GO FAIR Implementation Network on Cross-Domain Interoperability of Heterogeneous Research Data (GO Inter)

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Background

• Proliferation of domain-specific, disconnected “data silos”: data often described using heterogeneous and unstandardized metadata and vocabularies which cannot be easily linked with each other
• Problematic when it comes to linking data from different communities in the context of interdisciplinary research

Challenges

• Various metadata standards, data formats, encoding methods, representation languages, vocabularies to describe data
• Different layers of interoperability ranging from encoding up to structural and semantic specifications of data (lack of understanding the differences within and across domains)
• Lack of understanding about how best to navigate between different levels of granularity in different domain-specific data documentation schemes and how to map between different knowledge organization systems
• Lack of reference models that represent data in ways that capture the meaning of data across community borders

Objectives

• Cross-domain interoperability framework: methods, tools and guidelines for implementing and assessing semantic interoperability of heterogeneous research data across discipline borders
• Reference implementations of interoperability for real-world cross-domain research uses case by broadly applying existing Web standards, vocabularies and semantic technologies
• Knowledge exchange with other GO FAIR Implementation Networks and related initiatives (such as RDA, FAIRsFAIR)

Tasks

• Explore real-world cross-domain research use cases to better understand interoperability
• Assistance services that guide data providers in bringing data into common formats and schemes and in mapping data to existing vocabularies
• Ontology lookup services as gatekeeper across different standards, domains and vocabularies
• Methods for qualified linking and annotating cross-domain research data (by ontology crosswalks, cross-ontology links, semantic annotation services such as B2NOTE)
• Explore the use of foundational ontologies (e.g. UFO) to provide generic means for semantic interoperability
• Semantically rich cross-domain knowledge graphs supporting cross-domain data search and analysis
• Explore the Digital Object Interface Protocol (DOIP) to improve interoperability at the data organization level
• Novel gradational maturity models for assessing cross-domain interoperability
• Implementation and evaluation of reference implementations for real-world use cases
• Guidelines for implementing and assessing cross-domain interoperability

Consortium

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https://www.go-fair.org/implementation-networks/overview/go-inter/