

Pedro Príncipe
University of Minho

Iryna Kuchma
EIFL

Facilitate Research Communities adoption of Open Science Publishing Principles

OPENAIRE-CONNECT

OpenAIRE-Connect project

- Duration 30 months (2017-2019)
- 11 Partners

- 4 technical partners **CNR, ARC, ICM, CERN**



- 5 research communities **CNRS, ICRE8, IRD, PIN, UniHB**



- 3 content provider representatives **UniHB/WDS, Jisc, UMinho/COAR**



Project highlights

REALIZATION OF OPEN SCIENCE SERVICES

- ✓ **Research community services: offering support for a uniform transition of research communities towards OS publishing;**
 - ✓ Pilot-driven approach
- ✓ **Content provider services: leveraging the transition of CP towards OS publishing;**
- ✓ **Testing, validation, deployment, integration in OpenAIRE technical infrastructure.**

BUILDING COMMUNITY CAPACITIES FOR EUROPEAN AND GLOBAL ALIGNMENT ON OPEN SCIENCE

- ✓ **Engaging and supporting communities and content providers (research community open science desks, legal advisory board)**
- ✓ **Interoperability guidelines to facilitate metadata exchange**
- ✓ **Support of OpenAIRE networking services**

Extending the technological services and networking bridges (human/social/support) today offered by the OpenAIRE

Blowing on the fire of Open Science

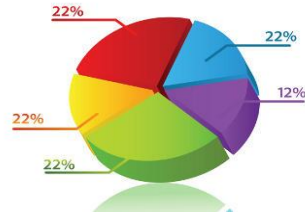
Facilitate Research Communities adoption of **Open Science publishing** principles by supporting artefact publishing tools as-a-Service

Facilitate Content Providers at moving towards **Open Science publishing** by supporting notification-based research communication as-a-Service.



Open Science as-a-Service (OSaaS)

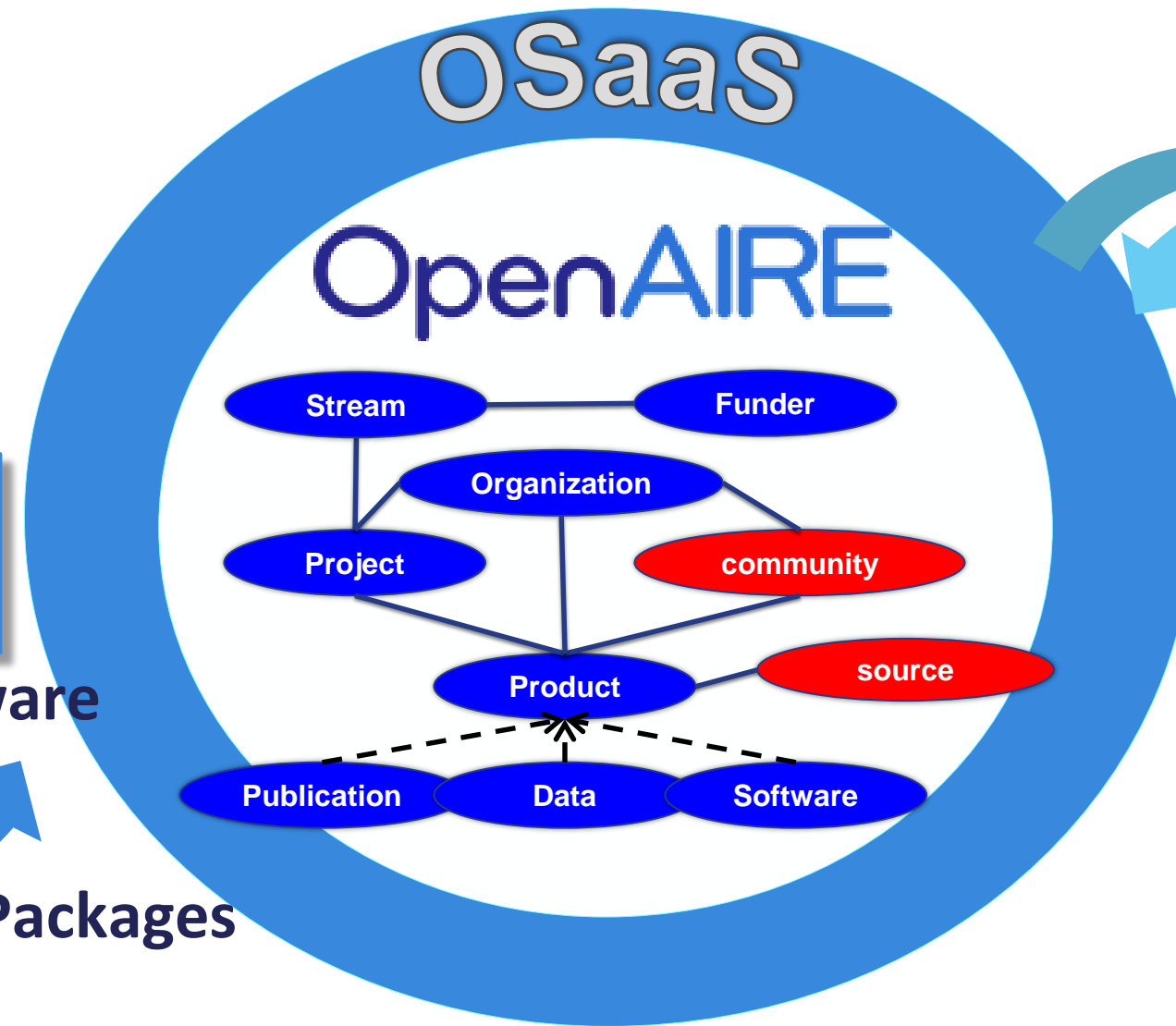
Researchers



Search-Navigate-Monitor-
Research Impact

**Research Community
Dashboard**

Projects
Articles
Data
Software
Packages



**Content Providers
Dashboard**

Subscription & Notification

Articles
Data

Software
Repositories

Research Communities and Open Science benefits

Common repository for publishing (deposition) of datasets, methods, and packages

- Can continue their publishing practices, but, if needed they have support for deposition of any artefact

Collaborative curation of a community-specific research communication domain

- Community information space to share, discovery, and reuse (reproduce) scientific results

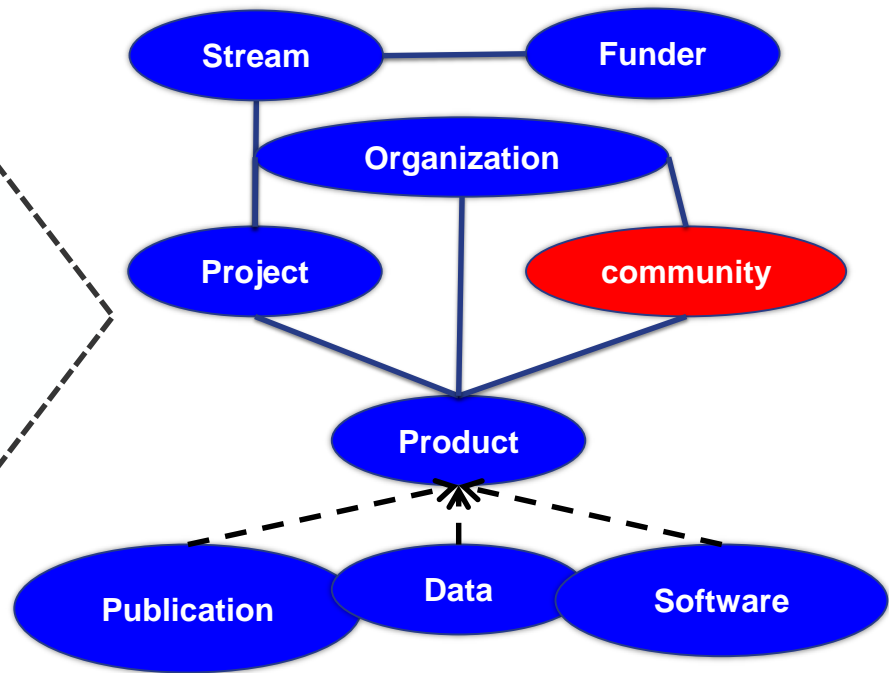
Research impact and statistics

- Scientific reward strategies can be developed

Research Community Dashboard

OpenAIRE Graph

(deduplicated & enriched)



Harvest & push metadata

Additional links automatically generated based on inferences

Research communities can...

Claim products

Claim links

Search & navigate content

Statistics on research impact

Deposit products



Repositories & RI services



Research Community Dashboard



Research Community Dashboard

***Community “experts”
configure the dashboard***

which repositories to use (pubs, data, software...).
how to structure community (e.g., ontologies).
which statistics and reports to produce.
which text mining rules to use for inference.

Moderate end-users actions.

Govern the service.

OpenAIRE takes over aggregation, cleaning,
inferring, statistics, reporting, APIs...


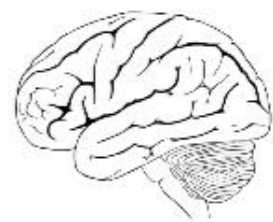




Use of interoperability standards by default.

***Communities are “owners”
of the Dashboard***

beta

OpenAIRE Research Communities **services status**

COMMUNITY

 <p>European Marine Science</p>	 <p>Neuroinformatics</p>	 <p>Agricultural and Food Sciences</p>
 <p>Fisheries and Aquaculture Management</p>	 <p>Digital Humanities and Cultural Heritage</p>	 <p>Sustainable Development Solutions Network - Greece</p>

RESEARCH INITIATIVE

 <p>Instruct-ERIC</p>	 <p>ELIXIR-GR</p>	 <p>DARIAH EU</p>
 <p>EGI : advanced computing for research</p>	 <p>Research Data Alliance</p>	 <p>Common Language Resources and Technology Infrastructure</p>

Aims: publish, share and discovery

Aims: research impact

Repositories: Open Science as-a-Service benefits

Extending repository metadata models to Open Science

- Enabling addition of links to artefacts of any kind

Keeping their collection up-to-date: enrichments and additions

- “Almost real-time” exchange of information: notifications about links to other artefacts, missing properties, and missing artefacts

Fostering notification-based and federated dissemination of knowledge

- Enabling repositories to be notified of content of interest, enabling construction of research-focused aggregators by notifications

The image features five silhouettes of people running on a beach, captured in motion against a blue-tinted background. The runners are positioned across the frame, from left to right, with their arms and legs in various stages of a running stride. The background shows a beach, a body of water, and distant hills under a clear sky. A yellow rounded rectangle is overlaid on the bottom right, containing text.

Dashboard for Research Communities

*Showcase real use cases
from the OpenAIRE-connect
pilot communities*

A VIRTUAL ENVIRONMENT DESIGNED FOR COMMUNITIES

Services

**Implement the latest Open Science trends:
FAIR data, open data**

-  **Share**
all your research results:
publications, data, software, methods
-  **Link**
all your research effectively
-  **Gather**
all your research results in one place
-  **Monitor**
and report your community's progress

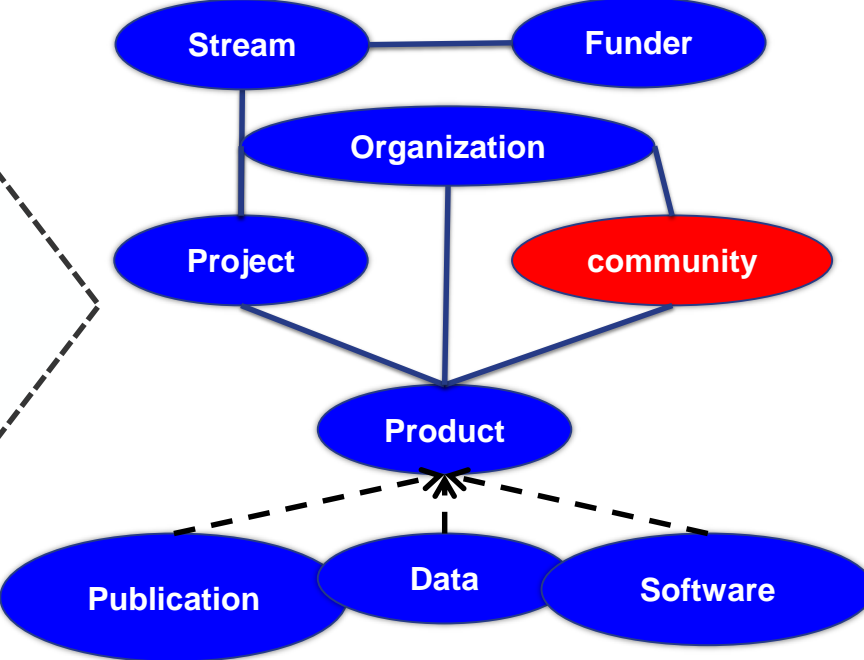
Benefits

- ▶ **Community-oriented Open Science publishing tools**
Scientists may continue using RI services and publishing practices, but, if needed, can find support for publishing/interlinking any kind of products.
- ▶ **Collaborative curation of a community-specific scholarly communication information space**
Community information space to share, discover, interlink, gather and reuse (reproduce) scientific results.
- ▶ **Community-oriented Reporting and Open Science monitoring**
Enable reporting to funders, development of scientific reward strategies inclusive of all products of science.

Research Community Dashboard

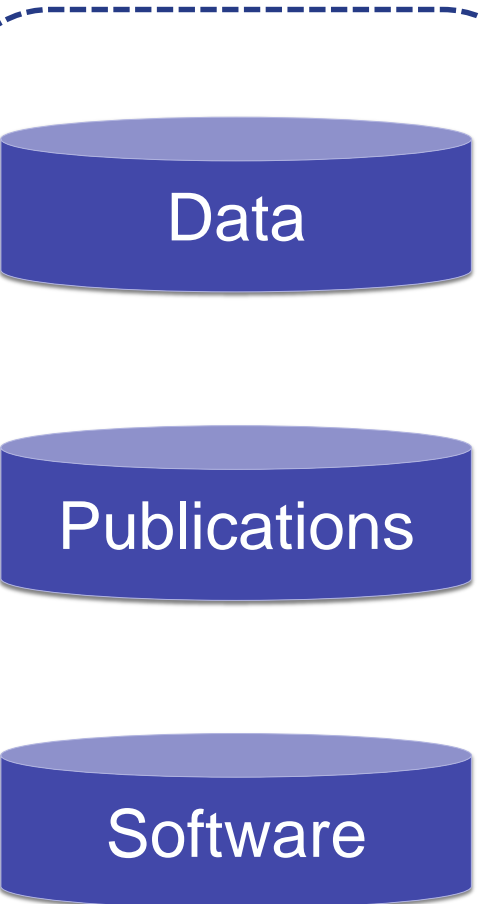
OpenAIRE Graph

(deduplicated & enriched)



Harvest & push metadata

Additional links automatically generated based on inferences



Repositories & RI services

Research communities can...

Claim products

Claim links

Search & navigate content

Statistics on research impact

Deposit products









Research Community Dashboard



OpenAIRE Research Communities/Initiatives Dashboard

COMMUNITY

 <p>European Marine Science</p>	 <p>Neuroinformatics</p>	 <p>Agricultural and Food Sciences</p>
 <p>Fisheries and Aquaculture Management</p>	 <p>Digital Humanities and Cultural Heritage</p>	 <p>Sustainable Development Solutions Network - Greece</p>

RESEARCH INITIATIVE

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Aims: publish, share and discovery

Aims: research impact



Research Community

vs

Research Initiative

Research communities

The concept is more articulated

- **Community**, e.g. group of scientists with common research intents, interests, vision (discipline-driven)
 - **Aims:** publish, share and discovery
- **Research Initiative**, e.g. long-term (cross-project) funded initiatives such as EGI, RDA and discipline research infrastructures (ELIXIR, EPOS)
 - **Aims:** research impact

Research Communities

Discovery!

Communities requiring tools to deposit, share, interlink, and find all kinds of research products relevant to their discipline.

Organizations requiring tools for monitoring their research impact in terms of the research products they funded or enabled/supported the creation of.

Research Initiatives

Monitoring!

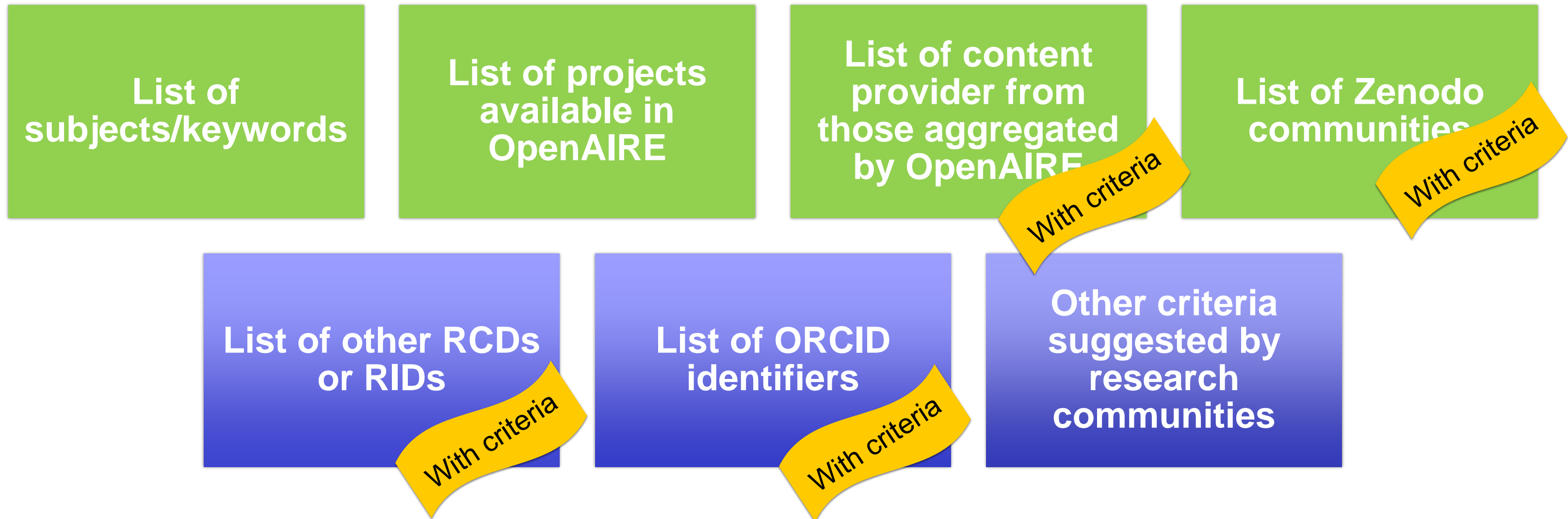
Research Community/Initiative Dashboard

The Dashboard offers a **customised view of the OpenAIRE Research Graph** for a given discipline or a specific research topic (RCD) or a research initiative or infrastructure (RID).

Dashboard managers can configure the **criteria** that OpenAIRE should apply to include a product in the community graph.



Research Community Dashboard: configuration criteria



Research Initiative Dashboard: configuration criteria

~~List of subjects/keywords~~

List of projects available in OpenAIRE

List of content provider from those aggregated by OpenAIRE

List of Zenodo communities

With criteria

With criteria

List of other RCDs or RIDs

List of ORCID identifiers

Other criteria suggested by research communities

Mining algorithm (e.g. ack statements)

With criteria

With criteria

Research Community Dashboard

The OpenAIRE Research Community Dashboard offers a **customised view of the OpenAIRE Research Graph** for a given discipline or a specific research topic.

RCD managers can configure the dashboard to decide what should be visible: which types of research products, charts, and information about the goal of the RCD and the endorsing organizations, for transparency and to build trust.





European
Marine
Science

SEARCH MONITOR SHARE LINK ALESSIA

About the community

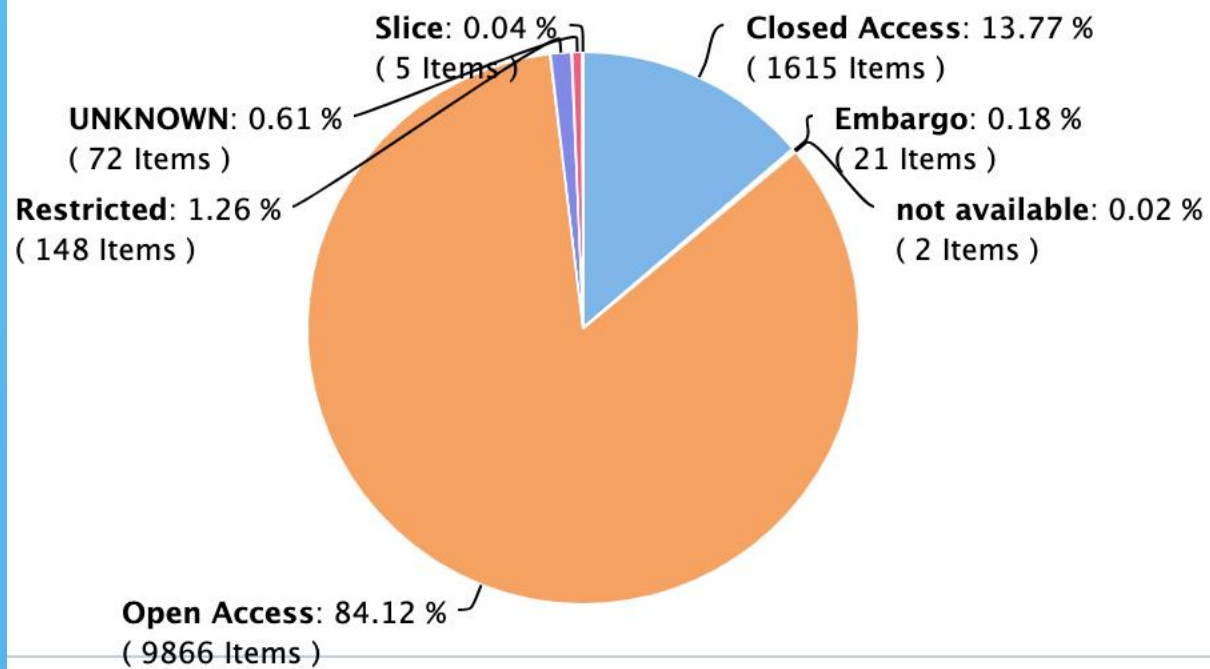
This community was initially defined to include a very broad range of topics, with the intention to generate a number of more focused and sustainable dashboards for research communities and initiatives. As outlined in the logo of this community consortium of 56 research and academic organisations) and monitoring dashboards for marir (EMSO), advisory boards (e.g. Marine Boards & ICES), and transnational funding bodies (e.g. JPI



Neuroinformatics

CNRS and Inria are members of the OpenAIRE-connect project and represent the France Life Imaging network. VIP and Shanoir are developed as part of France Life Imaging.

Publications by access mode



Display options

SHOW #

IN MONITOR

IN DASHBOARD



France Life Imaging



Centre national de la
recherche scientifique
(CNRS)



Inria



Virtual Imaging
Platform (VIP)



Shanoir

Research Community Dashboard

Researchers can collaborate in growing their community graph by **adding** existing research products, **sharing** new research products and adding **semantic relationships** among them.

Researchers are supported in being compliant to Open Access mandates, adopting Open Science publishing practices, finding and re-using relevant scientific outputs and monitoring Open Science statistics over time.



Actions of researchers to grow the graph

Import metadata from CrossRef and Datacite given a list of DOIs

Import metadata from ORCID given an ORCID id

Deposit a product in one of the related Zenodo communities


Deposit a product in one of the related content provider

Use the linking functionality to add a product to the community

Import metadata from ePMC given a list of PMID

Import metadata from HAL given a list of HAL ids

Configuration portal



Administration Dashboard

Argiro Kokogiannaki

DASHBOARD
MANAGE COMMUNITY PROFILE
MANAGE ENTITIES
ACTIVATE ENTITIES
MANAGE PROJECTS
MANAGE CONTENT PROVIDERS
MANAGE PAGES
ALL PAGES
SEARCH PAGES
LINK PAGES
SHARE PAGES
LANDING PAGES
MANAGE HELP TEXTS
PAGE HELP TEXTS
CLASS HELP TEXTS
MANAGE STATISTICS & CHARTS
MANAGE CLAIMS
MANAGE TEXT MINING RULES

YOUR MINING PROFILES

PROFILE	MODIFIED
CLARIN initial example	April 18 2018
User's Demo Profile	March 26 2018

CREATE A NEW MINING PROFILE

START WITH AN EXAMPLE PROFILE

CLARIN	COMMUNITIES	AOF
4 concepts	25 concepts	66 concepts
9 documents	104 documents	1023 documents

1 Add concepts

2 Configure matching process

3 Save matching profile

DEFAULT RULES

Select your mining strategy. Choose between high recall or high precision.

High recall High precision

CUSTOM RULES

POSITIVE PHRASES +

NEGATIVE PHRASES 2 phrases -

Add negative phrases. If these phrases are found around the match, this is possibly a false positive. You can use different weights to assign importance.

Phrase	Weight	ADD
COFUND-CLARIN	1	<input type="checkbox"/>
gene	1	<input type="checkbox"/>
2 negative words		

TEXT PREPROCESSING +

MINING AREA SIZE before: 10 +

TEST AREA

CONTINUE

Select or upload a dataset to test the mining algorithm. Each dataset contains documents from various sources according to its title.

CLARIN EGI CLARIN WELLCOME TRUST ARIADNE

9 documents loaded or Upload your documents

RUN RULES TEST 6 matches found , 8 matches found previously

OAI:ARXIV.ORG:1310.3370

Match 1: CLARIAH

this paper was funded by the EU Project AXES - Access to Audiovisual Archives (FP7-269980) and the Dutch national program CLARIAH (<http://www.clariah.nl/>). We thank Dispectu (www.dispectu.com) and Spinqe (www.spinque.nl) for their collaboration in the research project Oral History Today. References 1.

OAI:ARXIV.ORG:1309.2788



Match 2: CLARIN

labeled as front office, contain the funding agencies, as NWO2 in the Netherlands, university libraries, and research infrastructures such as CLARIN 3 , or DARIAH4 , which are in themselves complex organizations. They could be seen as 'clients' of an archive. But

1501.06412

Match 3: CLARIN

project nrs 727.011.005, 612.001.116, HOR-11-10, 640.006.013, the Center for Creation, Content and Technology (CCCT), the QuaMerdes project funded by the CLARIN -nl program, the TROVe project funded by the CLARIAH program, the Dutch national program COMMIT, the ESF Research Network Program ELIAS,



Customized portal for end users

Digital Humanities and Cultural Heritage

SEARCH

Subscribe

Digital Humanities and Cultural Heritage

Digital Humanities and Cultural Heritage

digital archaeology CODOC CRM digital humanities archaeology digital cultural heritage archaeological sites ontologies

Curated by: ileniagalluccio87, achille.felicetti Created: 21-11-2018 Members: 14 Zenodo communities: 13

331,881 publications

34,905 research data

3,732 software

12 570

8

5

Recent research results

publications research data software other research products

HIGHLY VARIABLE FRESHWATER RESERVOIR OFFSETS FOUND ALONG THE

OPEN

Schulting, Rick J.; Bronk Ramsey, Christopher; Bazaliiskii, Vladimir.; Weber, ...

<ats:p>A program of paired dating of human and faunal remains on a sample



UNSUBSCRIBE

MANAGE

Most recent statistics

Publications

Publications through the years

Year	Publications
2008	~600
2009	~800
2010	~900
2011	1,882
2012	~2,000
2013	~3,000
2014	~3,200
2015	~800
2016	~2,000
2017	~200
2018	~100

2011 publications: 1,882

Yearly Cumulative

Publications by access mode

Access Mode	Percentage	Number of Items
Open Access	93.27 %	17065
Closed Access	6.65 %	1217
Restricted	0.03 %	6
UNKNOWN	0.04 %	8
Embargo	0.01 %	1

Configuring the dashboards

- Relevant Zenodo communities
- Relevant OpenAIRE-compatible content providers
- Relevant subjects/keywords
- Relevant projects (among those integrated into OpenAIRE)

Research Communities on board



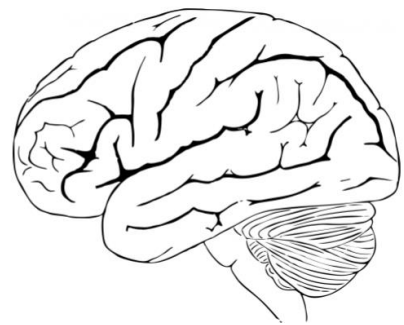
Sustainable and
Development Solutions
Network - Greece



Fisheries & Aquaculture
Management



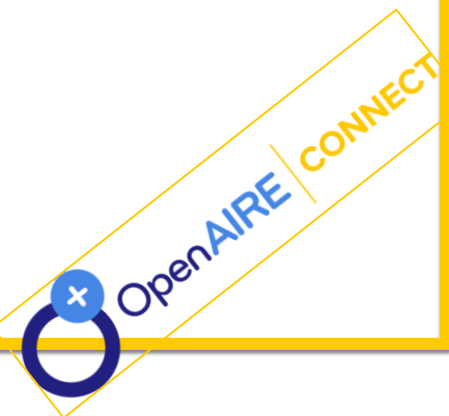
Digital Humanities
and Cultural
Heritage



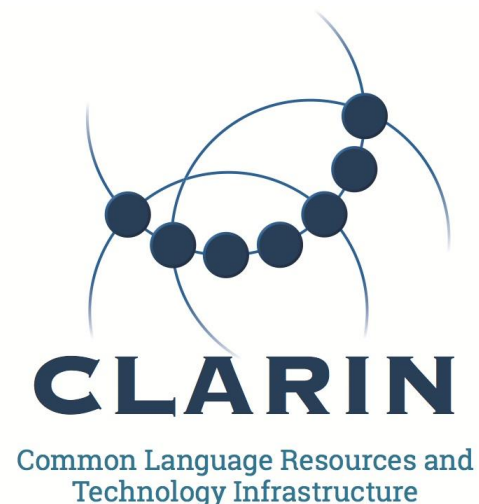
Neuroinformatics



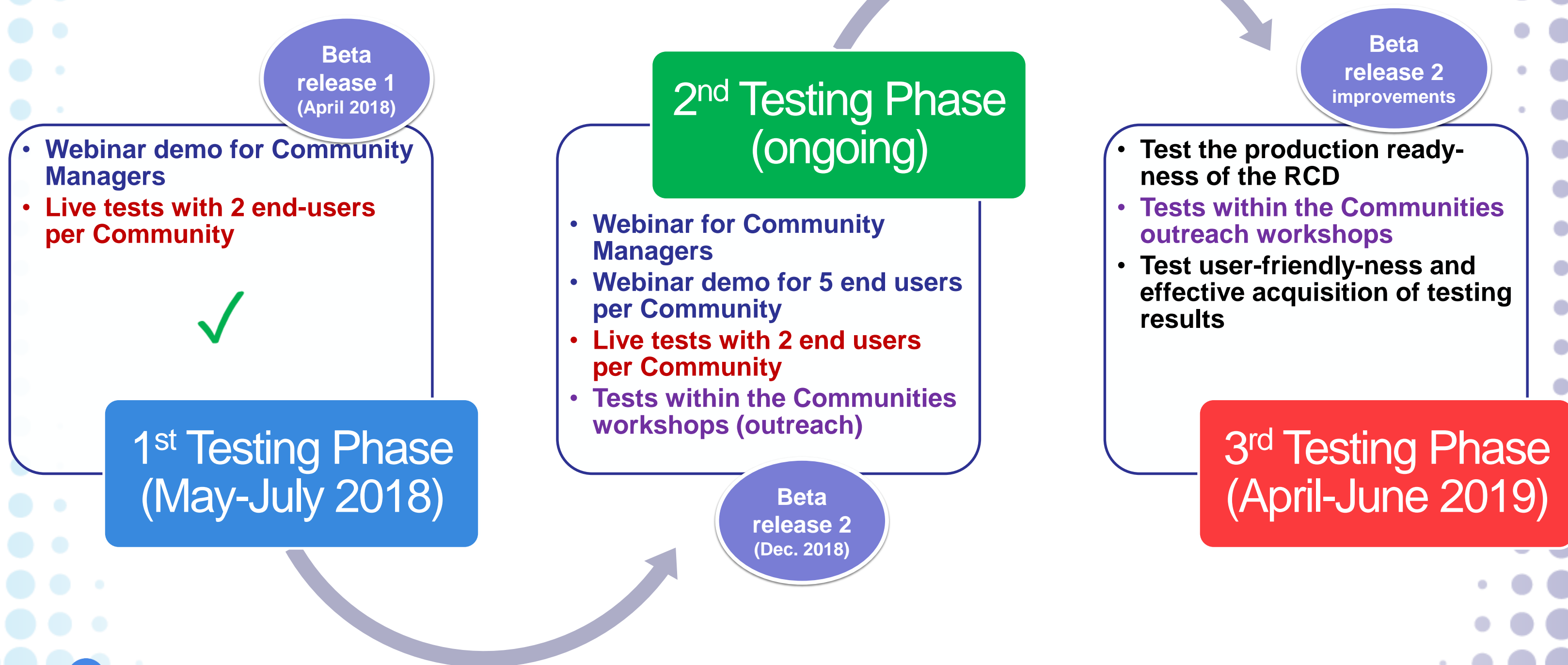
European Marine Science



Research Infrastructures/initiatives on board



TESTING PLAN & STATUS



Research Community Dashboard

Your view to open science



Are you a researcher?

Research community dashboard

A virtual environment designed for your community to:

share all your research results

link all your research



Are you managing a research community?

Use dashboard to configure:

the community profile

the community content

statistics & charts



Need help?

[Learn about open science policies and how to align](#)

[Learn more on how to manage your data in the open science era](#)

[Find out how to use OpenAIRE to best serve your needs](#)

EMS Use Case: three-tier Approach

1. Past Projects



2. atlas



3. EUROMARINE



1. Past Projects



Marine Science

Dashboard

Search

Monitor

Share

Link

European Marine Science

marine

ocean

fish

aqua

sea

Curated by: [spesant](#)

Created: 01-03-2018

Members: 19

[Zenodo communities: 38](#)

11,733

publications

5,062

research
data

3,697

software

2,284

other
research
products

662

projects

5

content
providers

2.



atlas Open Science full life cycle

Publish

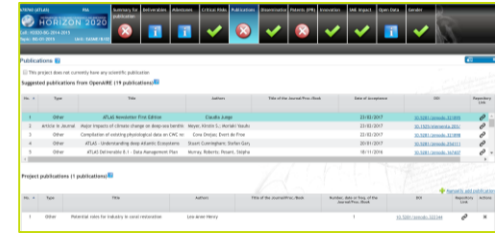
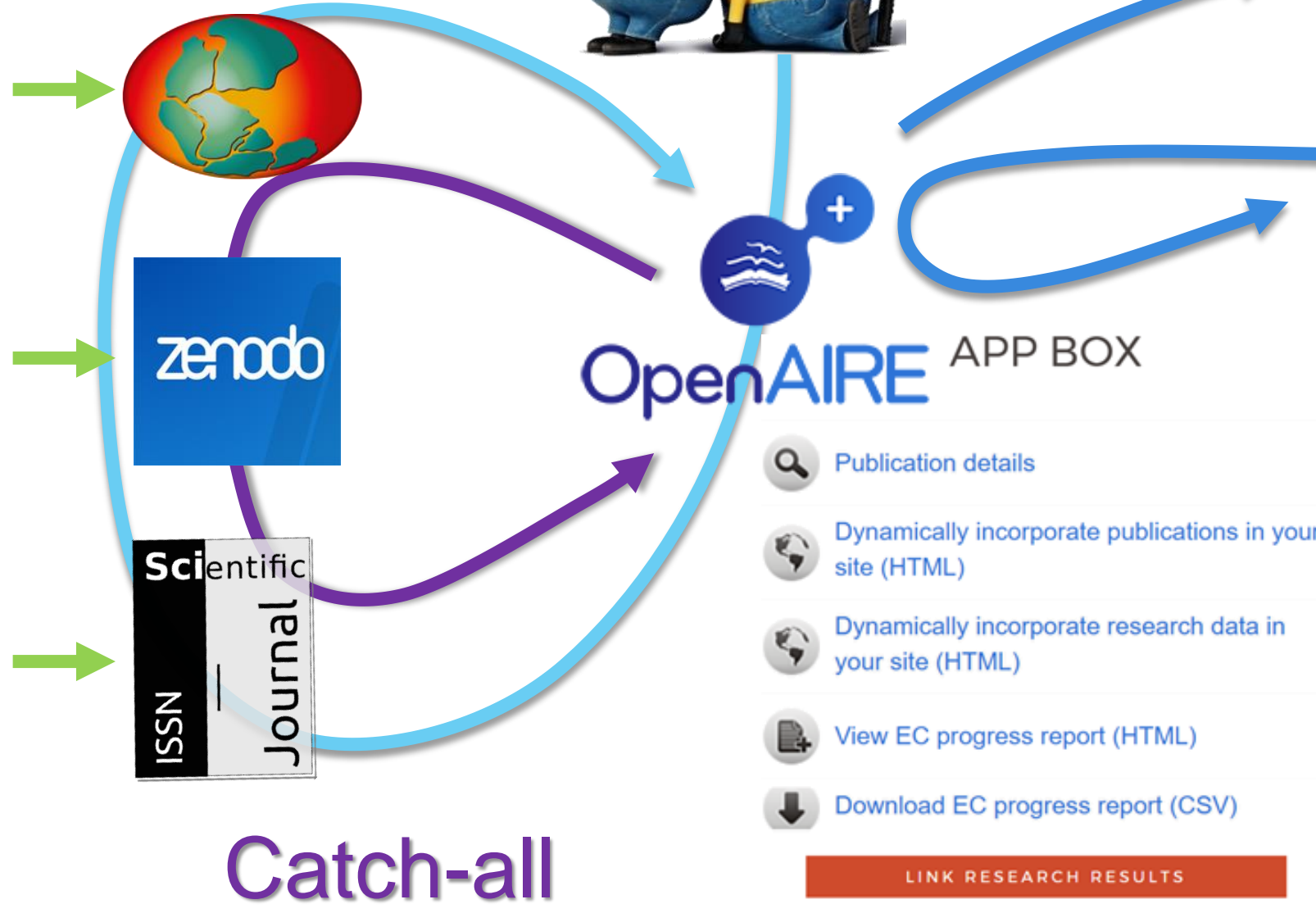
Claim

Monitor



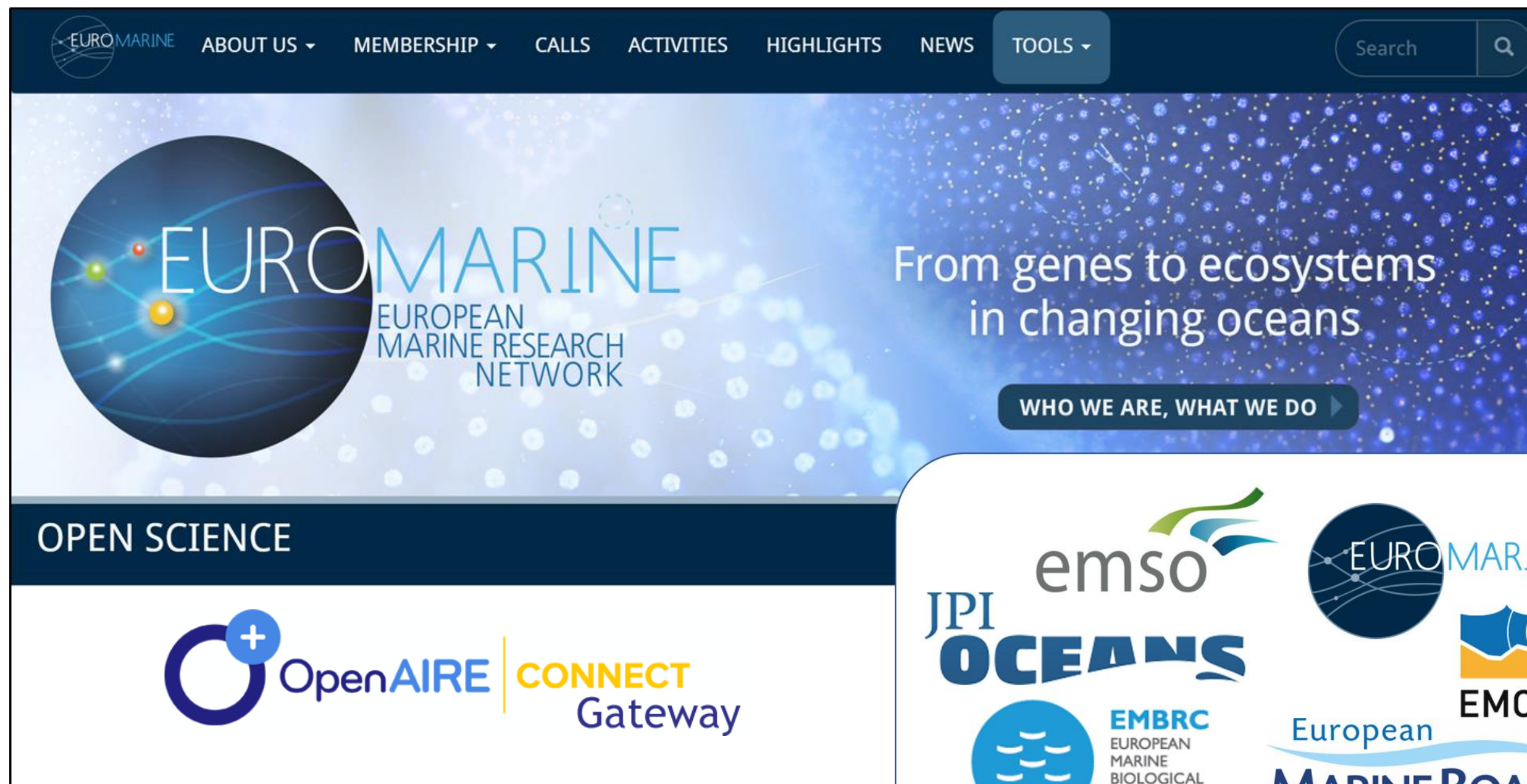
This project has received funding from the Horizon 2020 research and innovation programme under grant agreement No 678760 (ATLAS).

ORCID



3. EuroMarine – Wider Community Awareness

<http://www.euromarinenetwork.eu/>



Neuroinformatics community

- Represented by members of the France Life Imaging (FLI) collaboration
- Focus on e-infrastructure services to enable interoperability between in-vivo image acquisition platforms at National and international level (EGI)
- Use OpenAIRE-Connect services and promote their adoption across neuroinformatics scientists
 - Generate and share packages of research artefacts

SHaring NeuroImaging Resources

An open source web platform for neuro-imaging

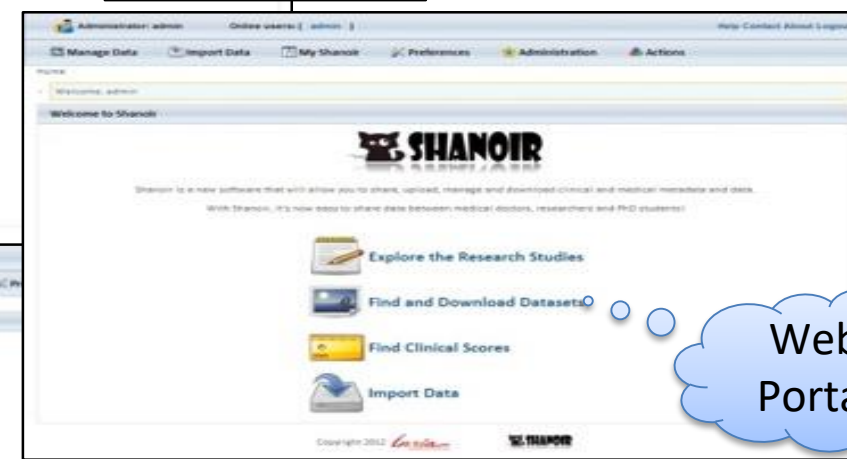
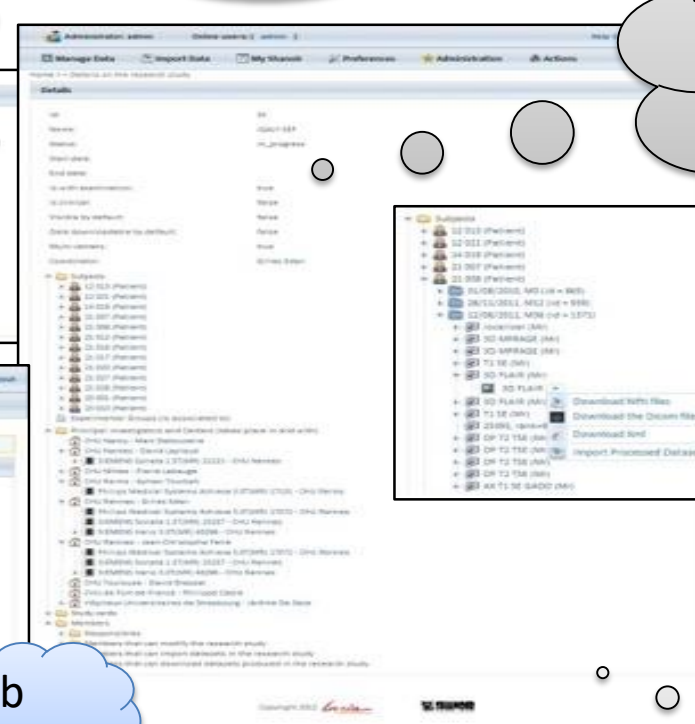
Download stored data

Online Visualization of stored data

Data de-identification and patient privacy

a model build on an formal ontology to

- Enhance data integrity
- Structure the data
- Manage data provenance
- Facilitate collaborative research
- Pool resources



Web Portal

Download Processed data

Support for multi-centric research studies

Support for processed (derived) data

Collect neuroimaging data from several sources :

- Dicom CD / DVD
- PACS (via Dicom Q& R)
- Nifti / Analyze image files

Support for clinical and neuropsychological scores



User access control

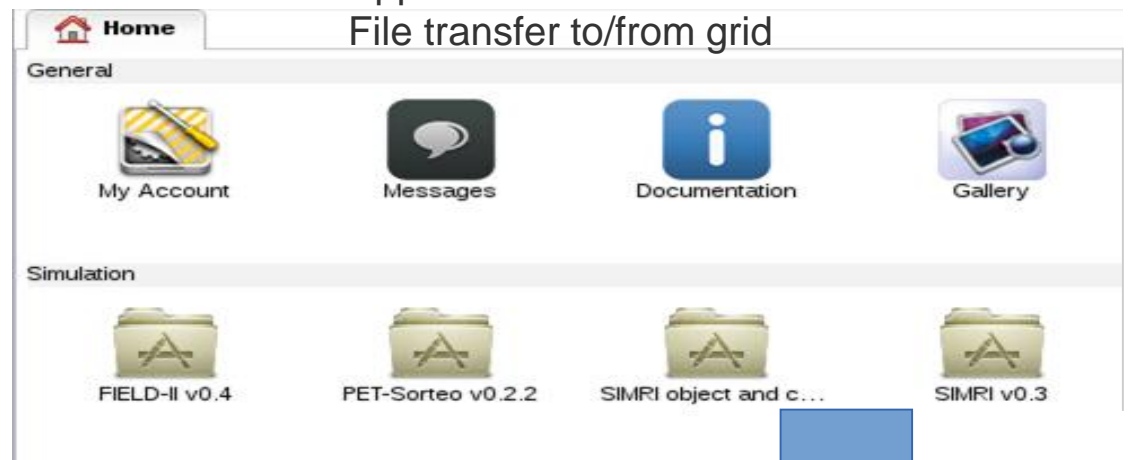
Virtual Imaging Platform (VIP)



Web portal

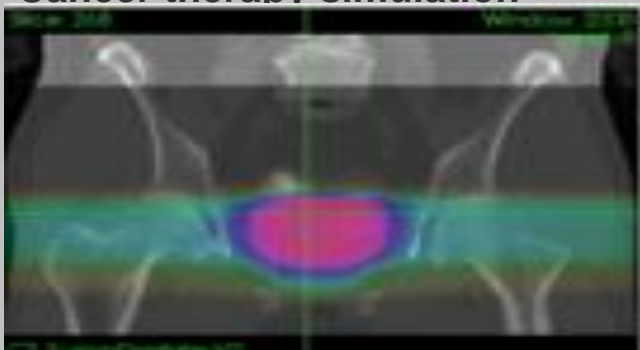
Application as a service

File transfer to/from grid



Scientific applications

Cancer therapy simulation



Prostate radiotherapy plan simulated with GATE (L. Grevillot and D. Sarrut)

Neuro-image analysis



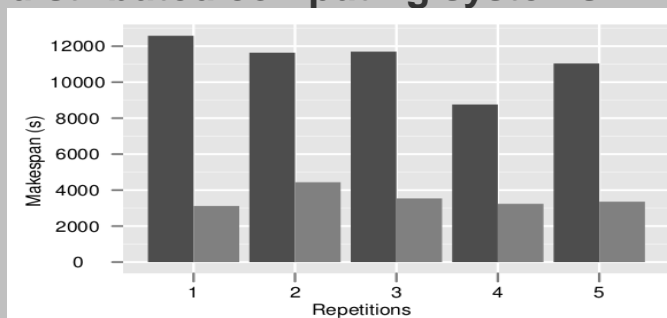
Brain tissue segmentation with Freesurfer

Image simulation



Echocardiography simulated with FIELD-II (O. Bernard *et al*)

Modeling and optimization of distributed computing systems



Acceleration yielded by non-clairvoyant task replication (R. Ferreira da Silva *et al*)

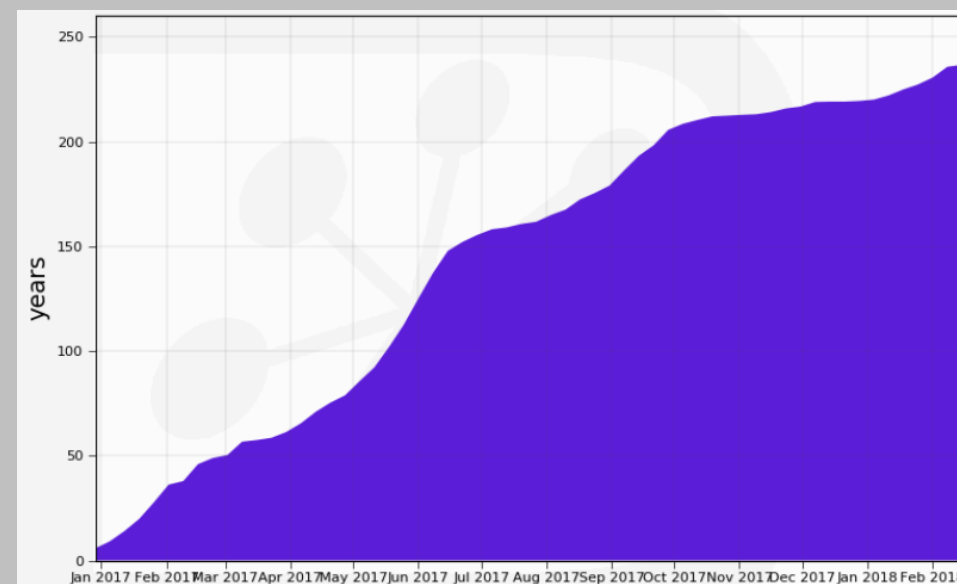
<https://vip.creatis.insa-lyon.fr>

Infrastructure

Supported by EGI Infrastructure

Uses biomed VO (~65 sites in Europe and beyond)

230 cumulated CPU years utilized by VIP applications in 1 year



France-Grilles



DIRAC

Users

1000+ registered users in October 2018

44 publications since 2011



Boutiques



- Describe, publish, integrate and execute command-line applications **across platforms**
 - facilitate application porting
 - import and exchange of applications
 - open and reproducible science
- Versatile JSON format to describe the command-line, inputs and outputs
- Use of Linux containers to facilitate application installation and sharing
- <https://github.com/boutiques>

October 8, 2018 (dev) Software Open Access

BIDS app example

chrisfilo and others;

See <https://github.com/BIDS-Apps/example>

Uploaded on October 8, 2018

October 8, 2018 (v0.1.0) Software Open Access

ndmg

Greg Kiar;

dwi connectome estimation pipeline

Uploaded on October 8, 2018

October 8, 2018 (3.19.0-centos7) Software Open Access

FreeSurferPipelineBatch-CentOS7

Washington University;

FreeSurferPipelineBatch HCP pipeline

Uploaded on October 8, 2018

Neuroinformatics software
descriptors published to

VIP and Shanoir CAN

- Become **providers/repositories** from which **OpenAire Connect** can harvest software (Boutiques pipelines, Dockers, etc) and data
- **Upload such products to Zenodo** (and get a DOI)
 - Boutiques implements “**bosh publish**” to **Zenodo** with support for tags
- Enable interoperability and reproducibility

Neuroinformatics Dashboard

Neuroinformatics

BRAIN MAPPING | BRAIN IMAGING | ELECTROENCEPHALOGRAPHY | ARTERIAL SPIN LABELLING | BRAIN FINGERPRINTING | BRAIN
NEUROIMAGING | MULTIMODAL BRAIN IMAGE ANALYSIS | FMRI | NEUROINFORMATICS | show more

Curated by: sorina.pop, camille.maumet, christian.barillot | Created: 06-08-2018 | Members: 5

22,060 publications	789 research data	86 software
1,735 other research products	9 projects	6 content providers

- Gather and search for all kind of research artefacts from the neuroinformatics community: literature, datasets, software.
- Link datasets and software to articles.
- Publish artefacts automatically and directly from data storage and computing platforms.
- Enable open and reproducible science.

Support/Dissemination materials



OpenAIRE Fact Sheets | www.openaire.eu

OpenAIRE-Connect Research Community Dashboard

A window to community's research

What is Research Community Dashboard?
OpenAIRE-Connect fosters transparent evaluation of results and facilitates reproducibility of science for research communities by enabling a scientific communication ecosystem supporting exchange of artefacts, software, packages of artefacts, and links between them across communities and across content providers.

Research Community Dashboard - RCD (connect.openaire.eu), facilitates Research Communities adoption of Open Science publishing principles by supporting artefact publishing tools as-a-Service.

Open Science as-a-Service for Research Communities

Facilitate Research Communities adoption of Open Science publishing principles by supporting artefact publishing tools as-a-Service.

What is RCD for?
Research Community Dashboard is a virtual environment designed for your community to:

- ▶ Implement the latest Open Science trends: FAIR data, open data
- ▶ Share all your research results: publications, data, software, methods
- ▶ Link all your research effectively
- ▶ Gather all your research results in one place
- ▶ Monitor and report your community's progress

Research Community Manager configure the Dashboard:

- ▶ Which repositories to use (pubs, data, software...)
- ▶ Which text mining rules to use for inference
- ▶ How to structure community (e.g., ontologies)
- ▶ Which statistics and reports to produce

Communities are "owners" of the Dashboard:

- ▶ Moderate end-users actions
- ▶ Govern the service
- ▶ OpenAIRE takes over aggregation, cleaning, inferring, statistics, reporting, APIs...
- ▶ Use of interoperability standards by default

CONTENT PROVIDER

RESEARCH COMMUNITY DASHBOARD

The one-stop-shop for your Open Science Needs

Open Science as-a-Service for Research Communities

Facilitate Research Communities adoption of Open Science publishing principles by supporting artefact publishing tools as-a-Service

A VIRTUAL ENVIRONMENT DESIGNED FOR YOUR COMMUNITY

Services	Benefits
<p>Tools to effectively evaluate and reproduce science</p> <p>For Researchers</p> <ul style="list-style-type: none"> ▶ Share all your research results: publications, data, software, methods ▶ Link all your research effectively ▶ Gather all your research results in one place ▶ Monitor and report your community's progress <p>For Research Managers</p> <p>Use the dashboard to configure:</p> <ul style="list-style-type: none"> ▶ the community profile ▶ the community content ▶ statistics & charts ▶ users links 	<p>for Research Communities</p> <ul style="list-style-type: none"> ▶ Community-oriented Open Science publishing tools Scientists can continue using RI services and publishing practices, but, if needed, can find support for publishing/interlinking any kind of products. ▶ Collaborative curation of a community-specific scholarly communication information space Community information space to share, discovery, interlink, gather and reuse (reproduce) scientific results. ▶ Community-oriented Reporting and Open Science monitoring Reporting to funders, development of scientific reward strategies inclusive of all products of science.

OpenAIRE CONNECT

WHAT COMES NEXT

CONNECT

- Moving Research Community Dashboards from BETA phase to **PRODUCTION**:
 - **Waiting for stable BETA information space**
 - **Data source management (criteria for metadata inclusion)**
- **Product user groups to gather feedback and improve usability**

The screenshot displays the 'European Marine Science' dashboard. At the top left, there are logos for EMSO, OCEANAS, and the MARINE BOARD. The title 'European Marine Science' is centered at the top. On the right, there are 'SEARCH' and 'MONITOR' links, and a 'Subscribe' button. Below the title, there are tags for 'marine', 'ocean', 'fish', 'aqua', and 'sea'. The dashboard provides the following statistics: 11,728 publications, 5,062 research data, 3,697 software, 2,284 other research products, 662 projects, and 5 content providers. It also lists 'Curated by: spesant', 'Created: 01-03-2018', 'Members: 15', and 'Zenodo communities: 38'. A section for 'Recent research results' is visible, with a link to 'View all' and a specific research entry: 'Karyotypic description of the stingless bee *Melipona quinquefasciata* Lepeletier, 1836 (Hymenoptera, Meliponini) with emphasis on the presence of B chromosomes'.

Thank you!

Iryna Kuchma

iryna.kuchma@eifl.net