

# or: How I Learned to Stop Worrying and use CONNECT services

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ISTI-CNR

# Everyday questions in a researcher's life...

## Literature & Data Deluge

Where can I find the results of the research activities in my discipline? Where can I tell that my research results were obtained thanks to the services of my research infrastructure?

## Open Science publishing tools

As a researcher, how can I publish my research products according to Open Science principles?  
What are the best practices to follow in my research community?

## Track impact

As a manager of a research initiative/infrastructure, how can I monitor the impact of my RI and provide numbers and proofs to my current and future funders?



## Connect research entities

adding context to research results: links to other research products, funding projects, organizations, etc.

## Connect researchers to Open Science

empowering communities with Open Science publishing tools

## Connect research infrastructures and initiatives to scholarly communication

bridging the gap between the place where research is performed and the place where research is published





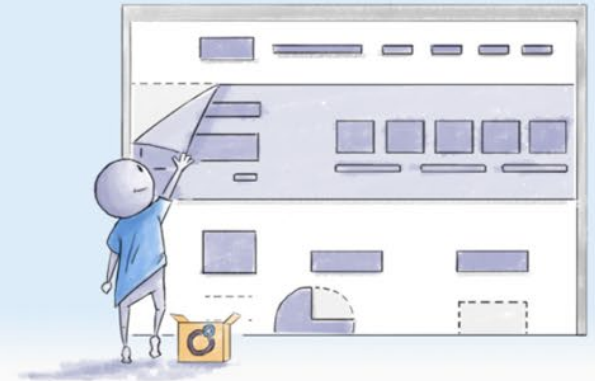
# How?



## Build a Gateway for your Community

Turn Open Science into Practice.  
It takes your open and linked research outcomes.  
A service customized to your needs.

LEARN HOW



# on top of the



An **open metadata** research graph of interlinked **scientific products**, with **access rights information**, linked to **funding information** and **research communities**

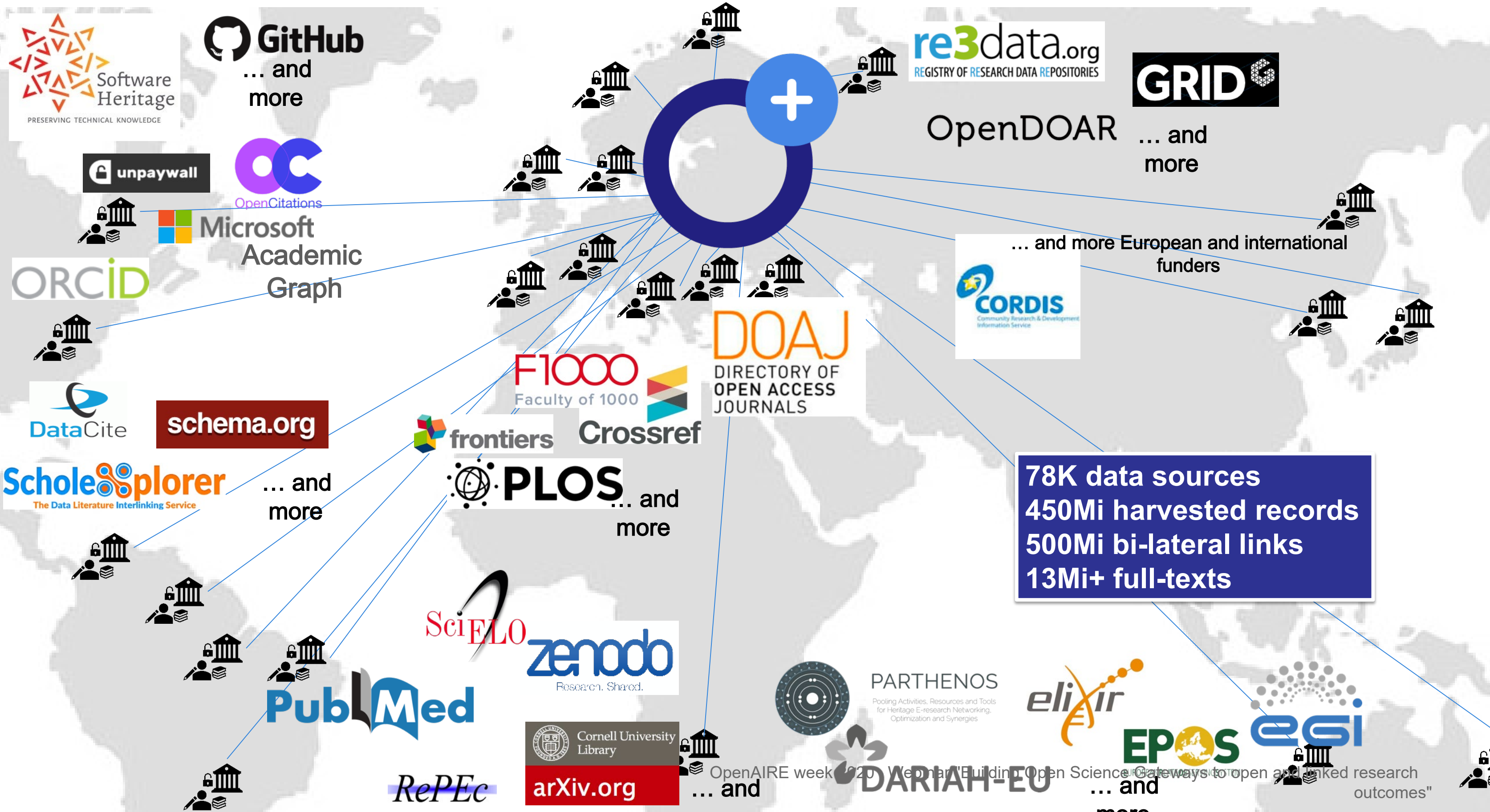


**Graph:** model for the representation of information

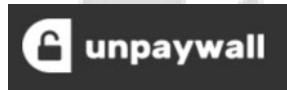
OpenAIRE uses it to represent **objects** in the scholarly communication domain and the **relationships** that exist among them.

Edges of the graph are annotated with a label that specifies the **semantics** of the relationships between two objects, each represented as a node in the graph.

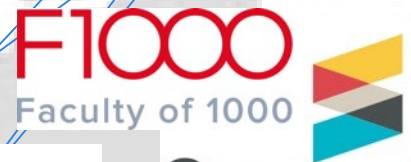




OpenDOAR ... and more



... and more European and international funders



... and more



... and more

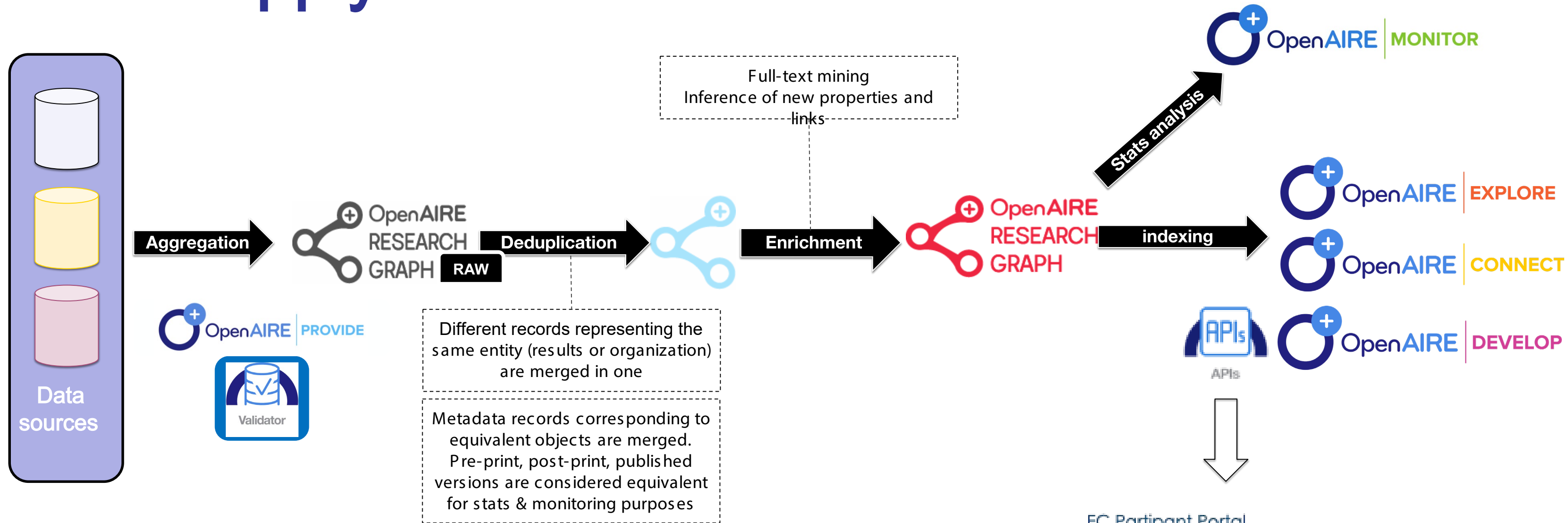


... and more

78K data sources  
450Mi harvested records  
500Mi bi-lateral links  
13Mi+ full-texts

OpenAIRE week 2020 Webinar "Building Open Science Gateways to open and linked research outcomes"

# OpenAIRE Research Graph the supply chain



# Overcoming barriers to Open Science with the OpenAIRE Research graph

## Dispersion

- Research products are scattered across scholarly communication sources

## Focus

- Focus on research literature

OpenAIRE EXPLORE

All content Search for research outcomes, projects, content providers & organizations in OpenAIRE SEARCH

Advanced Search

Research Type (4)

- Publications
- Research data
- Software
- Other research products

RESEARCH OUTCOMES (138,460,468) PROJECTS (2,810,883) CONTENT PROVIDERS (78,017) ORGANIZATIONS (143,745)



# But...

OpenAIRE EXPLORE

All content Search for research outcomes, projects, content providers & organizations in OpenAIRE SEARCH

Advanced Search

**RESEARCH OUTCOMES (138,460,468)** PROJECTS (2,810,883) CONTENT PROVIDERS (78,017) ORGANIZATIONS (143,745)

How to find the relevant research outcomes?

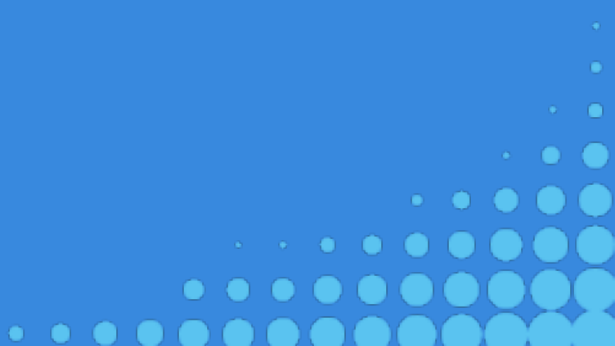
Stop Worrying!  
Use CONNECT services



# A gateway to Open Science

A virtual environment to implement Open Science publishing practices

A “community view” of the OpenAIRE Research Graph  
Built for the community  
Grown by the community



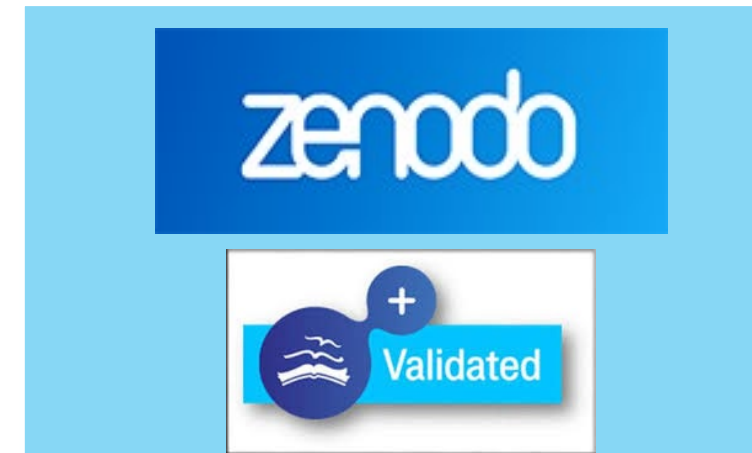
# How to identify the subset of products among those in the OpenAIRE Research Graph

- Gateway curators provide lists of:
  - Keywords ( free or from controlled subject schemes )
    - To be found in metadata
  - Relevant projects
  - Thematic /Infrastructural data sources (e.g. thematic repositories , journals )
  - Zenodo communities
  - Instructions for the OpenAIRE mining team to implement a full-text mining algorithm
    - Open Access publications ' full-texts
    - Abstracts
- Researchers can manually add missing research products via the Link functionality
  - Also in bulk with a list of DOIs or with an ORCID id
- Propagation
  - If a community result is supplemented by another research product , then the latter is also added to the community gateway

# What can you do with an Open Research Gateway?

## MONITOR

- Uptake of Open Science publishing practices
- Research impact
- Report to funders
- Impact of publications



DEPOSIT  
ANYTHING

## EXPLORE

Search for all the research products of your community

Link related research products and contribute for a complete record of research of your community

CONNECT

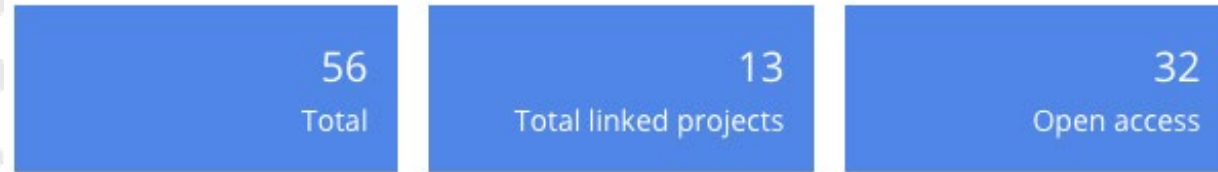
## DEVELOP

- On demand publishing workflows via services of research infrastructures
- Use OpenAIRE API and build other domain-specific services



# MONITOR

## Publications



RESULTS IN OPENAIRE →

Results per page:

10

Sort by:

Relevance

Download Results

58 RESEARCH OUTCOMES, PAGE 1 OF 6

1 2 3 4 5 >

Publication . Unknown . Article . 2014

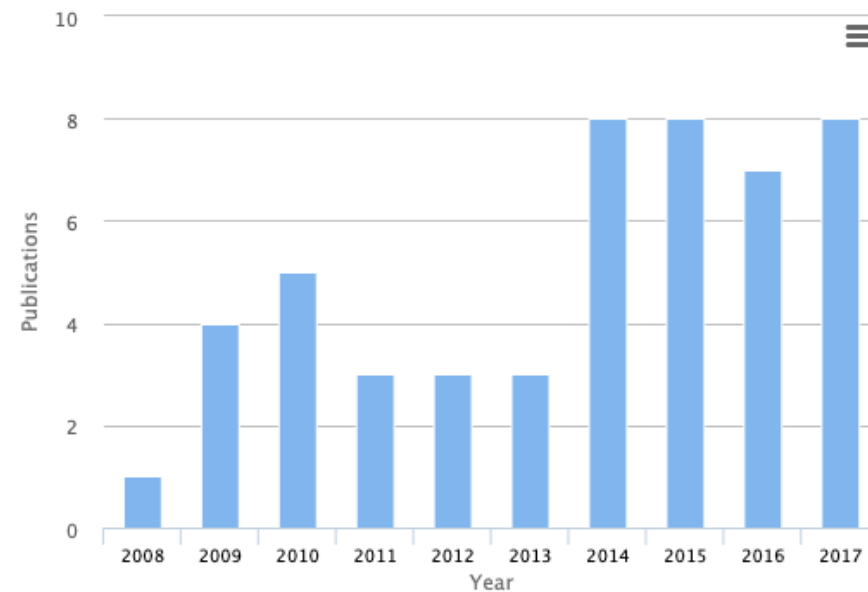
[BioTextQuest+: a knowledge integration platform for literature mining and concept discovery](#)

Nikolas Papanikolaou; Georgios A. Pavlopoulos; Evangelos Pafilis; Theodosios Theodosiou; Reinhard Schneider; Venkata P. Satagopam; Christos A.

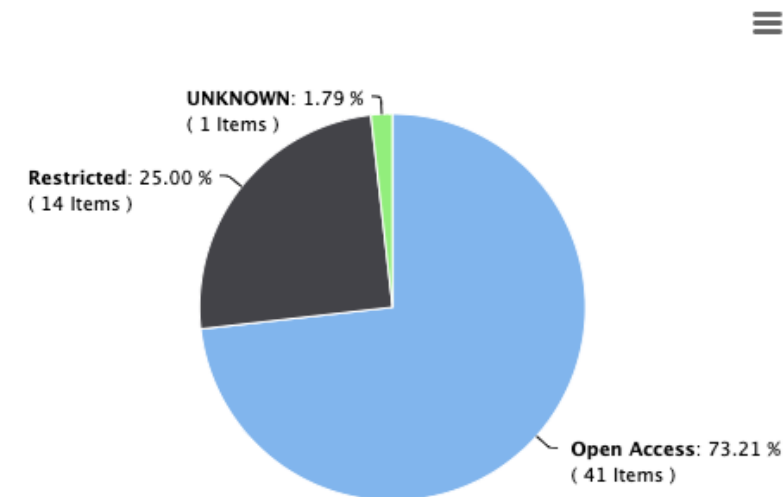
Ouzounis; Aristides G. Flinopoulos; Vasilis I. Protonotaris; Ioannis Iliopoulos; ( 1 Items )

( 1 Items )

How many publications are there per year?



What access rights do the publications have?



	Project	Publications
1	GEN2PHEN	1
2	MARBIGEN	1
3	RD-CONNECT	1
4	STATEGRA	1
5	SYNTHESYS3	1
6	EMTICS	1
7	CAUSALPATH	1
8	TS-EUROTRAIN	1
9	E-LICO	1
10	Predoctoral training program in Genetics	1

How many publications are there per project?

# Statistics

# MONITOR

Results per page: **10** | Sort by: **Relevance** | [Download Results](#)

58 RESEARCH OUTCOMES, PAGE 1 OF 6 | 1 2 3 4 5 >

Publication . Unknown . Article . 2014  
**BioTextQuest+: a knowledge integration platform for literature mining and concept discovery**  
Nikolas Papanikolaou; Georgios A. Pavlopoulos; Evangelos Pafilis; Theodosios Theodosiou; Reinhard Schneider; Venkata P. Satagopam; Christos A. Ouzounis; Aristides G. Eliopoulos; Vasilis J. Promponas; Ioannis Iliopoulos;  
**OPEN ACCESS**  
Publisher: Oxford University Press (OUP)  
Summary: The iterative process of finding relevant information in biomedical literature and performing bioinformatics analyses might result in an endless loop for an inexperienced user, considering the exponential growth of scientific corpora and the plethora of tools d...

Publication . Article . Unknown . Other literature type . Preprint . 2017  
**Feature Selection with the R Package NMF: Discriminating Statistically Equivalent Feature Subsets**

## Funder (2)

- European Commission (3)
- Wellcome Trust (1)

## Project (4) [Clear](#)

- ELIXIR-EXCELERATE (3)
- ERC-EuropePMC-2015 (1)
- Uk PubMed Central Phase 3 D... (1)
- The continued support of th... (1)

Project . 2015 - 2019 . Closed  
**ELIXIR-EXCELERATE**  
ELIXIR-EXCELERATE: Fast-track ELIXIR implementation and drive early user exploitation across the life-sciences.

**EUROPEAN COMMISSION**

Funder: **European Commission** | Project code: 676559 | Call for proposal: H2020-INFRADEV-1-2015-1  
Funded under: H2020 | RIA | Overall Budget: 19,051,500 EUR | Funder Contribution: 19,051,500 EUR  
Status: Closed

Start Date: 01 Sep 2015 | End Date: 31 Aug 2019  
[Detailed project information \(CORDIS\)](#) →

Open Access mandate for Research Data: No  
Organizations: [FPS](#), [CESNET](#), [INS2I](#), [CSIC](#), [UOCHB AVCR](#), [UOXF](#), [INESC ID](#), [CCMAR](#), [LSMS](#), [Heriot-Watt University](#), [BSC](#), [UIO](#), [UT](#), [FUNDACIO INSTITUT DE RECERCA BIOMEDICA \(IRB BARCELONA\)](#), [VLAAMS INSTITUUT BIOTECHNOLOGIE](#), [FLANDERS INSTITUTE FOR BIOTECHNOLOGY](#), [CIRAD](#), [IN](#), ...  
[View all 48 organizations](#)

Description: The life sciences are undergoing a transformation. Modern experimental tools study the molecules, reactions, and organisation of life in unprecedented detail. The precipitous drop in costs for high-throughput biology has enabled European research laboratories to produce an ever-increasing amount of data. Life scientists are rapidly generating the most complex and heterogeneous datasets that science can currently imagine, with unprecedented volumes of biological data to manage. Data will only generate long-term value if it is Findable, Accessible, Interoperable and Reusable (FAIR). This requires a scalable infrastructure that connects local, national and European...  
[View more](#)

[LINK THIS PROJECT TO...](#)  
[DEPOSIT](#)

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Select content type  
Download report  
Select content type  
All research outcomes  
Publications  
Research data  
Software  
Other research products

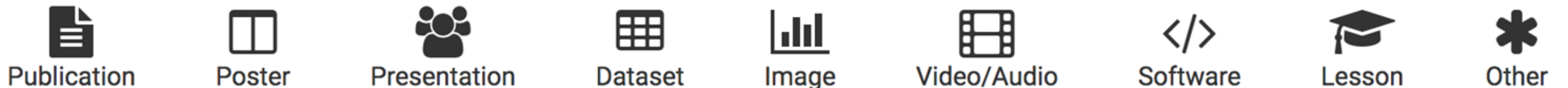
# Reporting

DEPOSIT ANYTHING



## OpenAIRE's "catch -all" repository

A safe repository hosted by CERN where you can deposit any types of research products, link them to funding information and make them citeable.  
With a DOI.



but you can also search for journals and repositories in the OpenAIRE network

Open Access  Include:  Publications  Research data  Software  Other research products

## Year range

e.g. 1931 e.g. 2020 >

This year Last 5 years Last 10 years

RESULTS IN OPENAIRE →

Results per page: **10** Sort by: **Relevance**

85 RESEARCH OUTCOMES, PAGE 1 OF 9

## Funder (4)

- European Commission (12)
- Wellcome Trust (3)
- National Institutes of Health (2)
- National Science Foundation (1)

## Project (19)

- ELIXIR-EXCELERATE (3)
- CAUSALPATH (2)
- GEN2PHEN (1)
- MARBIGEN (1)
- RD-CONNECT (1)
- STATEGRA (1)

+ View all

## Access Mode (4)

Publication . Unknown . Article . 2014

### BioTextQuest+: a knowledge integration platform for literature

Nikolas Papanikolaou; Georgios A. Pavlopoulos; Evangelos Pafilis; Theodosios Theodosiou; Ouzounis; Aristides G. Eliopoulos; Vasilis J. Promponas; Ioannis Iliopoulos;

OPEN ACCESS

Publisher: Oxford University Press (OUP)

Summary: The iterative process of finding relevant information in biomedical literature for an inexperienced user, considering the exponential growth of scientific corpora

Software . 2017

### MXM

Research outcomes

Projects

Content providers

Advanced search in Research outcomes

Quick search

Open Access  Include:  Publications  Research data  Software  Other research products

FIELD TO SEARCH TERM

- Title
- Author
- Author ORCID
- Description
- Subject
- Publisher

keywords...

SEARCH

ADD RULE

Sort by:

Relevance

Down

Publication . Unknown . Article . 2014

### BioTextQuest+: a knowledge integration platform for literature mining and concept discovery

Nikolas Papanikolaou; Georgios A. Pavlopoulos; Evangelos Pafilis; Theodosios Theodosiou; Reinhard Schneider; Venkata P. Satagopam; Christos A. Ouzounis; Aristides G.

OPEN ACCESS

Publisher: Oxford Univ

Summary: The iterative process of finding relevant information in biomedical literature for an inexperienced user, considering the exponential growth of scientific corpora

0000-0002-4577-8276

COPY

VISIT

Search **Georgios A. Pavlopoulos** by ORCID in OpenAIRE's


RESEARCH OUTCOMES

Publication . Article . U



Publication . Unknown . Article . 2013

## Topoisomerase II regulates yeast genes with singular chromatin architectures

 [Christoforos Nikolaou](#); Ignacio Bermúdez; Chaysa  
Joaquim Roca;

[OPEN ACCESS](#) [ENGLISH](#)

Published: 01 Aug 2013 Journal: volume 41, issue

Publisher: Oxford University Press ([Copyright pol](#))

### ADD LINKING SOURCES

Start searching Research Results and add them to the Basket to

Alessia Bardi

[OPENAIRE \(207,075\)](#) [CROSSREF \(16,823\)](#) [DATACITE \(67\)](#)

### Result Type (4)

- Publications (17)
- Research Data (2)
- Software (207,056)
- Other research products (0)

### Published in

Year (e.g. 2010) >

### Funder (1)

European Commission (2)

17 results, page 1

publication  
[Coping with inte  
aggregative data](#)  
Authors Alessia Bardi

publication  
[The OpenAIRE Literature broker service for institutional repositories](#)  
Authors Michele Artini; Claudio Atzori; Alessia Bardi; Sandro La Bruzzo; Paolo Manghi;  
Andrea Mannocci  
Publisher CNRI Acct  
Published in 2015

### LINKS BASKET

#### SOURCES (0)

Research results to link

[Upload a DOI's CSV file](#)

No Sources added yet. Start adding sources from the left panel. Or upload a DOI's CSV file.

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Entities to link with the sources

[LINK THIS PUBLICATION TO...](#)



Projects



Research  
results



Communities



U

A

P



**Nucleic Acids Research** [↗](#)

Article

Provider: [UnpayWall](#)

[CROSSREF \(16,823\)](#)

[DATACITE \(67\)](#)

[ORCID \(12\)](#)

3

1 2 3 >

[↗ Alessia Bardi - 0000-0002-1112-1292 :](#)  
ch only by Author. Not the author you are looking for?

002-1112-1292

100-0001-5429-0750

1002-6347-4428

1002-8145-1107

02-3531-8743

[The OpenAIRE Literature broker service for institutional repositories](#)  
Authors Artini, Michele; Atzori, Claudio; Bardi, Alessia; La Bruzzo, Sandro; Manghi, Paolo; Mannocci, Andrea  
Publisher CNRI Acct  
Published in 2015



# DEVELOP

OpenAIRE APIs to build on top of the Research Graph

<http://develop.openaire.eu>

## Bulk access

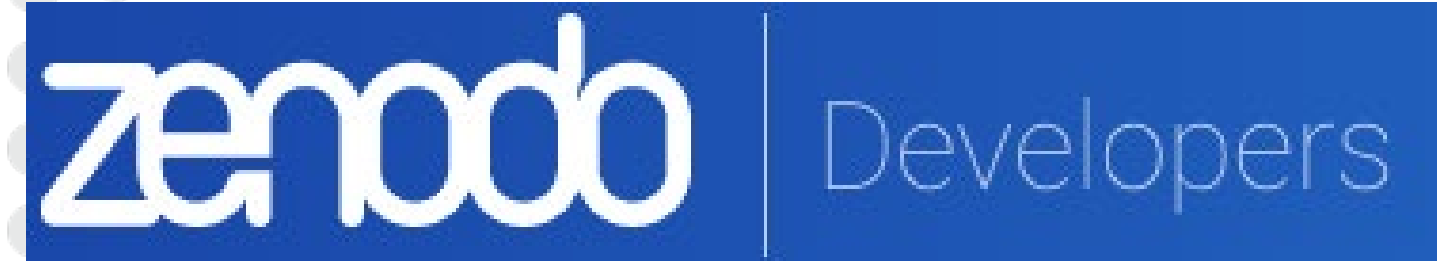
OpenAIRE Research Graph Dumps  
OAI-PMH  
Bulk access to projects

## Selective access via HTTP API

Publications  
Research data  
Software  
Other Research Products  
Projects

## Linked Open Data

Documentation  
OpenAIRE LOD Ontology  
OpenAIRE RDF dump  
SPARQL endpoint



Zenodo REST API to enhance RI services for semi-automatic deposition and automatically add research results to the gateway

<https://developers.zenodo.org>



RI sources can contribute to the OpenAIRE Research Graph using the OpenAIRE Content Provider Dashboard and embracing the interoperability guidelines

<http://provide.openaire.eu>



# Who stopped worrying and learned to use CONNECT services

## Open Research gateway use cases

- The OpenAIRE COVID-19 gateway
- **ELIXIR-Greece** (Thanasis Vergoulis)
- **DARIAH EU** (Erzsébet Tóth-Czifra)
- **Digital Humanities and Cultural Heritage** (Alessia Bardi)
- Instruct-ERIC (Claudia Alén Amaro)
- **Sustainable Development Solutions Network** (Achilleas Vassilopoulos and Haris Papageorgiou)
- EPOS-IT (Michele Manunta)

## Collaboration between OpenAIRE and other EC projects

- **AriadnePlus**
- **BeOpen**
- **EnerMaps**
- **RISIS 2**
- **SoBigData++**

# Questions?