graph.openaire.eu

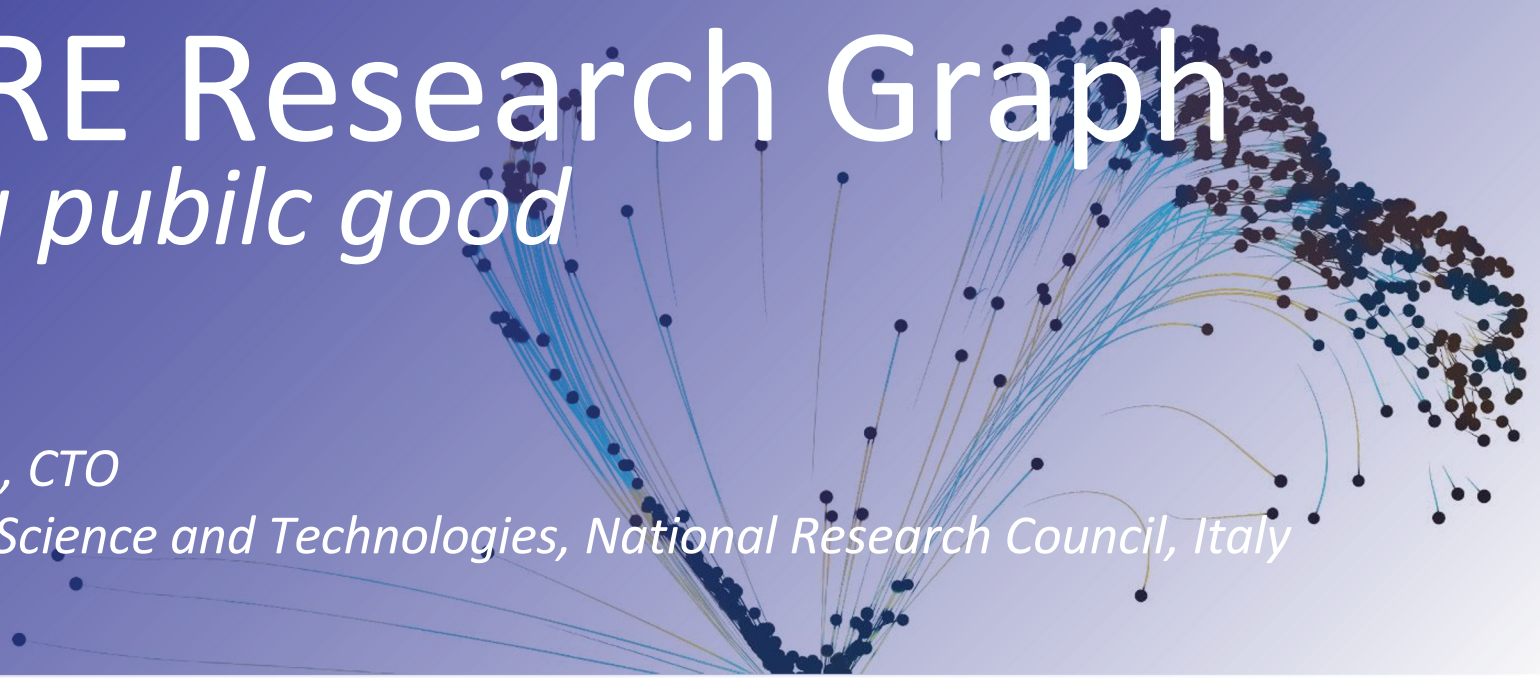
OpenAIRE Research Graph

Science as a pubilc good

Paolo Manghi

OpenAIRE Infrastructure, CTO

Institute of Information Science and Technologies, National Research Council, Italy



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OpenAIRE Research Graph and related services

Tracking Open Science

Reproduciblity and transparency require tracking of all outcomes of science and related ”context”

Monitoring Open Science

Monitoring quality, impact, and ”open scienceness” of science should be a transparent, reproducible process for all, inclusive of research “context”

Discovery Open Science

Discovery of reproducibe science outcomes must find new ways, driven by “scientific intentions” that go beyond the “find articles related to a research topic”.

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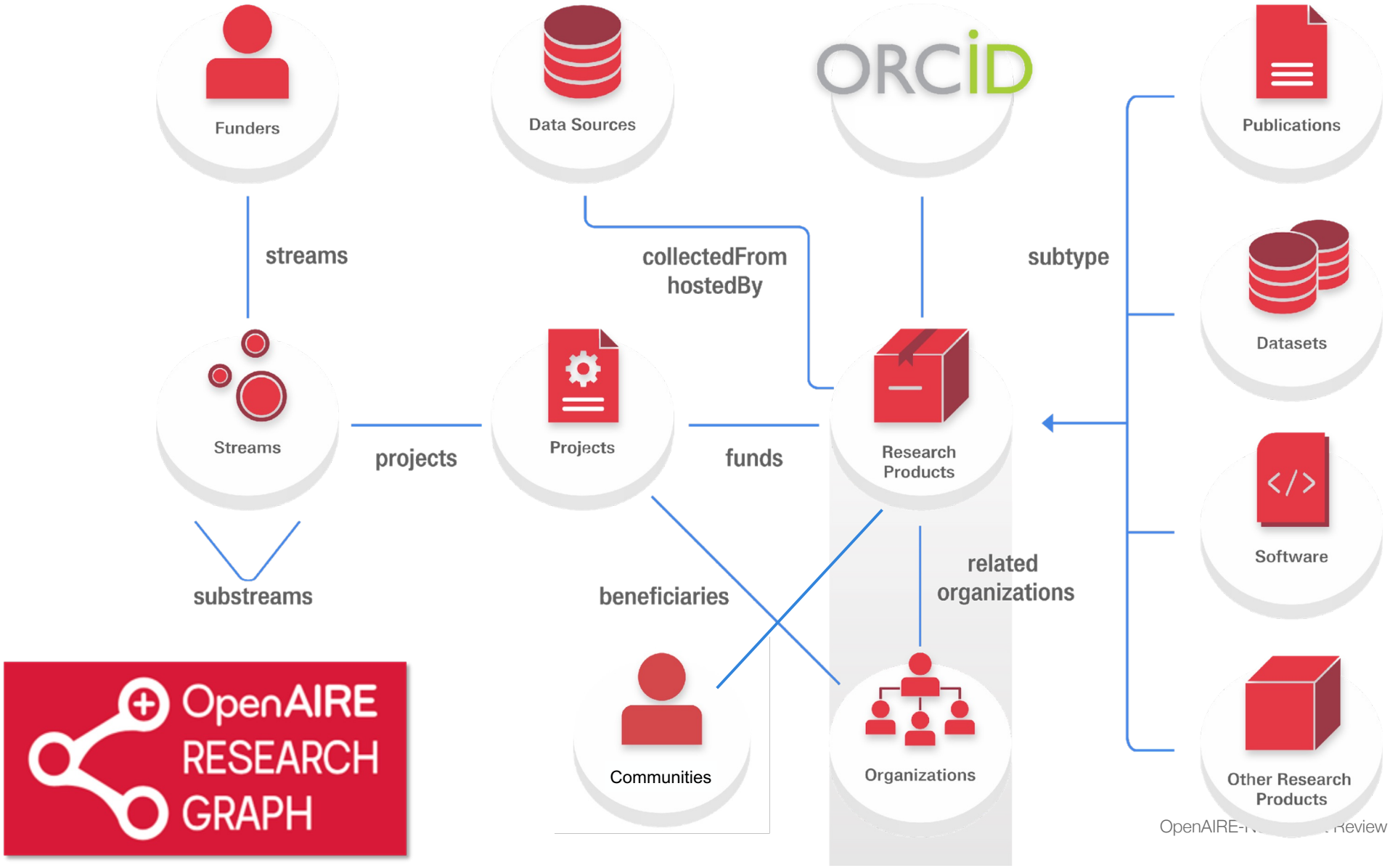
Tracking Open Science


Funders
Data Sources
ORCID
Publications
streams
collectedFrom
hostedBy
subtype
Datasets
Streams
projects
Projects
funds
Research
Products
Software
substreams
beneficiaries
related
organizations
Communities
Organizations
Other Research
Products

OpenAIRE RESEARCH GRAPH

Providing an open metadata knowledge graph of interlinked scientific products, with Open Access information, linked to funding information and research communities

creative commons 0 ZERO
CC BY

Graph Data Sources

GitHub
Applications Database
Software Heritage
elixir bio.tools
… and more tools and software sources

frontiers
PLOS
Springer
F1000 Faculty of 1000
… and more publishers

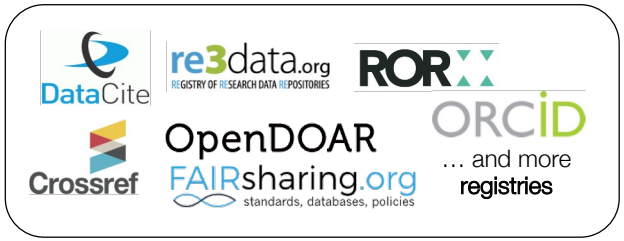
CORDIS
NSF
DFG Deutsche Forschungsgemeinschaft
… and more European and international funders

unpaywall
Microsoft
OpenCitations
… and more research graphs

OpenAIRE RESEARCH GRAPH

DataCite
re3data.org
ROR
ORCID
Crossref
OpenDOAR
FAIRsharing.org
… and more registries

LA Referencia
SciELO
DOAJ DIRECTORY OF OPEN ACCESS JOURNALS
… and more aggregators



Cornell University Library
arXiv.org
RePEc
PubMed
HAL archives-ouvertes.fr
zenodo
… and more thematic and institutional repositories

DARIAH-EU
elixir
EPOS
EOSC-Life
ECRIN
egi
… and more einfra and RI sources

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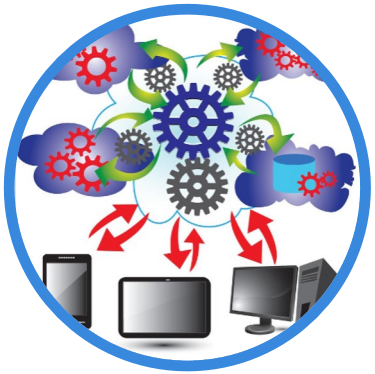
Data wrangling challenges



HETEROGENEITY

Standards, crosswalks, community and cross-community view

GUIDELINES.openaire.eu

QUALITY & ACCURACY

Trust and stability of the data: researchers and operators in the loop

PROVIDE (validation, brokering), user feedback, PIDs

COMPLETENESS

Practices, sharing of technology and data (Knowledge Graphs)

Open Science publishing workflows, RDA OSG interoperability

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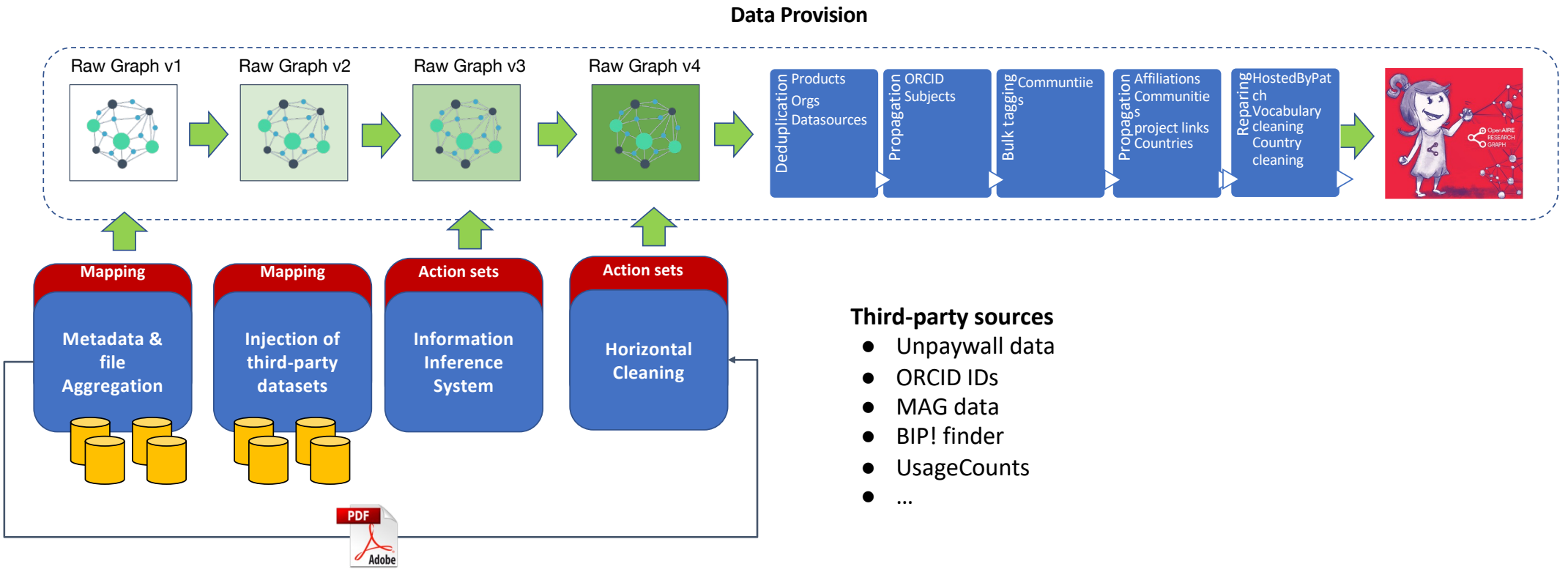
OpenAIRE Research Graph: the supply chain

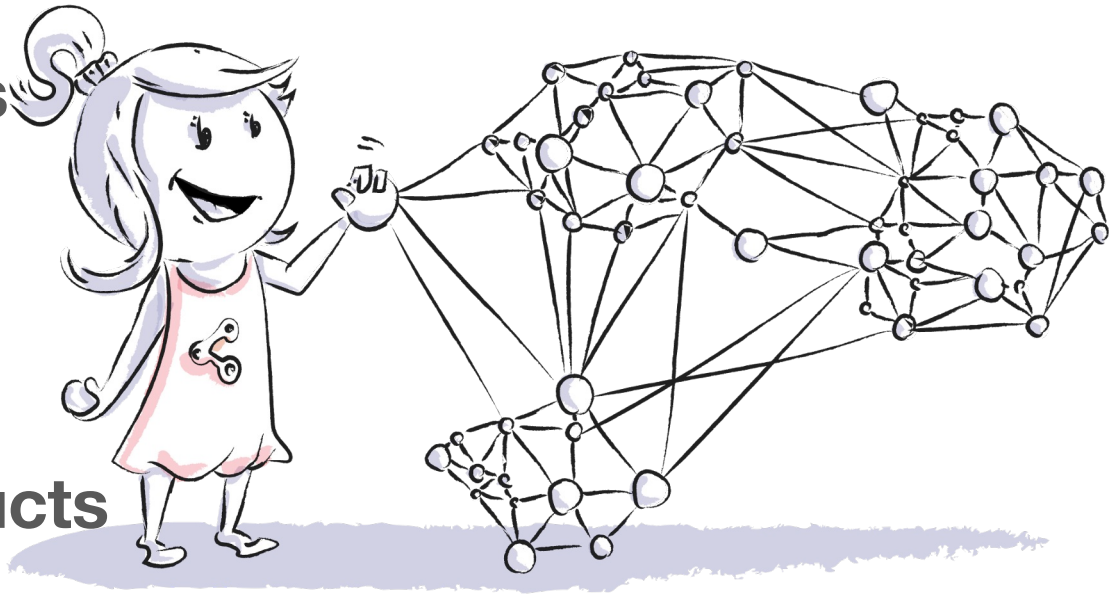


Third-party sources

- Unpaywall data
- ORCID IDs
- MAG data
- BIP! finder
- UsageCounts
- …

OpenAIRE Research Graph in numbers

- **25** funders
- **111k** data sources/journals
- **2.9Mi** projects
- **145Mi** publications
- **311k** software
- **18Mi** research data
- **6.8Mi** other research products
- **4.5Bi** semantic links



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PIDs in OpenAIRE

Authors

ORCID

Microsoft Academic

Organizations

GRID

ROR

CORDIS Community Research & Development Information Service

and other funders

Products

DataCite FIND, ACCESS, AND REUSE DATA

EMBL-EBI

arXiv.org

Identifiers.org

Crossref

Funders/Projects

CORDIS Community Research & Development Information Service

FCT Fundação para a Ciência e a Tecnologia

NWO

Science Foundation Ireland sfi For what's next

ACADEMY OF FINLAND

and other funders

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Data sources

re3data.org REGISTRY OF RESEARCH DATA REPOSITORIES

OpenDOAR

DOAJ DIRECTORY OF OPEN ACCESS JOURNALS

\+ journal lists from publishers

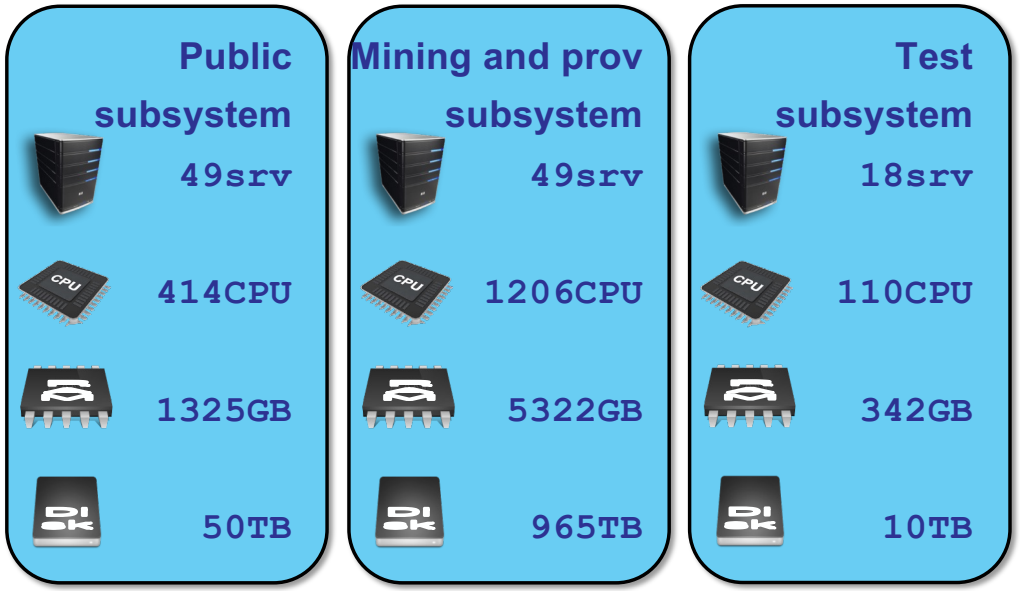
FAIRSFAIR Fostering Fair Data Practices in Europe

Services (fortcoming…)

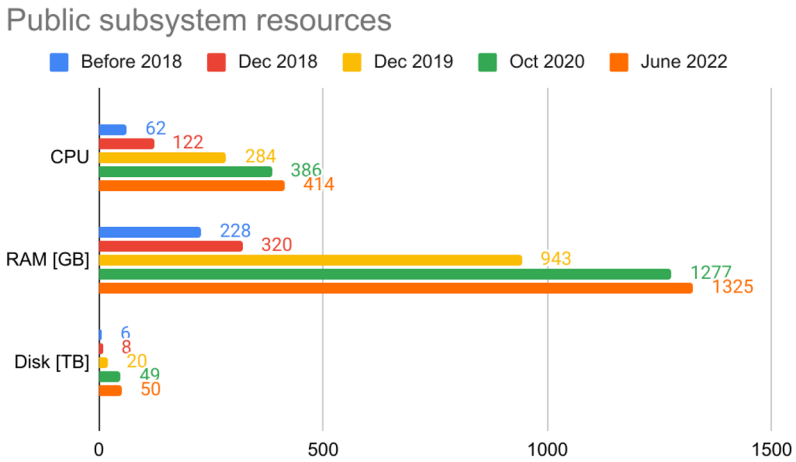
EUROPEAN OPEN SCIENCE CLOUD

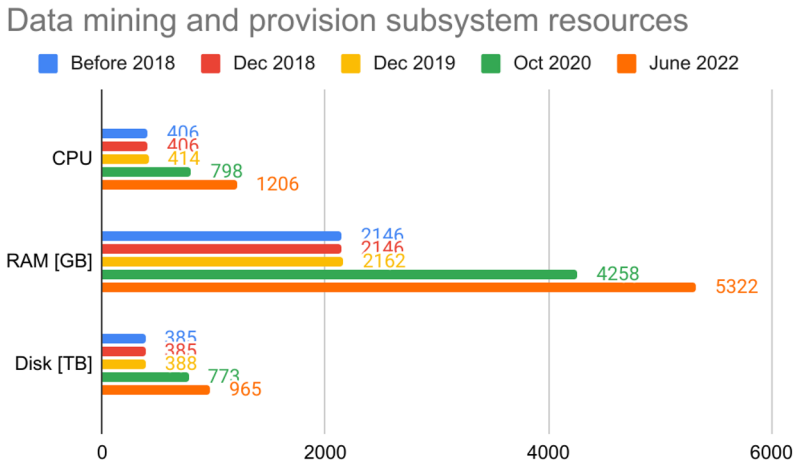
…Clusters and RIs service catalogues

System infrastructure



June 2022





OpenAIRE | PROVIDE : data source managers

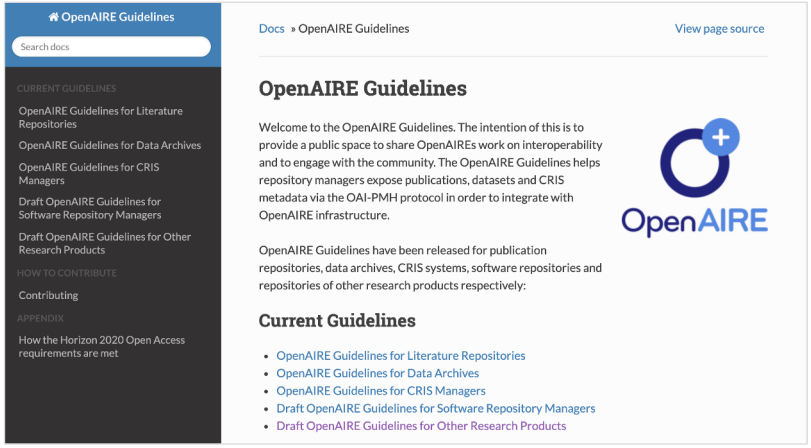
Validator

VALIDATE

- **Registration of data sources**
  - Repositories
  - Data archives
  - Software repositories
  - CRIS systems

REGISTER

- **Validation against OpenAIRE/EOSC Guidelines**



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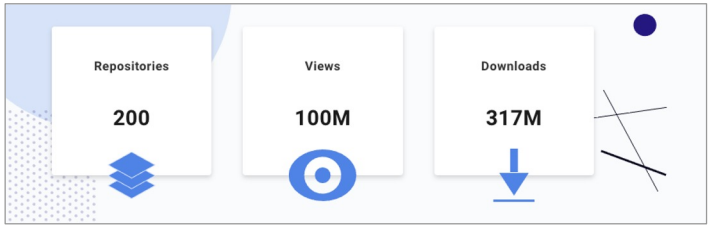
OpenAIRE PROVIDE : added value functions

Usage statistics for Institutional Repositories

OpenAIRE UsageCounts



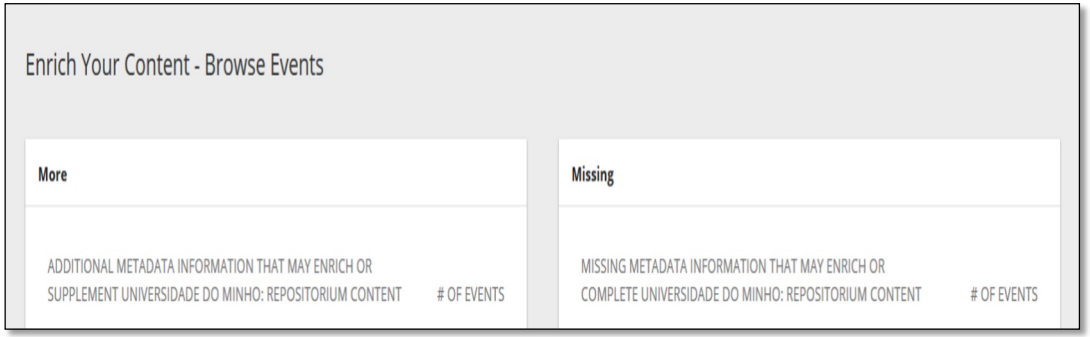
Brokering of metadata

OA Broker

Improve your metadata.
Get more connections

OA Broker service offers a wealth of information on scholarly communication data. Find out what interests you and subscribe to enrich your records.

ENRICH



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Usage

Consumers

DEVELOP

EUROPEAN OPEN SCIENCE CLOUD

The Graph as EOSC Resource Catalogue

DARIAH-EU · EGI · EPOS · elixir

Research infrastructures

AGINFRA · instruct ERIC · SDSN GREECE · CLARIN

ORCID Early 2021

Connecting Research and Researchers

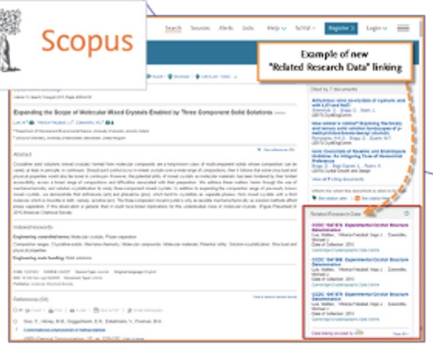
SciVal

2030 CONNECT

a United Nations online technology platform for the SDGs

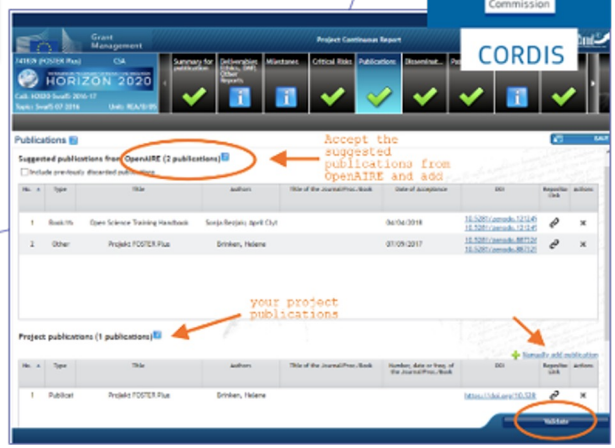
OpenAIRE RESEARCH GRAPH

Scopus



Mendeley

EBSCO



DSPACE

eprints repository software

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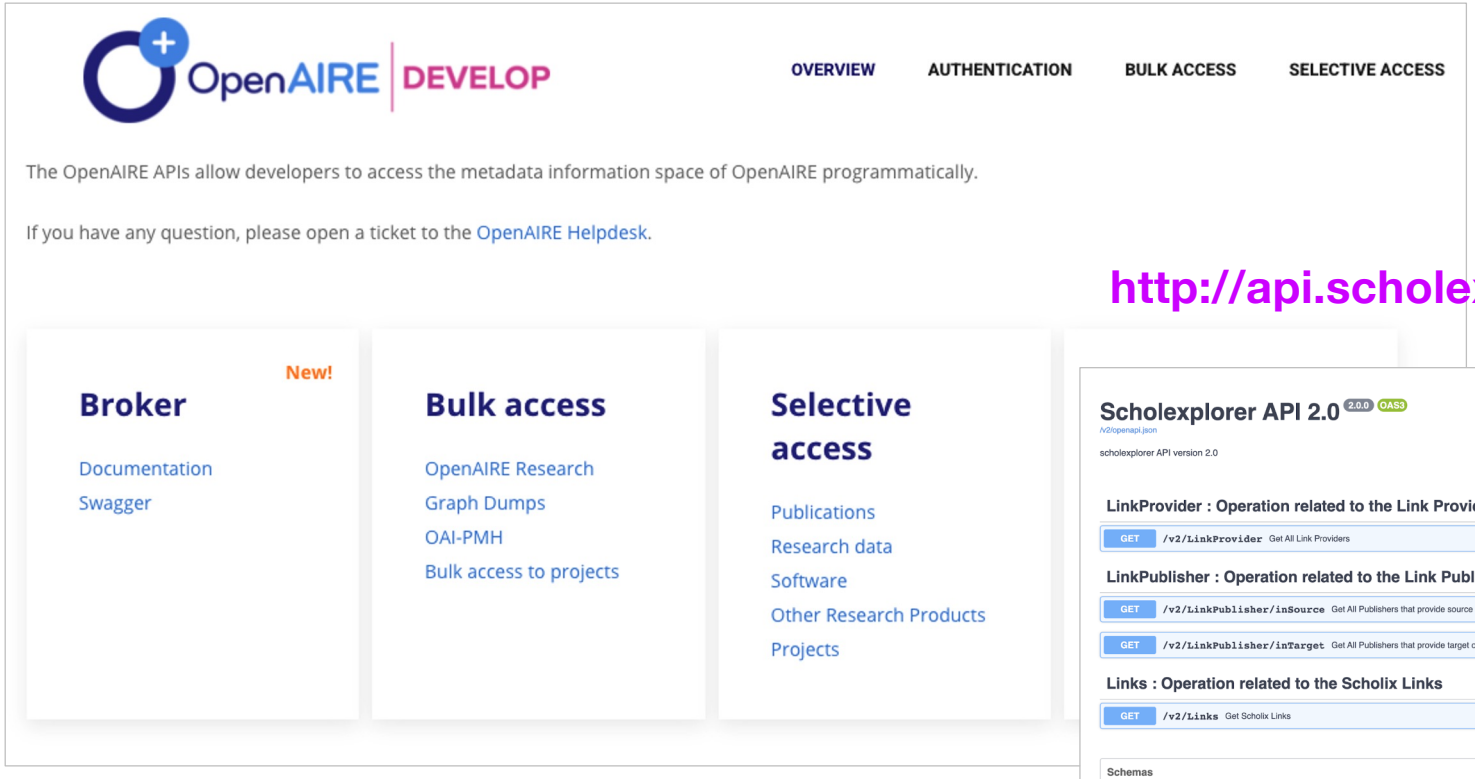
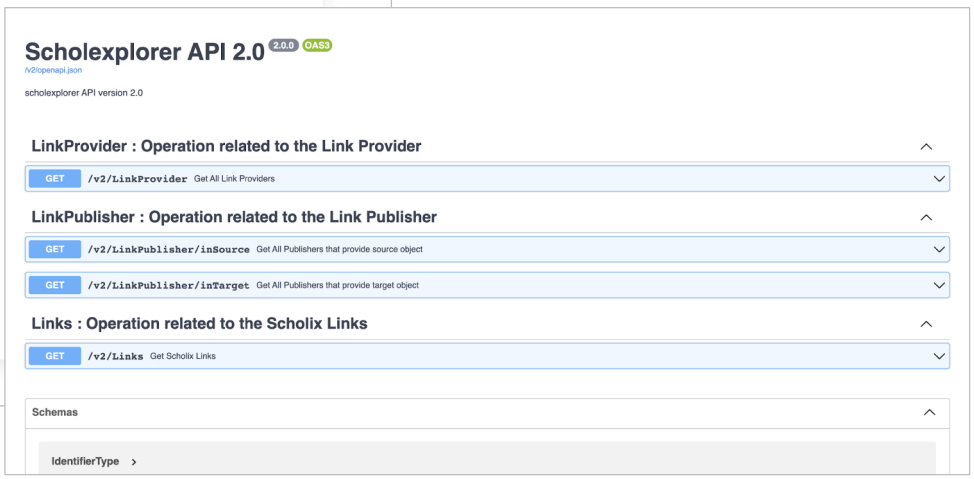
Access to the OpenAIRE Graph and Scholexplorer

Graph: api.openaire.eu



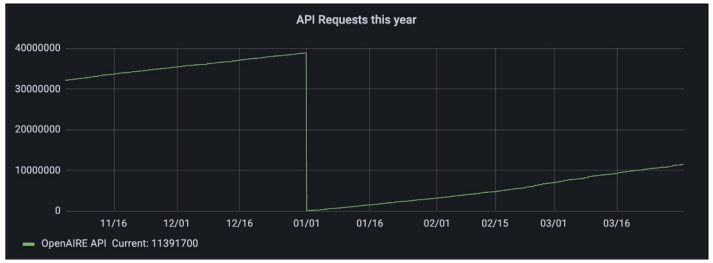
Scholexplorer:
http://api.scholexplorer.openaire.eu/v2/ui/



Key Performance Indicators

API hits by 2021-12-31: 38Mi

Api hits in 2022 (May) : 11Mi



OpenAIRE ResearchGraph

Dump title	views	downloads
OpenAIRE Research Graph Dump	5,589	4,539
OpenAIRE Research Graph: Json schemas of the dump	930	605
OpenAIRE Research Graph: Dumps for research communities and initiatives	840	391
OpenAIRE Research Graph: Dump of funded products	897	45,632
OpenAIRE Research Graph: Json schema of the dumps for funded research products, research communities and initiatives	657	138
OpenAIRE ScholeXplorer Service: Scholix JSON Dump	3,525	1,168
The Scholix Metadata JSON Schema	81	40
OpenAIRE Covid-19 publications, datasets, software and projects metadata	8,232	673
OpenAIRE Research Graph: Dump for Transport Research community	163	9
DOIBoost Dataset Dump	2,925	3,627
totals	**23,839**	**56,822**

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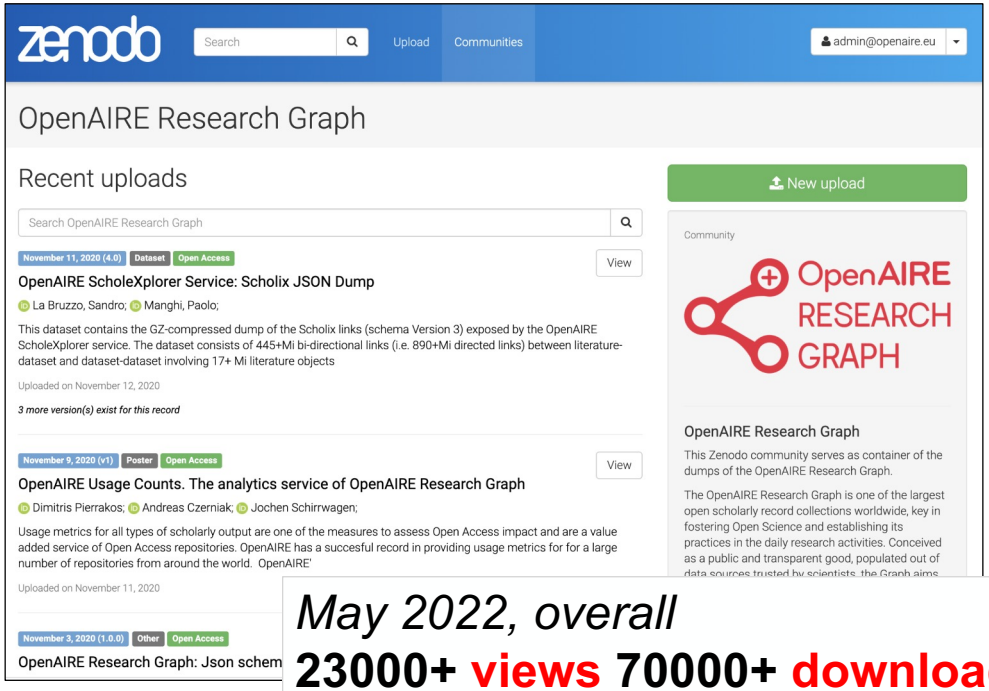
Key Performance Indicators

Service	VA KPI name	Point of reference (Basis)	Success Target	Success Target value (M30)	M12 value	Perc. of units provided
ScholExplorer	#APIrequests	555,000,000	160%	888,000,000	510,300,371	57%

OpenAIRE Research Graph: Dumps

- OpenAIRE Research Graph
- OpenAIRE Funded products
- OpenAIRE COVID-19
- OpenAIRE communities
- DOIBoost
- OpenAIRE ScholeXplorer
- EOSC Graph



May 2022, overall
23000+ views 70000+ downloads

zenodo.org/communities/openaire-research-graph

Call for collaboration

Improving quality and completeness the Graph

Data and infrasructure sharing

OpenAIRE support to access to Graph data (metadata and full-text) and access to full-text mining infrastructure

Embedding improvements as part of the data provision workflow of the Graph

Devising new Open Science services for the community

Improving service provision

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Mining and collaborations

Collaboration with companies and research organizations

- Springer, Elsevier, ACM, SIRIS academics
- French Monitor, European Commission, RISIS infrastructure, VU Amsterdam Library,

How to open our mining infrastructure?

Open Full-text data for Download

On request access to mining resources

graph.openaire.eu

Thank you!

Paolo Manghi (OpenAIRE/CNR-ISTI)

paolo.manghi@openaire.eu

graph.openaire.eu