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ISTITUTO NAZIONALE DI OTTICA
CONSIGLIO NAZIONALE DELLE RICERCHE

Allies of light

Innovazione digitale per monitorare e valorizzare la ricerca nelle scienze del patrimonio: le piattaforme OpenAIRE Connect e Monitor sull’Heritage Science

Laura Benassi

GenOA week, CNR Area della Ricerca di Genova, 7.11.2024

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Sommario

1. **Introduzione**

Progetti infrastrutturali nelle scienze del patrimonio

2. **Soluzioni digitali**

per migliorare la gestione e la visibilità della ricerca nel settore delle scienze del patrimonio

3. **OpenAIRE Connect**

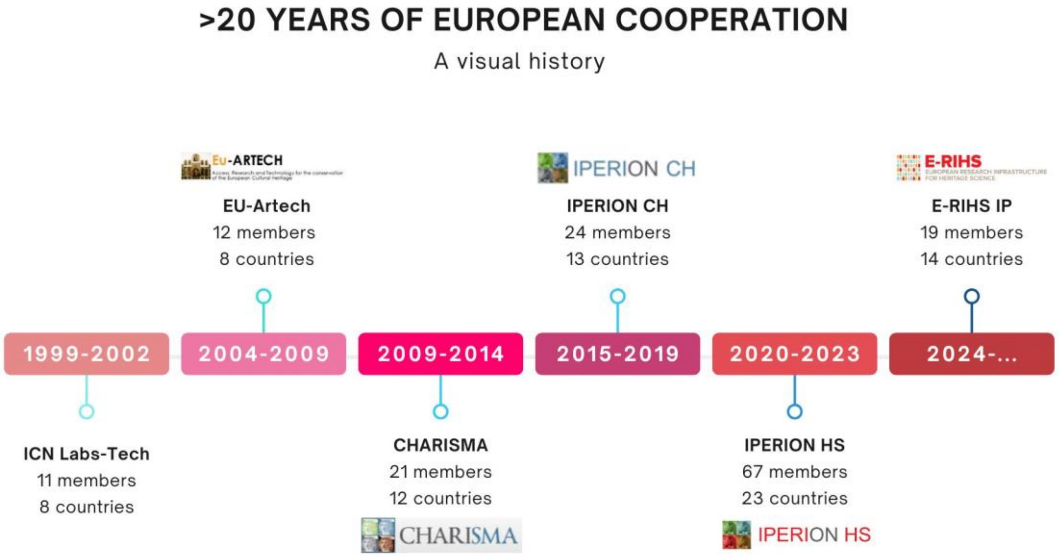
I due gateway IPERION HS e Heritage Science

4. **OpenAIRE Monitor**

Le dashboard IPERION HS e Heritage Science

1. Introduzione: i progetti infrastrutturali nelle scienze del patrimonio

Progetti infrastrutturali nel settore delle scienze del patrimonio



>20 YEARS OF EUROPEAN COOPERATION

A visual history

1999-2002 — **ICN Labs-Tech**
11 members
8 countries

2004-2009 — **EU-Artech**
12 members
8 countries

2009-2014 — **CHARISMA**
21 members
12 countries

2015-2019 — **IPERION CH**
24 members
13 countries

2020-2023 — **IPERION HS**
67 members
23 countries

2024-... — **E-RIHS IP**
19 members
14 countries

IPERION HS

IPERION HS

Type of action

H2020-INFRAIA-2019-1

Partners

23 countries, **67** members

Duration

48 months (2020 -2024)

EU Contribution

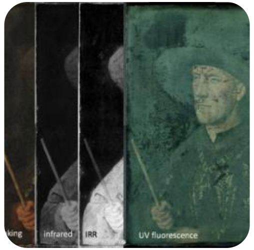
€ 6.162.711,12

Website

www.iperionhs.eu

IPERION HS is a project funded by
the European Commission
under Grant Agreement n.871034

- **Goal:** promoting heritage science and reach new communities
- It is an **Integrating Activity** for a distributed pan-European research infrastructure
- It offers a **unified scientific approach** to the most advanced European instruments for the analysis, interpretation, preservation, documentation and management of heritage objects.
- **3 platforms** (scientific archives, fixed laboratories and mobile laboratories) to offer **cross-border access** to an impressively wide range of high-level scientific instruments, methodologies, data and tools
- **HS Academy**



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E-RIHS Implementation Phase (IP)

E-RIHS
EUROPEAN RESEARCH INFRASTRUCTURE
FOR HERITAGE SCIENCE

Type of action

HORIZON-INFRA-2021-DEV-02

Partners

14 countries, **19** members

Duration

39 months (2022 -2024)

EU Contribution

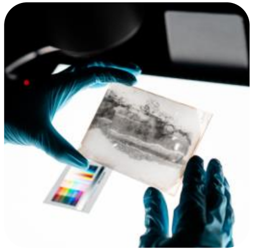
€ 1.698.316,25

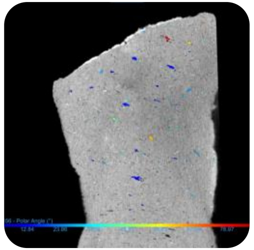
Website

www.e-rihs.eu

Funded by
the European Union

- The mission is to **deliver integrated access to interdisciplinary expertise, data and cutting-edge technologies.**
- It will integrate world-leading European facilities into an organisation with a clear identity and a strong cohesive role within the global heritage science community.
- The E-RIHS IP project will bring together representatives of national nodes of countries that expressed their willingness to **support the establishment of the European Research Infrastructure Consortium (ERIC).**





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E-RIHS

E-RIHS diventerà un’entità legale stabile nella forma di un ERIC (European Research Infrastructure Consortium) alla fine del 2024 con sede a Firenze, alla Manifattura Tabacchi.

COME DISCOVER MANIFATTURA TABACCHI

The contemporary district in Florence where you can live, work, relax, and have fun. Shops, ateliers, restaurants, cafes and events centered around art,

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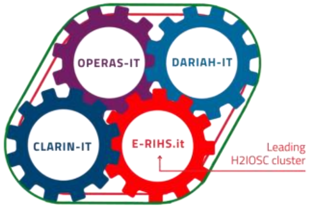
H2IOSC

- Il nodo Italiano di **E-RIHS** ha ricevuto finanziamenti PNRR per consolidare le sue risorse digitali e accelerare la trasformazione digitale nelle scienze umane e nei vari settori del patrimonio culturale. Sta partecipando al Progetto H2IOSC, insieme ad altre infrastrutture di ricerca: DARIAH, CLARIN, OPERAS

H²IOSC
Humanities and cultural Heritage Italian Open Science Cloud

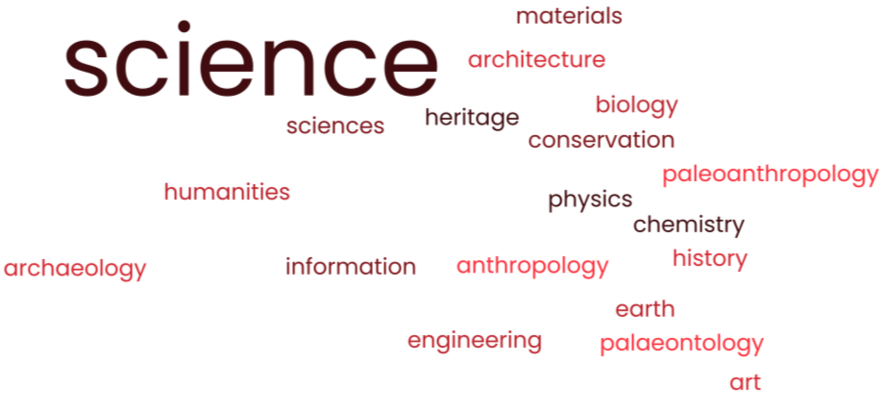
④ FEDERATED RIs



ESFRI SOCIAL AND CULTURAL INNOVATION

H2IOSC Project - Humanities and cultural Heritage Italian Open Science Cloud funded by the European Union – NextGenerationEU – NRRP M4C2 - Project code IR0000029 - CUP B63C22000730005.
https://www.h2iosc.cnr.it/

Scienze del patrimonio: punti di forza e criticità


materials
science
architecture
biology
sciences
heritage
conservation
paleoanthropology
humanities
physics
chemistry
archaeology
information
anthropology
history
earth
engineering
palaeontology
art

- La comunità che opera nel settore delle scienze del patrimonio è una comunità fortemente multidisciplinare: ricca e complessa…
- Mancano un’ontologia comune e vocabolari condivisi: I ricercatori parlano linguaggi diversi e usano metodologie diverse; uno stesso termine può indicare cose diverse nell’ambito delle varie discipline
- I ricercatori pubblicano su riviste di settore diverse
- …e depositano i dati della ricerca in repository diversi (istituzionali, di settore, etc…)

2. Soluzioni digitali per migliorare la gestione e la visibilità della ricerca nel settore delle scienze del patrimonio

Strumenti digitali per un’infrastruttura di ricerca FAIR

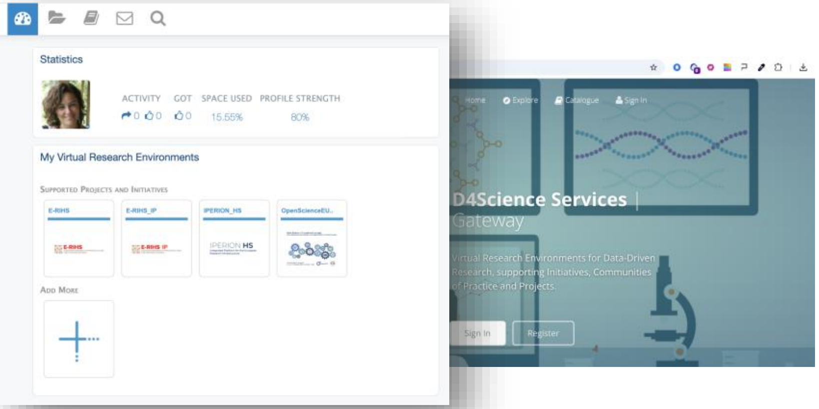
D4science – VRE di progetto ad accesso riservato per archiviare documenti, reports, datasets, etc…

https://www.d4science.org/

Zenodo – repository per pubblicare in maniera FAIR deliverables, reports, video, altri prodotti della ricerca….

https://zenodo.org/communities/871034/

https://zenodo.org/communities/e-rihs/


Statistics
ACTIVITY
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PROFILE STRENGTH
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15.55%
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My Virtual Research Environments
Supported Projects and Initiatives
E-RIHS
E-RIHS_IP
IPERION_HS
OpenScienceEU..
Add More
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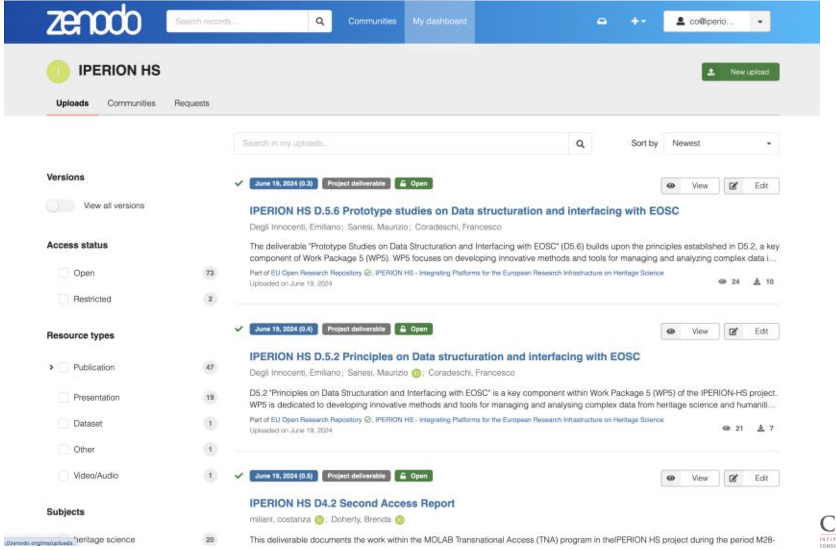
Explore
Catalogue
Sign In
D4Science Services | Gateway
Sign In
Register

Virtual Research Environments for Data-Driven Research, supporting Initiatives, Communities of Practice and Projects.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Communities
My dashboard
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IPERION HS
New upload
Uploads
Communities
Requests
Search in my uploads...
Sort by
Newest
Versions
View all versions
Access status
Open 73
Restricted 2
Resource types
Publication 47
Presentation 19
Dataset 1
Other 1
Video/Audio 1
Subjects
heritage science 20
View
Edit

June 19, 2024 (0.3) Project deliverable Open

IPERION HS D.5.6 Prototype studies on Data structuration and interfacing with EOSC

Degli Innocenti, Emiliano; Sanesi, Maurizio; Coradeschi, Francesco

The deliverable "Prototype Studies on Data Structuration and Interfacing with EOSC" (D5.6) builds upon the principles established in D5.2, a key component of Work Package 5 (WP5). WP5 focuses on developing innovative methods and tools for managing and analyzing complex data i…

Part of EU Open Research Repository, IPERION HS - Integrating Platforms for the European Research Infrastructure on Heritage Science

Uploaded on June 19, 2024

24 10

June 19, 2024 (0.4) Project deliverable Open

IPERION HS D.5.2 Principles on Data structuration and interfacing with EOSC

Degli Innocenti, Emiliano; Sanesi, Maurizio; Coradeschi, Francesco

D5.2 "Principles on Data Structuration and Interfacing with EOSC" is a key component within Work Package 5 (WP5) of the IPERION-HS project. WP5 is dedicated to developing innovative methods and tools for managing and analysing complex data from heritage science and humaniti…

Part of EU Open Research Repository, IPERION HS - Integrating Platforms for the European Research Infrastructure on Heritage Science

Uploaded on June 19, 2024

21 7

June 19, 2024 (0.5) Project deliverable Open

IPERION HS D4.2 Second Access Report

miliani, costanza; Doherty, Brenda

This deliverable documents the work within the MOLAB Transnational Access (TNA) program in theIPERION HS project during the period M28-

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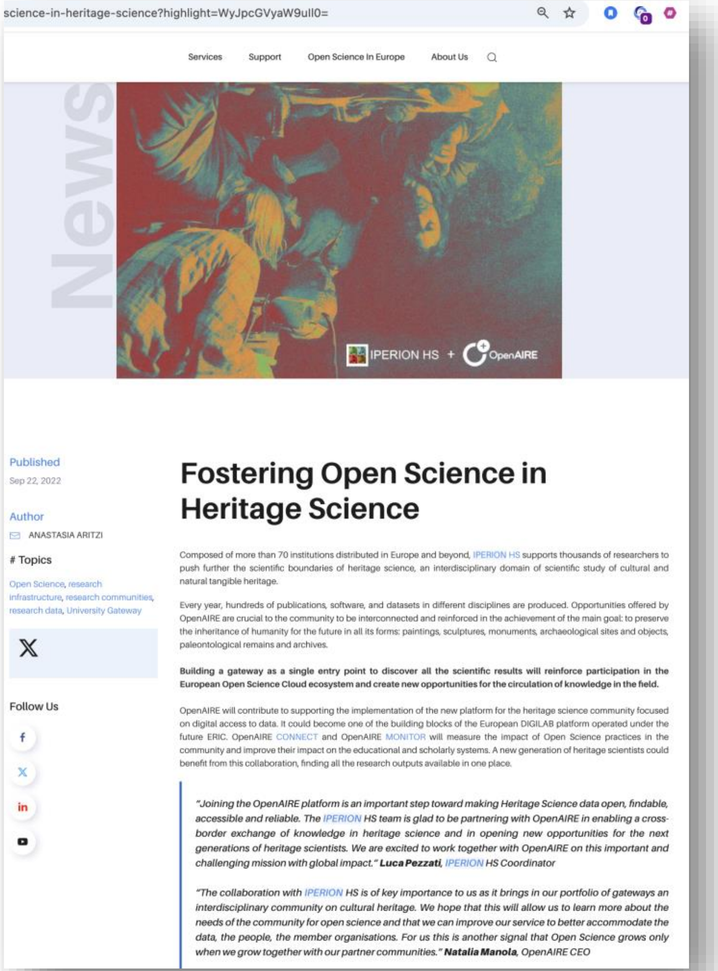
OpenAIRE

Nel 2022 OpenAIRE e IPERION HS hanno firmato un Memorandum of Understanding.

Obiettivi:

- facilitare la ricercabilità dei prodotti della ricerca nel settore delle scienze del patrimonio
- monitorare l'impatto del progetto IPERION HS nel settore della ricerca delle scienze del patrimonio
- valutare le sue pratiche Open Science.



Published
Sep 22, 2022

Author
ANASTASIA ARITZI

Topics
Open Science, research infrastructure, research communities, research data, University Gateway

Follow Us

Fostering Open Science in Heritage Science

Composed of more than 70 institutions distributed in Europe and beyond, IPERION HS supports thousands of researchers to push further the scientific boundaries of heritage science, an interdisciplinary domain of scientific study of cultural and natural tangible heritage.

Every year, hundreds of publications, software, and datasets in different disciplines are produced. Opportunities offered by OpenAIRE are crucial to the community to be interconnected and reinforced in the achievement of the main goal: to preserve the inheritance of humanity for the future in all its forms: paintings, sculptures, monuments, archaeological sites and objects, paleontological remains and archives.

Building a gateway as a single entry point to discover all the scientific results will reinforce participation in the European Open Science Cloud ecosystem and create new opportunities for the circulation of knowledge in the field.

OpenAIRE will contribute to supporting the implementation of the new platform for the heritage science community focused on digital access to data. It could become one of the building blocks of the European DIGILAB platform operated under the future ERIC. OpenAIRE CONNECT and OpenAIRE MONITOR will measure the impact of Open Science practices in the community and improve their impact on the educational and scholarly systems. A new generation of heritage scientists could benefit from this collaboration, finding all the research outputs available in one place.

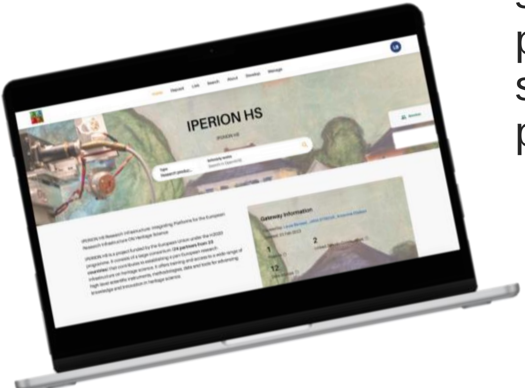
> *"Joining the OpenAIRE platform is an important step toward making Heritage Science data open, findable, accessible and reliable. The IPERION HS team is glad to be partnering with OpenAIRE in enabling a cross-border exchange of knowledge in heritage science and in opening new opportunities for the next generations of heritage scientists. We are excited to work together with OpenAIRE on this important and challenging mission with global impact."* ***Luca Pezzati**, IPERION HS Coordinator*
>
> *"The collaboration with IPERION HS is of key importance to us as it brings in our portfolio of gateways an interdisciplinary community on cultural heritage. We hope that this will allow us to learn more about the needs of the community for open science and that we can improve our service to better accommodate the data, the people, the member organisations. For us this is another signal that Open Science grows only when we grow together with our partner communities."* ***Natalia Manola**, OpenAIRE CEO*

3. OpenAIRE Connect: I due gateway IPERION HS e Heritage Science

OpenAIRE Connect

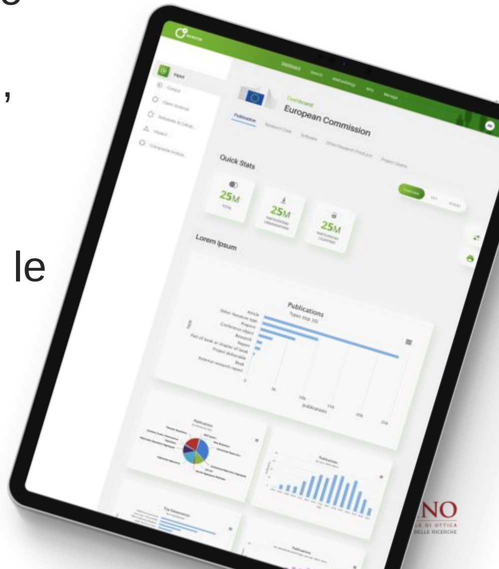
OpenAIRE CONNECT è un servizio che ci ha consentito di sviluppare un portale personalizzato per ricercare e condividere i prodotti della ricerca open science nel settore delle scienze del patrimonio.

OpenAIRE CONNECT ha aumentato la visibilità e la diffusione dei prodotti della ricerca all'interno della comunità e oltre.



OpenAIRE Monitor

OpenAIRE Monitor Dashboard è un piattaforma che consente di tracciare i prodotti della ricerca e monitorarne l'impatto in termini di punti di forza o debolezza, valutare le metriche Open Science, valutare i costi, ma soprattutto consente di prendere decisioni strategiche e migliorare le pratiche della ricerca.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Quick Stats
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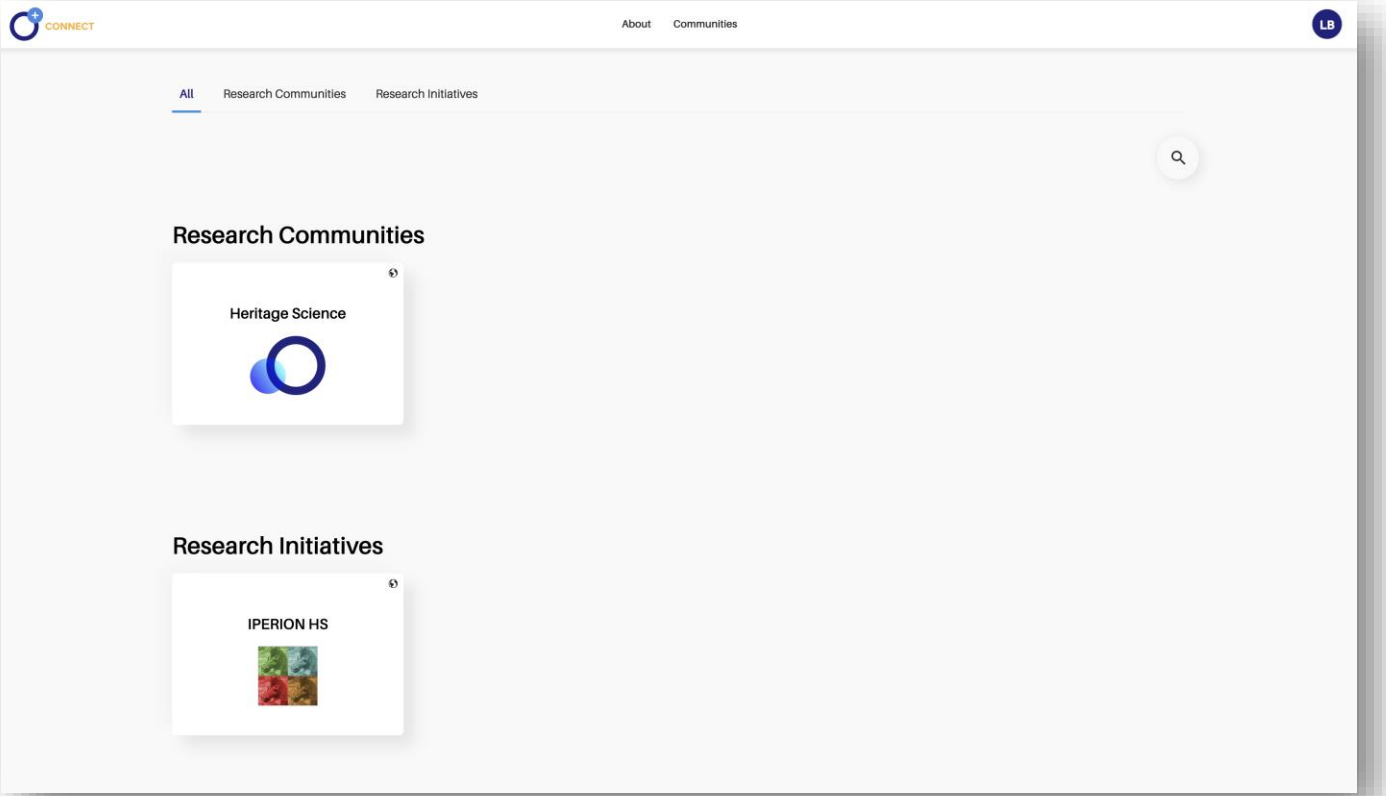
25M
Lorem ipsum
Publications

Connect and Monitor manager



CONNECT
About
Communities
LB
All
Research Communities
Research Initiatives

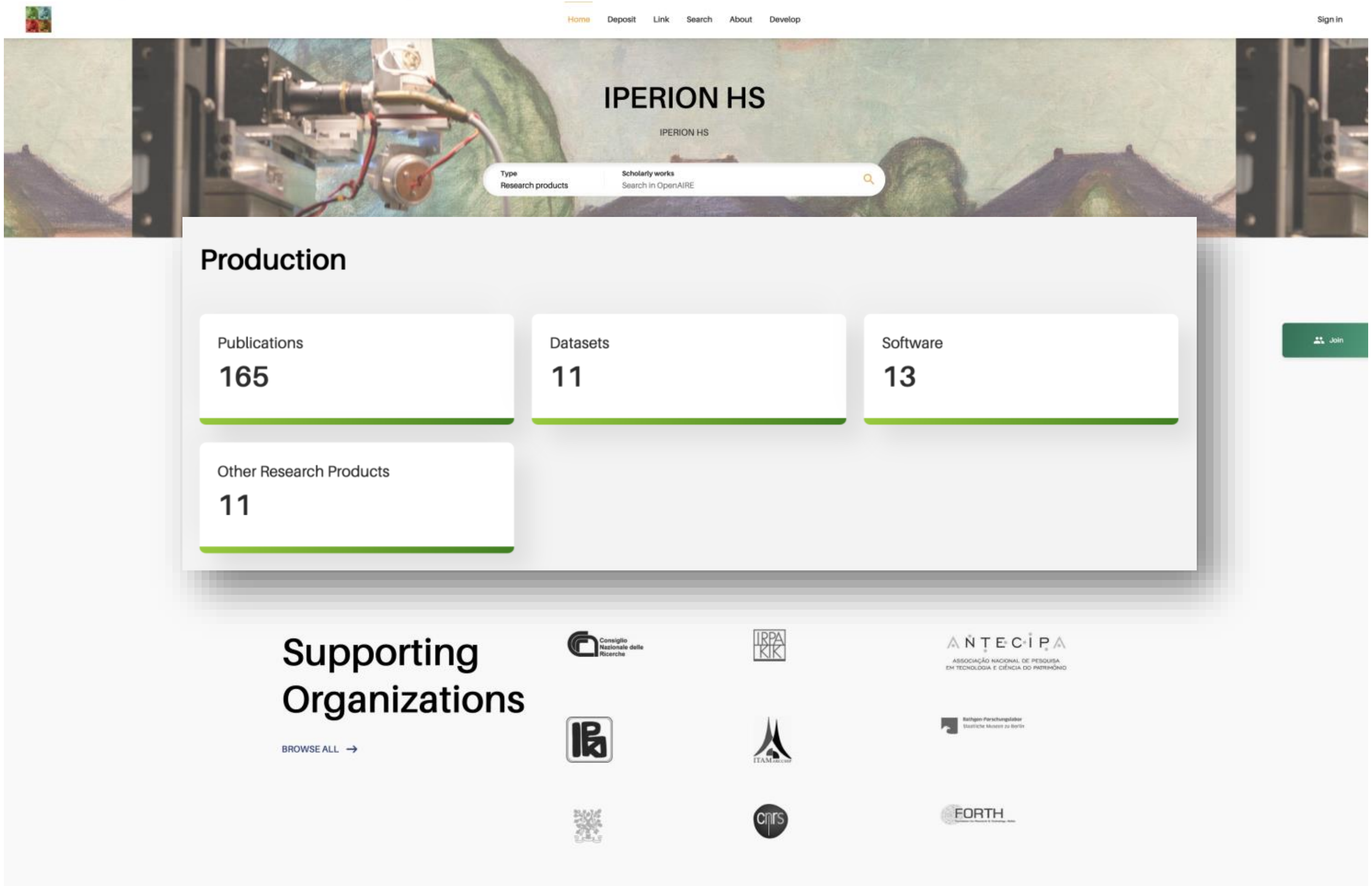
Research Communities

Heritage Science

Research Initiatives

IPERION HS

OpenAIRE Connect IPERION HS
https://iperionhs.openaire.eu/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Scholarly works
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ANTECIPA
ASSOCIAÇÃO NACIONAL DE PESQUISA EM TECNOLOGIA E CIÊNCIA DO PATRIMÓNIO
Rathgen-Forschungslabor
Staatliche Museen zu Berlin
ITAM
cnrs
FORTH

Production

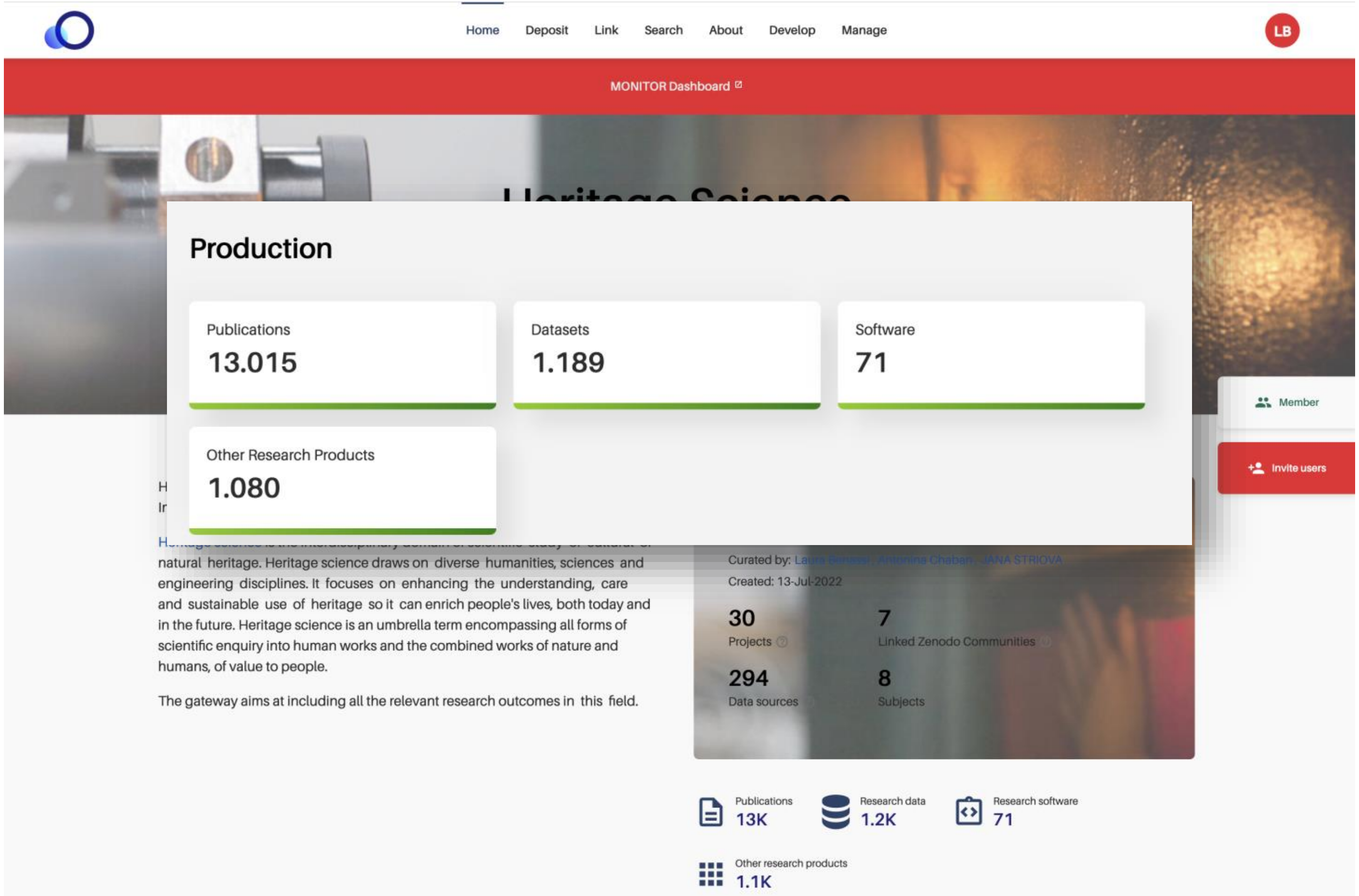
Publications	Datasets	Software	Other Research Products
165	11	13	11

Supporting Organizations

Allies of light

OpenAIRE Connect Heritage Science

https://heritage-science.openaire.eu/



Home
Deposit
Link
Search
About
Develop
Manage
LB
MONITOR Dashboard
Heritage Science
Member
Invite users

Production

Publications	Datasets	Software
13.015	1.189	71

Other Research Products
1.080

natural heritage. Heritage science draws on diverse humanities, sciences and engineering disciplines. It focuses on enhancing the understanding, care and sustainable use of heritage so it can enrich people's lives, both today and in the future. Heritage science is an umbrella term encompassing all forms of scientific enquiry into human works and the combined works of nature and humans, of value to people.

The gateway aims at including all the relevant research outcomes in this field.

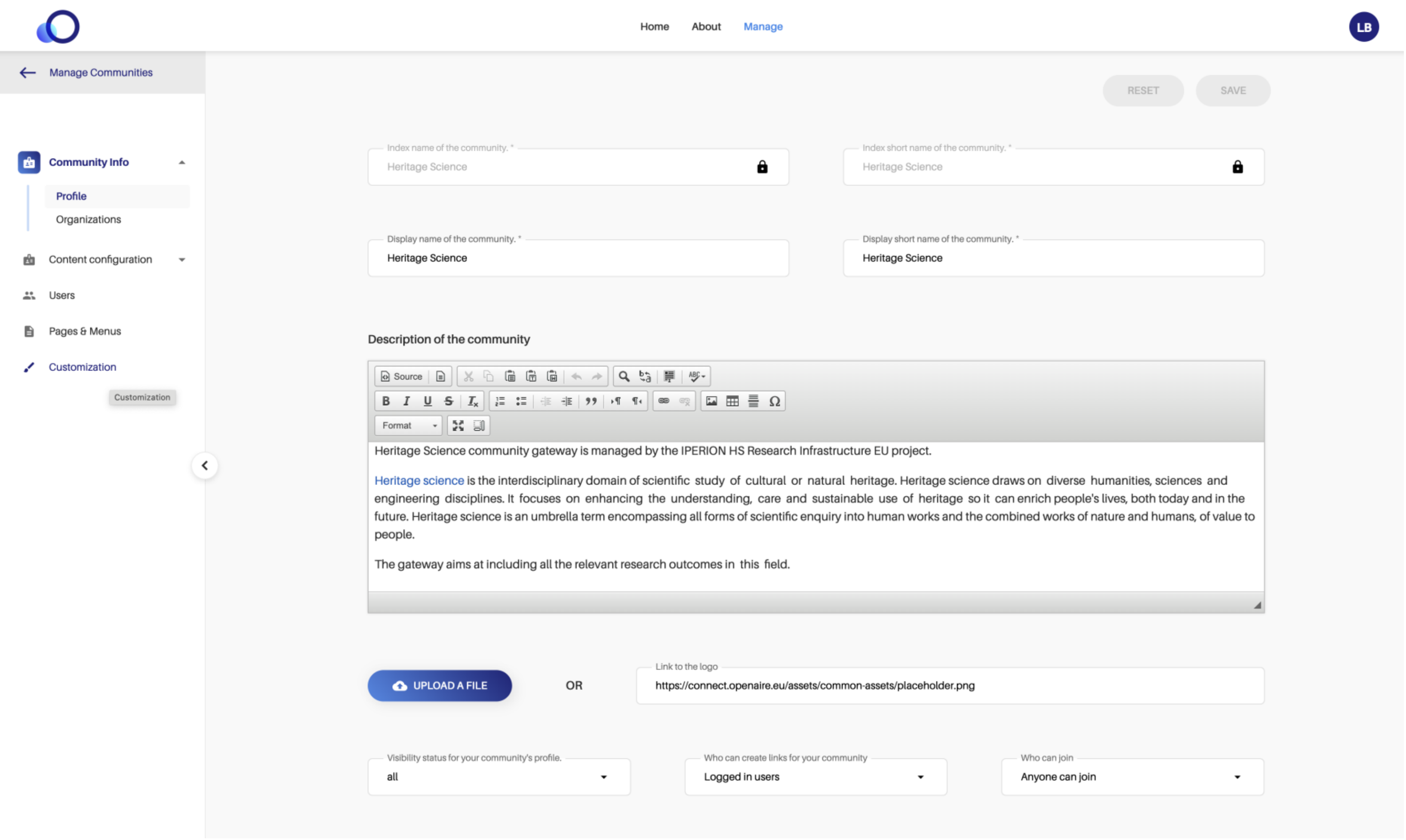
Curated by: Laura Benassi, Antonina Chaban, JANA STRIOVA

Created: 13-Jul-2022

30	7
Projects	Linked Zenodo Communities
294	**8**
Data sources	Subjects

Publications	Research data	Research software	Other research products
13K	1.2K	71	1.1K

Allies of light


Home
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Manage
LB
Manage Communities
Community Info
Profile
Organizations
Content configuration
Users
Pages & Menus
Customization
Customization
RESET
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UPLOAD A FILE
OR

Index name of the community. * Heritage Science

Index short name of the community. * Heritage Science

Display name of the community. * Heritage Science

Display short name of the community. * Heritage Science

Description of the community

Heritage Science community gateway is managed by the IPERION HS Research Infrastructure EU project.

Heritage science is the interdisciplinary domain of scientific study of cultural or natural heritage. Heritage science draws on diverse humanities, sciences and engineering disciplines. It focuses on enhancing the understanding, care and sustainable use of heritage so it can enrich people's lives, both today and in the future. Heritage science is an umbrella term encompassing all forms of scientific enquiry into human works and the combined works of nature and humans, of value to people.

The gateway aims at including all the relevant research outcomes in this field.

Link to the logo: https://connect.openaire.eu/assets/common-assets/placeholder.png

Visibility status for your community's profile. all

Who can create links for your community: Logged in users

Who can join: Anyone can join

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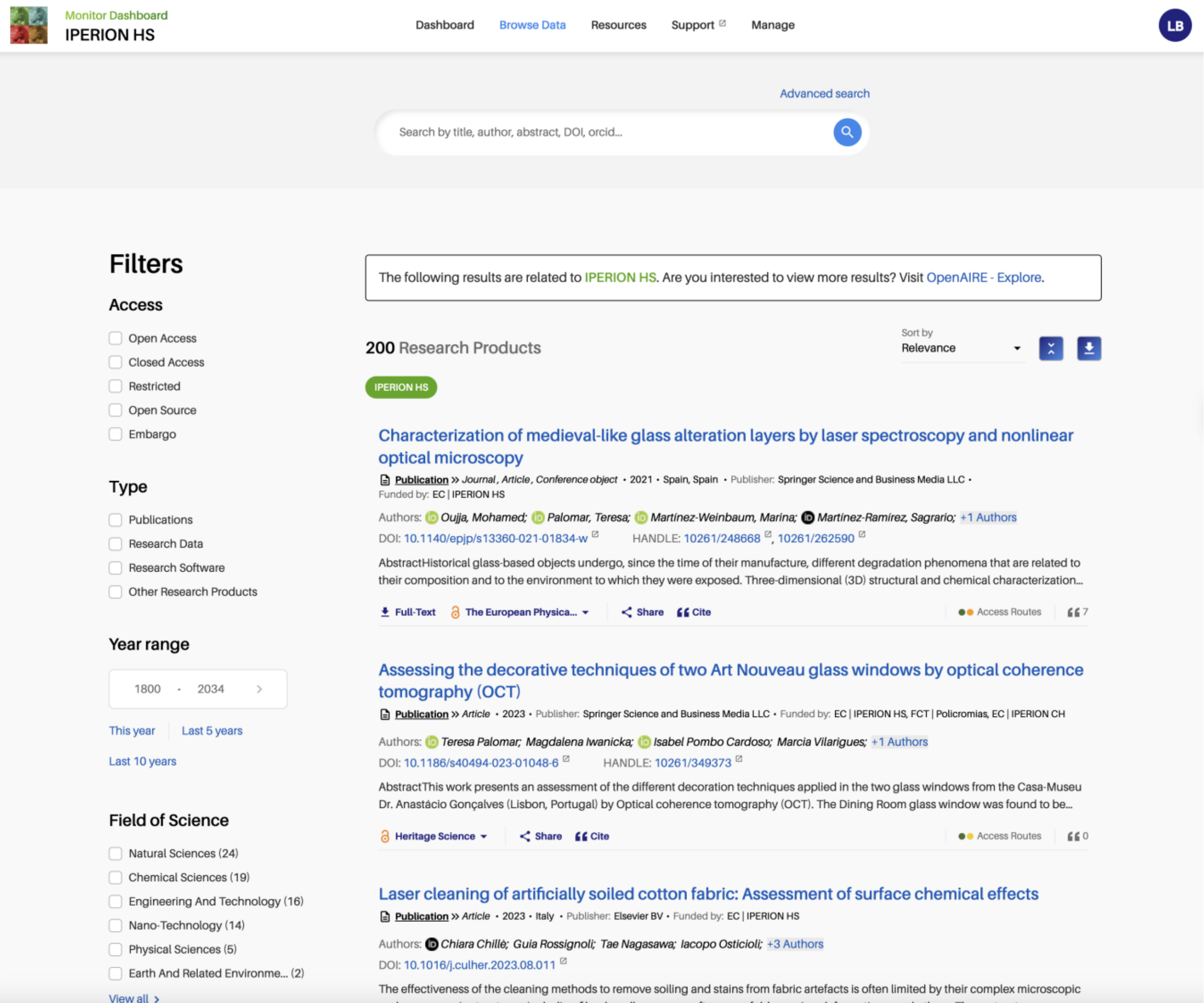
Allies of light

FILTRI

- Access
- Type
- Year range
- Field of Science
- Funder
- SDG
- Country
- Language
- Source
- Research community



Filters

Access

☐ Open Access
☐ Closed Access
☐ Restricted
☐ Open Source
☐ Embargo

Type

☐ Publications
☐ Research Data
☐ Research Software
☐ Other Research Products

Year range

1800 - 2034

This year Last 5 years
Last 10 years

Field of Science

☐ Natural Sciences (24)
☐ Chemical Sciences (19)
☐ Engineering And Technology (16)
☐ Nano-Technology (14)
☐ Physical Sciences (5)
☐ Earth And Related Environme... (2)

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200 Research Products

Sort by
Relevance

IPERION HS

Characterization of medieval-like glass alteration layers by laser spectroscopy and nonlinear optical microscopy

Publication » *Journal, Article, Conference object* • 2021 • Spain, Spain • Publisher: Springer Science and Business Media LLC •
Funded by: EC | IPERION HS

Authors: *Oujja, Mohamed; Palomar, Teresa; Martínez-Weinbaum, Marina; Martínez-Ramírez, Sagrario;* +1 Authors

DOI: 10.1140/epjp/s13360-021-01834-w HANDLE: 10261/248668, 10261/262590

AbstractHistorical glass-based objects undergo, since the time of their manufacture, different degradation phenomena that are related to their composition and to the environment to which they were exposed. Three-dimensional (3D) structural and chemical characterization...

Full-Text The European Physica... Share Cite Access Routes 7

Assessing the decorative techniques of two Art Nouveau glass windows by optical coherence tomography (OCT)

Publication » *Article* • 2023 • Publisher: Springer Science and Business Media LLC • Funded by: EC | IPERION HS, FCT | Policromias, EC | IPERION CH

Authors: *Teresa Palomar; Magdalena Iwanicka; Isabel Pombo Cardoso; Marcia Vilarigues;* +1 Authors

DOI: 10.1186/s40494-023-01048-6 HANDLE: 10261/349373

AbstractThis work presents an assessment of the different decoration techniques applied in the two glass windows from the Casa-Museu Dr. Anastácio Gonçalves (Lisbon, Portugal) by Optical coherence tomography (OCT). The Dining Room glass window was found to be...

Heritage Science Share Cite Access Routes 0

Laser cleaning of artificially soiled cotton fabric: Assessment of surface chemical effects

Publication » *Article* • 2023 • Italy • Publisher: Elsevier BV • Funded by: EC | IPERION HS

Authors: *Chiara Chillè; Guia Rossignoli; Tae Nagasawa; Iacopo Osticioli;* +3 Authors

DOI: 10.1016/j.culher.2023.08.011

The effectiveness of the cleaning methods to remove soiling and stains from fabric artefacts is often limited by their complex microscopic

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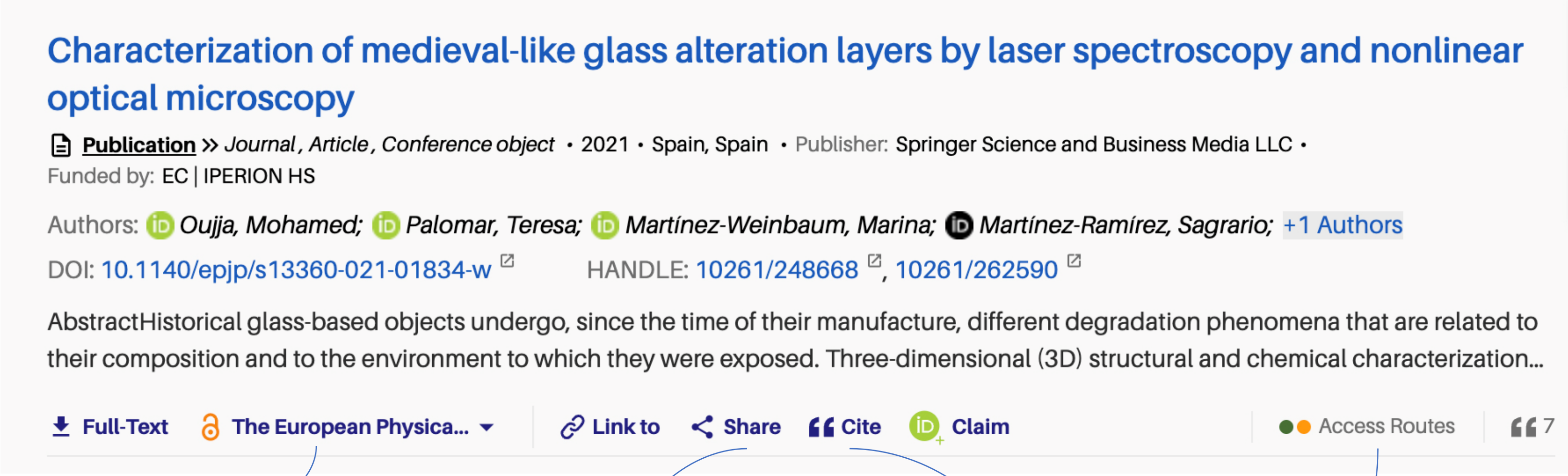


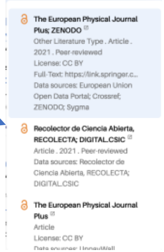
Characterization of medieval-like glass alteration layers by laser spectroscopy and nonlinear optical microscopy

Publication » *Journal, Article, Conference object* • 2021 • Spain, Spain • Publisher: Springer Science and Business Media LLC •
Funded by: EC | IPERION HS

Authors: *Oujja, Mohamed; Palomar, Teresa; Martínez-Weinbaum, Marina; Martínez-Ramírez, Sagrario;* +1 Authors

DOI: 10.1140/epjp/s13360-021-01834-w HANDLE: 10261/248668, 10261/262590

AbstractHistorical glass-based objects undergo, since the time of their manufacture, different degradation phenomena that are related to their composition and to the environment to which they were exposed. Three-dimensional (3D) structural and chemical characterization...



The European Physical Journal Plus; ZENODO
Other Literature Type . Article . 2021 . Peer-reviewed
License: CC BY
Full-Text: https://link.springer.c...
Data sources: European Union Open Data Portal; Crossref; ZENODO; Sygma

Recolector de Ciencia Abierta, RECOLECTA; DIGITAL.CSIC
Article . 2021 . Peer-reviewed
Data sources: Recolector de Ciencia Abierta, RECOLECTA; DIGITAL.CSIC

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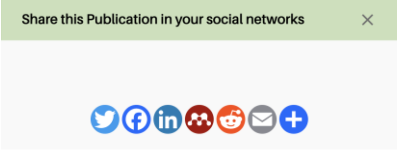

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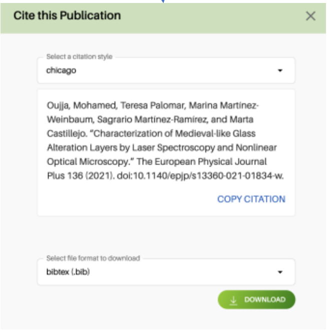
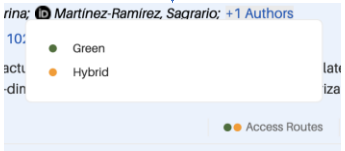


Cite this Publication

Select a citation style: chicago

Oujja, Mohamed, Teresa Palomar, Marina Martínez-Weinbaum, Sagrario Martínez-Ramírez, and Marta Castillejo. “Characterization of Medieval-like Glass Alteration Layers by Laser Spectroscopy and Nonlinear Optical Microscopy.” The European Physical Journal Plus 136 (2021). doi:10.1140/epjp/s13360-021-01834-w.

Select file format to download: bibtex (.bib)



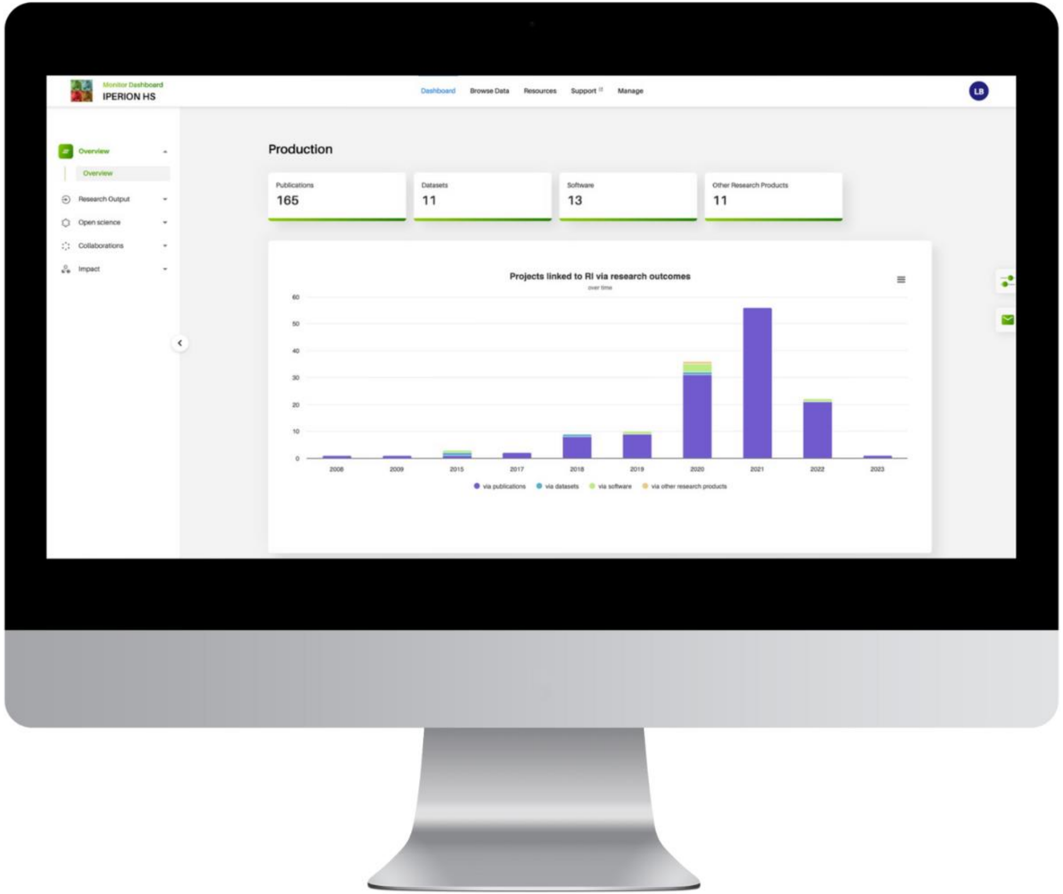
rina; Martínez-Ramírez, Sagrario; +1 Authors

- ● Green
- ● Hybrid

4. OpenAIRE Monitor: le dashboard IPERION HS e Heritage Science

OpenAIRE Monitor IPERION HS

Allies of light


Monitor Dashboard
IPERION HS
Dashboard
Browse Data
Resources
Support
Manage
LB
Overview
Overview
Research Output
Open science
Collaborations
Impact

Production

Publications 165

Datasets 11

Software 13

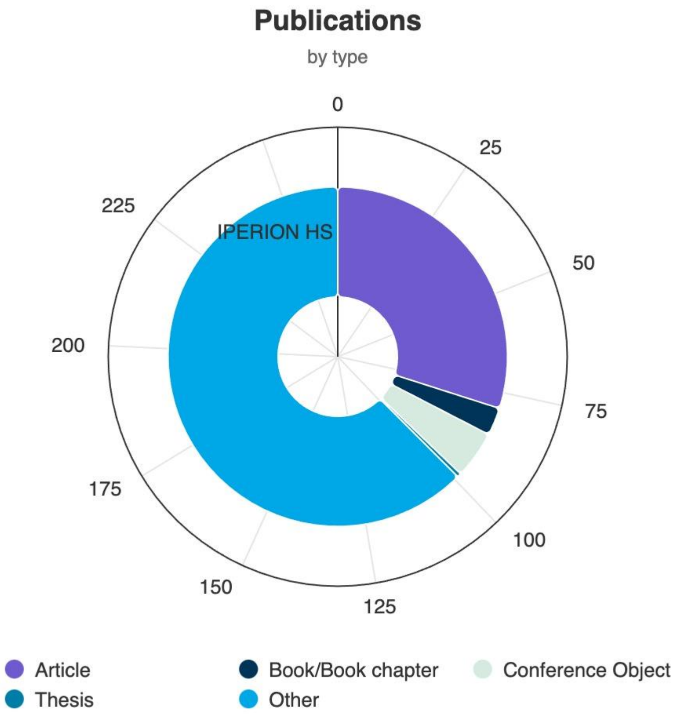
Other Research Products 11

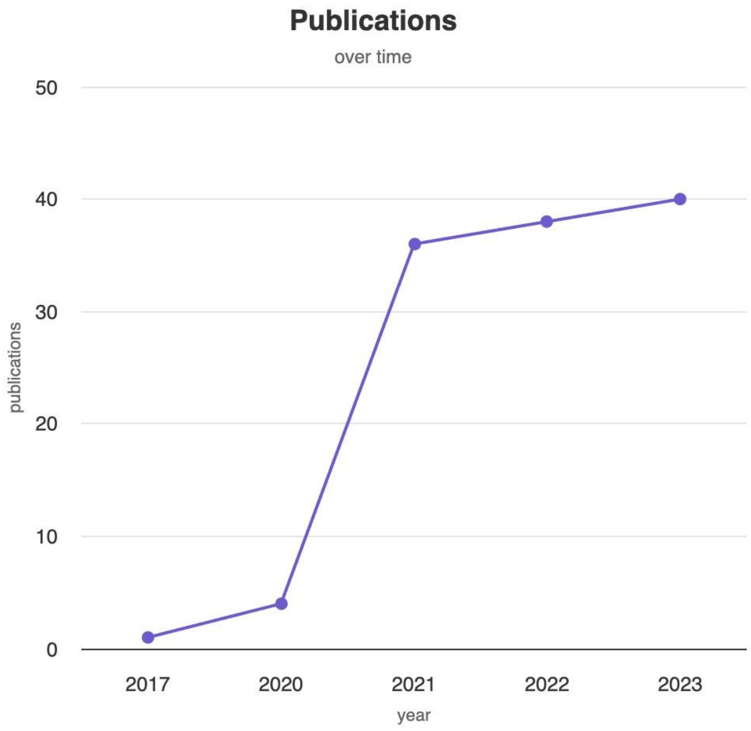
Projects linked to RI via research outcomes

over time

60
50
40
30
20
10
0
2008
2009
2015
2017
2018
2019
2020
2021
2022
2023
● via publications
● via datasets
● via software
● via other research products

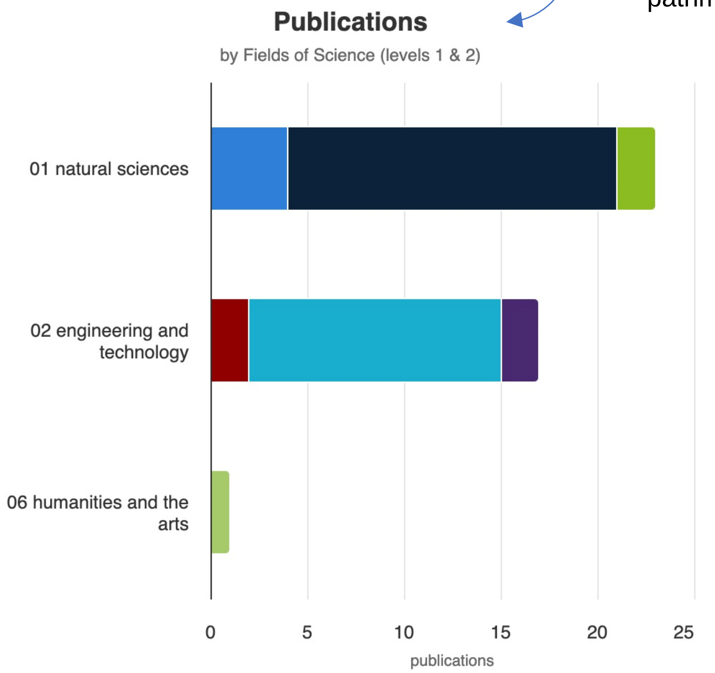
Publications



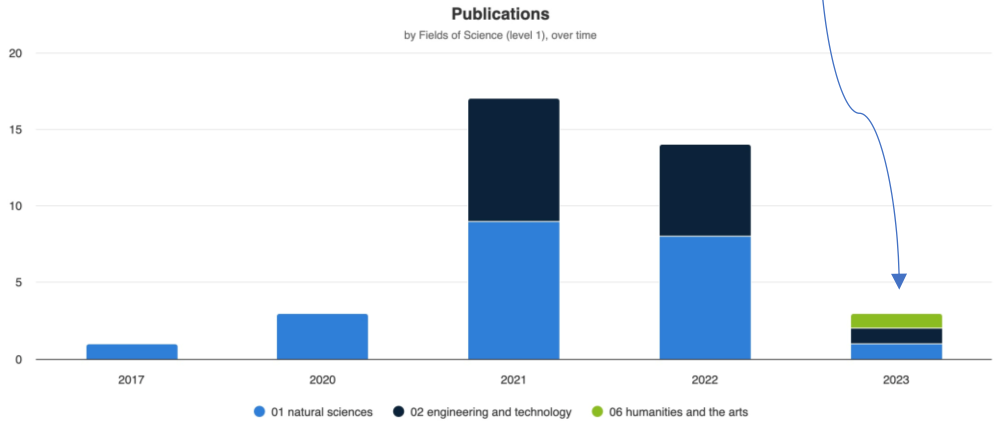


Publications

Grazie a OpenAIRE Graph implementato da AI, Fields of Science consente di far emergere tutto il potenziale multidisciplinare della comunità delle scienze del patrimonio

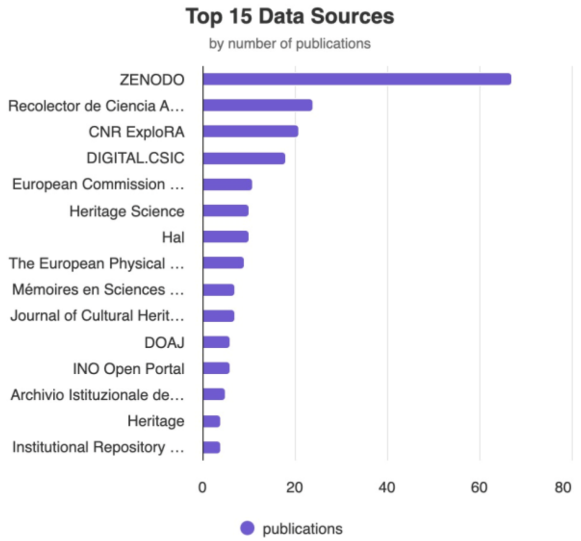


Corrisponde al coinvolgimento di nuove comunità (archeologi, paleontologi, architetti, etc…)



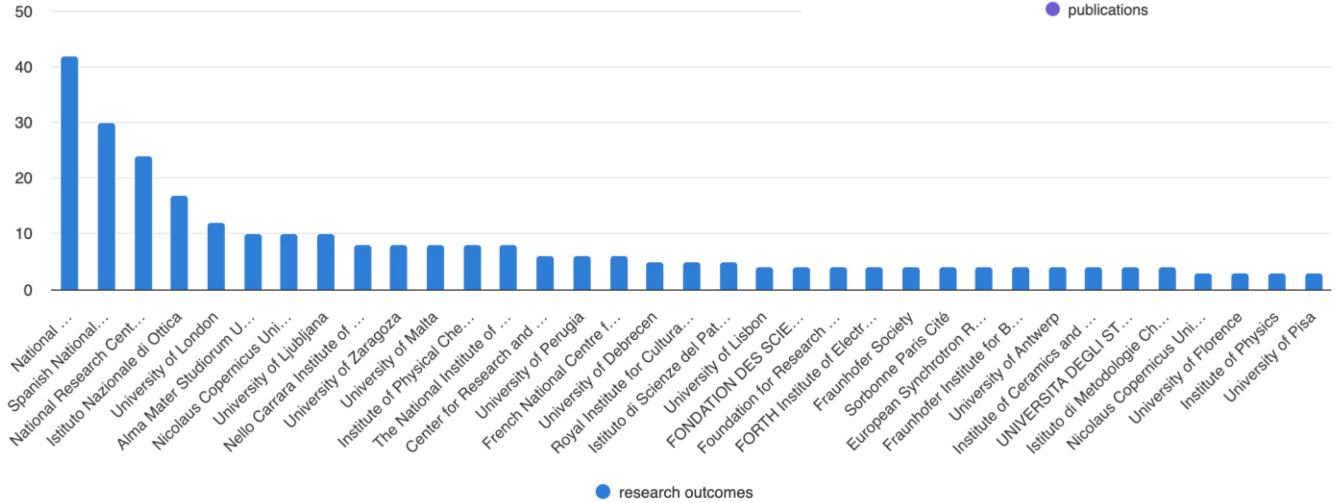
Data Sources & Top Organisations

Allies of light



Top Organisations

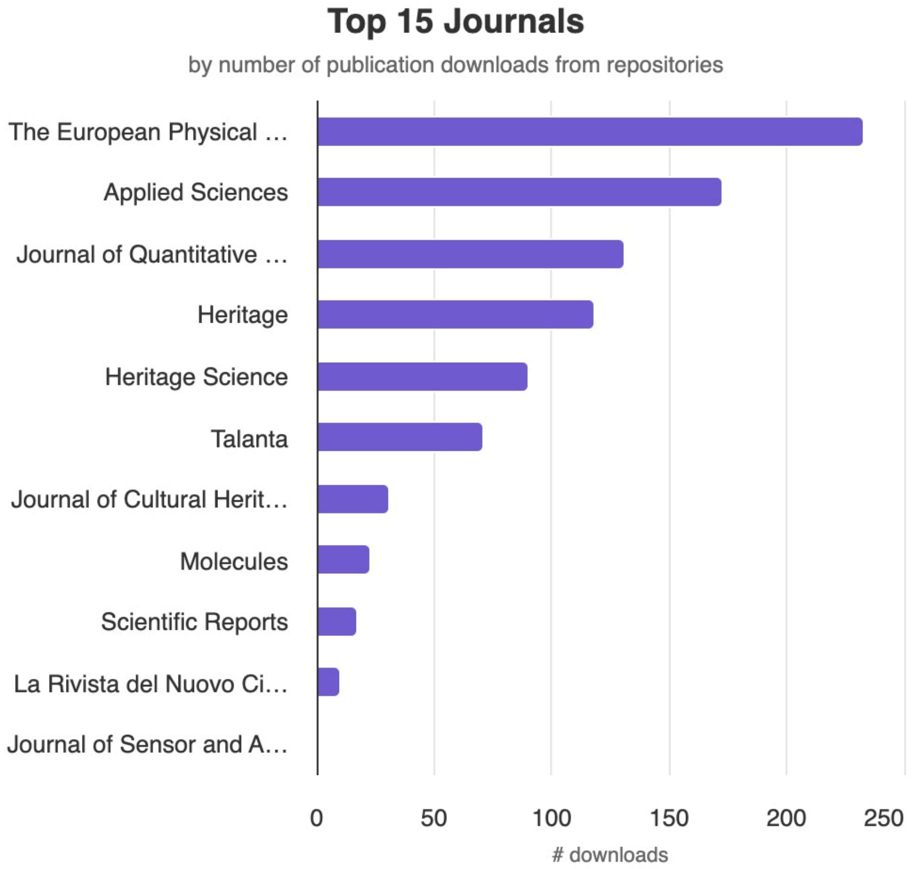
by # research outcomes



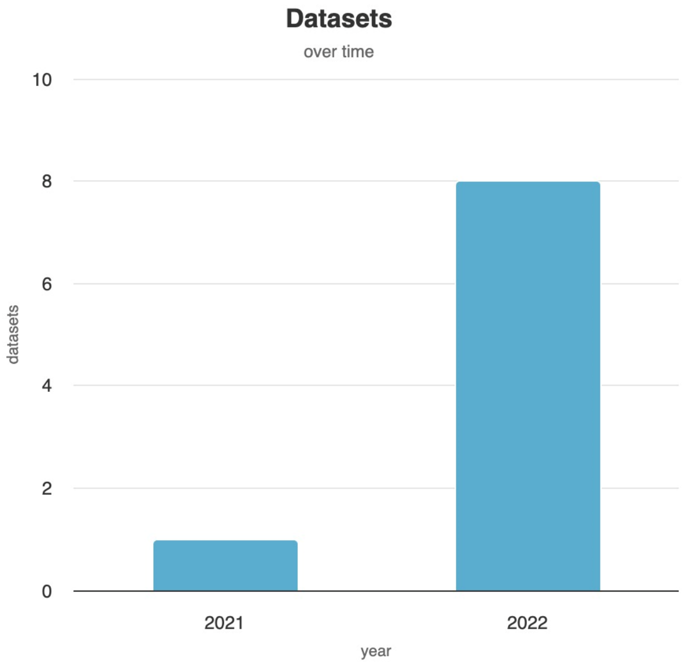
CNR

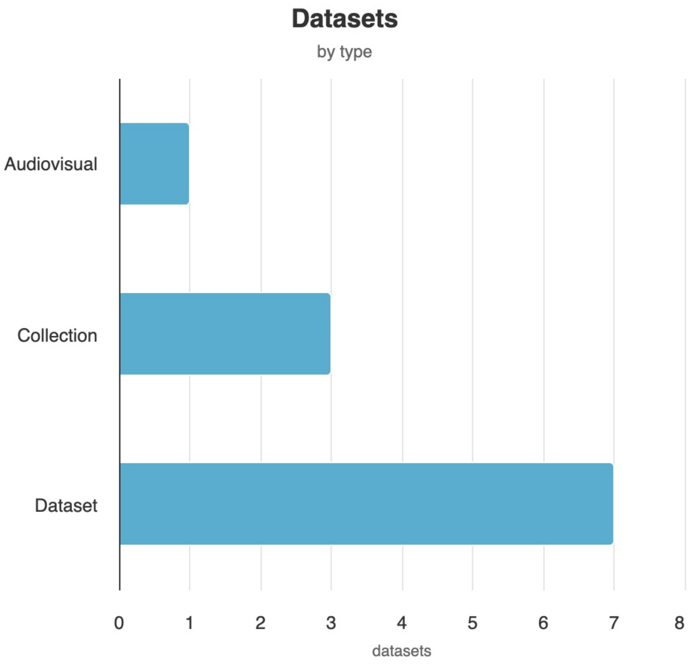
CNR-INO
ISTITUTO NAZIONALE DI OTTICA
CONSIGLIO NAZIONALE DELLE RICERCHE

Top Journals

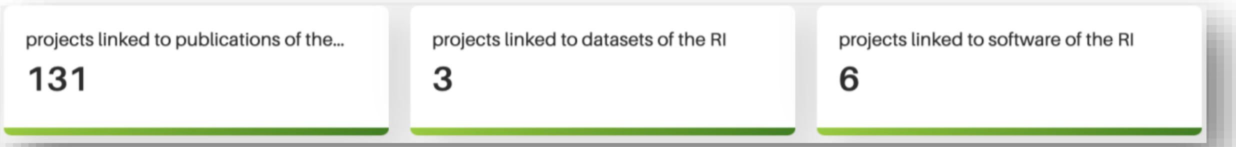


Datasets


Datasets
over time
datasets
10
8
6
4
2
0
2021
2022
year


Datasets
by type
Audiovisual
Collection
Dataset
0
1
2
3
4
5
6
7
8
datasets

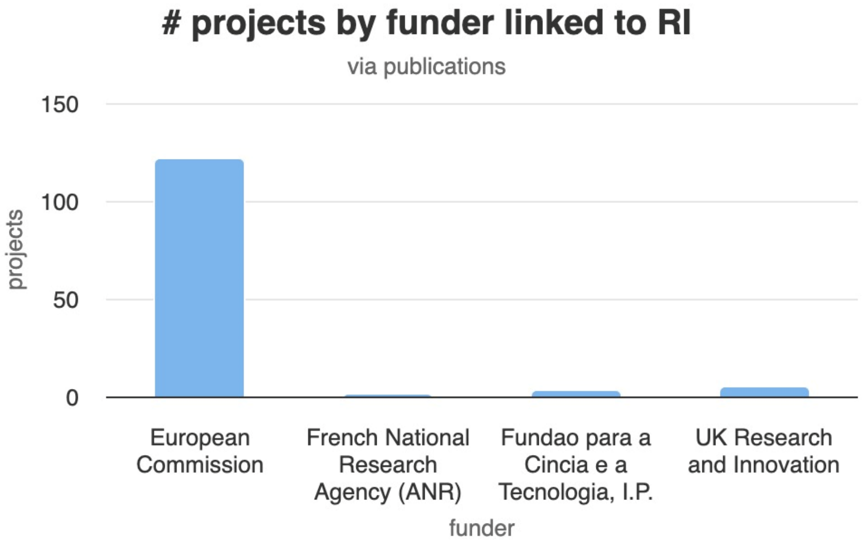
Projects and Funders



projects linked to publications of the...
131

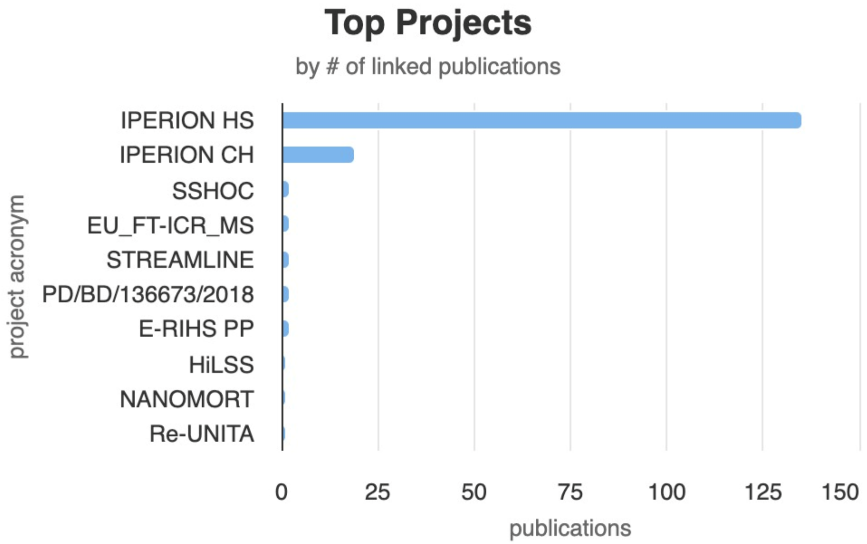
projects linked to datasets of the RI
3

projects linked to software of the RI
6



projects by funder linked to RI

via publications

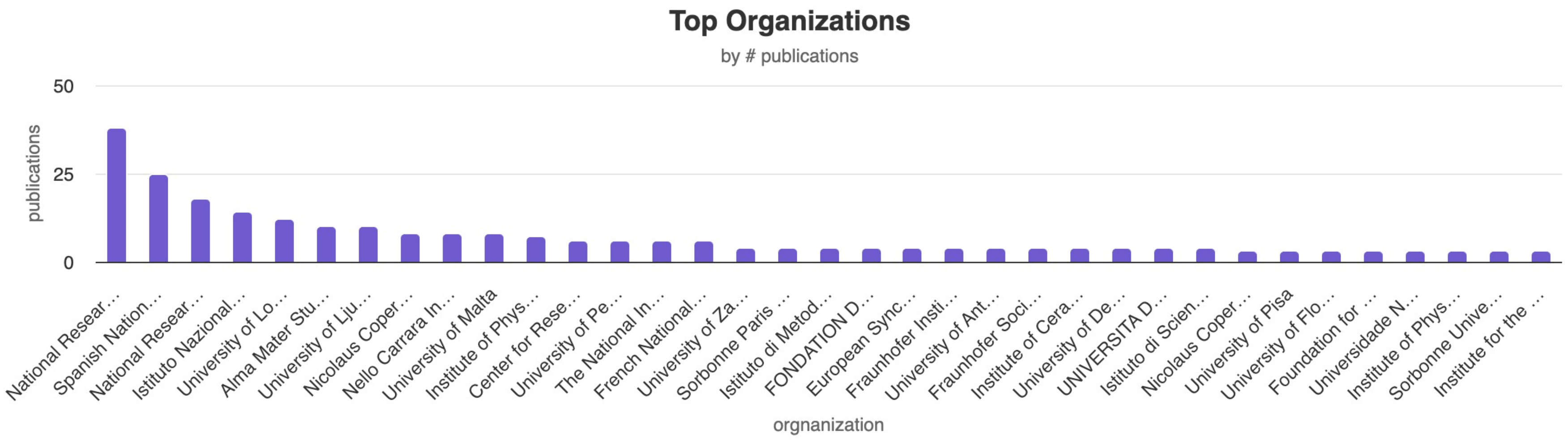


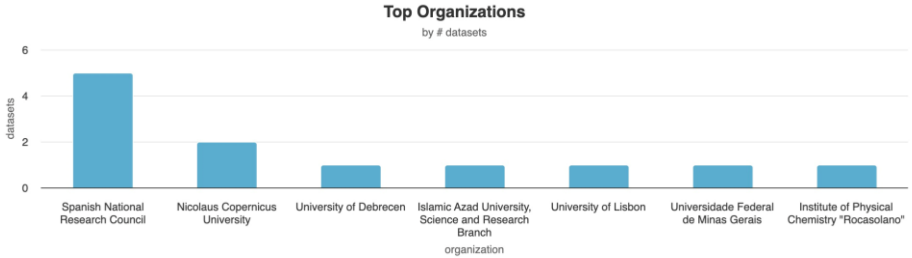
Top Projects

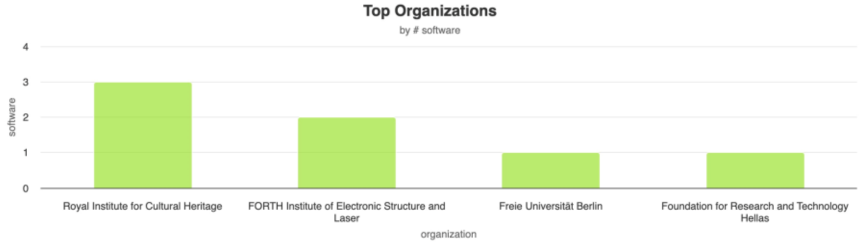
by # of linked publications

Collaborations

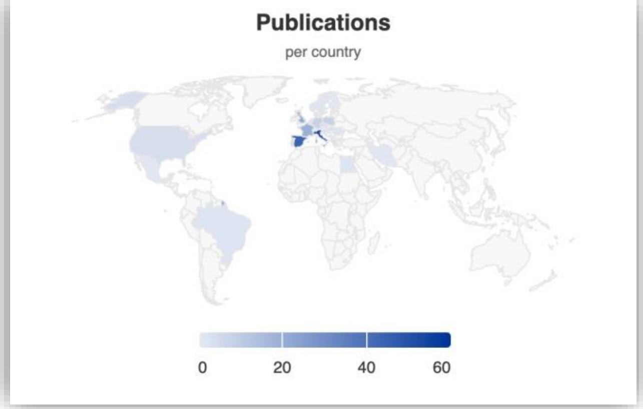
Allies of light

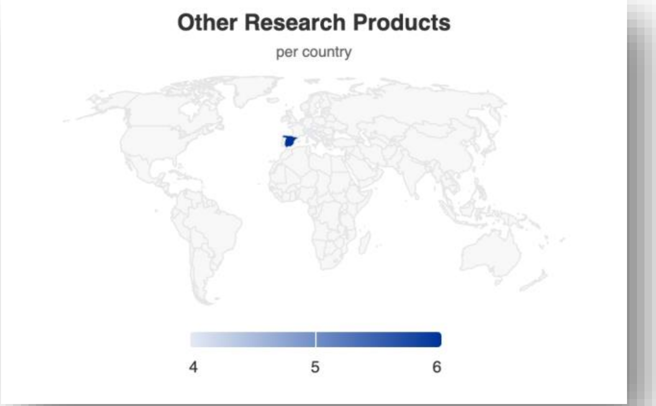




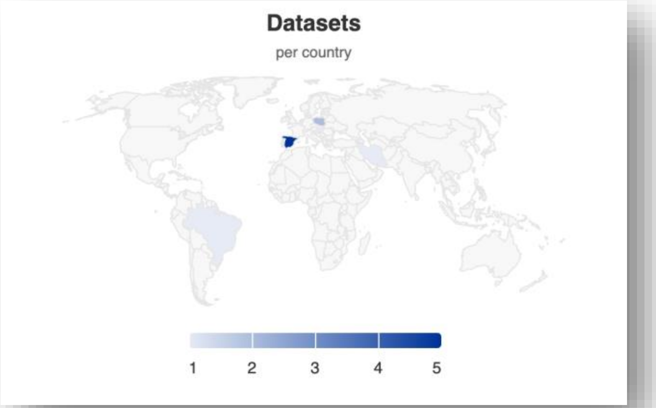


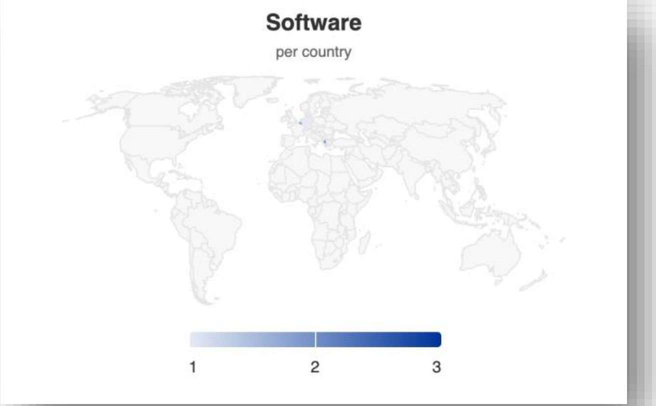
Countries


Publications
per country
0
20
40
60


Other Research Products
per country
4
5
6

Category	Publications	publications	
	iso-a2	value	id
Albania	AL	1	AL
Austria	AT	1	AT
Belgium	BE	7	BE
Brazil	BR	2	BR
Switzerland	CH	3	CH
Cyprus	CY	2	CY
Czech Republic	CZ	4	CZ
Germany	DE	8	DE
Denmark	DK	1	DK
Estonia	EE	1	EE
Egypt	EG	2	EG
Spain	ES	44	ES
Finland	FI	1	FI
France	FR	19	FR
United Kingdom	GB	21	GB
Greece	GR	6	GR
Croatia	HR	1	HR
Hungary	HU	4	HU
Israel	IL	2	IL
Iran	IR	1	IR
Italy	IT	52	IT
Malta	MT	8	MT
Mexico	MX	1	MX
Netherlands	NL	4	NL
Norway	NO	2	NO
Poland	PL	8	PL
Portugal	PT	5	PT
Romania	RO	2	RO
Sweden	SE	2	SE
Slovenia	SI	13	SI
30	UNKNOWN	4	UNKNOWN
United States of America	US	4	US


Datasets
per country
1
2
3
4
5


Software
per country
1
2
3

Allies of light

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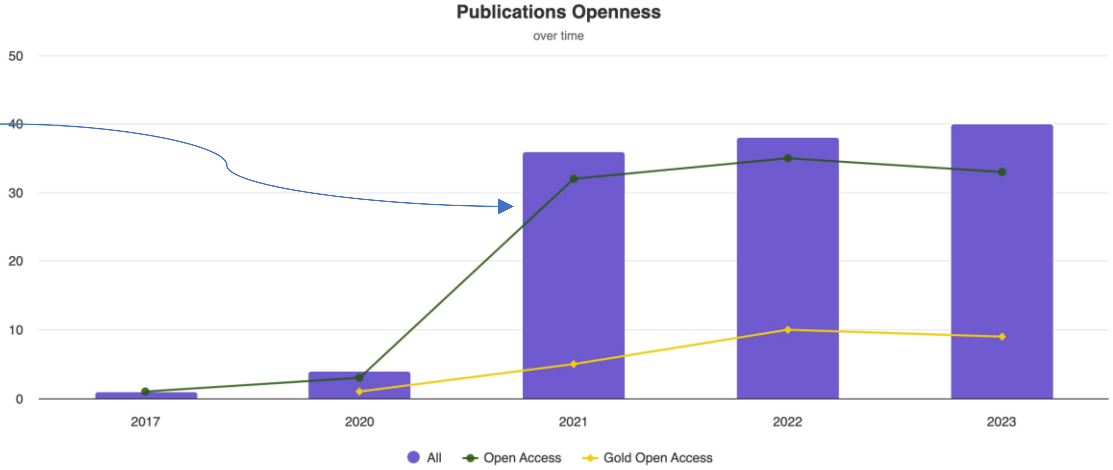
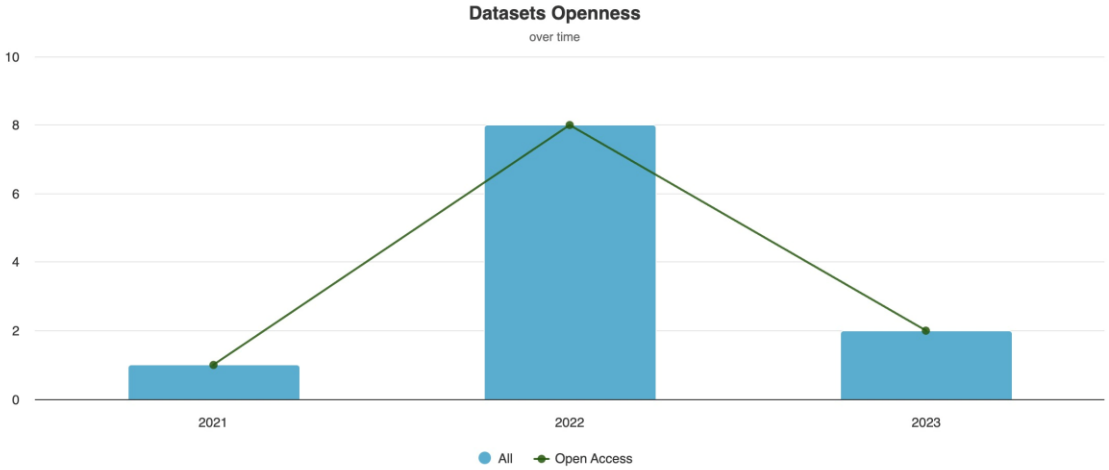
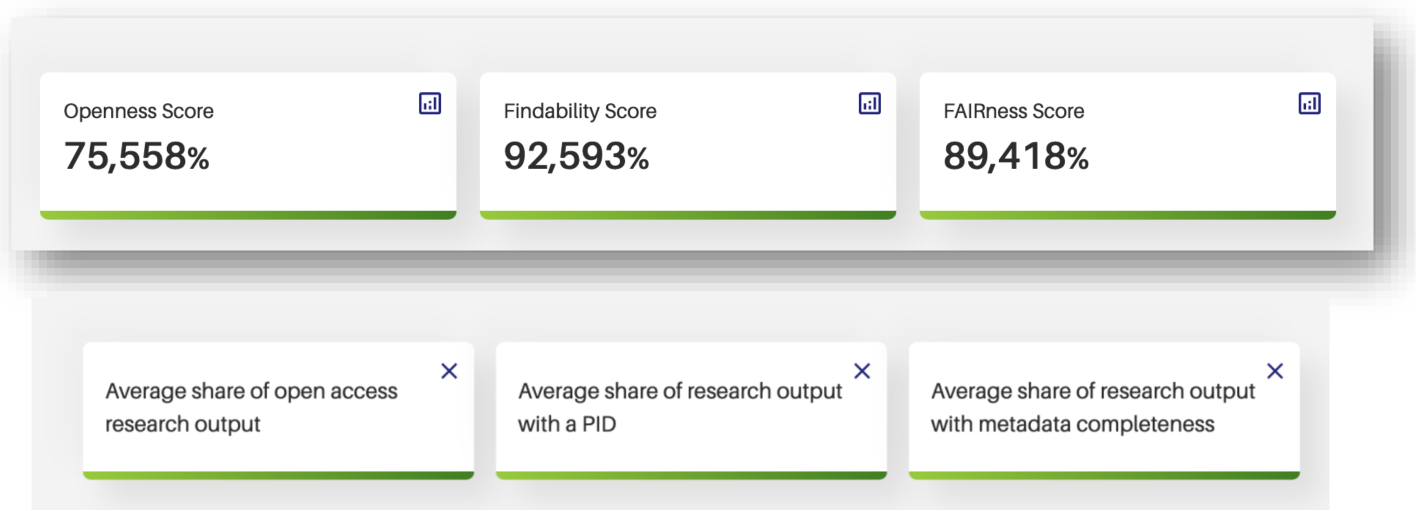
Openness

Corrisponde al cambiamento dei requisiti nei progetti europei (HORIZON Europe) – as open as possibile, as closed as necessary





Openness



Openness Score

75,558%

Findability Score

92,593%

FAIRness Score

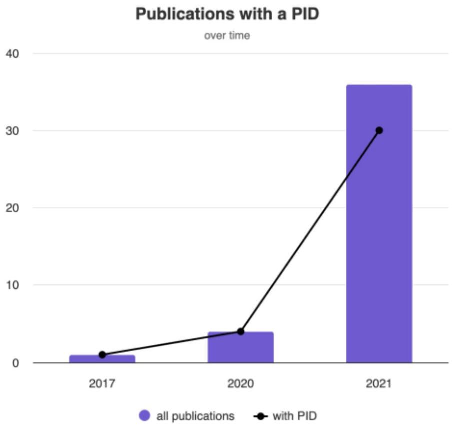
89,418%

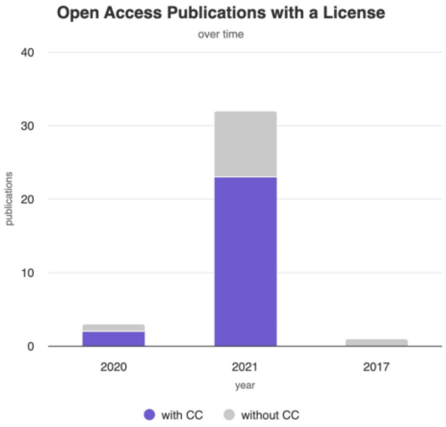
Average share of open access research output

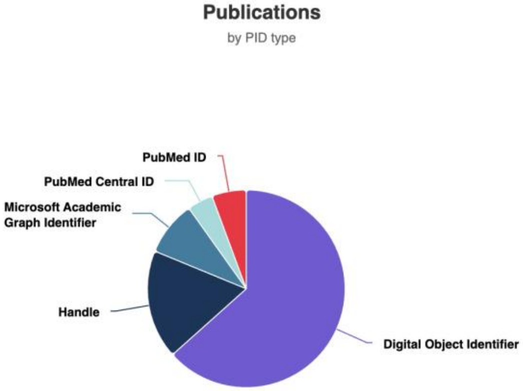
Average share of research output with a PID

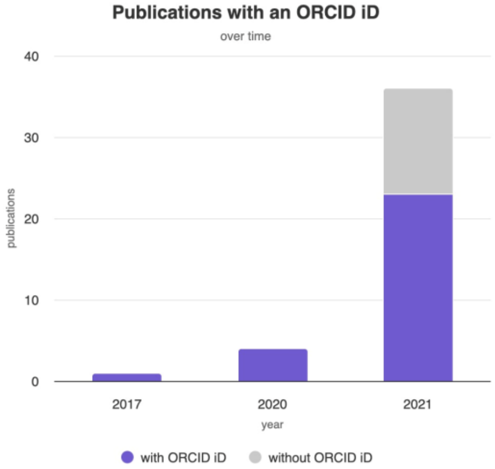
Average share of research output with metadata completeness

OPEN SCIENCE- publications


Publications with a PID
over time


Open Access Publications with a License
over time


Publications
by PID type

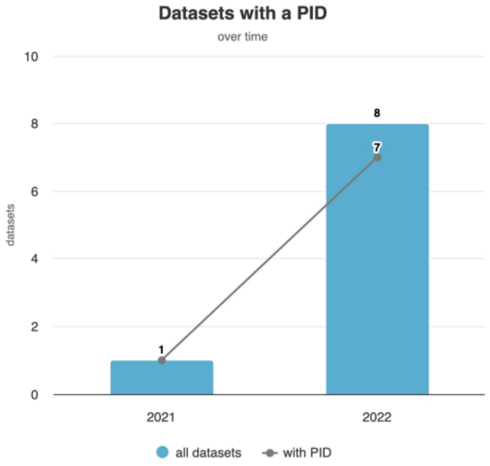

Publications with an ORCID iD
over time

Allies of light

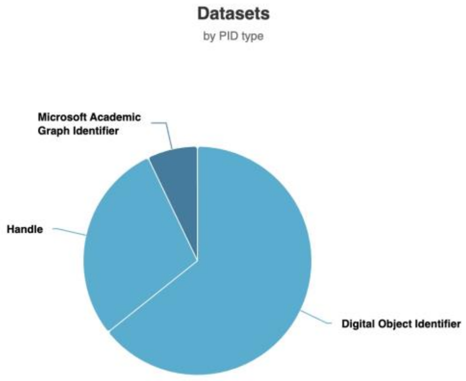
CNR-INO

OPEN SCIENCE - datasets

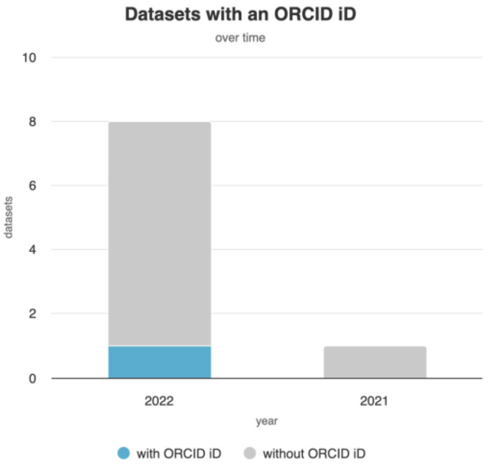
Allies of light


Datasets with a PID

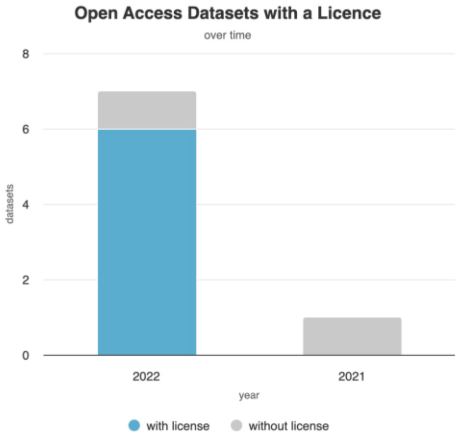
over time


Datasets

by PID type


Datasets with an ORCID iD

over time


Open Access Datasets with a Licence

over time

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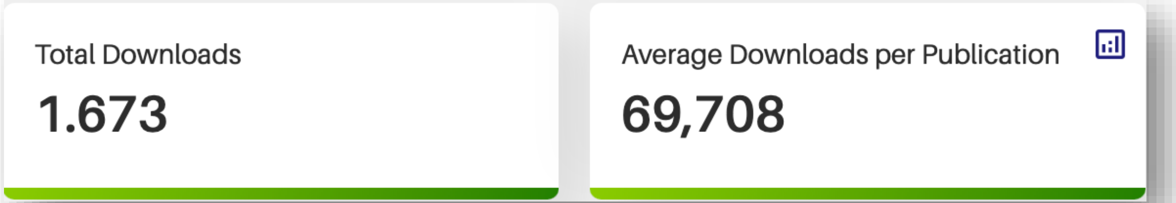
CONSIGLIO NAZIONALE DELLE RICERCHE

Impact

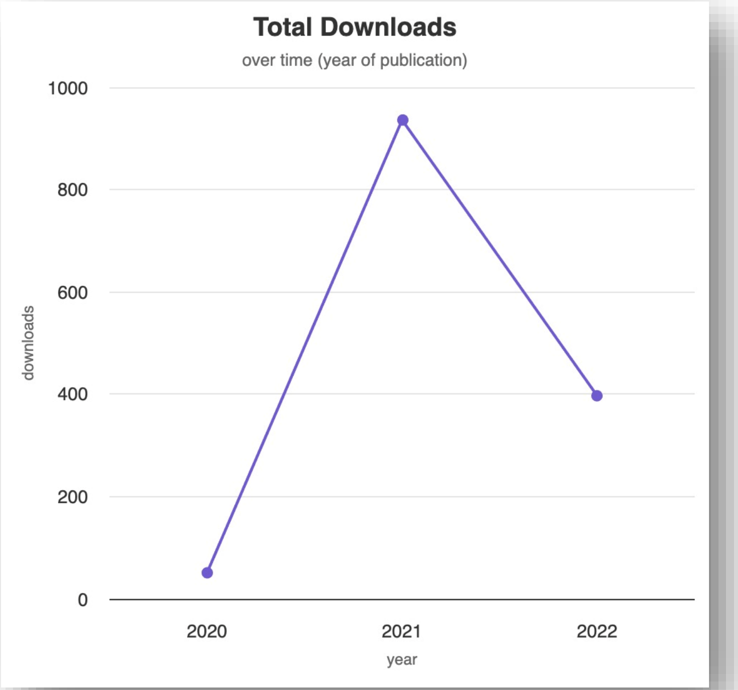


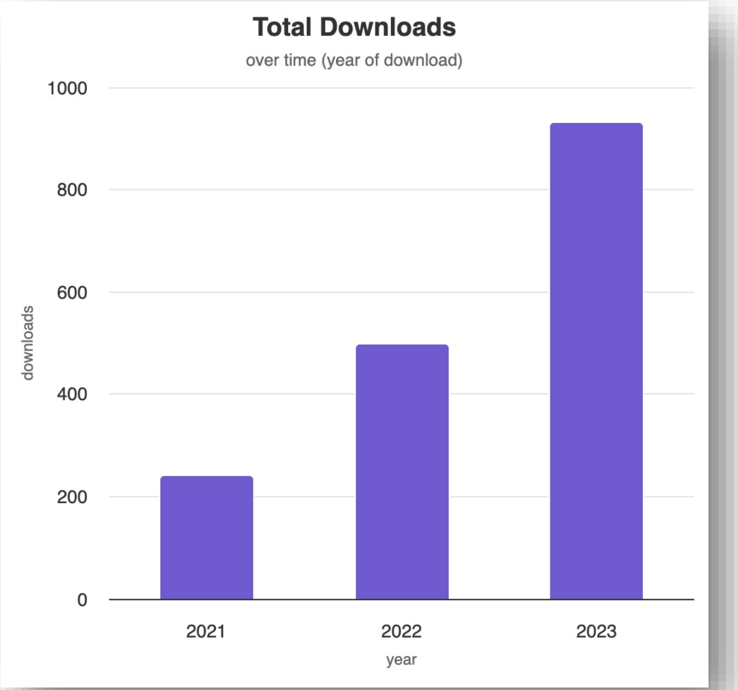
Total Downloads

1.673

Average Downloads per Publication

69,708





Allies of light

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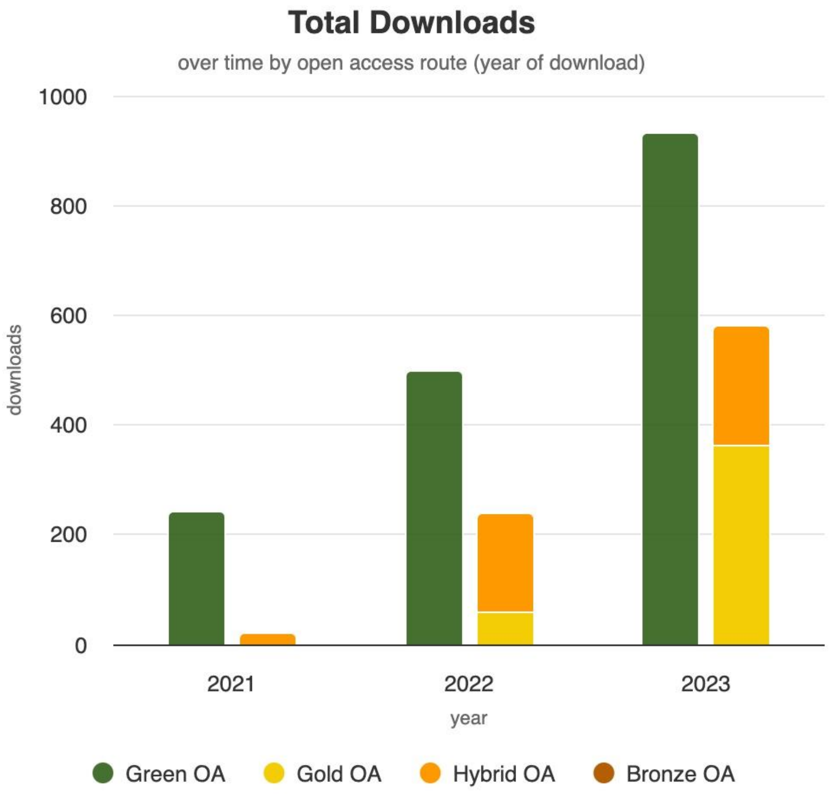
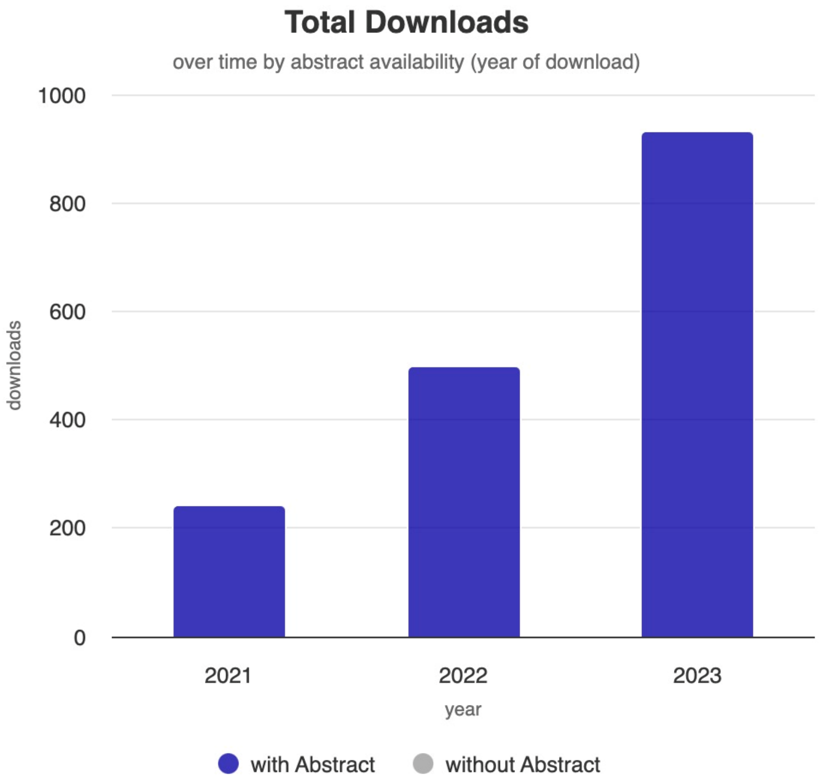
Downloads


Total Downloads
over time by open access route (year of download)
1000
800
600
400
200
0
downloads
2021
2022
2023
year
Green OA
Gold OA
Hybrid OA
Bronze OA


Total Downloads
over time by abstract availability (year of download)
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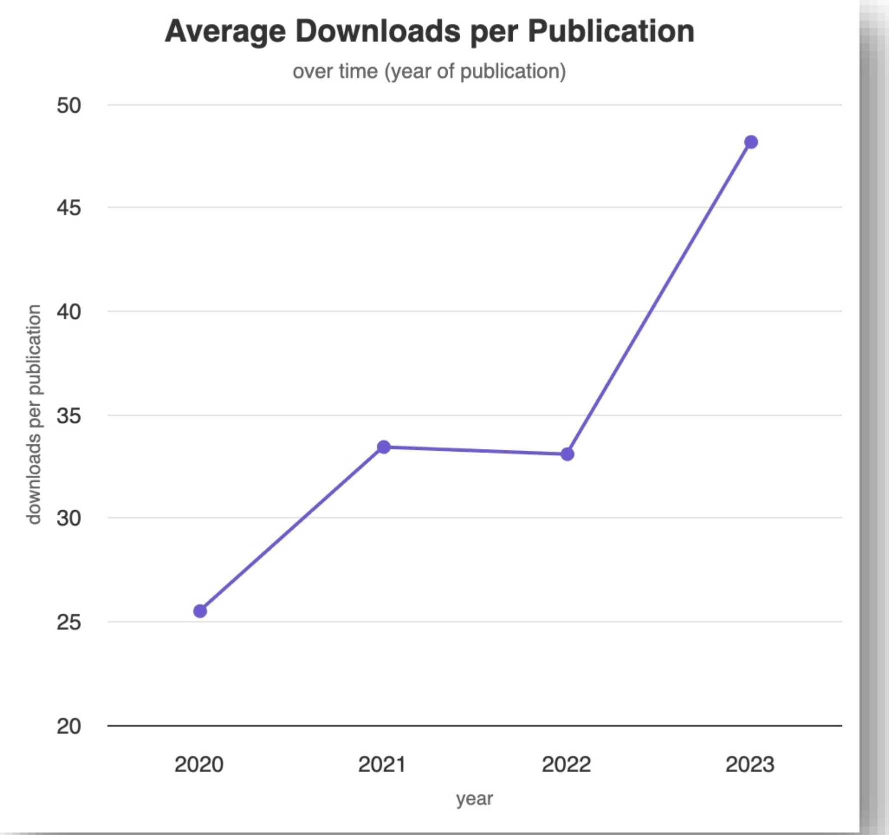
downloads
2021
2022
2023
year
with Abstract
without Abstract

Average downloads



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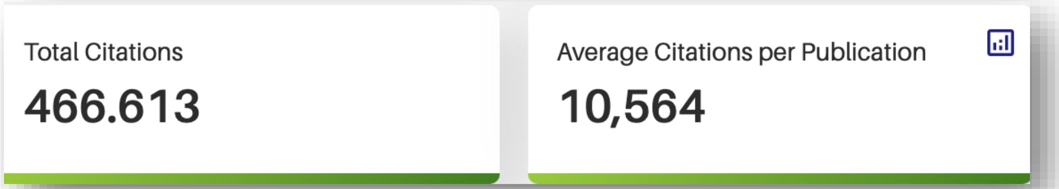

Total Citations

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Average Citations per Publication

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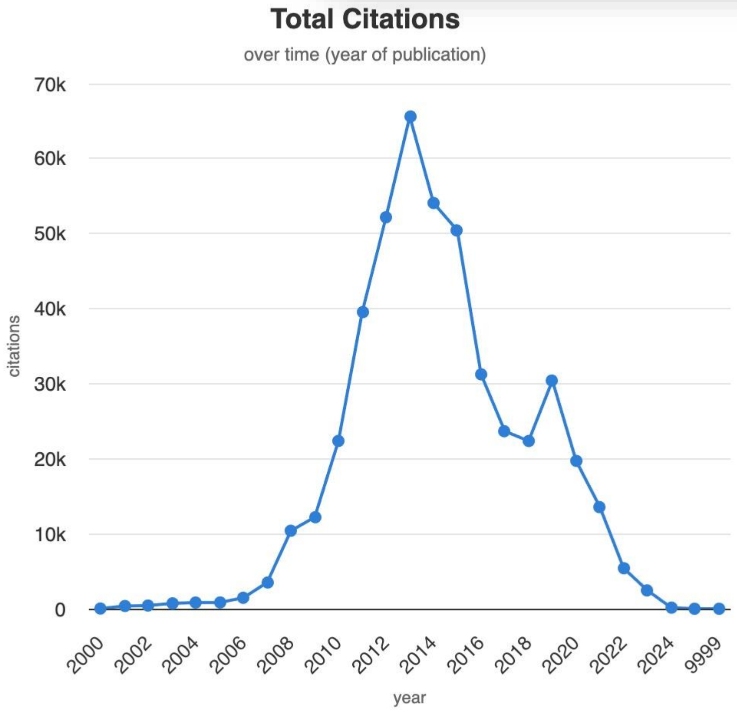
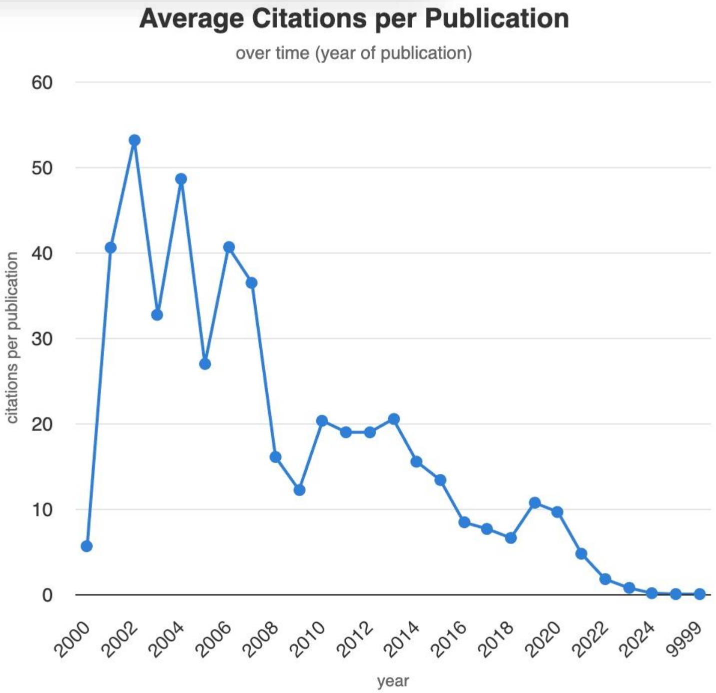


Total Citations

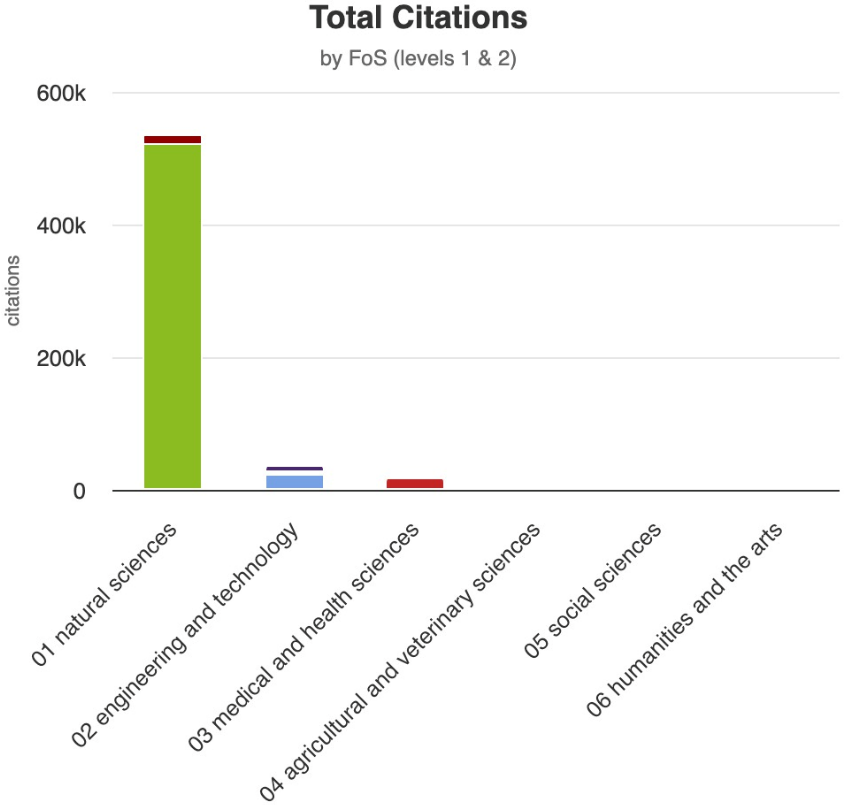
over time (year of publication)



Average Citations per Publication

over time (year of publication)

Citations


Total Citations
by FoS (levels 1 & 2)
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200k
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citations
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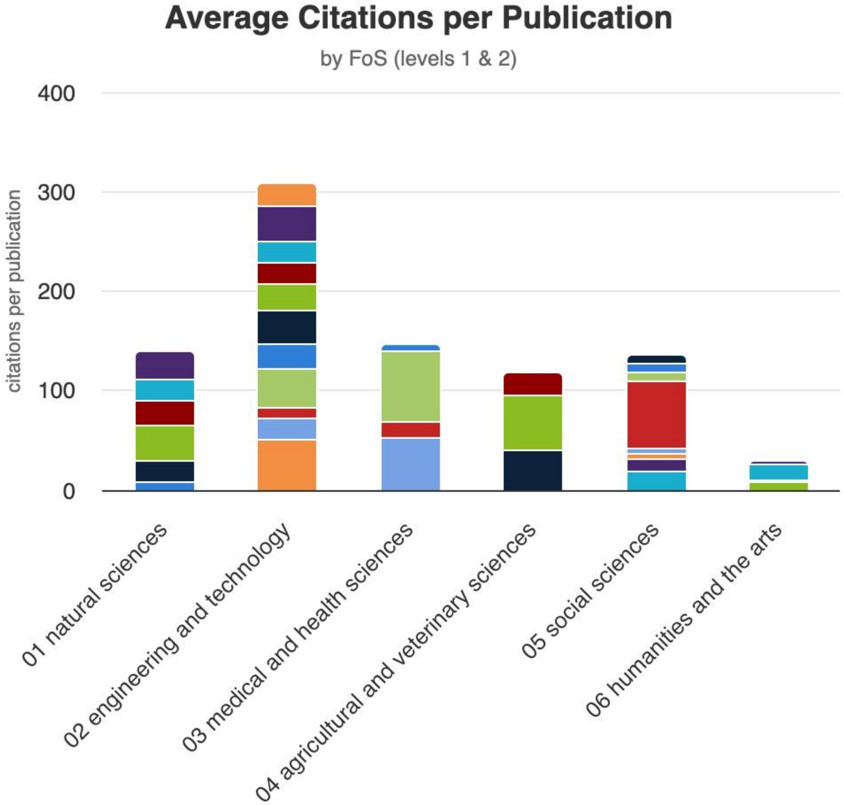
02 engineering and technology
03 medical and health sciences
04 agricultural and veterinary sciences
05 social sciences
06 humanities and the arts


Average Citations per Publication
by FoS (levels 1 & 2)
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citations per publication
01 natural sciences
02 engineering and technology
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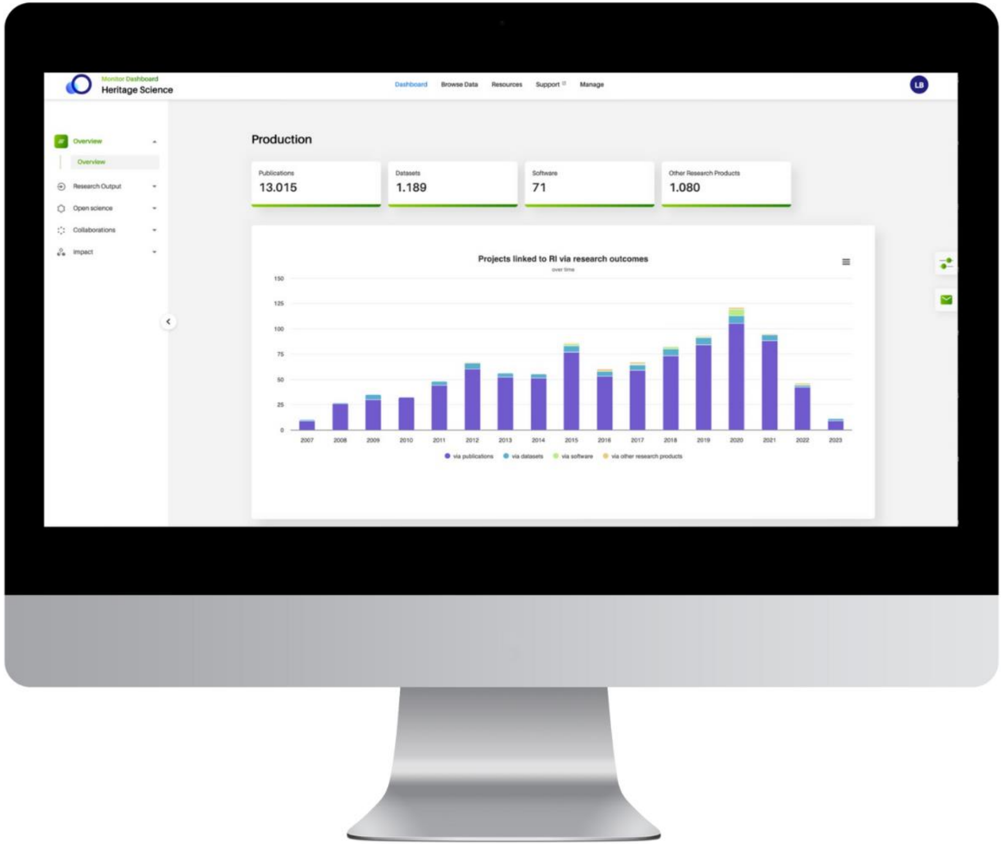
06 humanities and the arts

OpenAIRE Monitor Heritage Science


Monitor Dashboard
Heritage Science
Dashboard
Browse Data
Resources
Support
Manage
LB
Overview
Overview
Research Output
Open science
Collaborations
Impact
150
125
100
75
50
25
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
● via publications
● via datasets
● via software
● via other research products

Production

Publications 13.015

Datasets 1.189

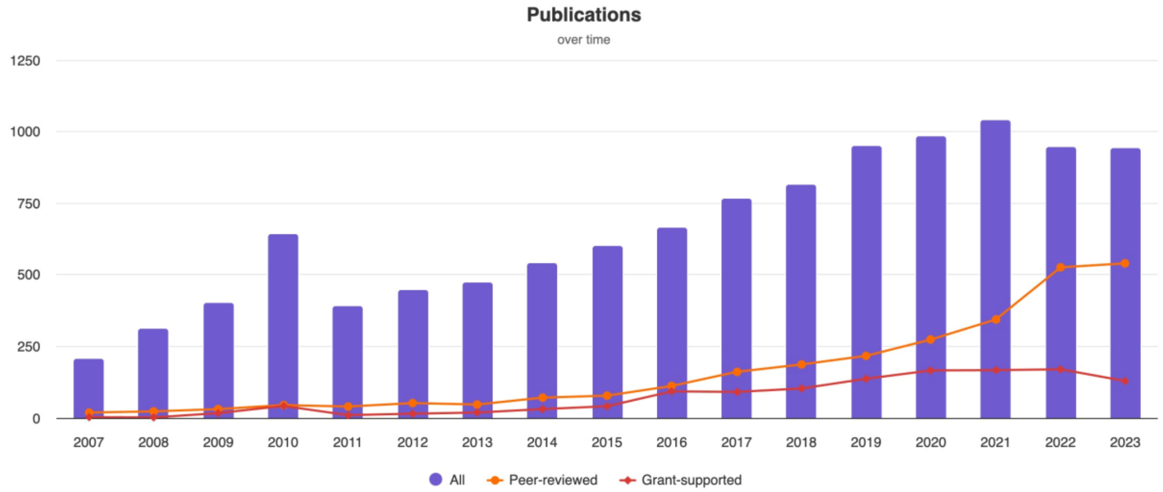
Software 71

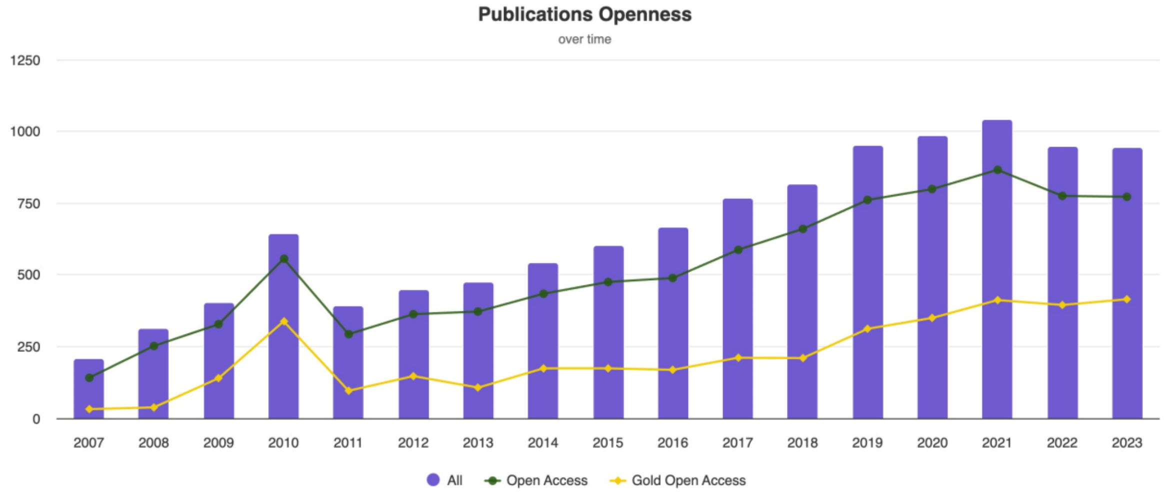
Other Research Products 1.080

Projects linked to RI via research outcomes

over time

Publications





Allies of light

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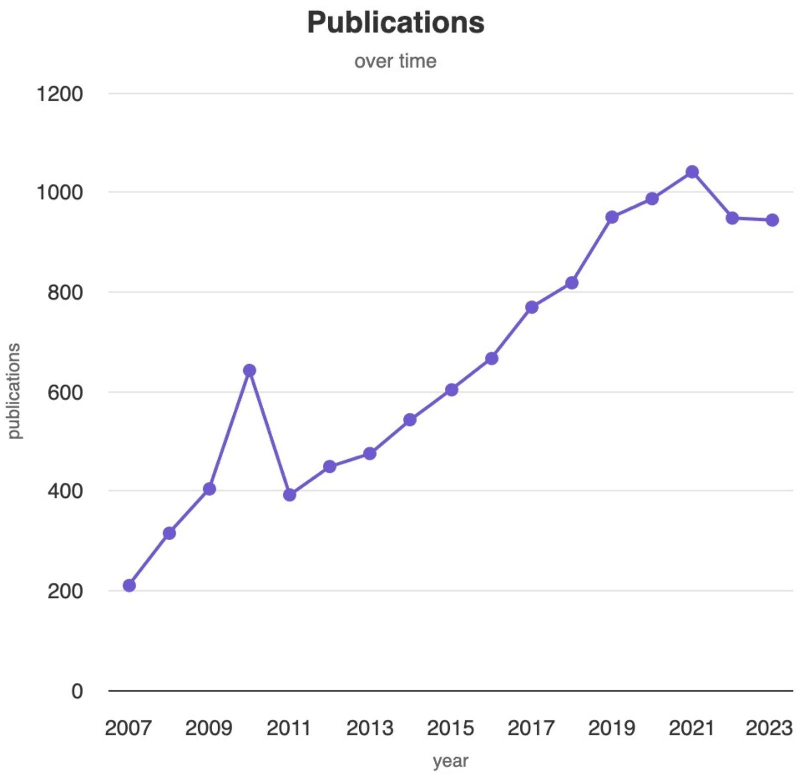
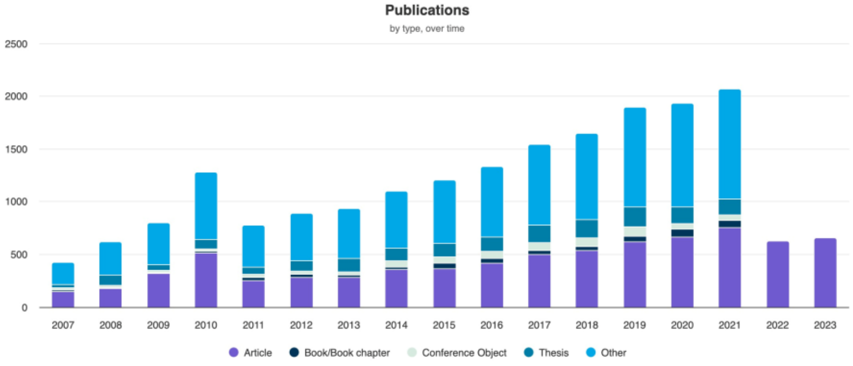
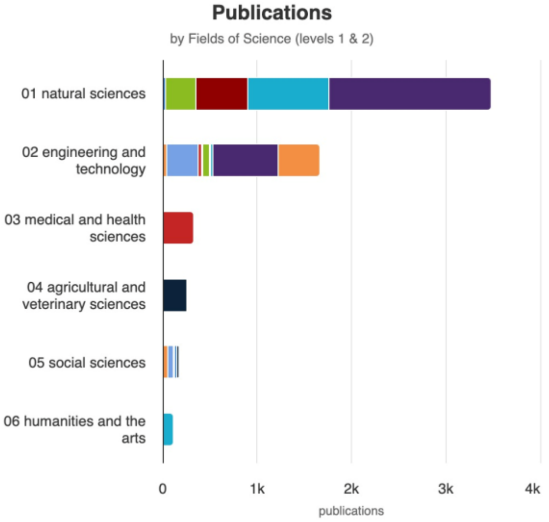
CONSIGLIO NAZIONALE DELLE RICERCHE

Publications



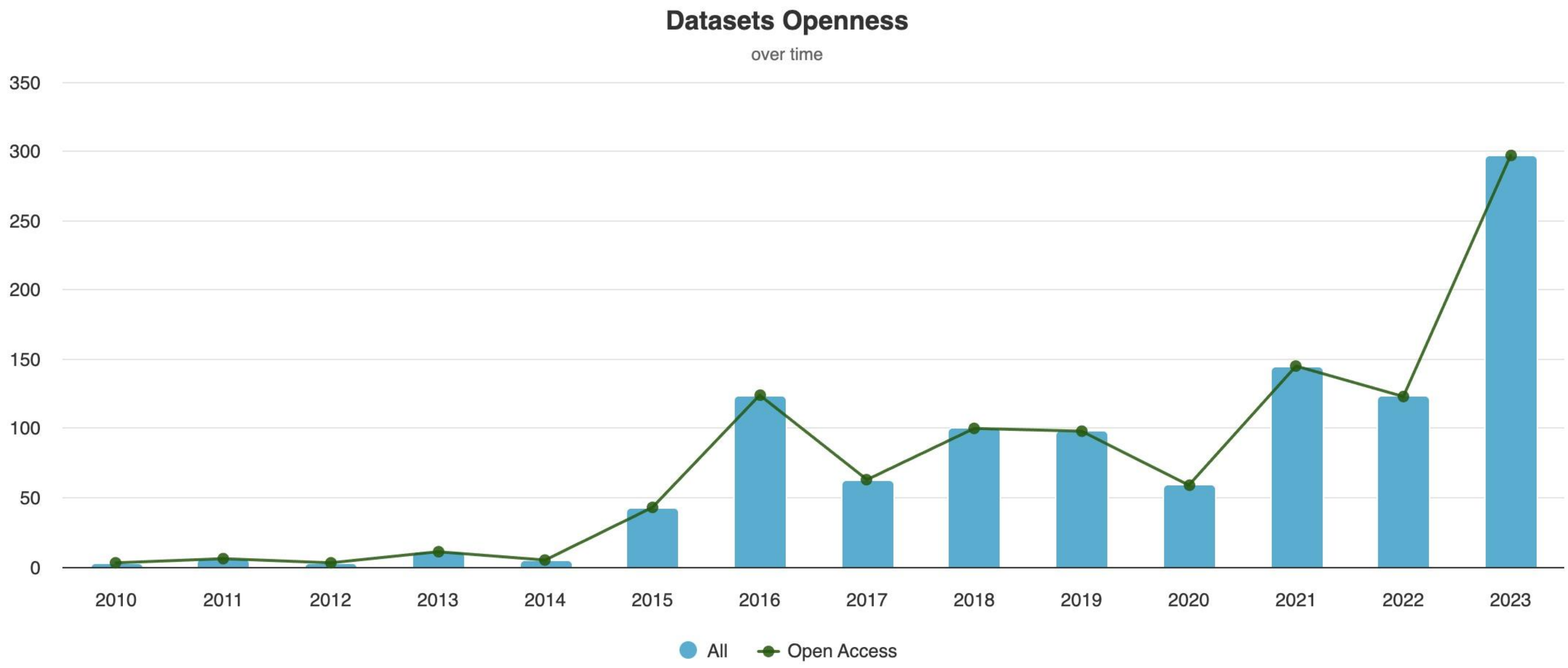




Allies of light

CNR-INO
ISTITUTO NAZIONALE DI OTTICA
CONSIGLIO NAZIONALE DELLE RICERCHE

Datasets


Datasets Openness
over time
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100
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2017
2018
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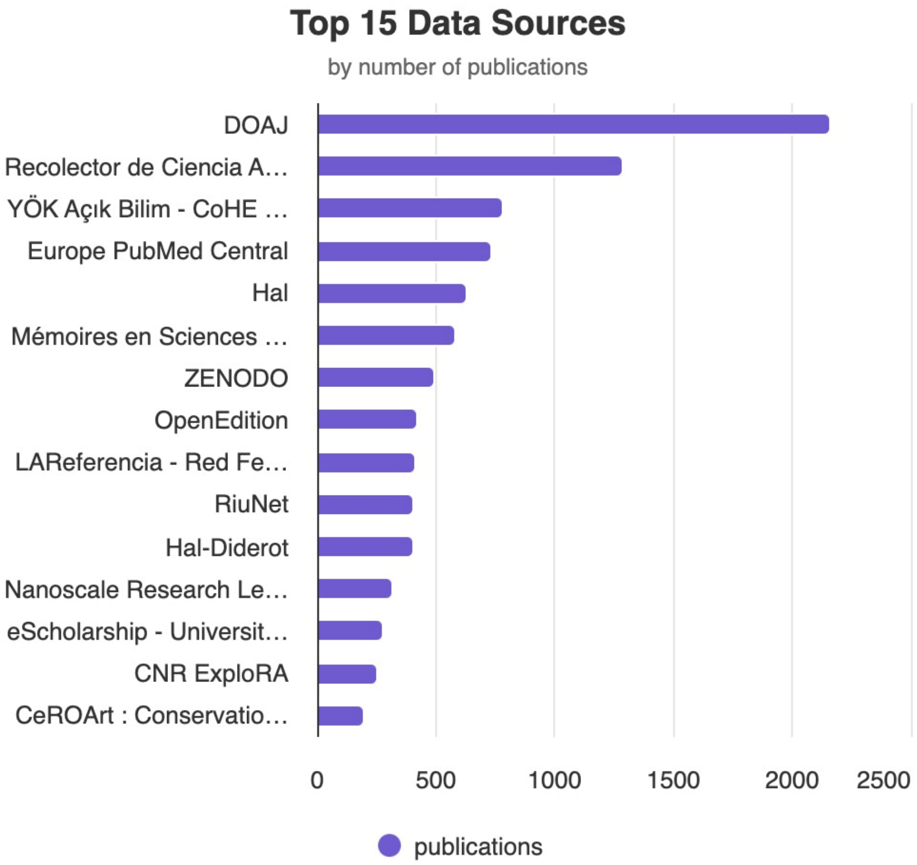
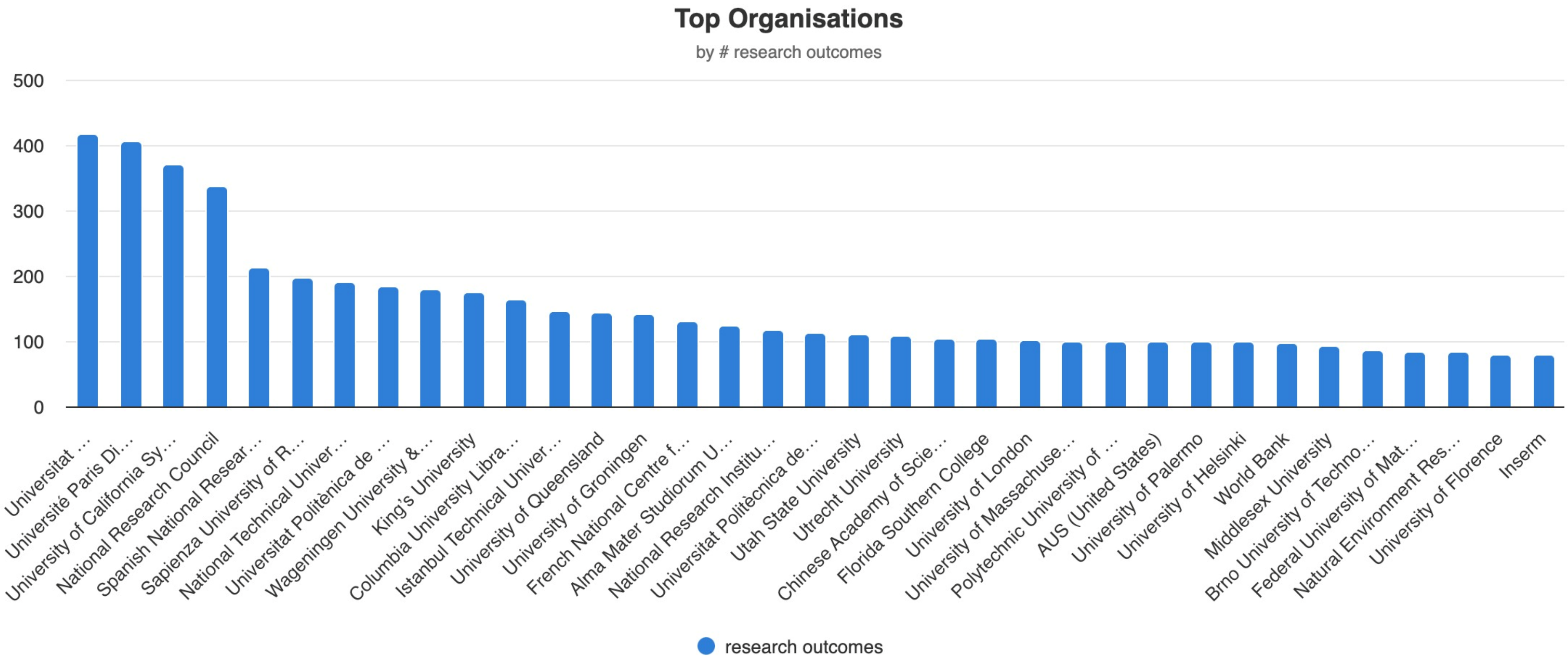
2021
2022
2023
● All
Open Access

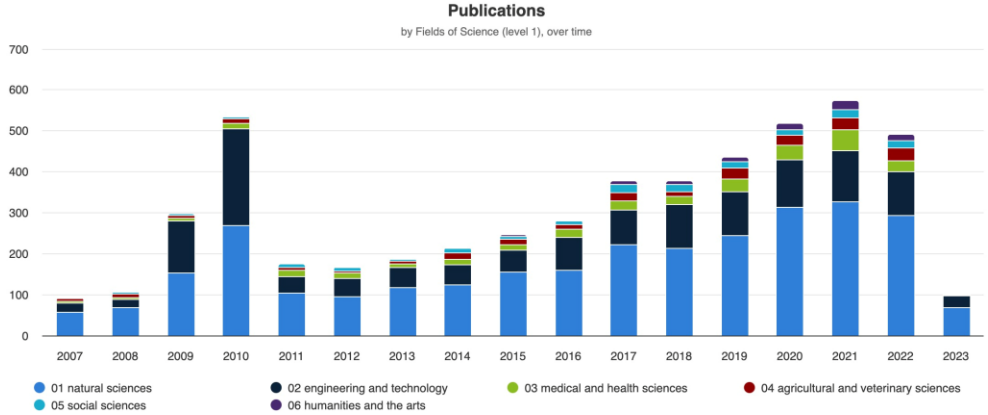
Data Sources

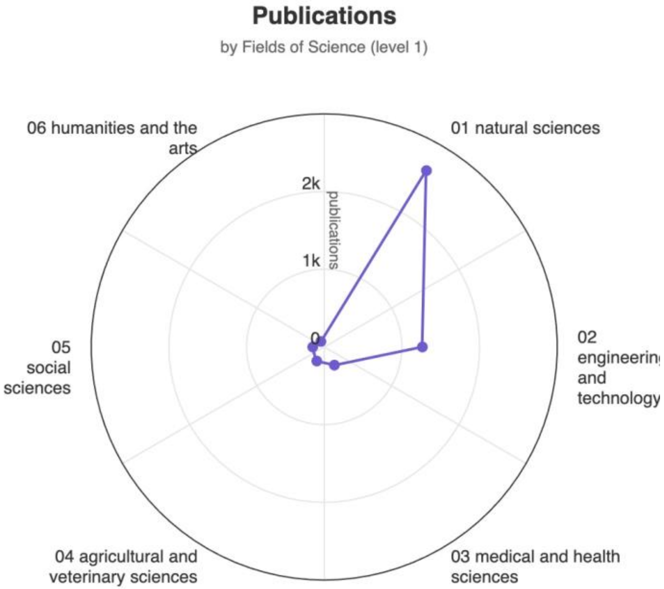


ORGANISATIONS

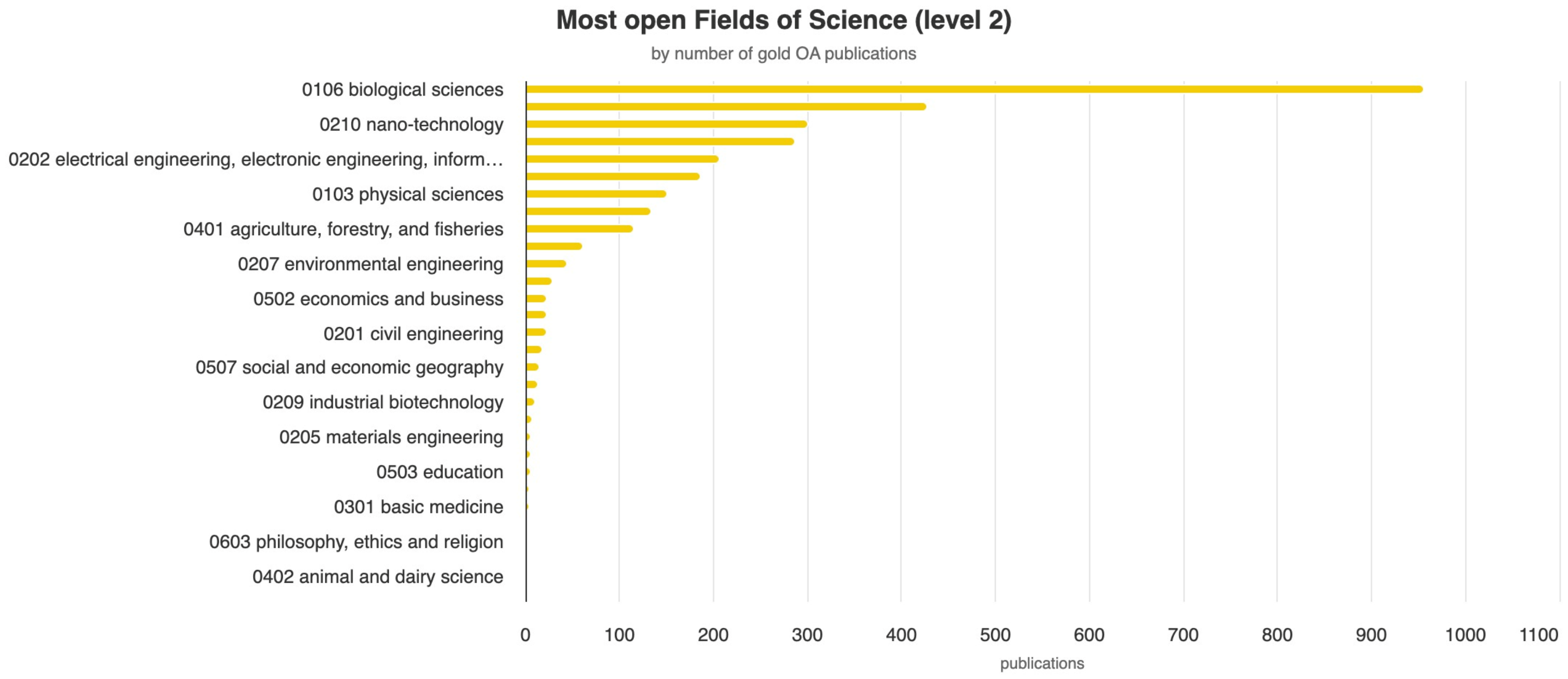


Fields of Science



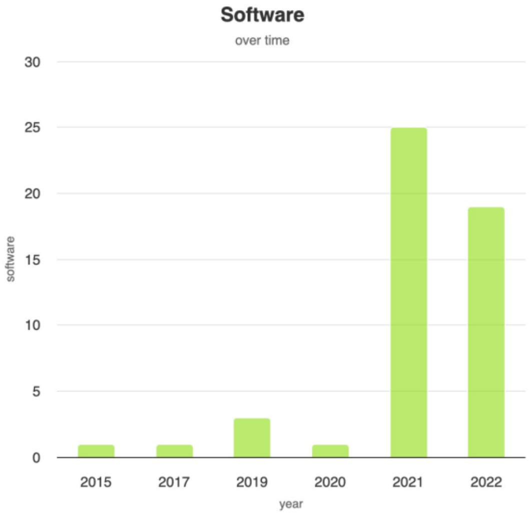


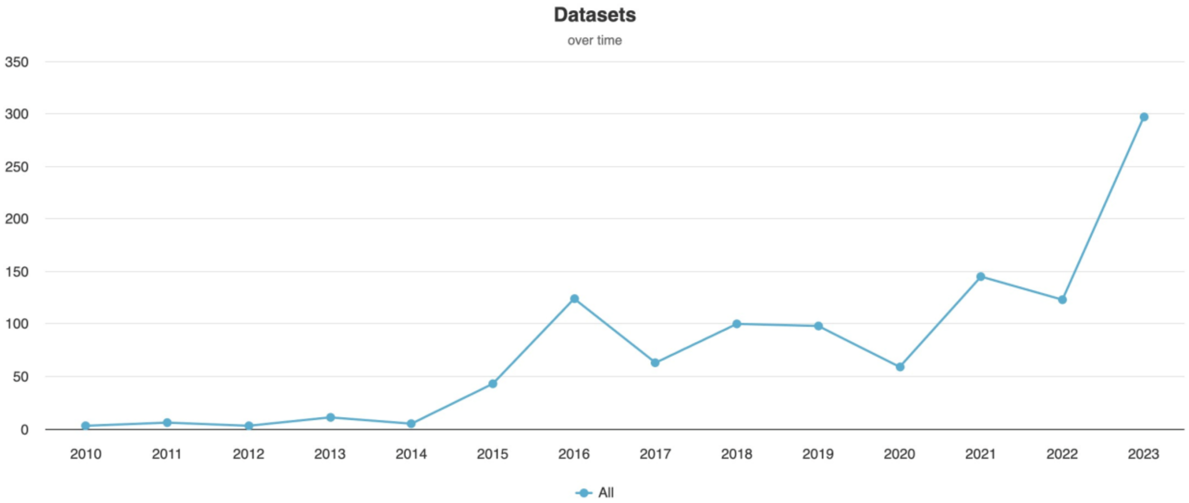
Fields of Science



Softwares & datasets

Allies of light





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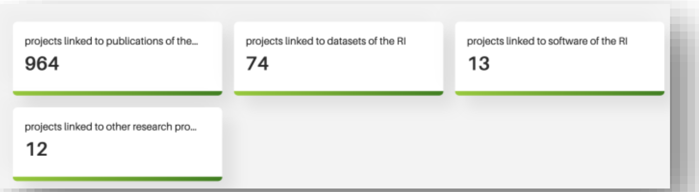
Projects grants

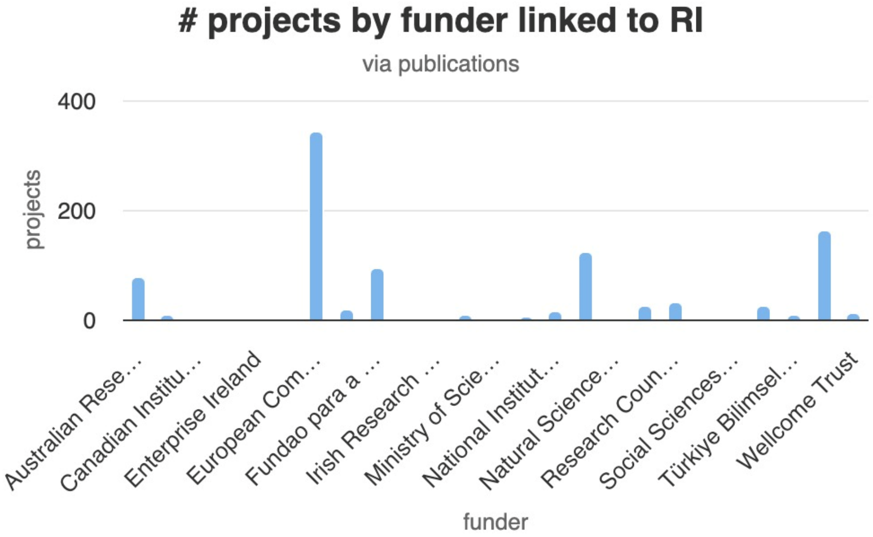


projects linked to publications of the...
964

projects linked to datasets of the RI
74

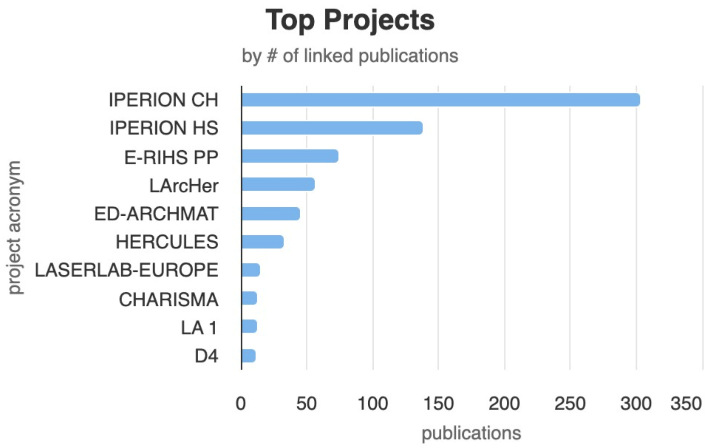
projects linked to software of the RI
13

projects linked to other research pro...
12



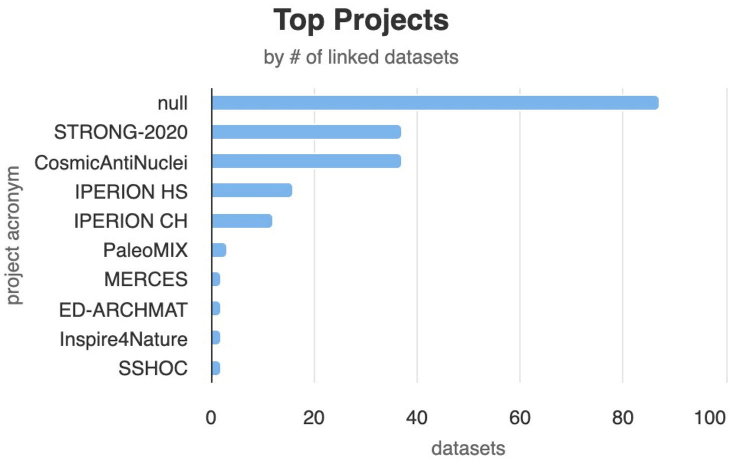
projects by funder linked to RI

via publications



Top Projects

by # of linked publications



Top Projects

by # of linked datasets

Allies of light

Grazie per l’attenzione

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