community standards.	<ul style="list-style-type: none"> Discipline-agnostic RADAR metadata schema tested across domains Integration of discipline-specific schemas possible