OpenAIRE Services in the Research Lifecycle

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Outreach and Engagement Officer

@openaire_eu

OpenAIRE AMKE

- Non-profit organisation, established **Oct 2018**
- **Mission:** Shift scholarly communication towards openness and transparency and facilitate innovative ways to communicate and monitor research
- A **Scholarly Communication e-Infrastructure** that brings together **human capital** and advanced **ICT services**
- A **network of experts** from major national organisations (National Open Access Desks) in operation since 2009

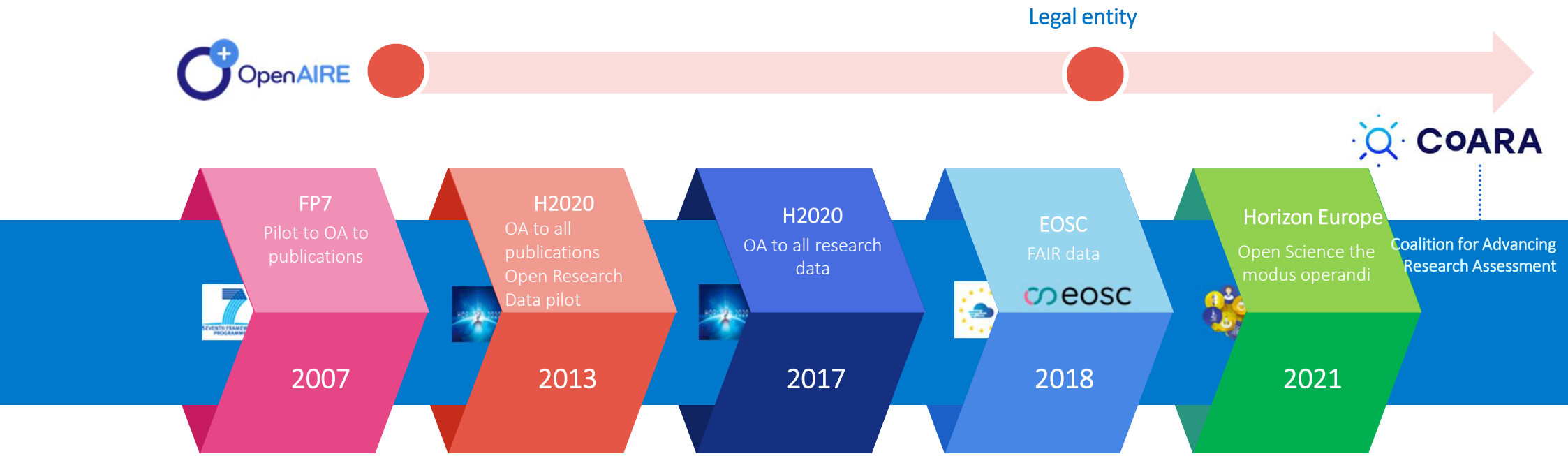
52 members

36 countries

Global Collaborations: Latin America, US, Canada, Japan, China, …

OpenAIRE

OPEN SCIENCE IN EUROPE: THE JOURNEY



- ✓ Institutional Repositories
- ✓ Preprints

- ✓ OA Journals
- ✓ Data Repositories

- ✓ OA Journals
- ✓ Thematic Pre-prints
- ✓ National Data Repositories

- ✓ Federated Infrastructures
- ✓ EOSC

- ✓ Innovative Publication Platforms
- ✓ Open Research Europe
- ✓ Diamond OA
- ✓ HPC

OpenAIRE

OPEN SCIENCE

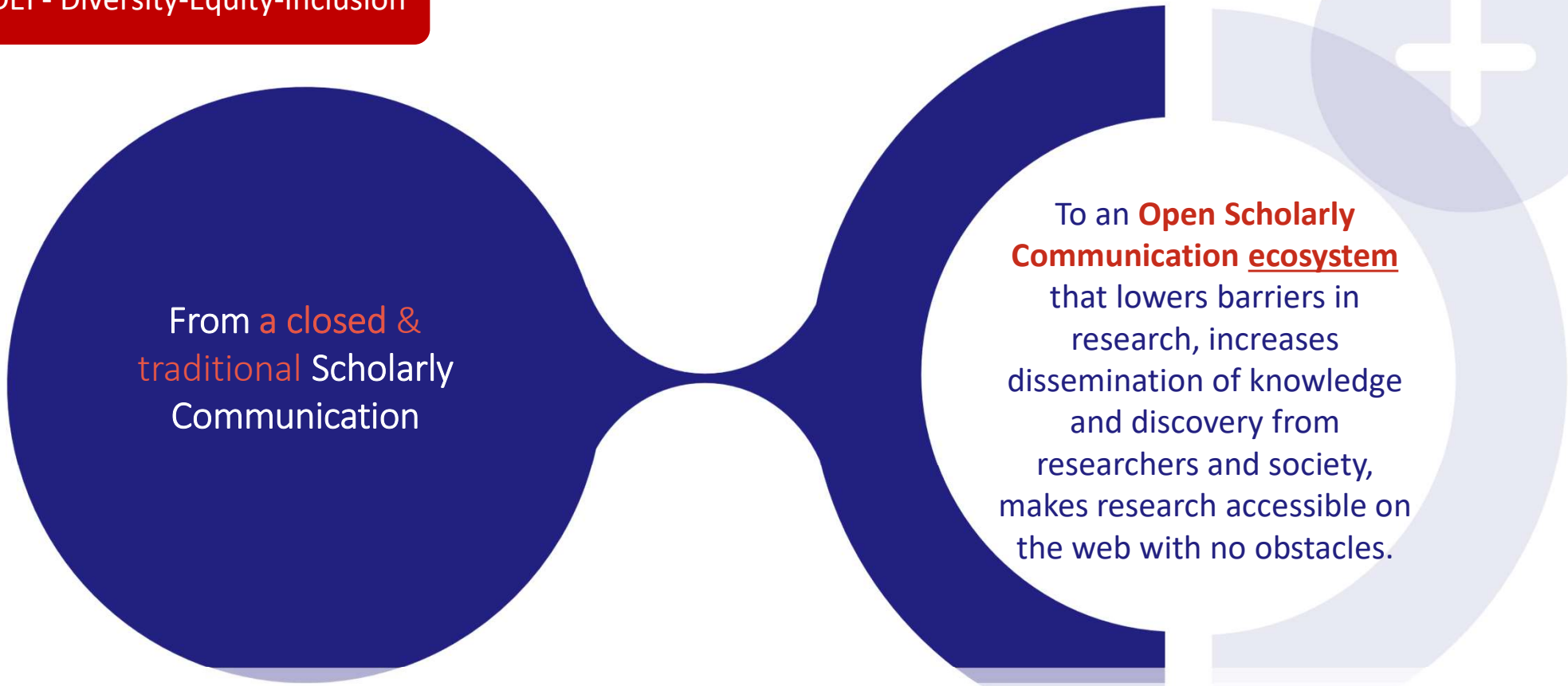
- **Beyond** Open Access to Publications
- Collaboration & Interdisciplinarity
- New functional and organisational schemes

https://www.unesco.org/en/natural-sciences/open-science

Components of Open Science

The picture was taken from the UNESCO Open Science brochure.

#DEI - Diversity-Equity-Inclusion



WHAT'S AT STAKE

OWNERSHIP – WHO OWNS AND CONTROLS THE PROCESSES

TRANSITION TO AN OPEN ECOSYSTEM THAT WILL SUPPORT DIVERSITY – EQUITY - INCLUSION

COST – OPEN SCIENCE IS NOT FREE

Open Science

- OA Publications
- Open Peer Review
- Open Research Data
- FAIR Data
- Open Source Software
- Open Protocols
- …
- Collaboration – beyond academia

Market forces: Different models or flavours

Not accompanied by services to make it easy for researchers

No incentives or rewards

Human Capacities & Upskilling

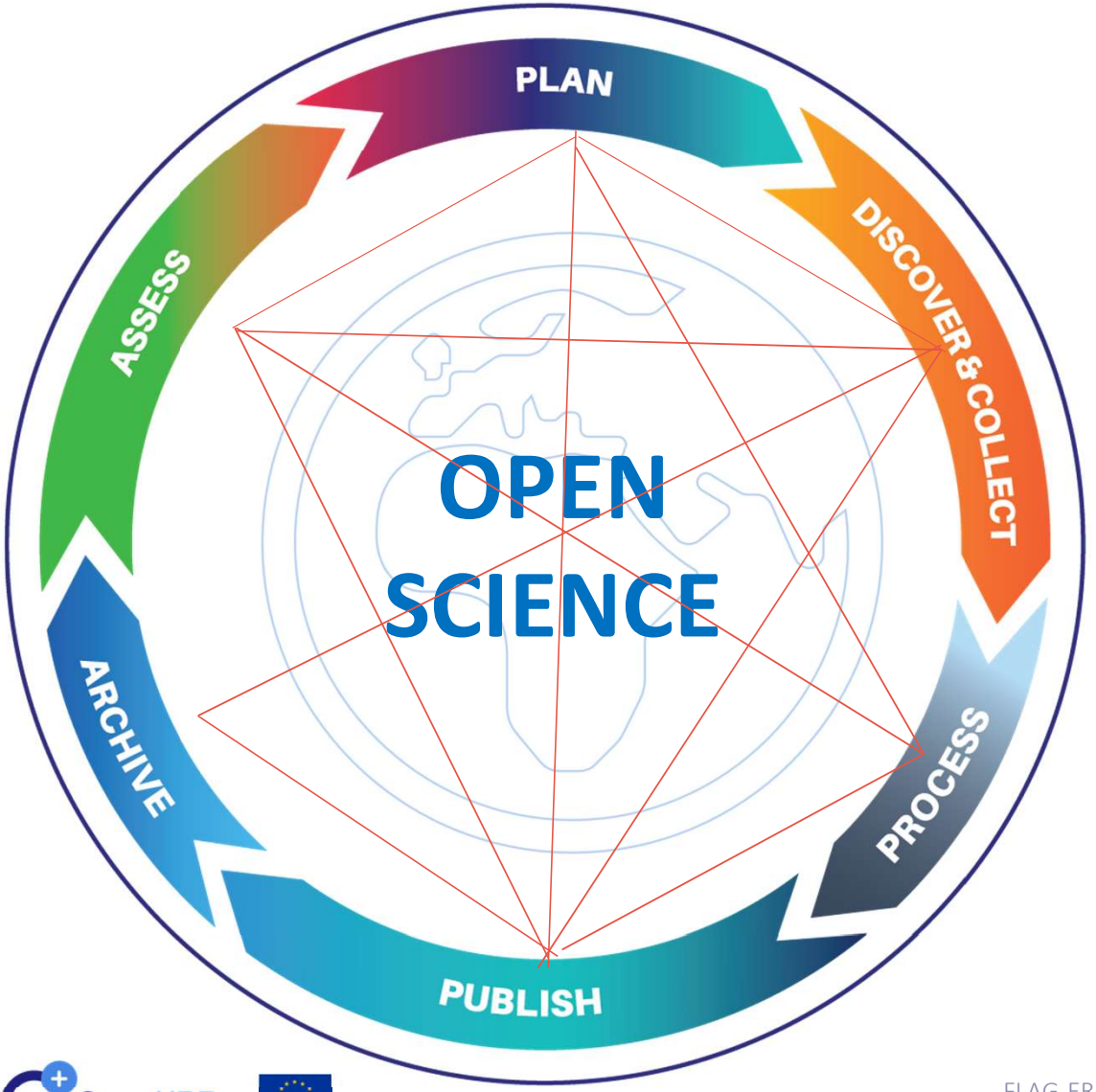
- Researchers are people who want to carry out their research. **They are not super humans**
- Need to recognise and commit to skill and involved different professional paths
  - Data Stewards
  - Data Librarians
  - Legal & Ethical specialists (Licensing, IP, privacy)
  - Research Software Engineers
  - Repository Managers
  - Content Curators
  - ….

Integrated and concerted effort

Lifelong learning

Educate Policy Makers

Leadership programmes



NEW WAYS OF PERFORMING SCIENCE

- Everything is digital
- Everything is big
- Everything is connected

Research life cycle is interconnected, and openness has a positive affect in every stage

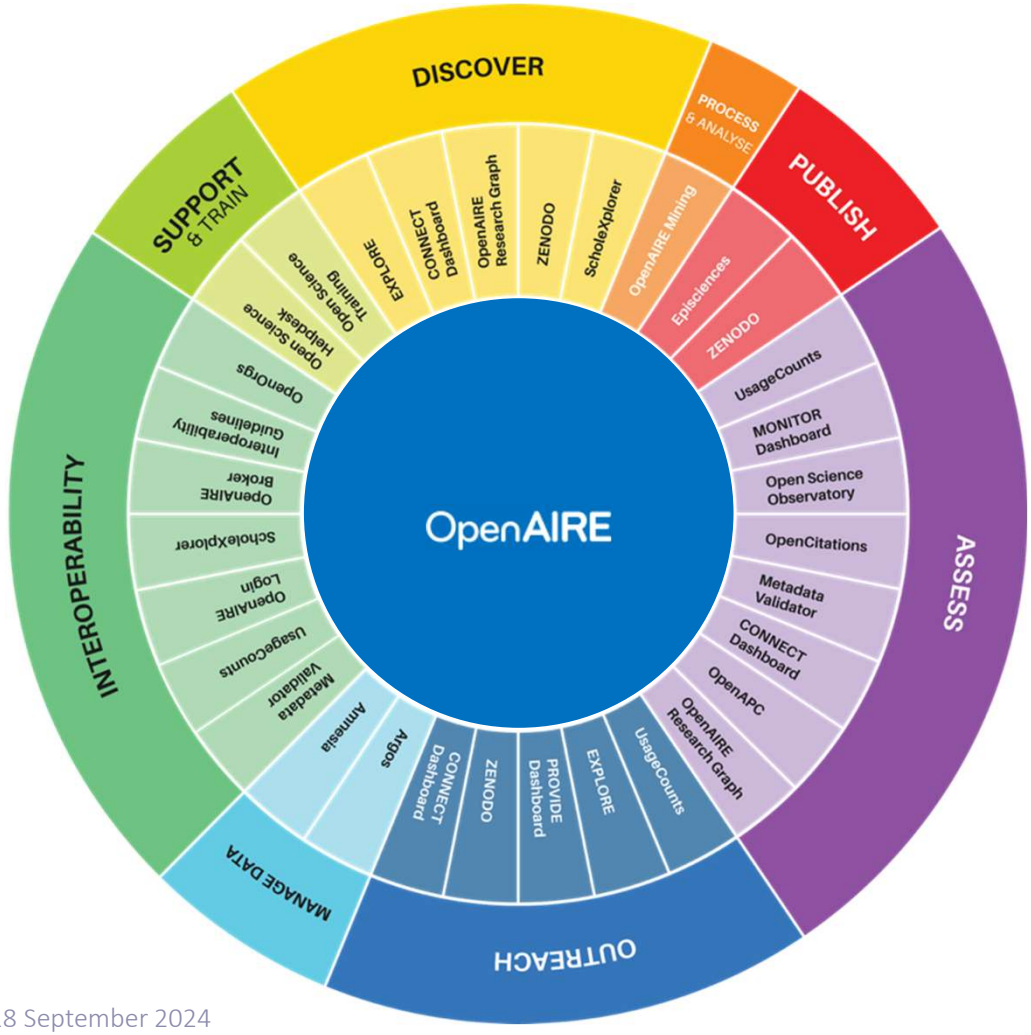
OpenAIRE Services

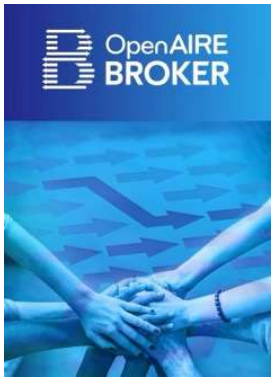
Services in our core

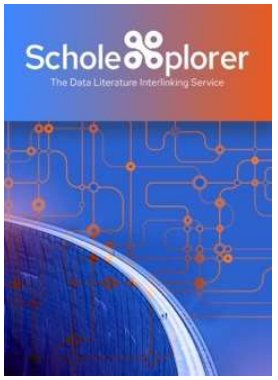
- **Researchers** – discover, plan, anonymize, publish
- **Providers** – interoperate, enrich metadata
- **Research & Funding Performing organizations** – track, assess, monitor research & open science
- **Policy makers & public agencies** – assess R&I investments

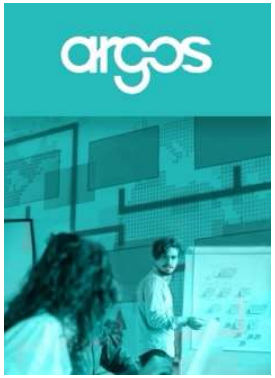
Building Infrastructure to **CONNECT** and **FEDERATE**

http://catalogue.openaire.eu





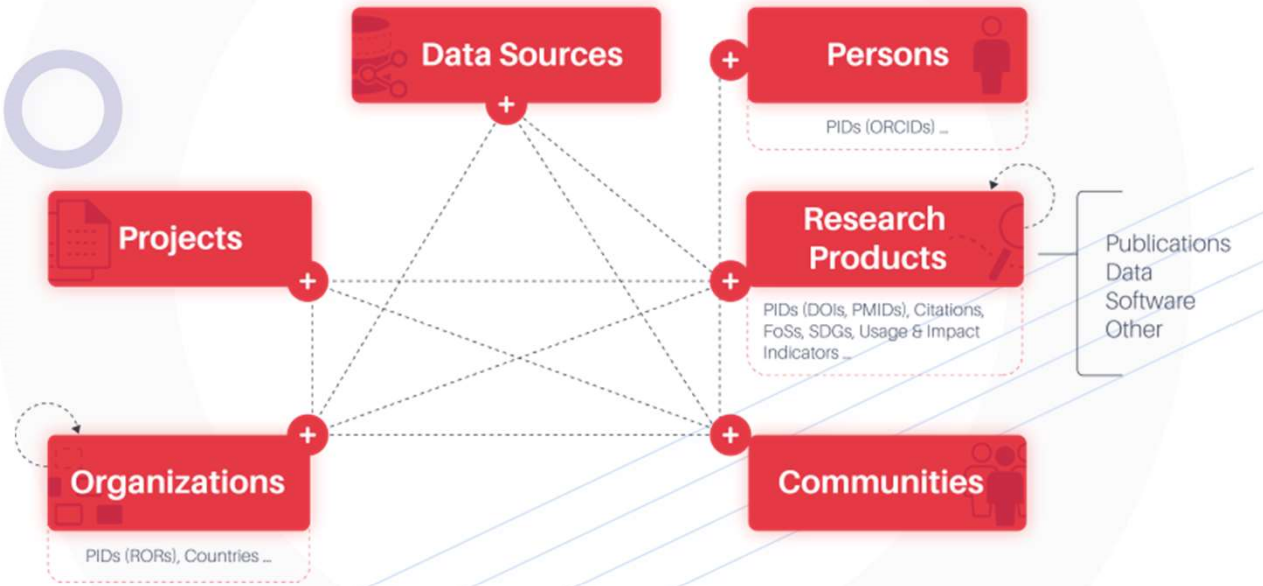




Services **for all actors** in the R&I ecosystem

http://catalogue.openaire.eu

The OpenAIRE Graph



Key Asset In Open Science Infrastructure

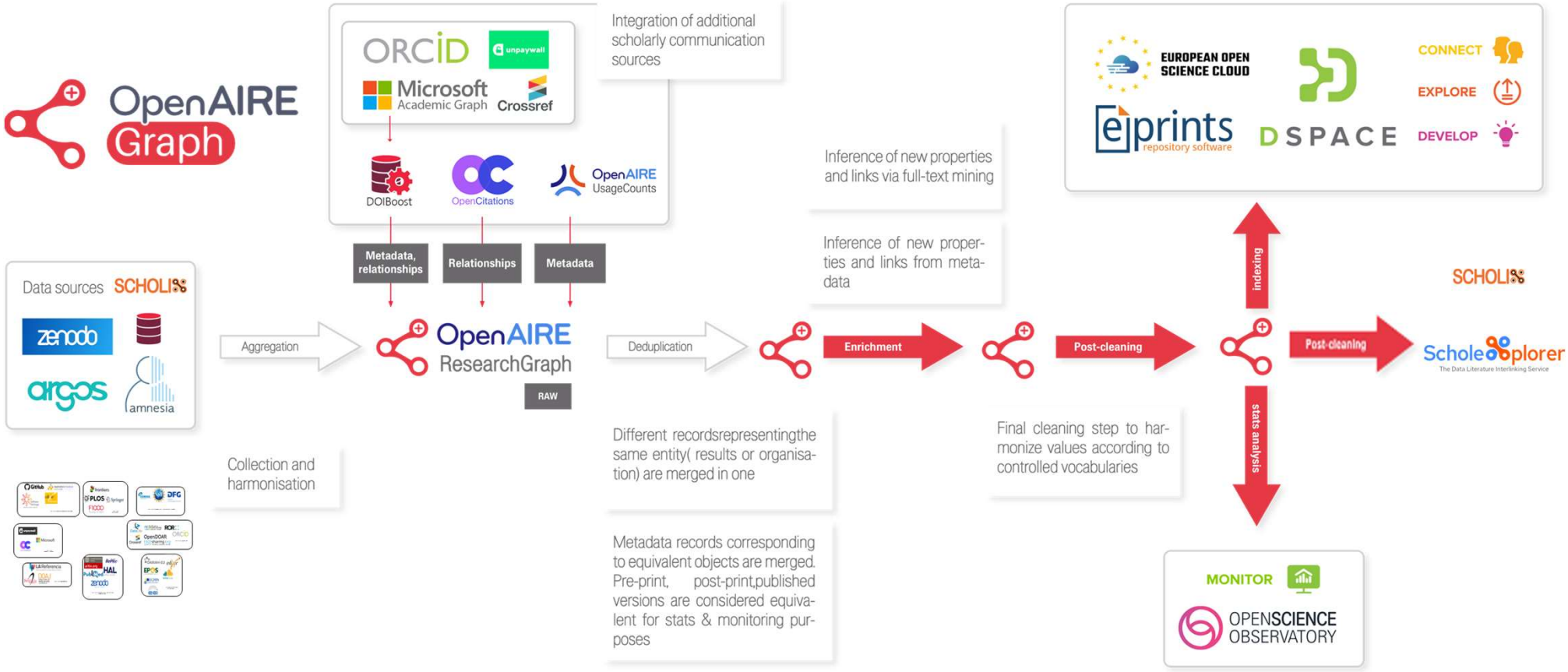
Inclusive, Transparent, Reproducible

- Based on **Open Science principles**
- High **relevance** to the research community

A comprehensive and open dataset of research information covering **189m publications, 61m research data, 371k research software items,** from **131k data sources,** linked to **3m grants** and **270k organizations.**
All linked together through citations and semantics.

OPENAIRE GRAPH – KEY ASSET IN OPEN SCIENCE INFRASTRUCTURE

INCLUSIVE, TRANSPARENT, REPRODUCIBLE



A KEY ASSET FOR EUROPE & THE WORLD

Where is it used?

Scientific Discovery

The Graph is used in the **OpenAIRE EXPLORE** service, enabling users to efficiently search and navigate through an interconnected research ecosystem. Additionally, it serves as the primary resource supporting the exploration and recommendations in the **EOSC EU Node** (EOSC Portal).

Next Step: LLMs

Bibliometrics

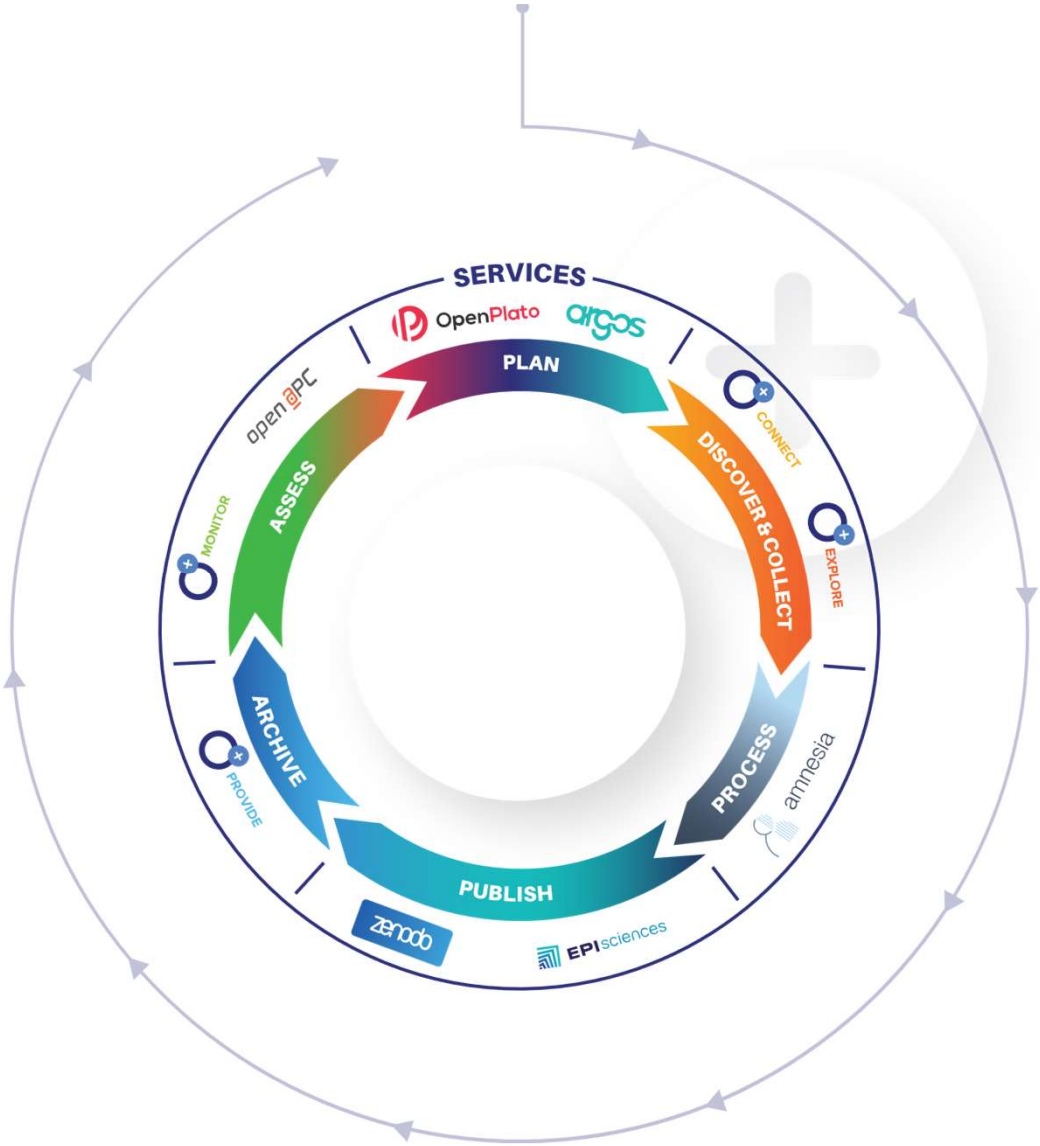
Used for research evaluation in replacement of proprietary databases such as **Web of Science** or **Scopus,** with several benefits, including openness and transparency, embedded citation metrics and indicators, access to information beyond publications such as data and software, and the ability to easily integrate your own databases. Get a glimpse in **OpenAIRE MONITOR.**

Ongoing : APIs

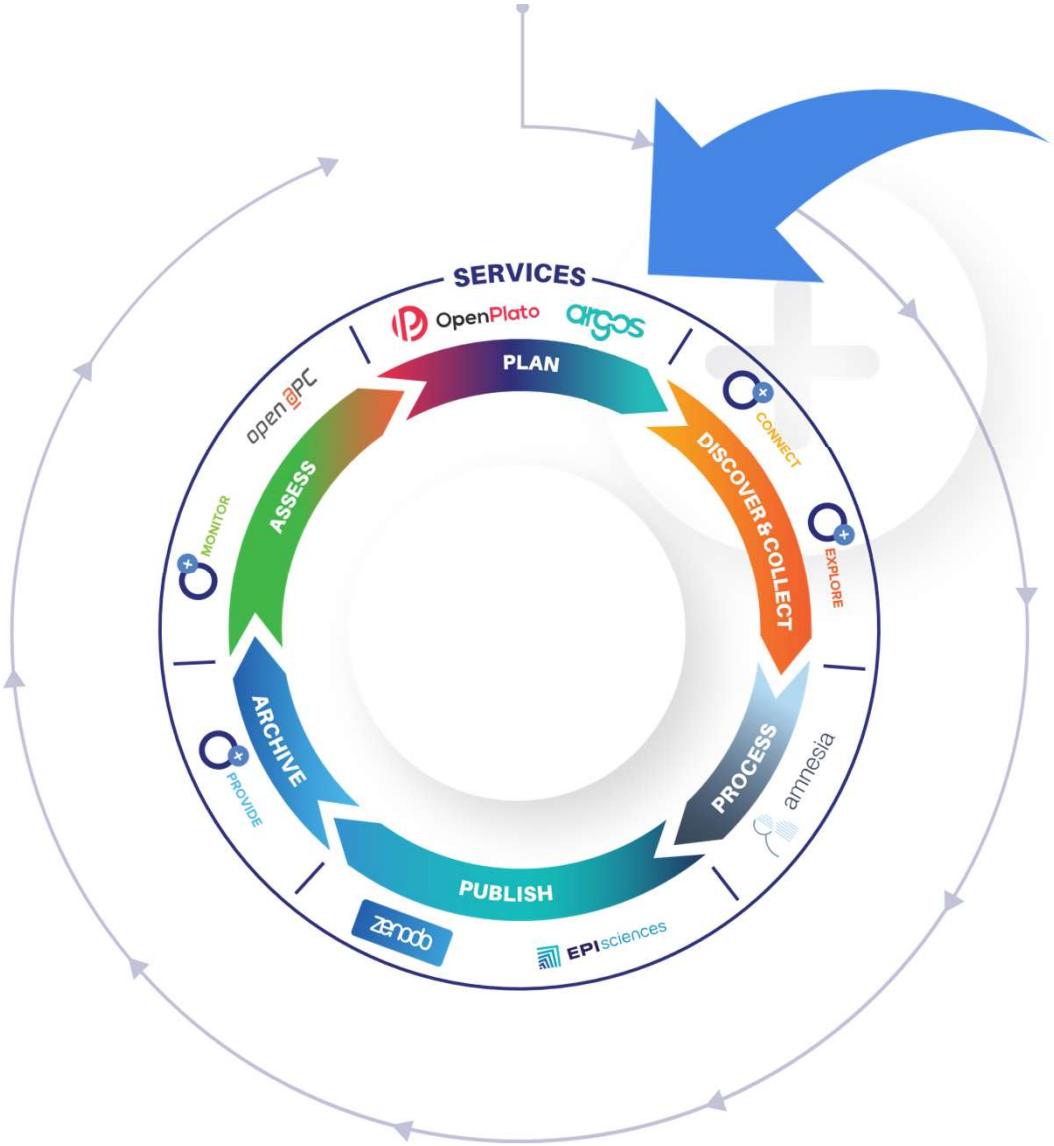
Open Science Monitoring

The Graph maintains data related to monitoring Open Access and Open Science policies. It is currently used in services such as the **Open Science Observatory,** the **EOSC Observatory**, and the **Irish National OA Monitor.** Also check **OpenAIRE MONITOR** to view out of the box indicators for organisations.

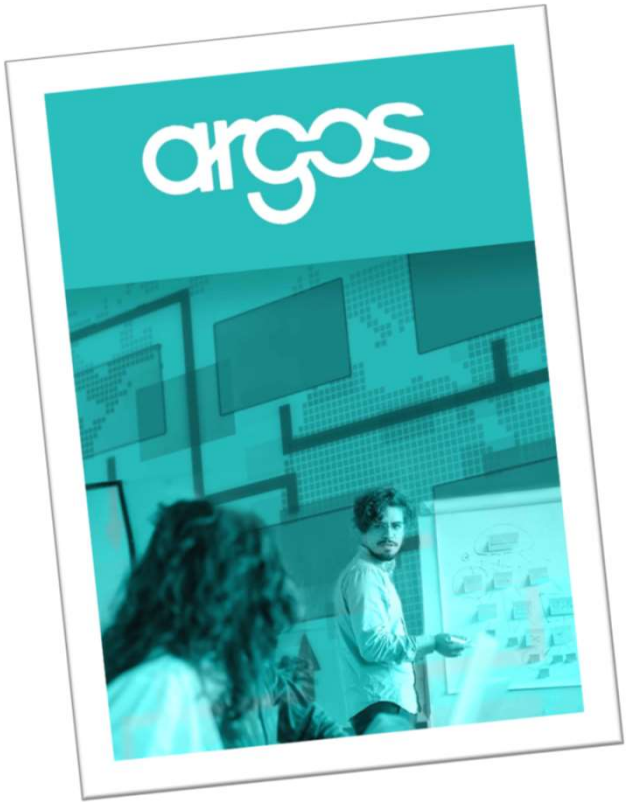
Ongoing: Country Monitors



FOCUSING ON THE RESEARCH LIFECYCLE…



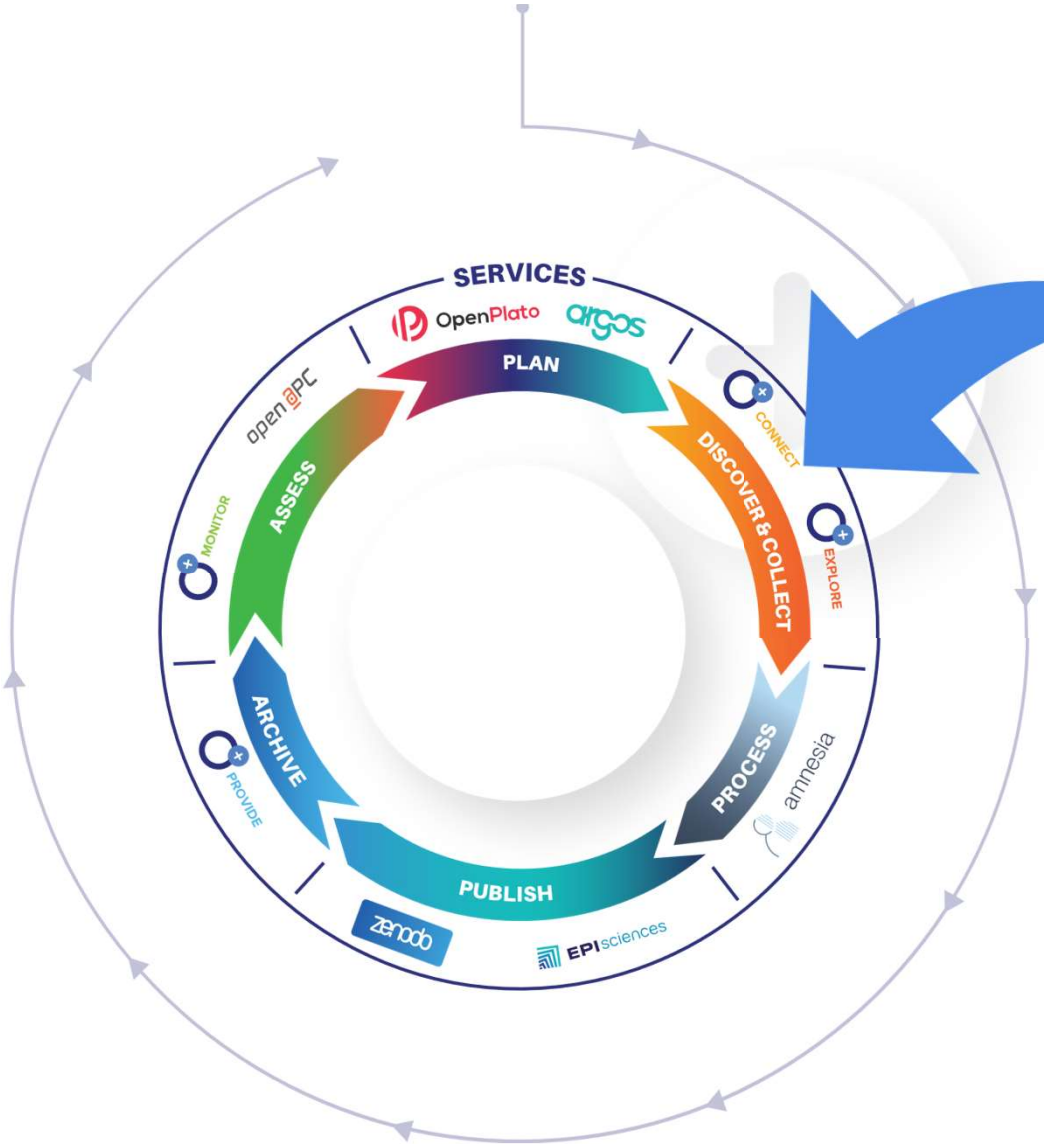
BEGIN WITH PLANNING DATA & SOFTWARE MANAGEMENT



Planning: Step up with data
Create the Data Management Plan

- A way to support and track Open Science from the onset
- **mandatory** by research funders.
- Emerging as an integral part of the research ecosystem
- with lots of **automations** to make it easy for everyone to use.

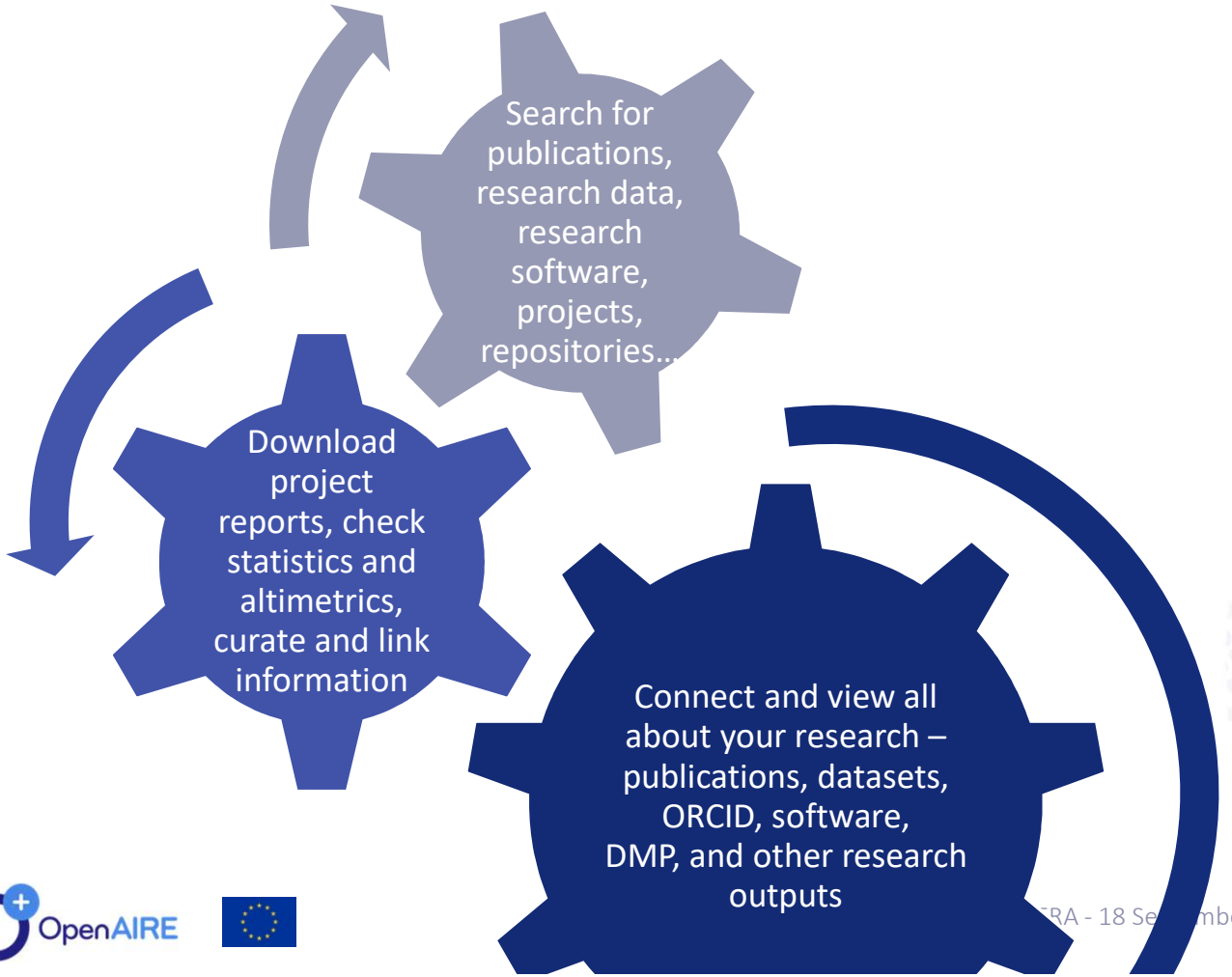
1. Use directly via Argos website **argos.openaire.eu**
2. Implement a **local installation** of Argos in your organisation (local premises)
3. Request a **white labelled** installation of Argos, including personalised support and training.

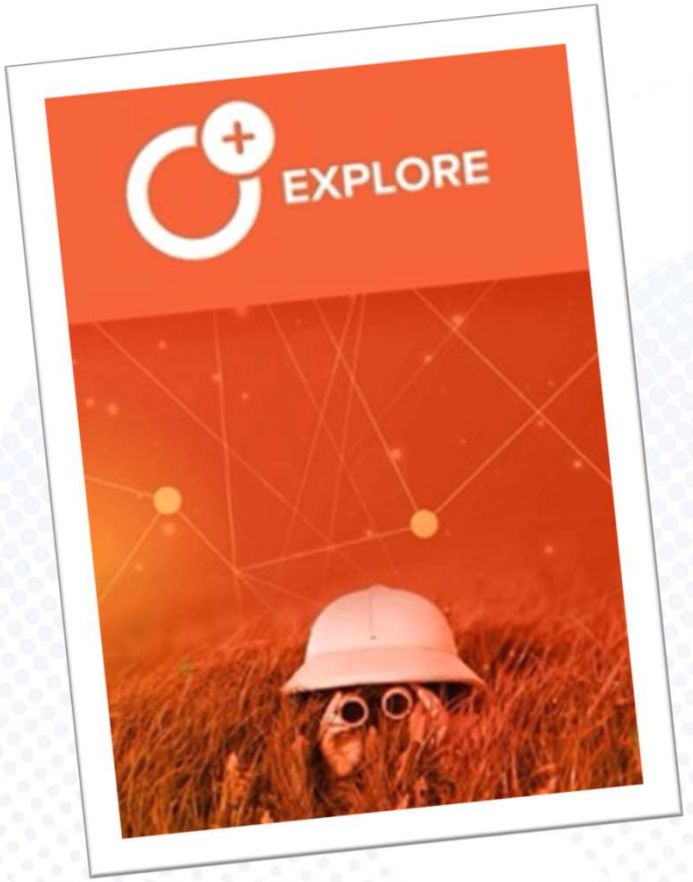


EXPLORE

SEARCH, LINK AND TELL MORE ABOUT THE RESEARCH PROJECTS

MORE than a search engine…

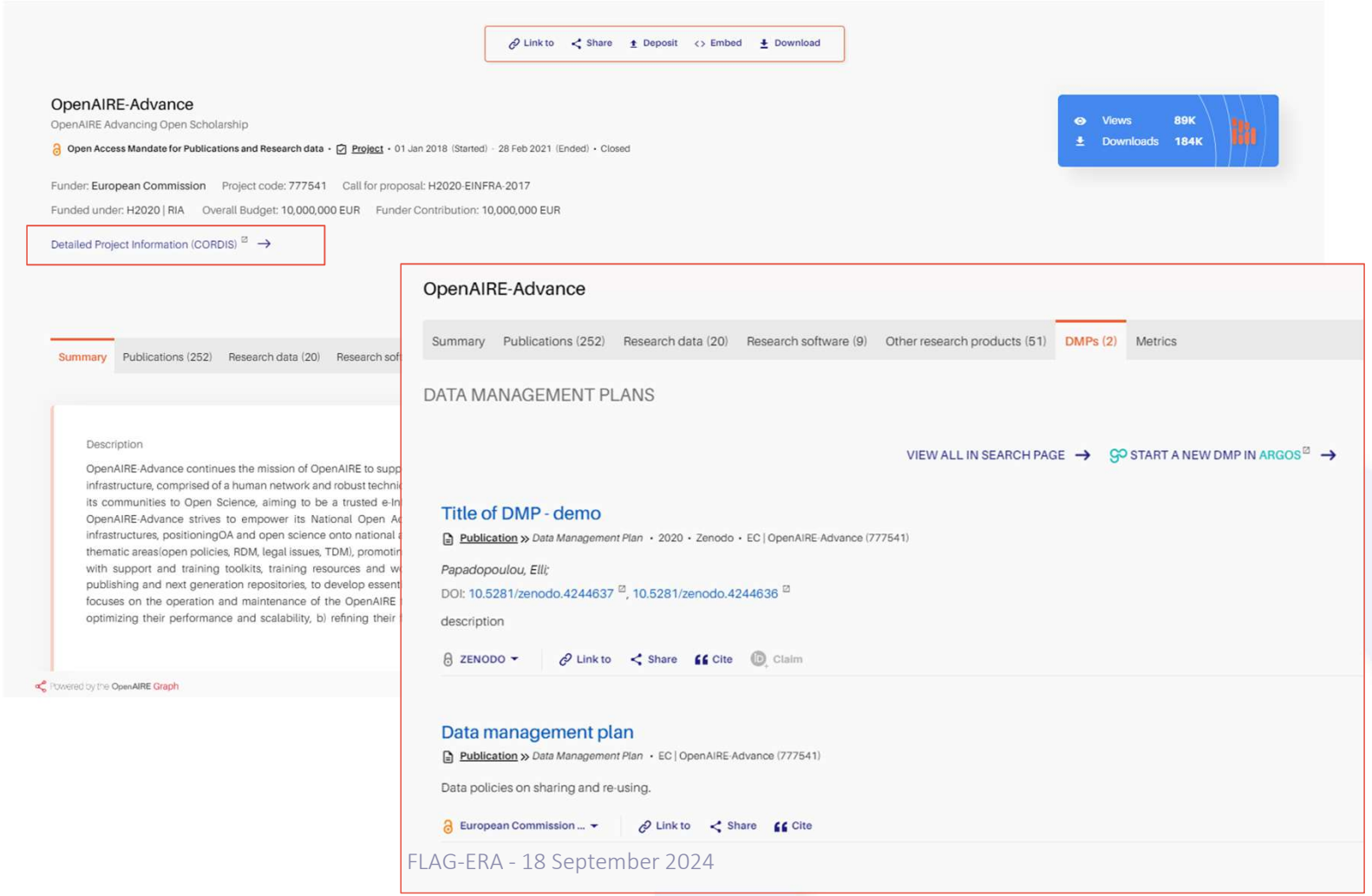




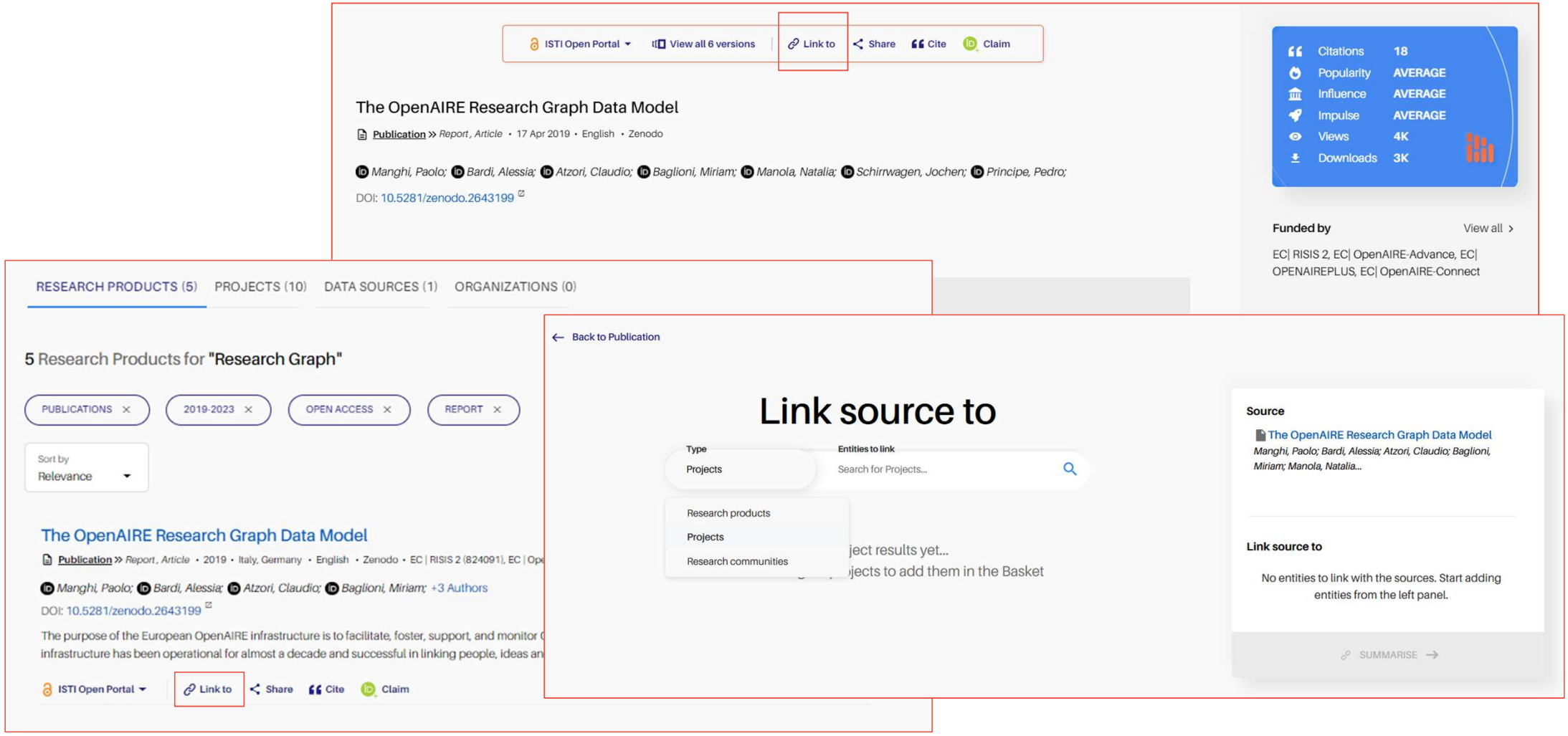
Detailed pages - Research product

Detailed pages - Project

- Tailored for each entity
- Overview
- Relationships
- Statistics & Metrics & impact-based indicators
- Actions



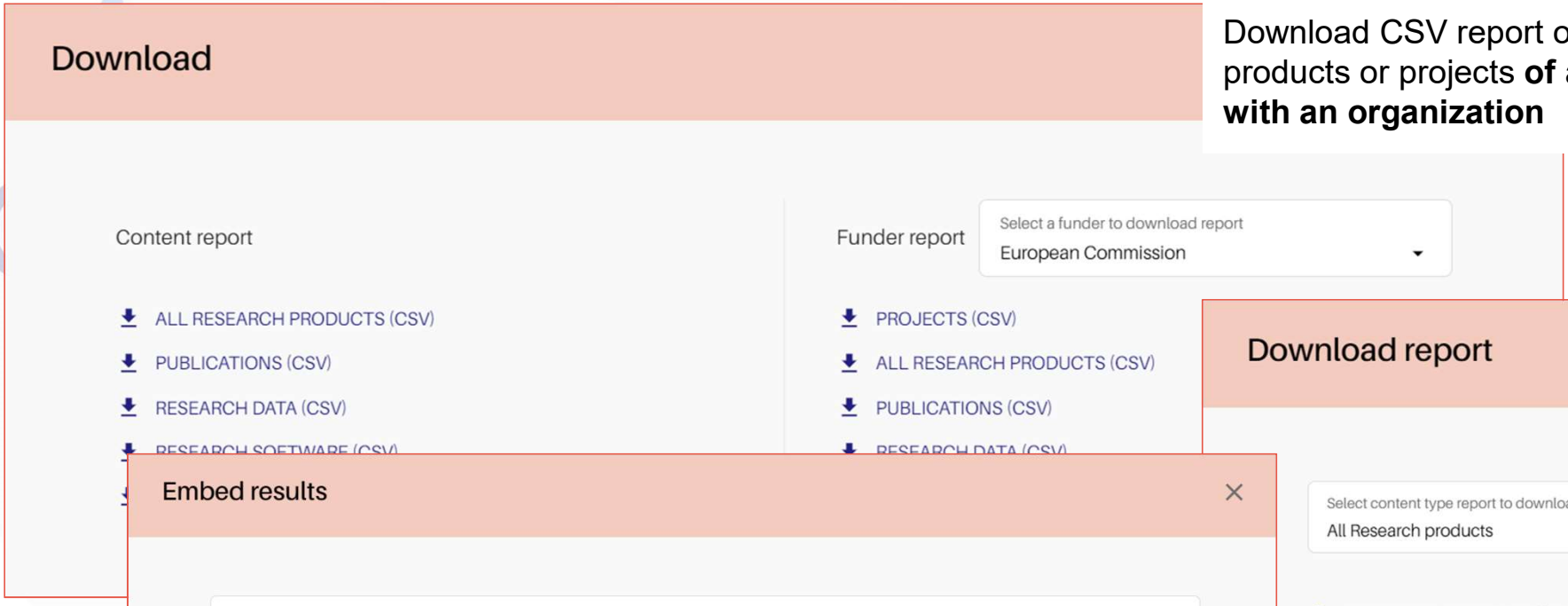
Linking with specific research product/ project

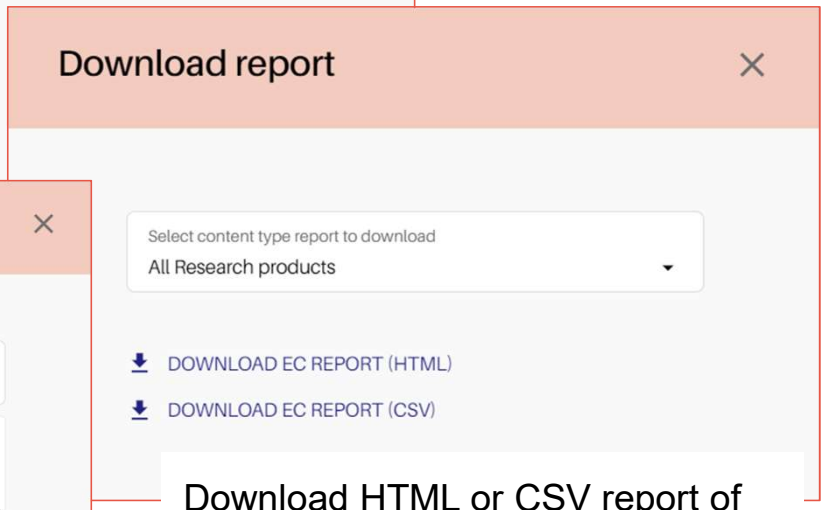


Reports & embed results

Download CSV report of the related research products **of an organization**

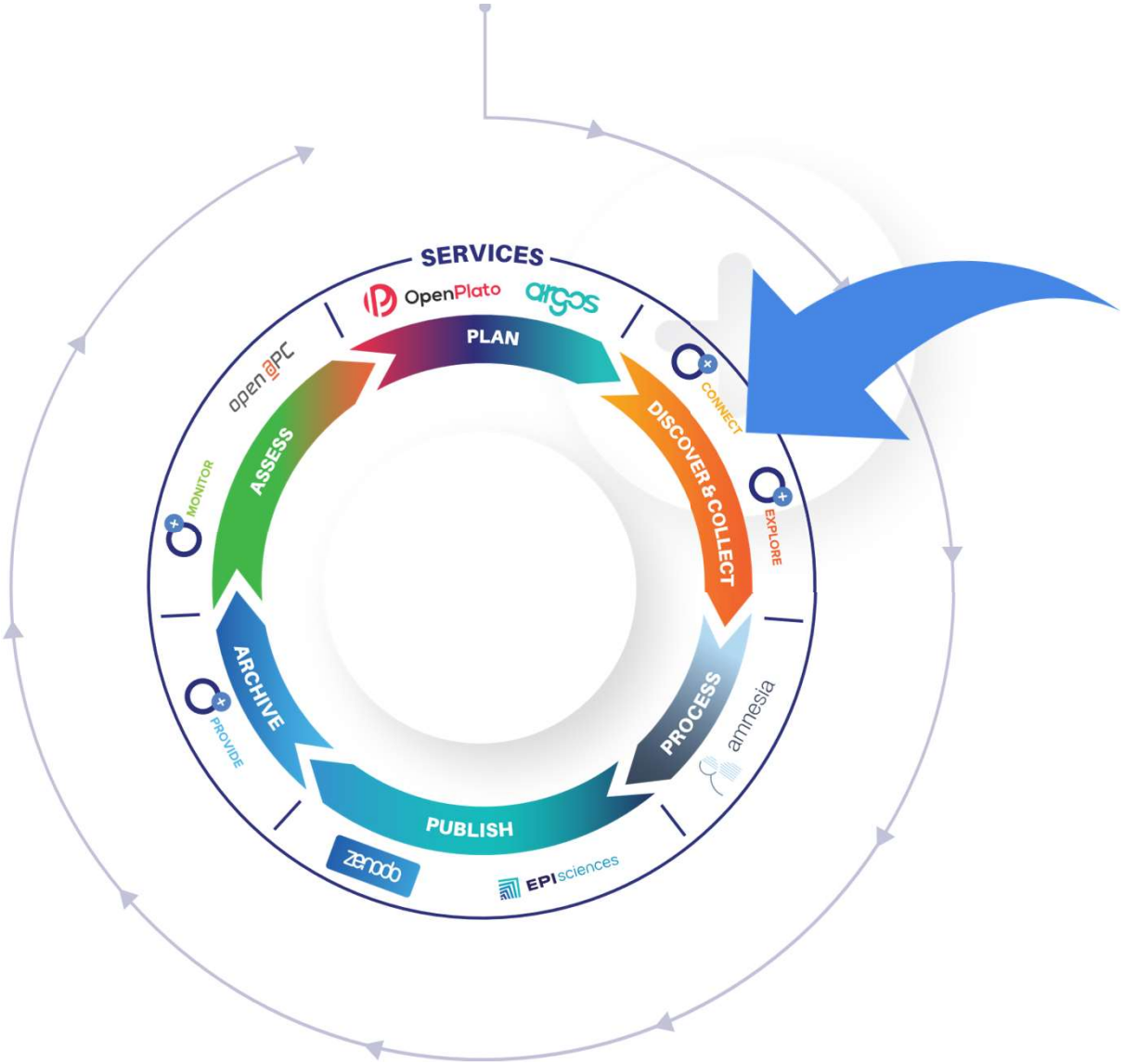
Download CSV report of the related research products or projects **of a funder, affiliated with an organization**





Download HTML or CSV report of the related research products **of a funder**

Embed the related research products **of a project** in your website



CONNECT

UNLOCK THE POTENTIAL FOR COLLABORATION – INTERNAL & EXTERNAL

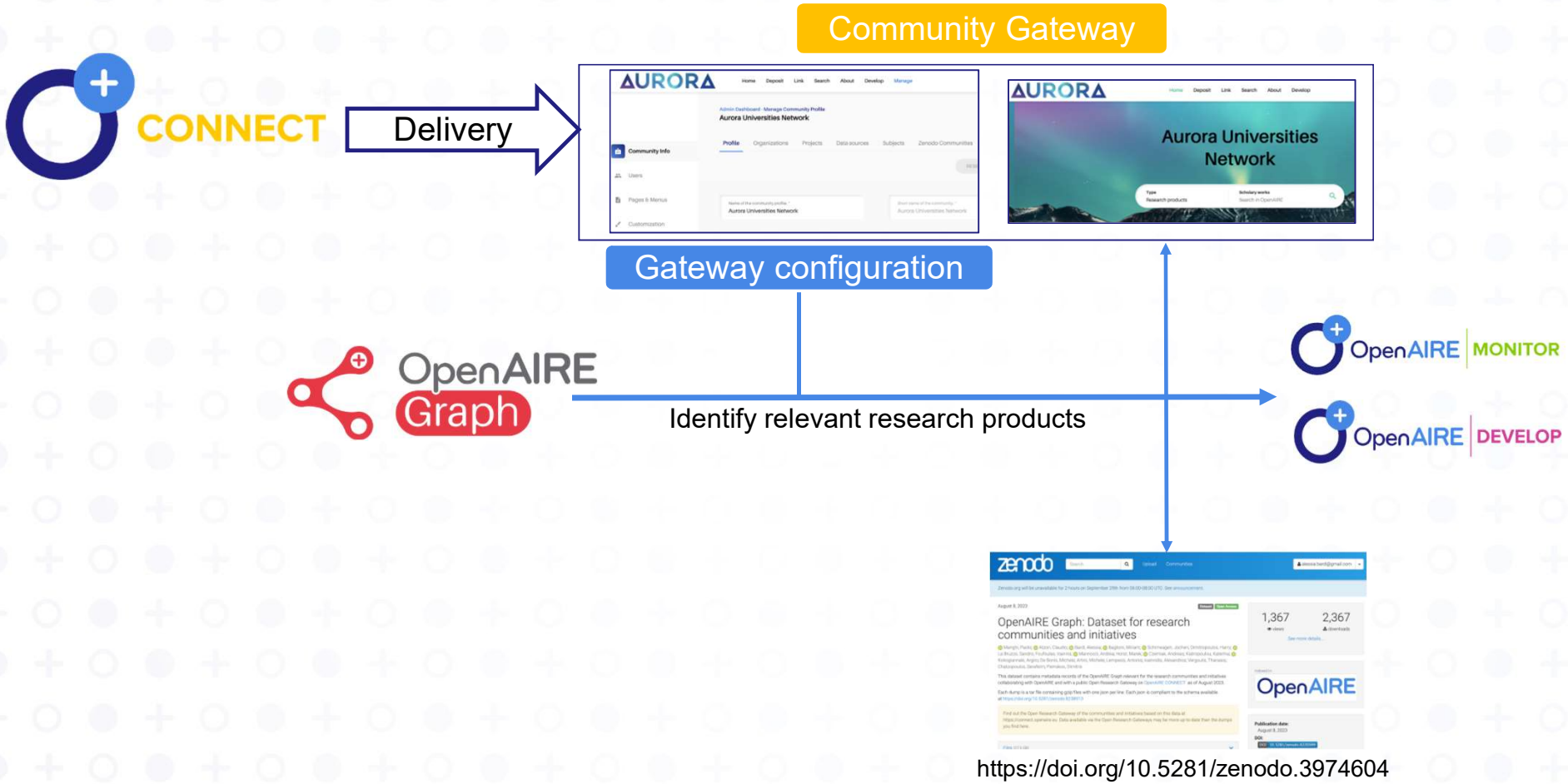
Enhancing discovery with a customised search engine

Create a **targeted gateway**, configurable to specific content based on

- repositories/journals of choice
- funding data
- enabled by automate selection process

- A secure place for communities to publish their results, in a guided manner, following OS practices
- Useful for **University Alliances and Thematic Communities**, to showcase their content under one branding
- Set up in **less than one month**

How Does CONNECT Work?



https://doi.org/10.5281/zenodo.3974604

Community Gateway Content Configuration

Gateway curators

Keywords	Discipline-specific subject terms to be found in the metadata
Projects	From the 85 funders integrated in OpenAIRE
Data sources	E.g. thematic repositories, archives and journals
Zenodo communities	With research products relevant for the field
Organisations	Organisations in the field: we look for them in the affiliations
Advanced criteria	Combine criteria in AND or OR, like in an advanced search

Researchers

Link

Link products in OpenAIRE, Crossref, Datacite, ORCID to the community, also in bulk

Propagation

If a community result is supplemented by another research product, then the latter is also added in the community gateway

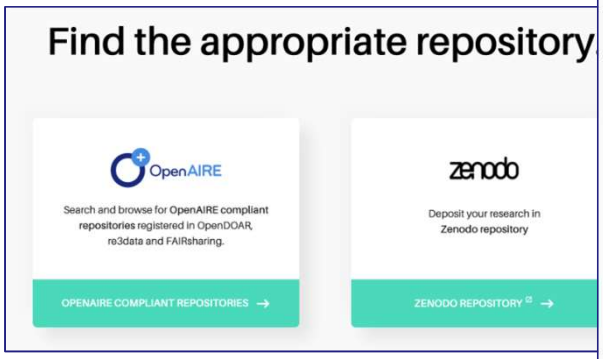
OpenAIRE algorithms

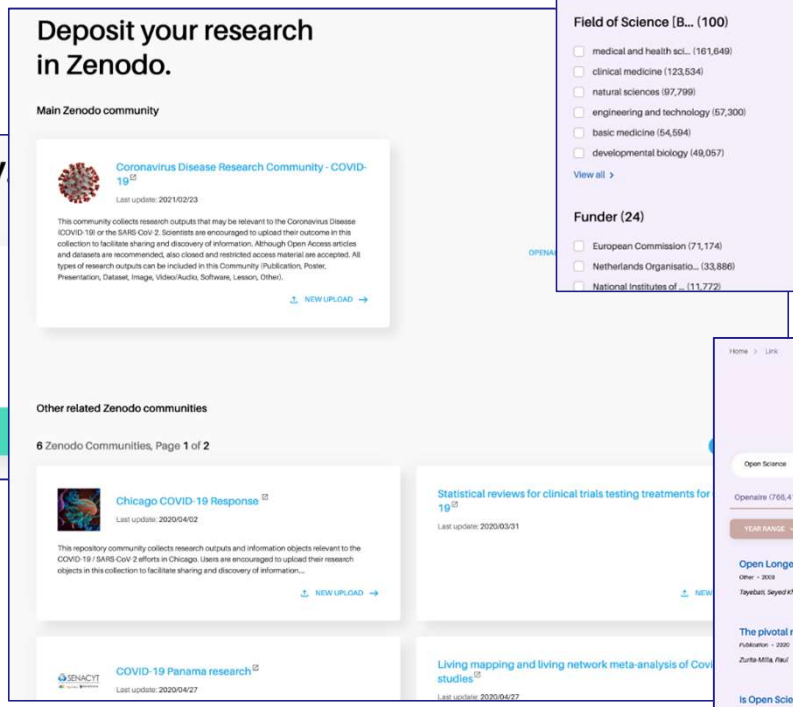
Full-text mining

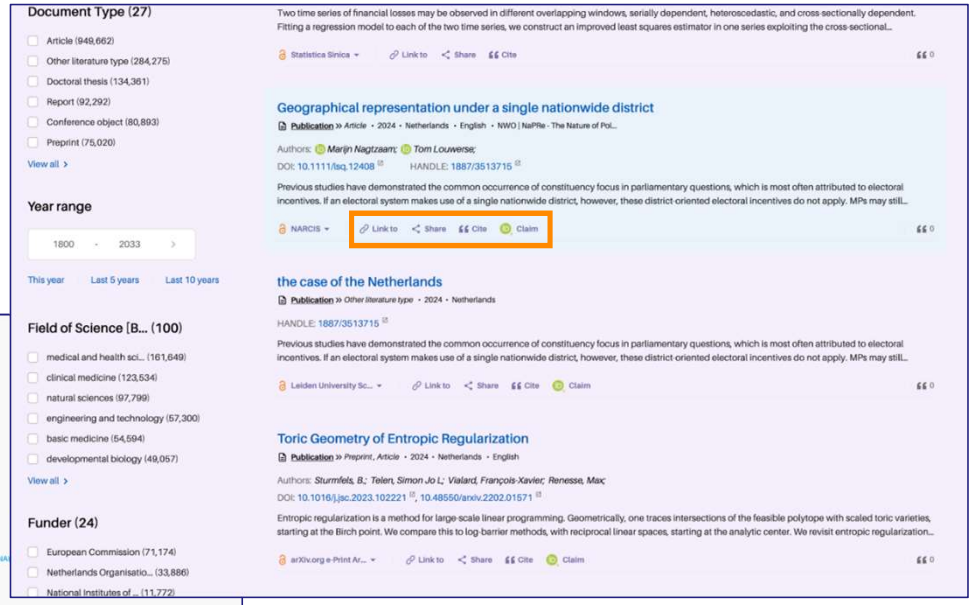
Links to projects
Affiliations
Document classification

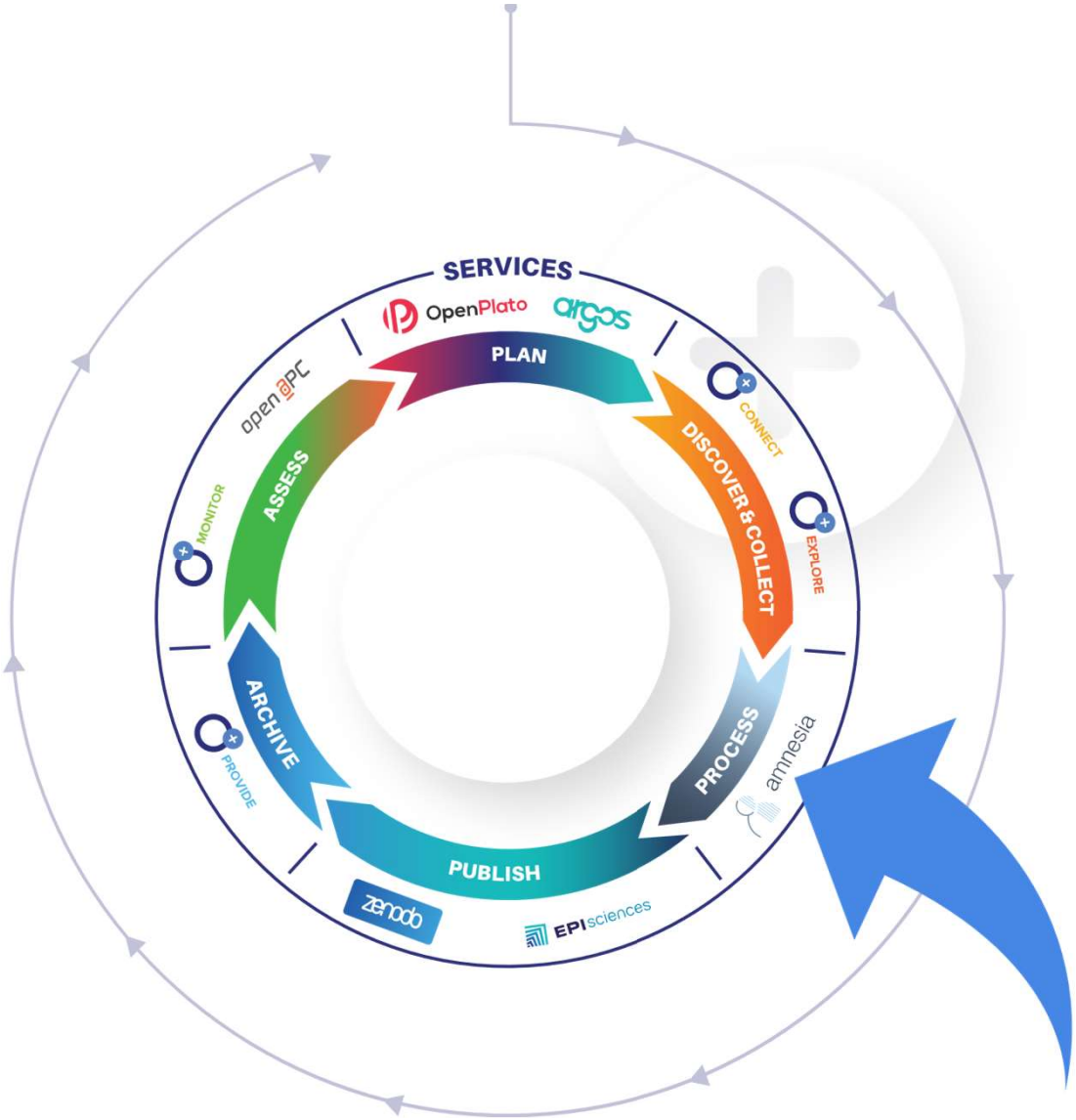
Facilitator of OS Practices

- Linking & claiming research
- Finding repositories
- Sharing research
- Open & FAIR metadata









amnesia

MANAGE
SENSITIVE DATA

This service is offered by Athena Research Center, Greece

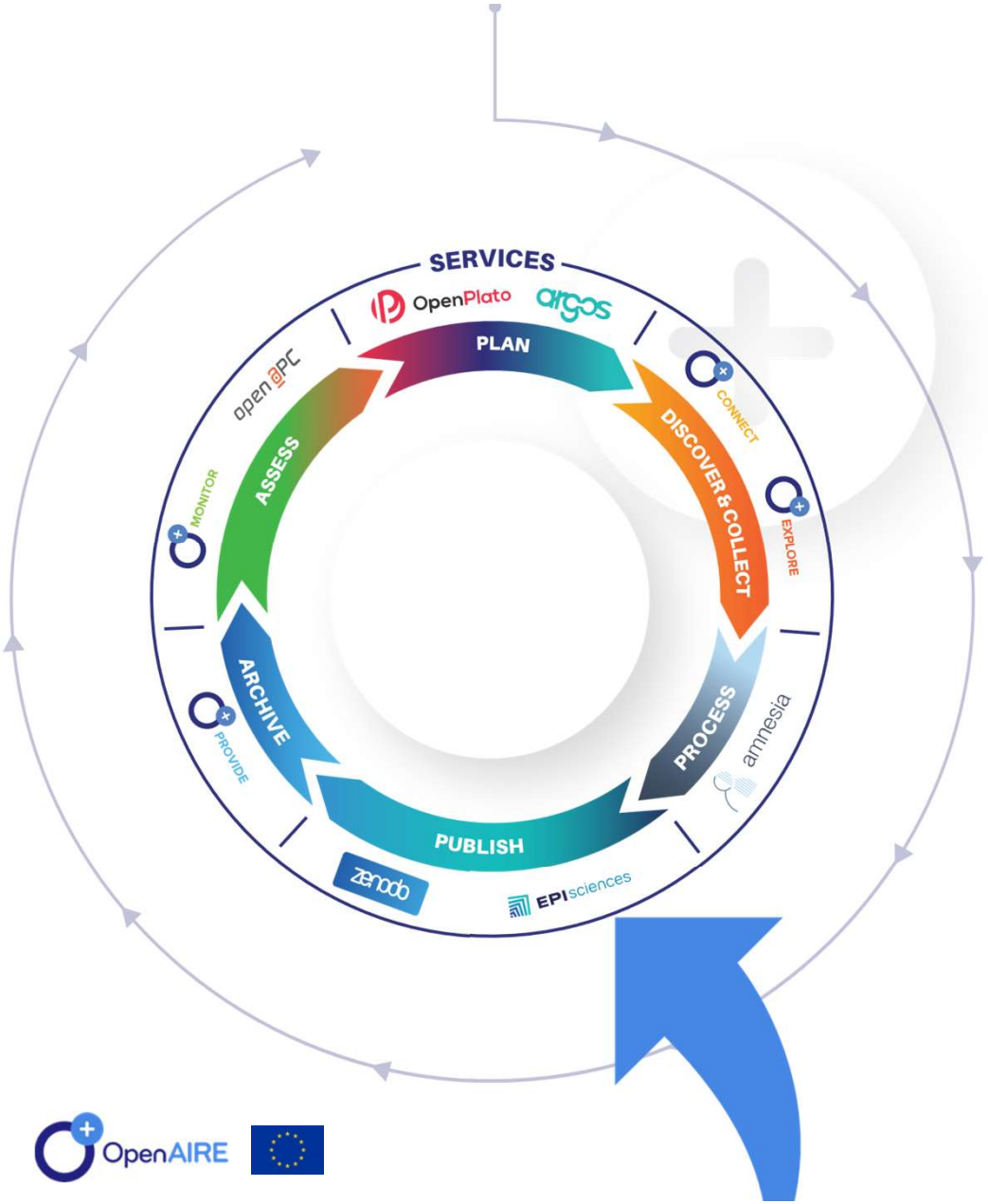
Anonymise datasets

Ensure whatever your researchers publish abides to the rules about **sensitive** data, **personal** data, and **GDPR** guidelines, might prevent their process and analysis.

WHAT YOU GET

State of the art anonymization algorithms, with **statistical guarantees** that the output **cannot** be **linked** to the original data!

Packaged to be embedded in **workflows:** before publishing (last step before submitting to repository) or before sharing proprietary data.



EPIsciences

CREATE OFF-THE-SHELF DIAMOND OA JOURNALS

This service is offered by CNRS, France

OpenAIRE

Publishing for free: creating your Open Access Journal with EPIsciences

- EPIsciences, is an **overlay journal** web platform where researchers publish preprints on **diamond open access** journals for **free**.
- EPIsciences journals are operating **on top of Open Access repositories** e.g., HAL, arXiv, Zenodo
- Researchers submit **preprints** and a complete publishing system with reviewers, editorial workflow, board and sharing process initiates.

HOW EPIsciences WORKS

Step 01

Submission

An author submits the preprint in an **open repository/overlay journal**.

Step 02

Reviewing

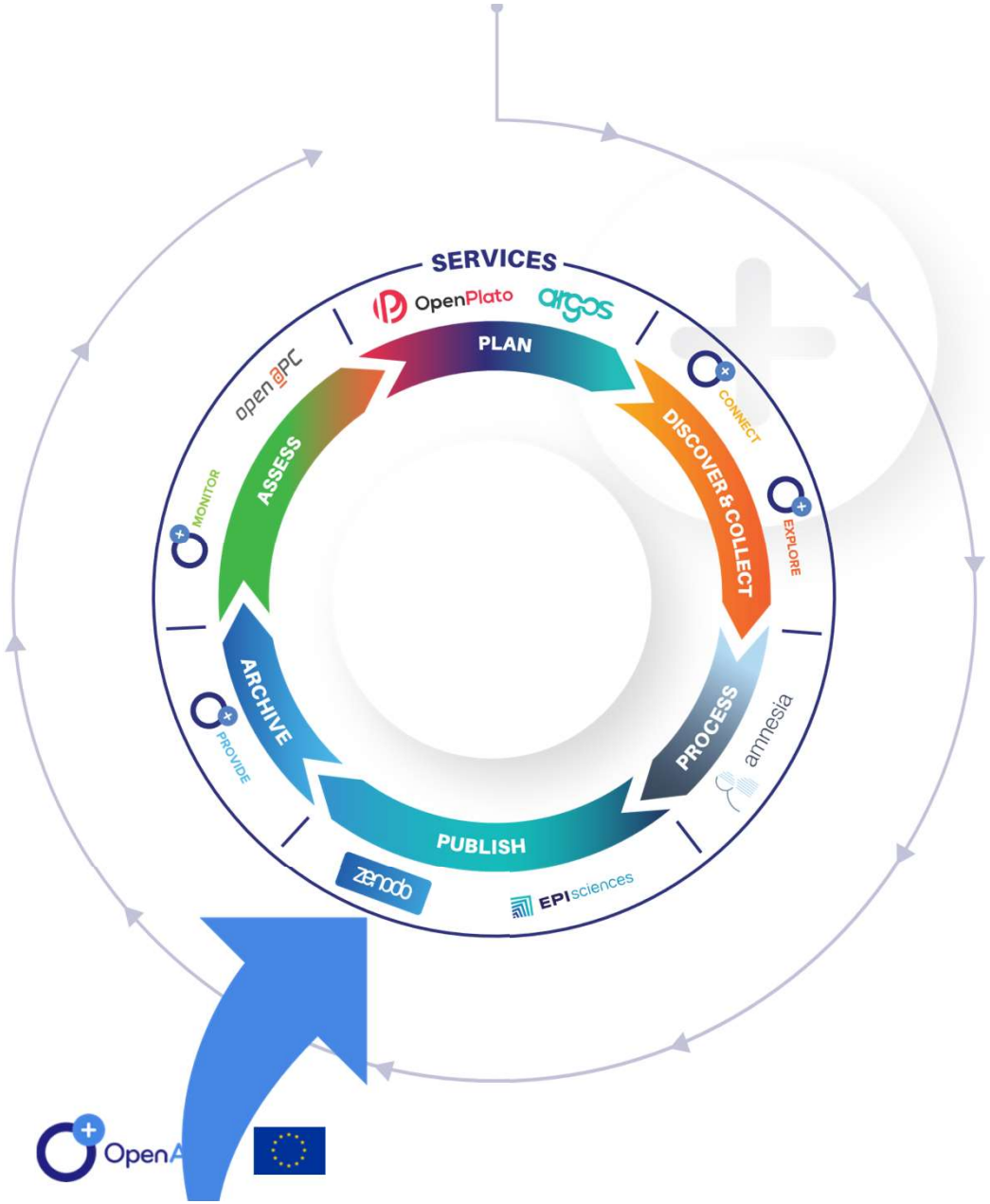
The **editorial board** examines the submission, **reviewers** follow up for **evaluation**.
Feedback is sent back to author. When a final version is accepted, it is **deposited** on an open repository.

Step 03

Publication

The article is published on journal's website and receives a **DOI**.
The article is **harvested** by **OpenAIRE** and is accessible on **EXPLORE**.

Discover more: https://www.episciences.org/

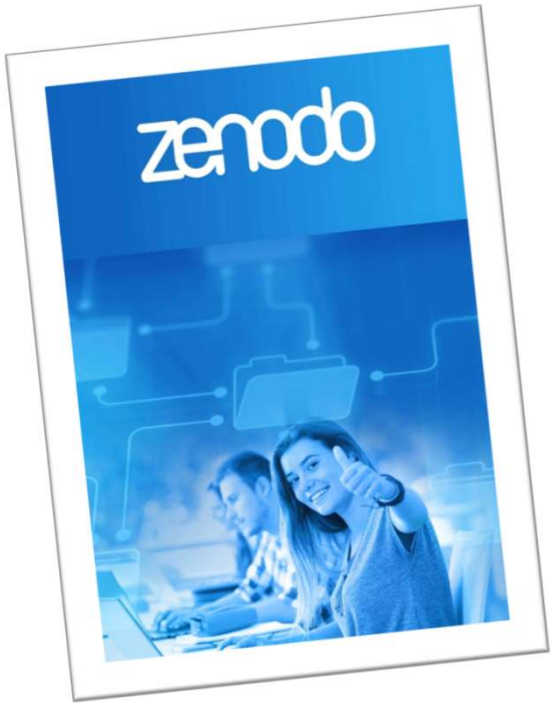


PUBLISH IN A TRUSTED ENVIRONMENT

WITH LATEST COMMUNITY STANDARDS

This service is offered by CERN, Switzerland

Publishing … Not only manuscripts!



- A **user-friendly** way to **share** research objects in just a few clicks
- Get a **DOI** for **citations**
- **Indexed** at real time be OpenAIRE
- Direct links to **Github** to archive snapshots of code and assign DOI
- Institutional **communities** (also linked to Connect)

1 — **2** — **3**

Upload

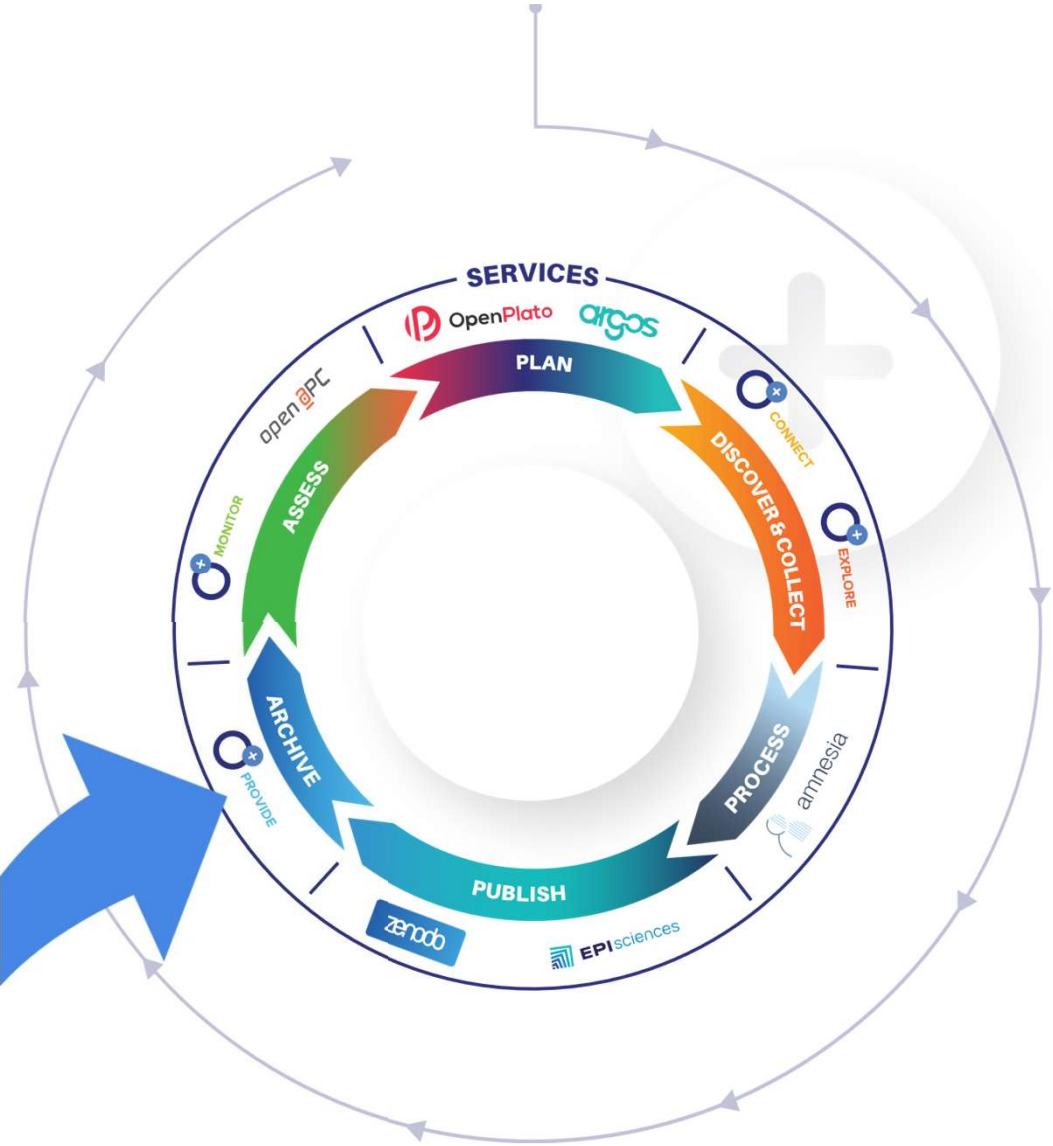
Visit: https://zenodo.org/
Upload up to **50GB** for each dataset
All file **formats** accepted

Describe

Provide rich but flexible **metadata**
Based on DataCite schema
Reserve DOI before publishing

Publish

Get a **citable DOI**
Many **export** formats



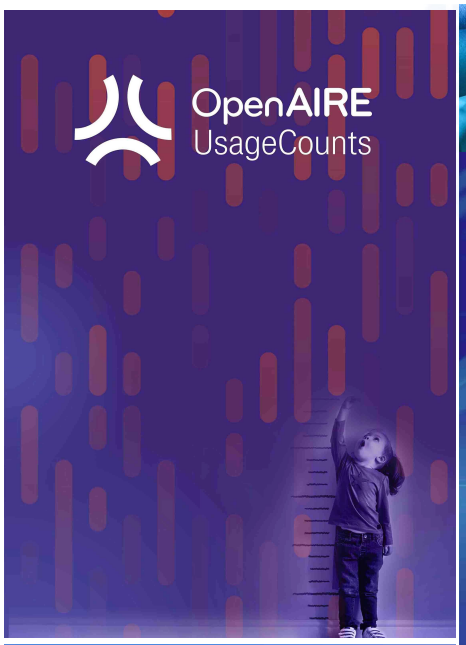
PROVIDE

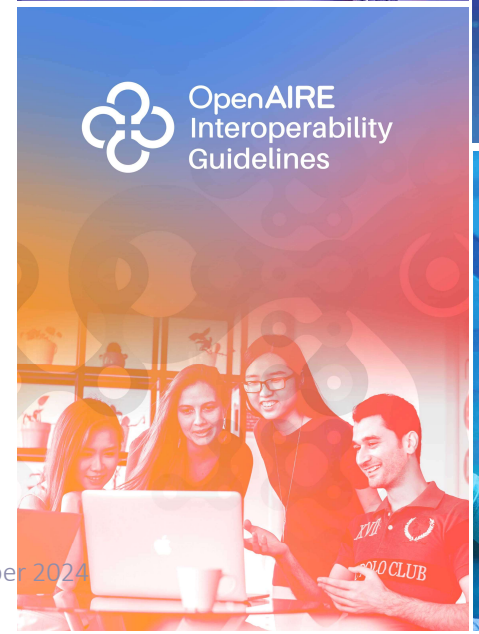
EXPOSE INSTITUTIONAL CONTENT TO EOSC AND THE WORLD IN A ONE-STOP-SHOP PLACE

OpenAIRE

More than **Archive**

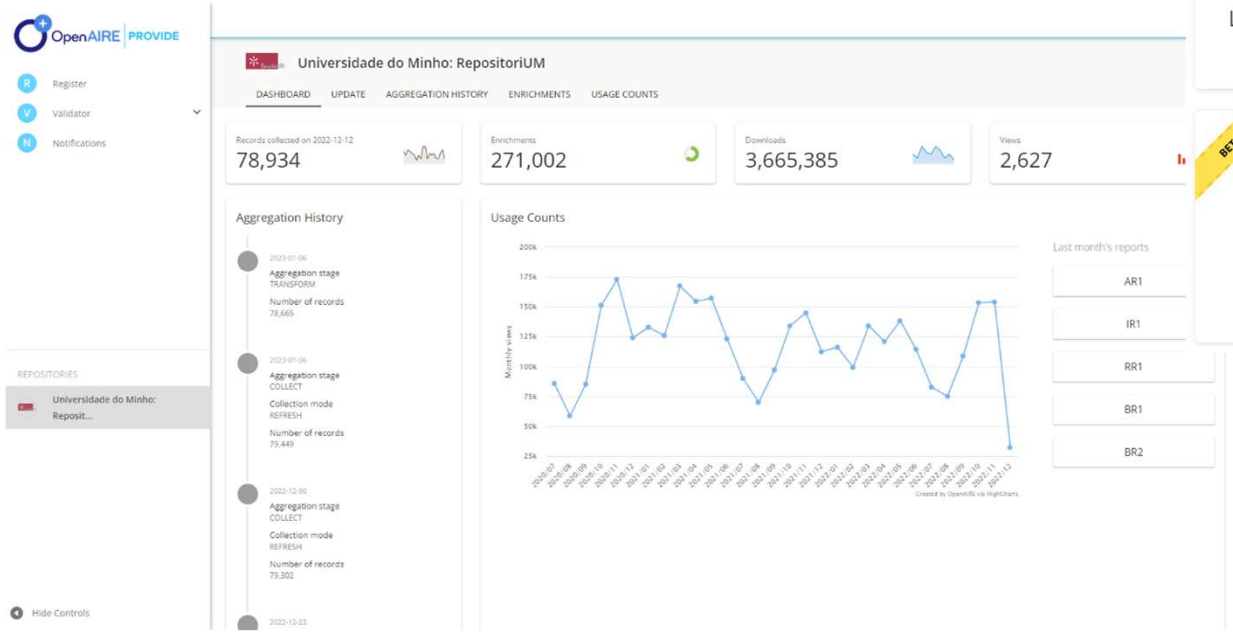
- Make your repository accessible using Open, FAIR, and standard (meta)data
- Connect the research content to the OpenAIRE Graph and EOSC
- Get notifications on metadata updates
- Reveal hidden value of your research through OpenAIRE Services



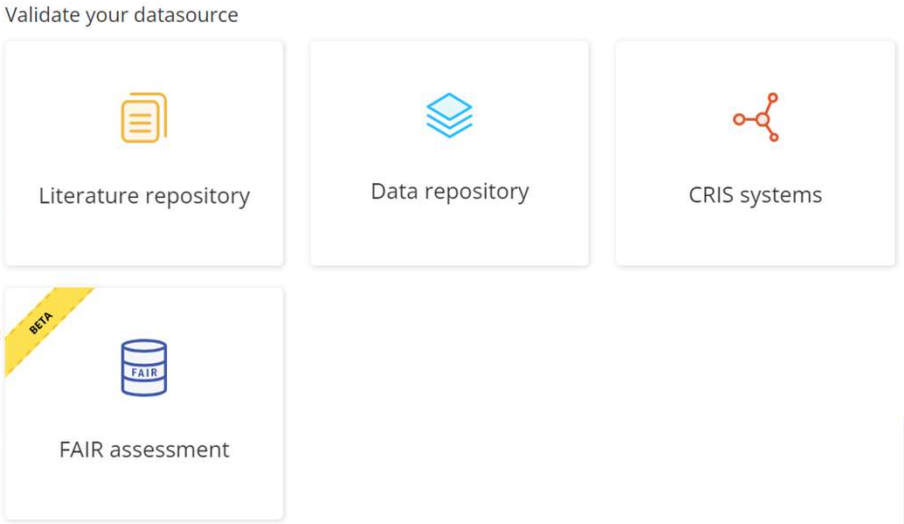


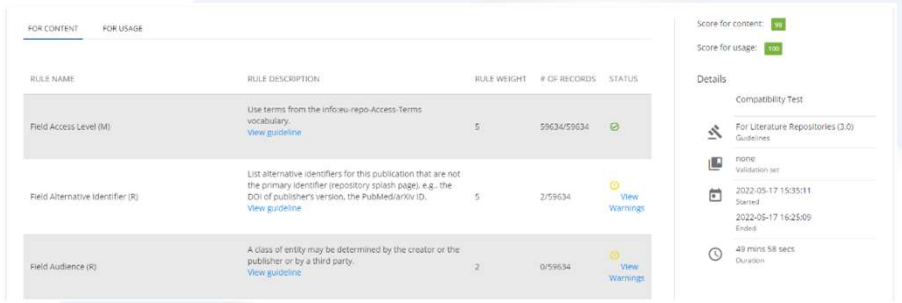
WHAT YOU GET

An admin dashboard to live view important information on your connected repository



Validator tool to test the compliance with OpenAIRE guidelines

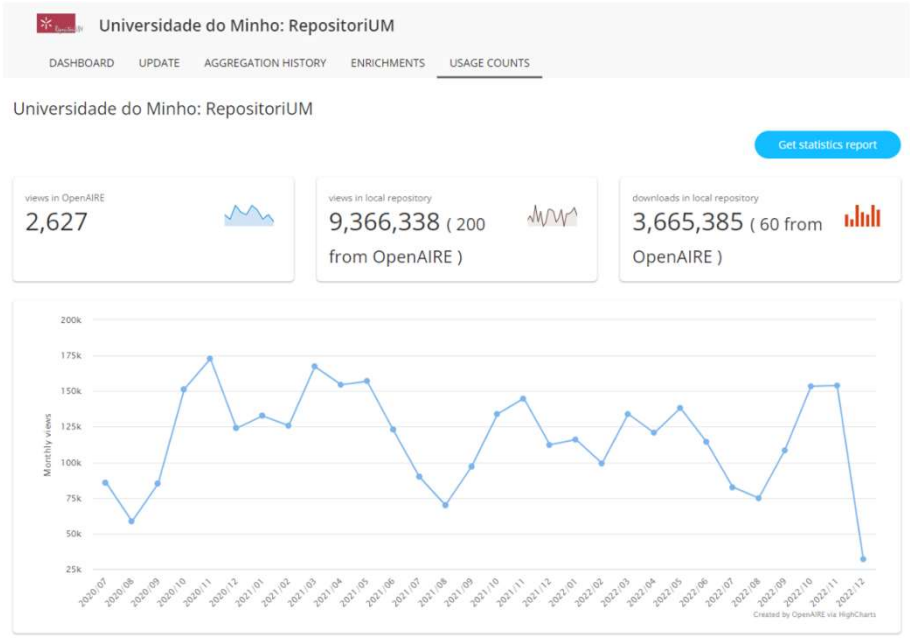




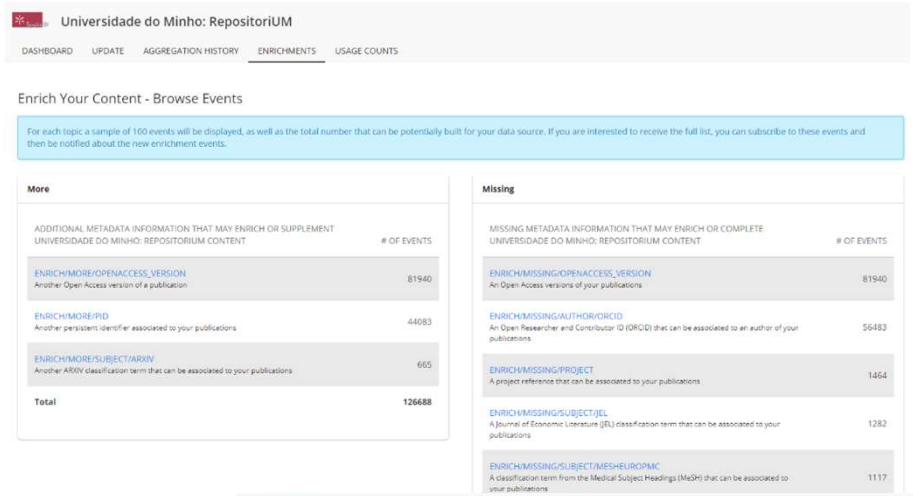
WHAT YOU GET

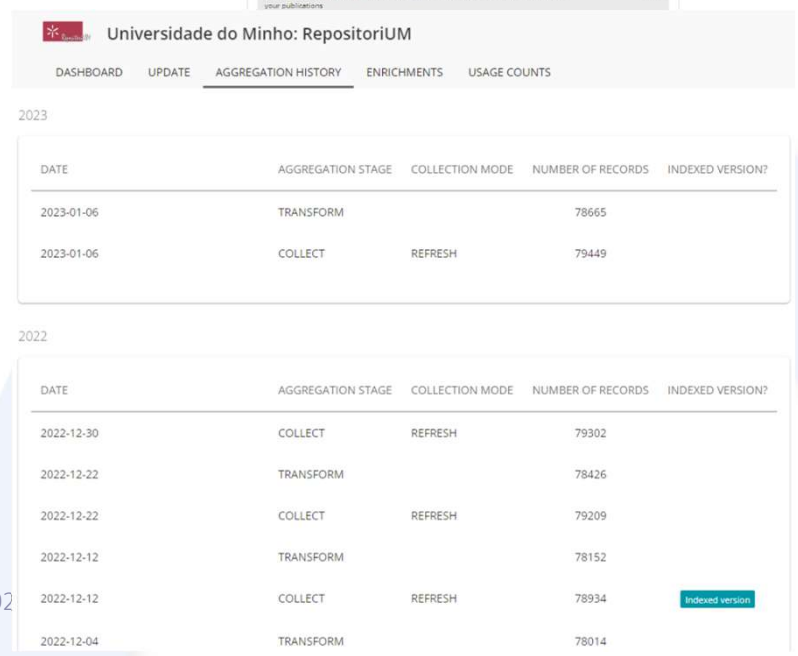
A customised portal for your repository manager, organisation, to:

Get detailed usage statistics reports
(using the COUNTER Code of practice directives)

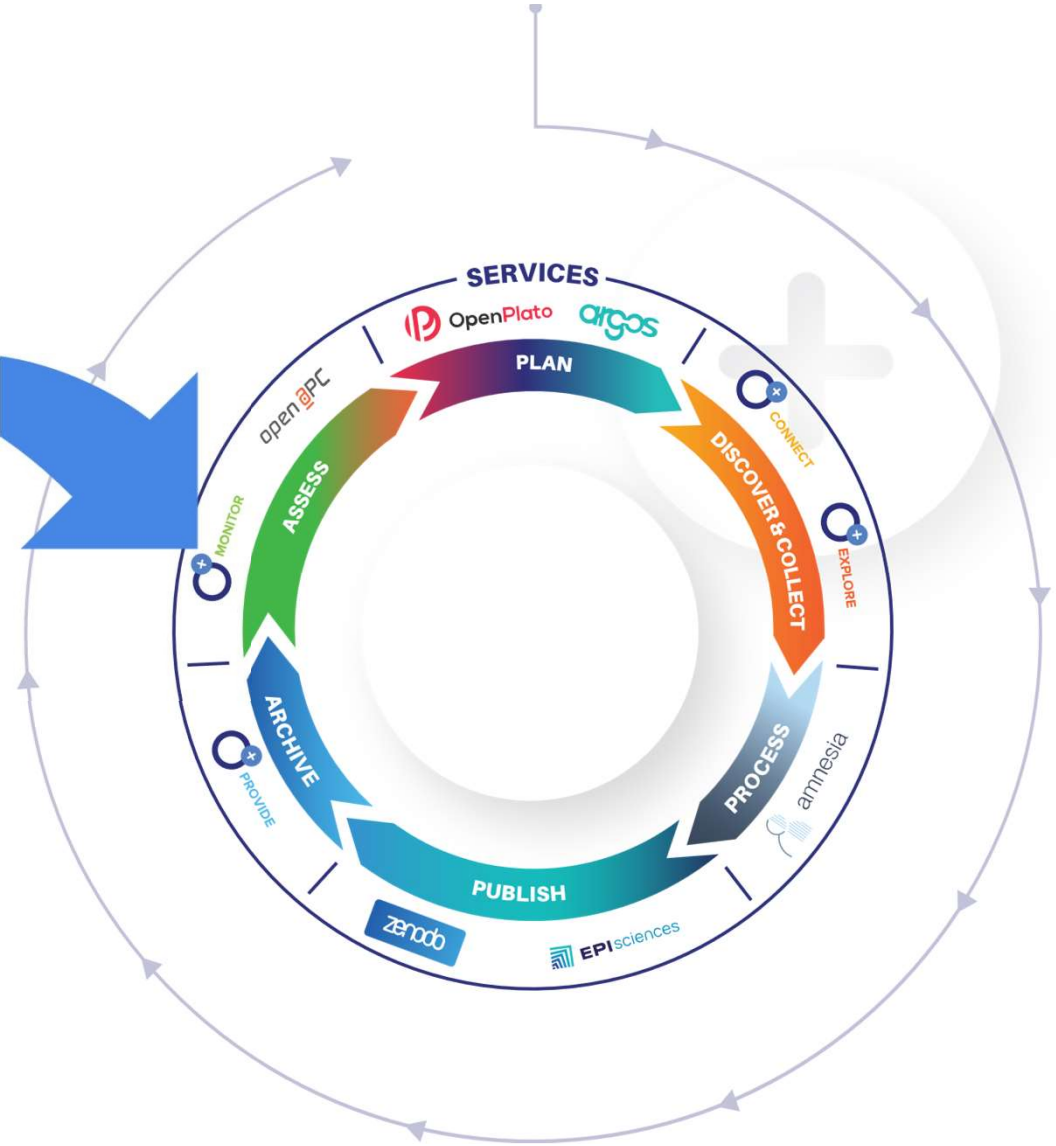


Get Metadata enrichments





Follow the metadata aggregation history



MONITOR

ASSESS RESEARCH OUTPUTS AND OPEN SCIENCE POLICIES

Monitor research activities, **outputs**, **collaborations**, **costs** and **impact**

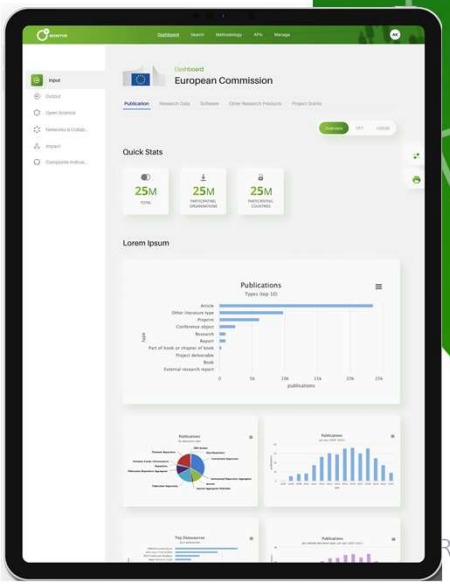
A **customizable** MONITOR **dashboard**, with numerous visualisations, by field of interest, research activity, etc. on your data, using research indicators

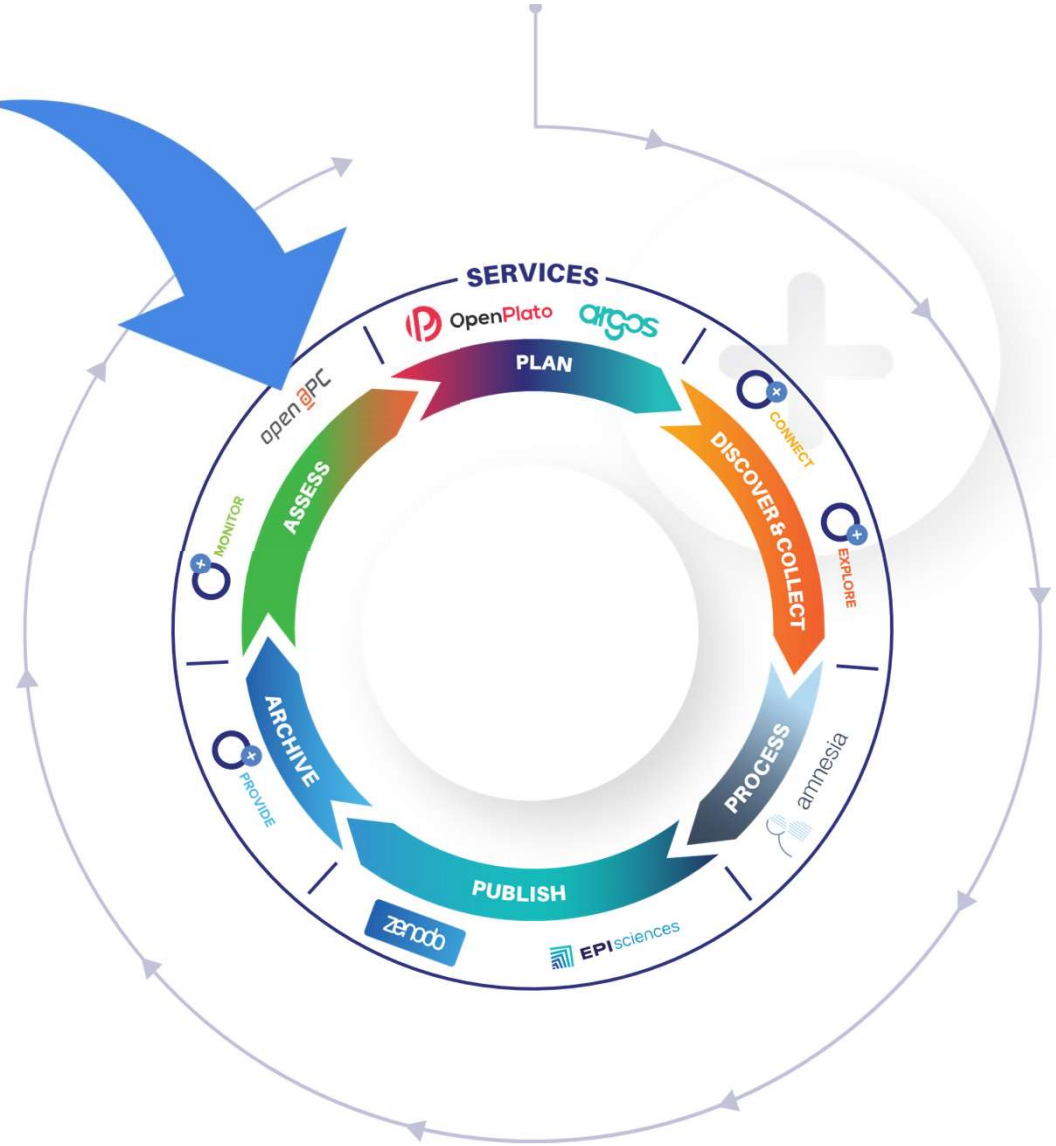
- **Public** indicators for external stakeholders – ***Showcasing***
- **Restricted** indicators for **team-members** – ***Internal Monitoring***
- **Private** indicators for “work in progress” - ***Reviewing***

https://monitor.openaire.eu/

Linked to funding data, classifications (FOS, SDGs), FAIR metrics, etc.

Supported by AI analysis to get more insights.





KNOW & SHARE COSTS OF PUBLISHING

KNOW YOUR INVESTMENTS

This service is offered by University of Bielefeld, Germany

Information on cost is power.
Share with others

OA has many flavours and gold is one of them

Share your APC costs to a **global database** and get back useful statistics and insights about your transactions and about the others.

OpenAPC **collects cost information** on Open Access publishing for research academic institutions by providing **in-depth analysis** on cost trends across publishers, e-journals and books or monographs.

Discover more: https://openapc.net/

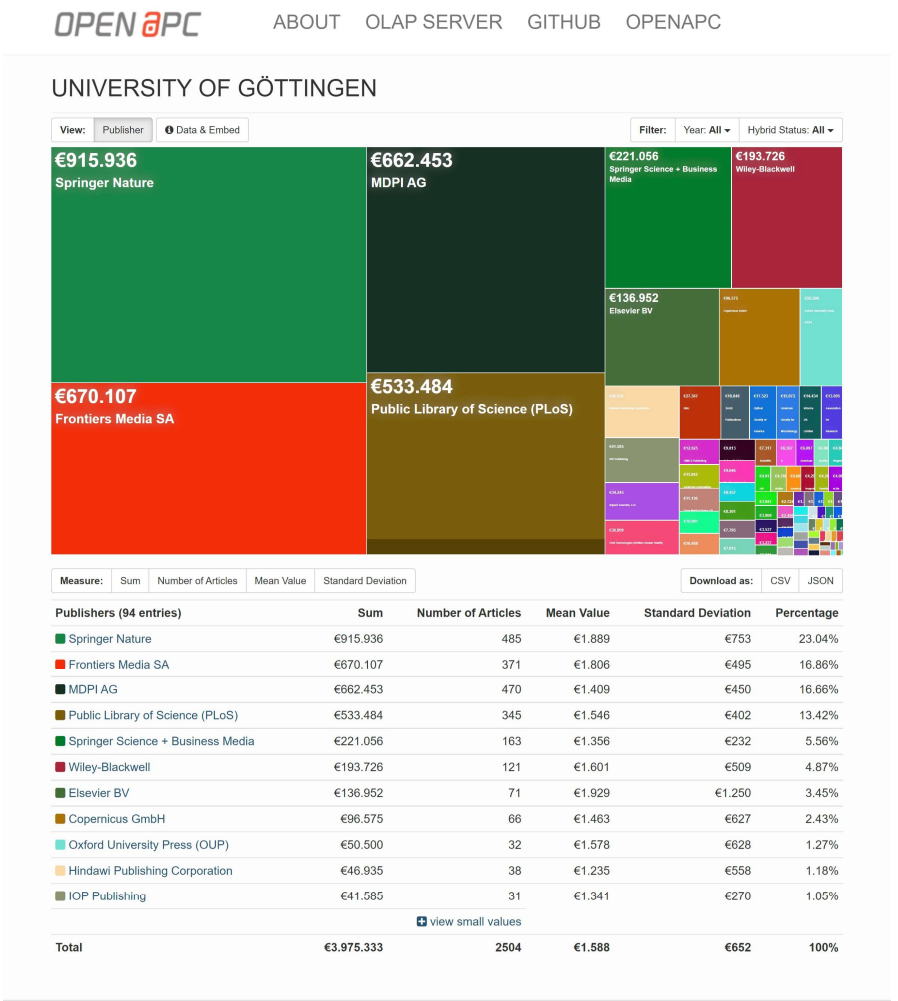
OpenAPC…

A **branded** website of your organisation, university

Comprehensive tree maps **graphics** with easy to view **information**: costs per publisher, with filters per year and publication status

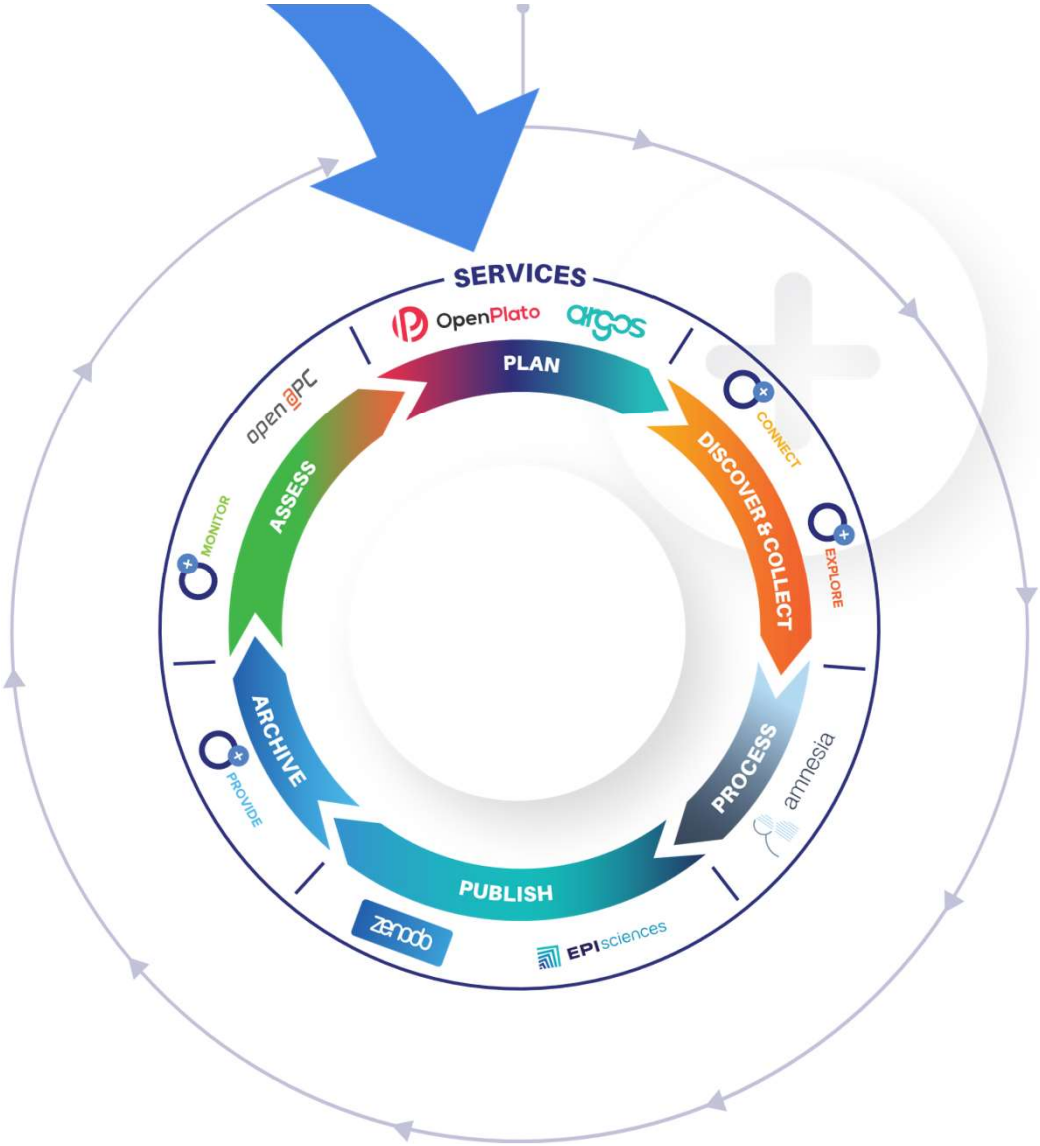
Statistical values: No of publishers; Sum of money spent per publisher; Number of Articles; Mean value; Standard Deviation; Percentage

Download data as CSV, or JSON format or embed data on html pages



Publishers (94 entries)	Sum	Number of Articles	Mean Value	Standard Deviation	Percentage
Springer Nature	€915.936	485	€1.889	€753	23.04%
Frontiers Media SA	€670.107	371	€1.806	€495	16.86%
MDPI AG	€662.453	470	€1.409	€450	16.66%
Public Library of Science (PLoS)	€533.484	345	€1.546	€402	13.42%
Springer Science + Business Media	€221.056	163	€1.356	€232	5.56%
Wiley-Blackwell	€193.726	121	€1.601	€509	4.87%
Elsevier BV	€136.952	71	€1.929	€1.250	3.45%
Copernicus GmbH	€96.575	66	€1.463	€627	2.43%
Oxford University Press (OUP)	€50.500	32	€1.578	€628	1.27%
Hindawi Publishing Corporation	€46.935	38	€1.235	€558	1.18%
IOP Publishing	€41.585	31	€1.341	€270	1.05%
		view small values			
Total	**€3.975.333**	**2504**	**€1.588**	**€652**	**100%**

University of Göttingen example: https://treemaps.openapc.net/apcdata/goettingen-u/



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Upskill your students and staff

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- OpenAIRE **bootcamps**: Train your staff with the experts
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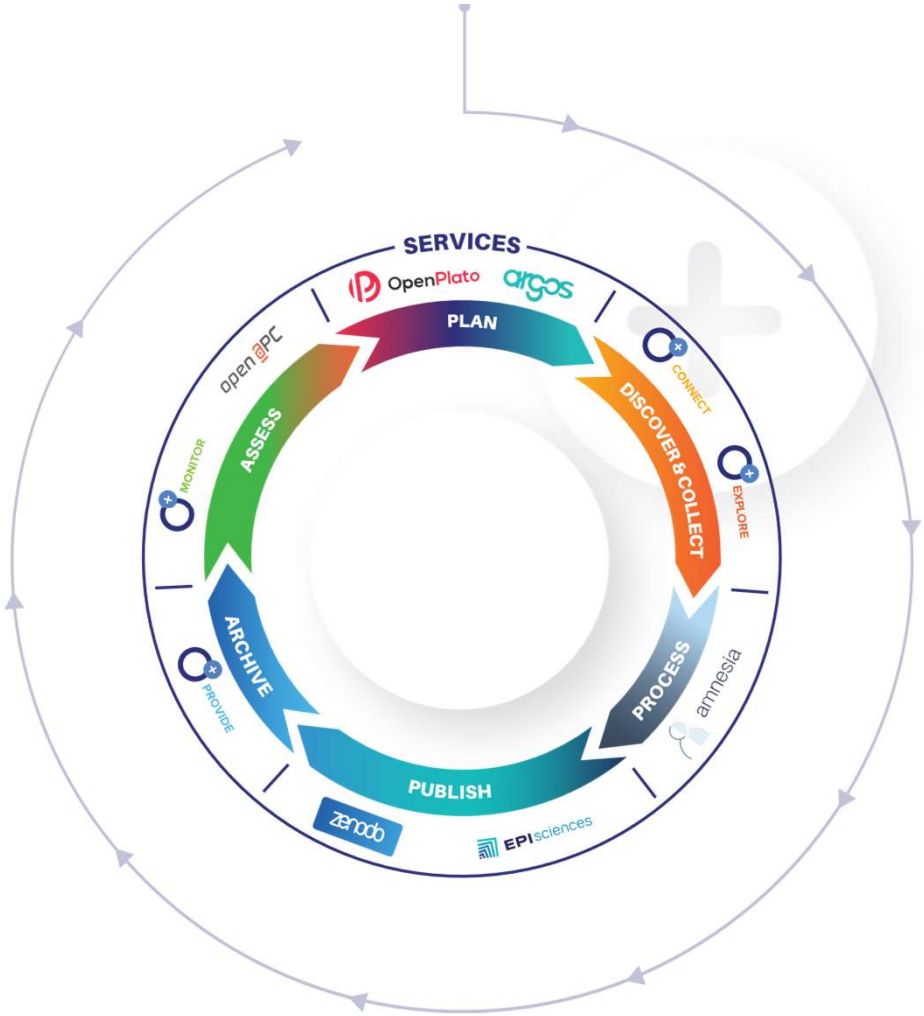
www.openaire.eu



Q&A

Contact us for personalized consult:

- giulia.malaguarnera@openaire.eu
- helpdesk@openaire.eu

Thanks for taking the journey with us!