DataCite
FIND, ACCESS, AND REUSE DATA

Max-Planck-Institut
für empirische Ästhetik

FAIR WORKFLOWS

Implementing FAIR Workflows

A proof of concept study in the field of consciousness

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17th November 2021
DataCite Open Hour

Basic Information

Funder

Templeton World Charity Foundation

Project Director

Dr. Helena Cousijn

Project co-director

Prof. Lucia Melloni

Project Organization

DataCite

Duration

3 years

Project motivation

- Papers only tell a small fraction of the story, hard to comprehensively evaluate a research study based on papers alone.
- The complex experimental protocols and data in the field of neuroscience aggravate the reproducibility problems.
- Open and FAIR research increase reproducibility and reuse, infrastructure and tools are available but adoption fragmented.
- To motivate open practice adoption and FAIR compliance, researchers need concrete examples of FAIR workflows that are easy to implement.

Project goals

1. To create an end-to-end FAIR workflow specification.
2. To enable uptake through adoption and dissemination plans with best practices.
3. To implement credit tracing and evaluation support for the researchers through the PID graph based on citation and reuse data.
4. To attest the scientific rigor of the research study.
5. To enhance discoverability and reuse of the research outputs.

TEMPLETON WORLD
CHARITY FOUNDATION

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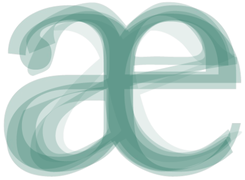
FIND, ACCESS, AND REUSE DATA



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University of California
CDL
California Digital Library

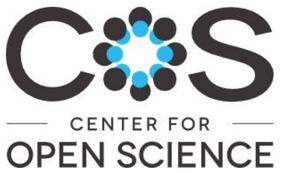
Australian Research Data Commons

DRYAD

ChronosHub

Stanford
University

Crossref

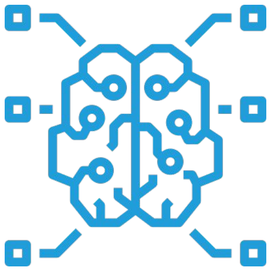


CENTER FOR
OPEN SCIENCE

Project work packages

WP1

Workflow development



WP2

Application in research

WP3

PID graph & dashboard

WP4

Adoption & dissemination

FAIR Workflows Project

Potential workflow

1. Grant Application

Researcher registers grant proposal in the TWCF system

2. Application Approved

Grant approved and grant ID assigned

3. Submit Data Management Plan

Researcher submits DMP

4. Research

Research conducts the research study

5. Protocols and research methods

Researcher shares and deposits protocols

6. Research data, instruments deposited

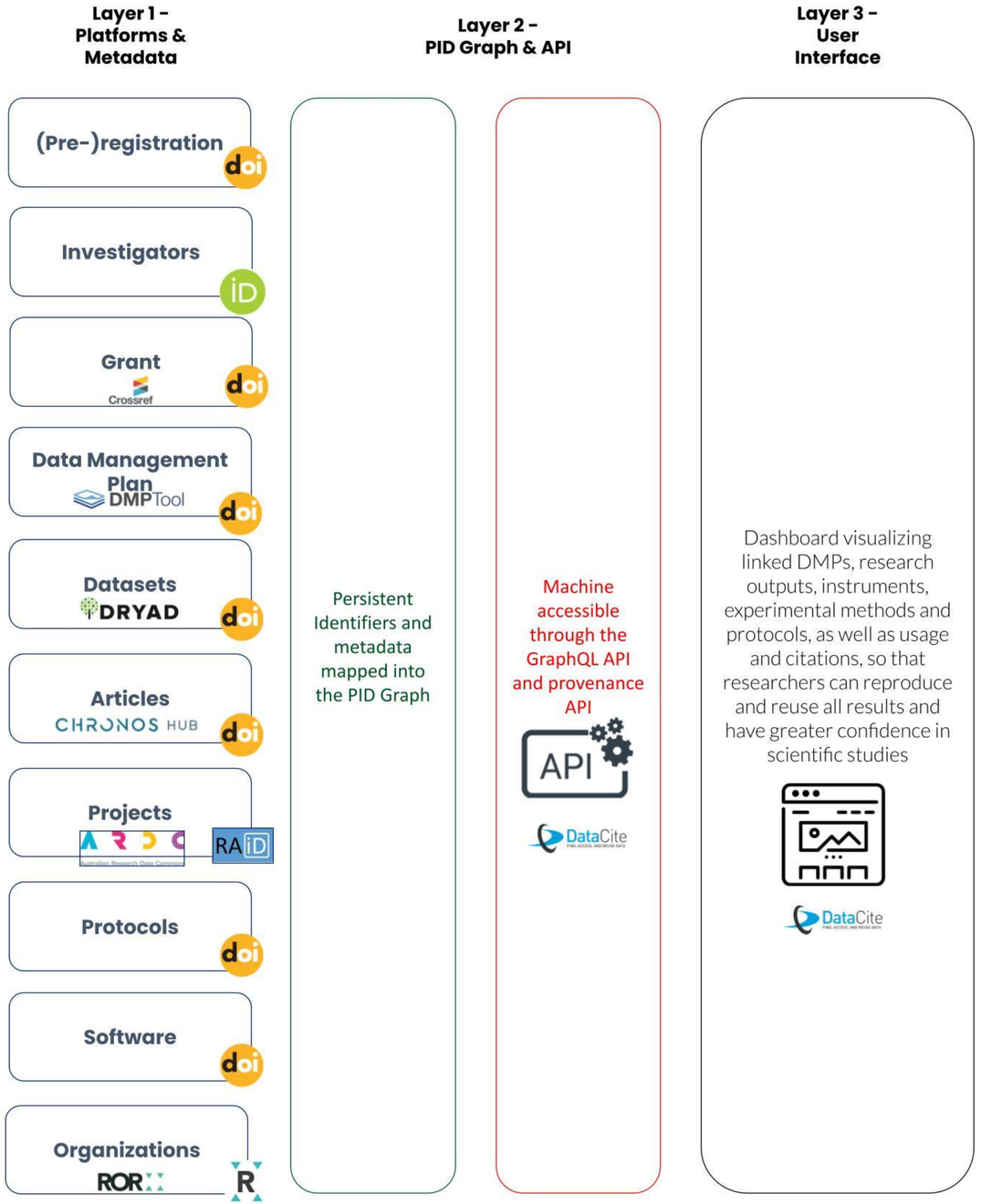
Researcher deposits data and instruments

7. Research article published

Select suitable journal and submit article as per funder policy

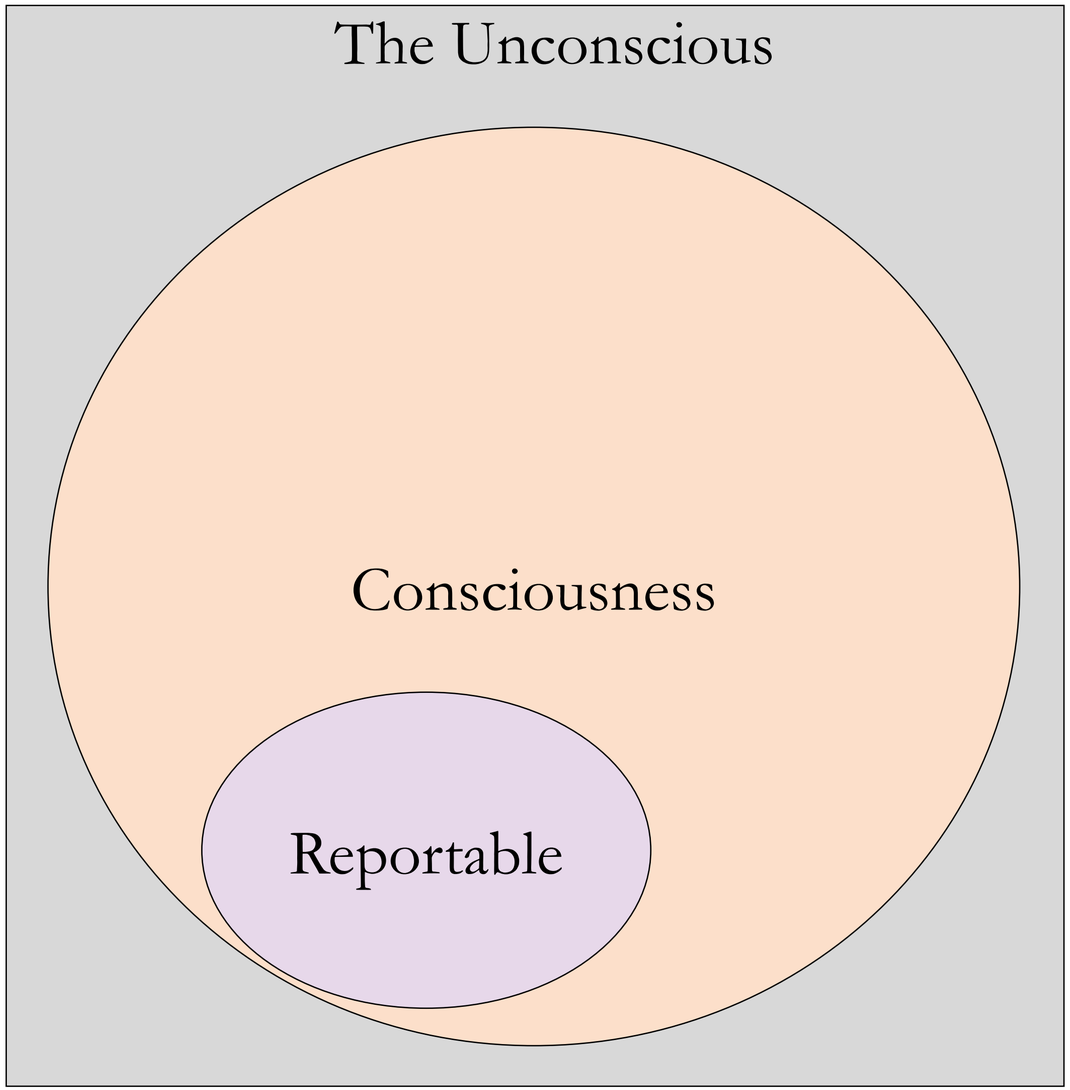
8. FAIR Workflow interface

Interface that enables researchers have greater confidence in scientific studies - linked DMPs, research outputs, instruments, experimental methods and protocols, event data (usage and citations) and visualization

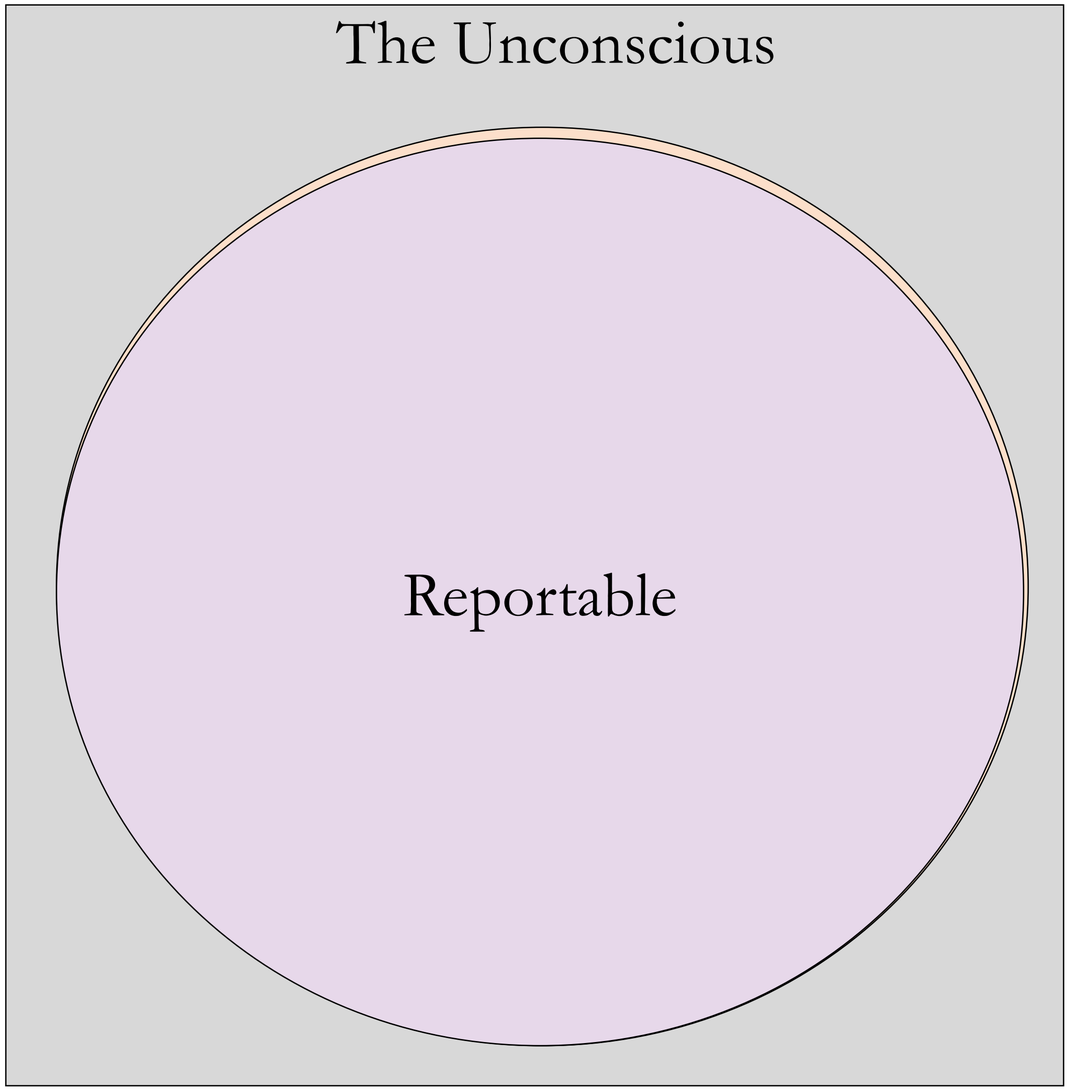

Layer 1 - Platforms & Metadata
Layer 2 - PID Graph & API
Layer 3 - User Interface
(Pre-)registration
Investigators
Grant
Crossref
Data Management Plan
DMPTool
Datasets
DRYAD
Articles
CHRONOS HUB
Projects
RAiD
Protocols
Software
Organizations
ROR
Persistent Identifiers and metadata mapped into the PID Graph
Machine accessible through the GraphQL API and provenance API
API
DataCite
Dashboard visualizing linked DMPs, research outputs, instruments, experimental methods and protocols, as well as usage and citations, so that researchers can reproduce and reuse all results and have greater confidence in scientific studies
DataCite

The research studies

Overflow Account



Non-overflow Account



Study 1: Exploring the relationship between rich conscious experiences and verbal reportability

Study 2: Distilling true neural correlates of consciousness using attribute amnesia and masked priming

Research Output and Workflow

Investigators

Zefan Zheng (PhD student)

Lucia Melloni

Melissa Vo (PI, co-advisor)

Institutions

Max Planck Institute of Empirical Aesthetics

Goethe University Frankfurt

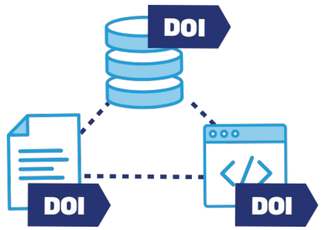
2022.07 — 2022.10 — 2023.01 — 2022.04 — 2023.07

Grant	Pre-registration	Data Management	Code	Protocol	Data	preprint	Article	Instrument
• Platform • FAIR **• Time** • Done	**• Platform** • Open Science Framework (OSF) **• Time** • 07.2022–08.2021	**• Platform** • DMP Tool **• Time** • 08.2022	**• Platform** • OSF/Github **• Language** • R (data processing) **• Time** • 08.2022	**• Platform** • Protocol.io **• Time** • 08.2022	**• Type** • Behavior Data (excel) • MEG Data • fMRI Data • Eyetracking Data **• Time** • 12.2022	**• Platform** • PsyArXiv **• Time** • 04.2023	**• Platform** • Journal **• Time** • TBC	**• Software** • MEG • fMRI • Eyetracking **• Institution** • Brain Imaging Center at Goethe University

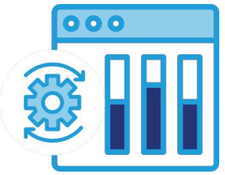
What does it mean for the DataCite members?

The project will...

Strengthen the central position of DOIs in research management



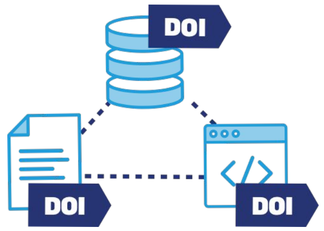
Generate new benchmarks for best practices and pave way for community buy-in



Provide alternative reporting method through the dashboard

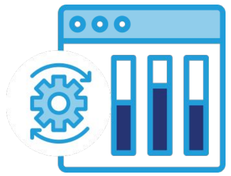
Strengthen the central position of DOIs in research management

- Showcase the value of DataCite and DataCite services in Open Science infrastructure
- Emphasize the range of DataCite DOI applications in the research workflow
- Work towards the enrichment of the DataCite DOI metadata schema by developing and/or extending metadata templates.



Generate new benchmarks for best practices and pave way for community buy-in

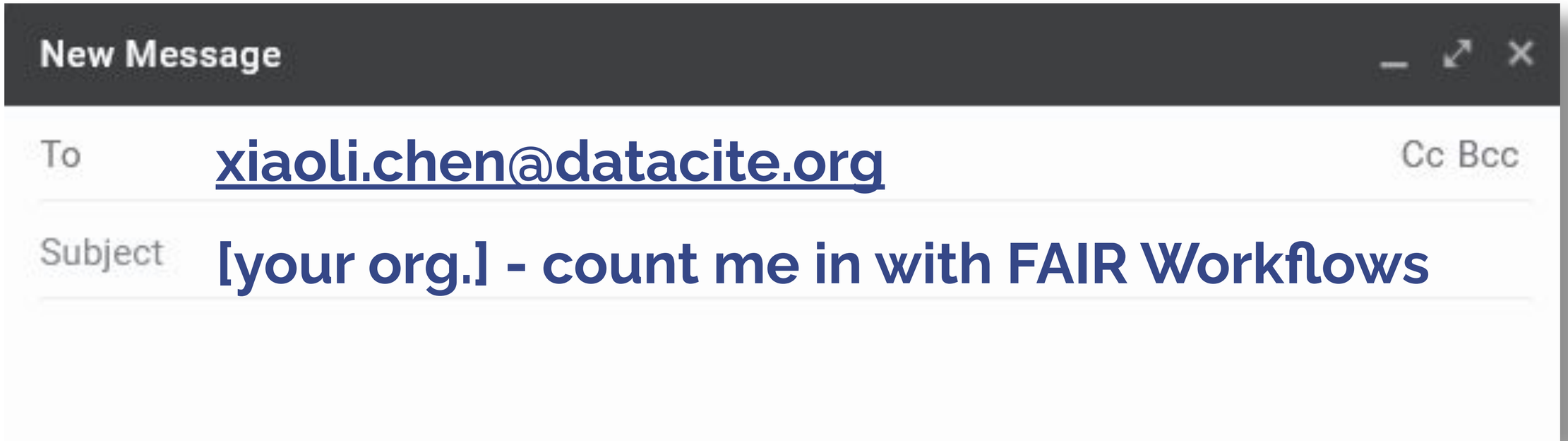
- An Open and FAIR research workflow specification that's easily adoptable.
- A best-practice example that can be used to tell stories and advocate for cultural change
- Dissemination plans and adoption roadmap - for the community, by the community



Provide alternative reporting method through the dashboard

- The metadata enrichment and integration between service and repositories resulted from the project will be fed into the DataCite Commons

The project team will reach out and seek feedback from the DataCite community, please sign up to help us test the workflow in different contexts by emailing me:



Email

@DataCite

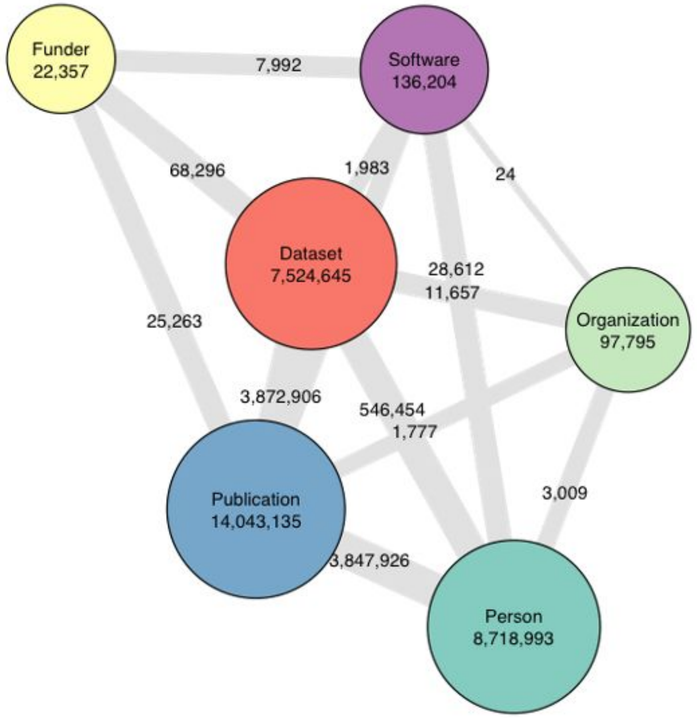
slack

Webpage

Find and Connect Research

DataCite

Find Research with DataCite Commons

PID Graph

Number of nodes and connections (08 MAY 2020)