The FAIR data principles from a repository perspective

BEXIS2 status and outlook

FAIR Data Principles

To be Findable:

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

To be Accessible:

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

To be Interoperable:

I1. (meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.

I2. (meta)data use vocabularies that follow FAIR principles

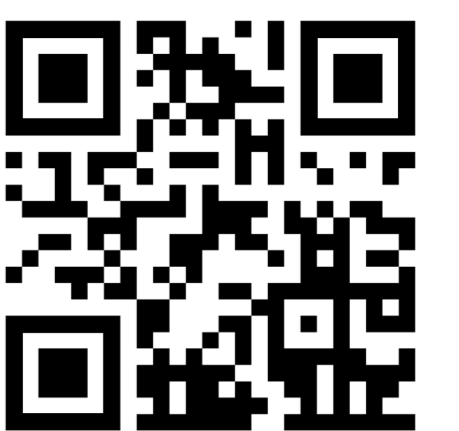**I3.** (meta)data include qualified references to other (meta)data

To be Reusable:

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

BEXIS2 - about

BEXIS2 is an open-source, web-based research data management system. It supports researchers in managing their data throughout the entire data life cycle from (meta)data structure design to data collection, data discovery, data sharing, data quality assurance, and data publication.

When the development of BEXIS2 started, the FAIR data principles did not yet exist. Nevertheless, parts of the principles were automatically integrated and the development focus now includes all principles.

BEXIS2 - FAIRness

Spider net (Radar) charts illustrate BEXIS2 conformance to the RDA FAIR data maturity model. Maturity level per indicator (per FAIR area) - 0 – not applicable; 1 – not being considered as yet; 2 – under consideration or in the planning phase; 3 – in implementation phase; 4 – fully implemented.

Part of: Chamanara J, Gaikwad J, Gerlach R, Algergawy A, Ostrowski A, König-Ries B (2021) BEXIS2: A FAIR-aligned data management system for biodiversity, ecology and environmental data. Biodiversity Data Journal 9: e72901. https://doi.org/10.3897/BDJ.9.e72901

BEXIS2 - latest improvements

Since the assessment, a few more related features have been implemented. These are some highlights:

- Developed DataCite DOI usage with rich metadata
- Enabled semantics for data structure elements
- Launched dataset tombstone page
- Integrated JWT support for authentication
- Introduced DwC-A export
- Developed powerful APIs
- Enhanced the schema mapping

BEXIS2 - outlook

Making the repository software FAIRer is a continuous process. These are our next planned milestones:

- Redesigning the search page
- Integrating schema.org
- Special access to datasets (early with token)
- Integrating PIDs in metadata
- Providing version info as metadata

Images: Created with Bing Image Creator by Andreas Ostrowski

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