

Manifesto of the *Discovery GO FAIR* Implementation Network: Open User Interfaces for Increased Visibility of Research Results

Introduction

Research data are among the fastest growing openly accessible scientific outputs on the web. While we have made great strides when it comes to *accessibility* of scientific data, *discoverability* is seriously lacking. As a result, up to 85% of research data are not reused (Peters et al. 2016). Discoverability is therefore one of the key challenges for open science: in many ways, we cannot cash the cheques written by this movement, if we do not increase the visibility of research outputs.

A fundamental issue when it comes to poor visibility of research data is the lack of adequate interfaces for data discovery. Usually, existing interface concepts for publications are extended to datasets, meaning that they do not take into account different characteristics and challenges of datasets, and that they ignore more innovative forms of discovery. Many frontends are designed from the systems' rather than the users' perspective and fail to cover use cases and requirements of researchers and other stakeholders of research.

Moreover, several new entrants to the data discovery market are following a closed and proprietary model, which means that these services and interfaces cannot be reused, preventing innovation and possibly causing high costs and new paywalls down the line. This also means that user-generated content as well as information about user behavior can not be harnessed to improve backend systems, for instance, search and retrieval. However, collective intelligence and network effects are crucial for the success of web-based systems.

Main purpose and objectives of the Implementation Network with regard to an Internet of FAIR Data and Services (IFDS)

The main purpose of the Discovery IN is to **provide interfaces and other user-facing services for data discovery across disciplines**. We explore **new and innovative ways of enabling discovery**, including visualizations, recommender systems, semantics, content mining, annotation, and responsible metrics. We apply **user involvement and participatory design** to increase usability and usefulness of the solutions. We **go beyond academia**, involving users from all stakeholders of research data. We create **FAIR and open infrastructures**, following the FAIR principles complemented by the principles of open source, open data, and open content, thus enabling reuse of interfaces and user-facing services and continued innovation.

Our main objectives are:

- Improve visibility and discoverability of research data across disciplines
- Increase reuse of FAIR data and therefore efficiency and effectiveness of research
- Provide open alternatives to closed and proprietary infrastructures for data discovery

We see the FAIR principles as a precondition to discoverability. Nevertheless, discoverability is an attribute of the infrastructure rather than the data themselves.

Overarching Principle of Operation

We commit to comply with the Rules of Engagement of GO FAIR Implementation Networks

Deliverables / Primary Tasks

- **Stocktaking:** We will identify relevant open indices and innovative open source interfaces and user-facing services to be (re-)used, as well as the main use cases we want to address.
- **Structuring:** We will define the standards and structure of an open ecosystem of services and interfaces for data discovery that fulfils the use cases identified above.
- **Implementation:** We will work towards implementation of the ecosystem laid out above.

All results will be made accessible to the GO FAIR community and published under an open license. Reports and deliverables will be published on Zenodo.

Membership list

We consider this manifesto to be one way by which the undersigned stakeholders can speak with one voice on a number of critical issues that are of generic importance to the objectives of FAIR, and on which we feel we have reached consensus.

Personal members

Tina Heger - University of Potsdam and Technical University of Munich (Germany), [ORCID](#)

Organisational members (with contact persons)

Peter Kraker - Open Knowledge Maps (Austria, lead)

Christian Pietsch, Jochen Schirrwagen - BASE (Germany)

Robert Jäschke - Berlin School of Library and Information Science, HU Berlin (Germany)

Ron Dekker, Carsten Thiel - CESSDA ERIC (Norway)

Petr Knoth, Nancy Pontika - CORE (UK)

Helena Cousijn - DataCite (US)

Heinrich Widmann, Mark van de Sanden - EUDAT (EU)

Nataliia Sokolovska - HIIG (Germany)

Dan Whaley - Hypothes.is (US)

Jonathan Jeschke - IGB - Leibniz-Institute of Freshwater Ecology and Inland Fisheries (Germany)

Jason Priem, Heather Piwowar - Impactstory (US/Canada)

Elisabeth Lex - Know-Center (Austria)

Francesca Di Donato - Net7 (Italy)

Antica Culina - NIOO-KNAW (Netherlands)

Claudio Atzori, Alessia Bardi - OpenAIRE (EU)

Suzanne Dumouchel - OPERAS (EU)

Girija Goyal - ReFigure (US)

Egon Willighagen - Scholia (EU/US)

Lambert Heller, TIB - Leibniz Information Centre for Science and Technology (Germany)

Isabella Peters - ZBW - Leibniz Information Centre for Economics (Germany)

Date: 20 December 2018 (with minor revisions on 4 February 2019)