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EIFL

Facilitate Research Communities adoption of Open Science Publishing Principles

OPENAIRE-CONNECT

CC BY

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

OpenAIRE CONNECT

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

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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

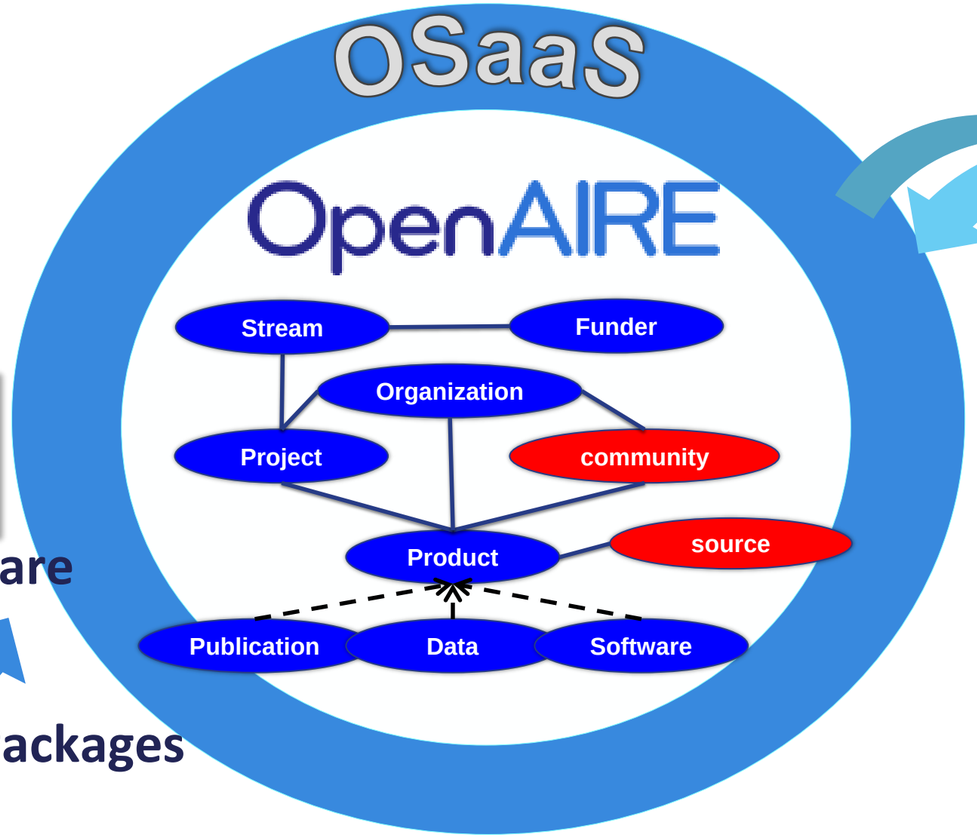
Projects

Data

Articles

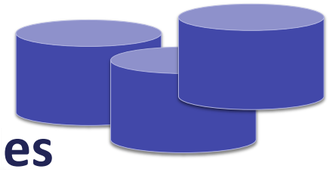
Software

Packages



Content Providers Dashboard

Subscription & Notification



Articles

Data

Software

Repositories

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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)

Data

Publications

Software

Harvest & push metadata

Repositories & RI services

Additional links automatically generated based on inferences

Research communities can…

Claim products

Claim links

Search & navigate content

Statistics on research impact

Deposit products

zenodo
Research. Shared.

Research Community Dashboard

OpenAIRE CONNECT

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

OpenAIRE CONNECT

beta

OpenAIRE Research Communities services status

COMMUNITY

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

RESEARCH INITIATIVE

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

Aims: publish, share and discovery

Aims: research impact

OpenAIRE

European Commission

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

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)

Data

Publications

Software

Harvest & push metadata

Repositories & RI services

Additional links automatically generated based on inferences

Research communities can…

Claim products

Claim links

Search & navigate content

Statistics on research impact

Deposit products

zenodo
Research. Shared.

Research Community Dashboard

OpenAIRE Research Communities/Initiatives Dashboarb

COMMUNITY

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

RESEARCH INITIATIVE

- Instruct-ERIC
- ELIXIR-GR
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- EGI : advanced computing for research
- Research Data Alliance
- Common Language Resources and Technology Infrastructure

Aims: publish, share and discovery

Aims: research impact

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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.

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Research Community Dashboard: configuration criteria

List of subjects/keywords

List of projects available in OpenAIRE

List of content provider from those aggregated by OpenAIRE

With criteria

List of Zenodo communities

With criteria

List of other RCDs or RIDs

With criteria

List of ORCID identifiers

With criteria

Other criteria suggested by research communities

Research Initiative Dashboard: configuration criteria

List of subjects/keywords

List of projects available in OpenAIRE

List of content provider from those aggregated by OpenAIRE

With criteria

List of Zenodo communities

With criteria

List of other RCDs or RIDs

List of ORCID identifiers

With criteria

Other criteria suggested by research communities

With criteria

Mining algorithm (e.g. ack statements)

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.

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European Commission

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 communit 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.

France Life Imaging

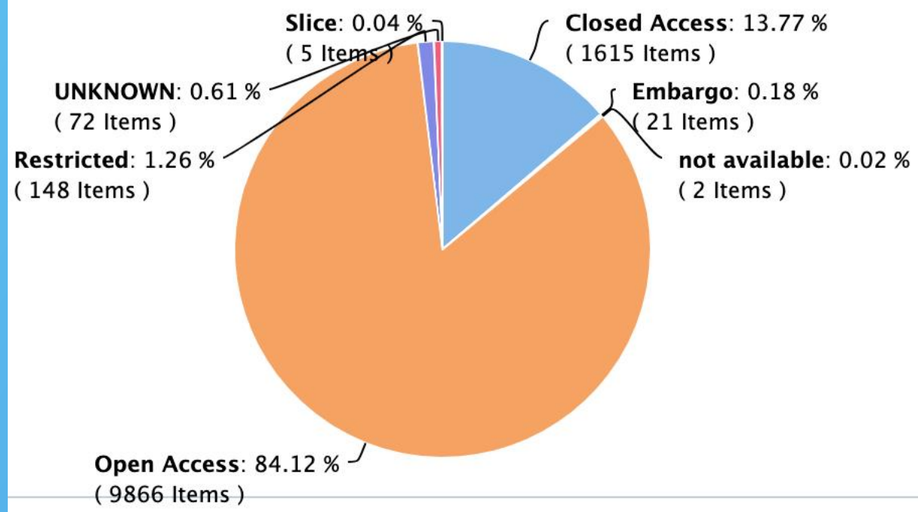
Centre national de la recherche scientifique (CNRS)

Inria

Virtual Imaging Platform (VIP)

Shanoir

Publications by access mode



Display options

SHOW #

IN MONITOR

IN DASHBOARD

Research Community Dashboard

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

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European Commission

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

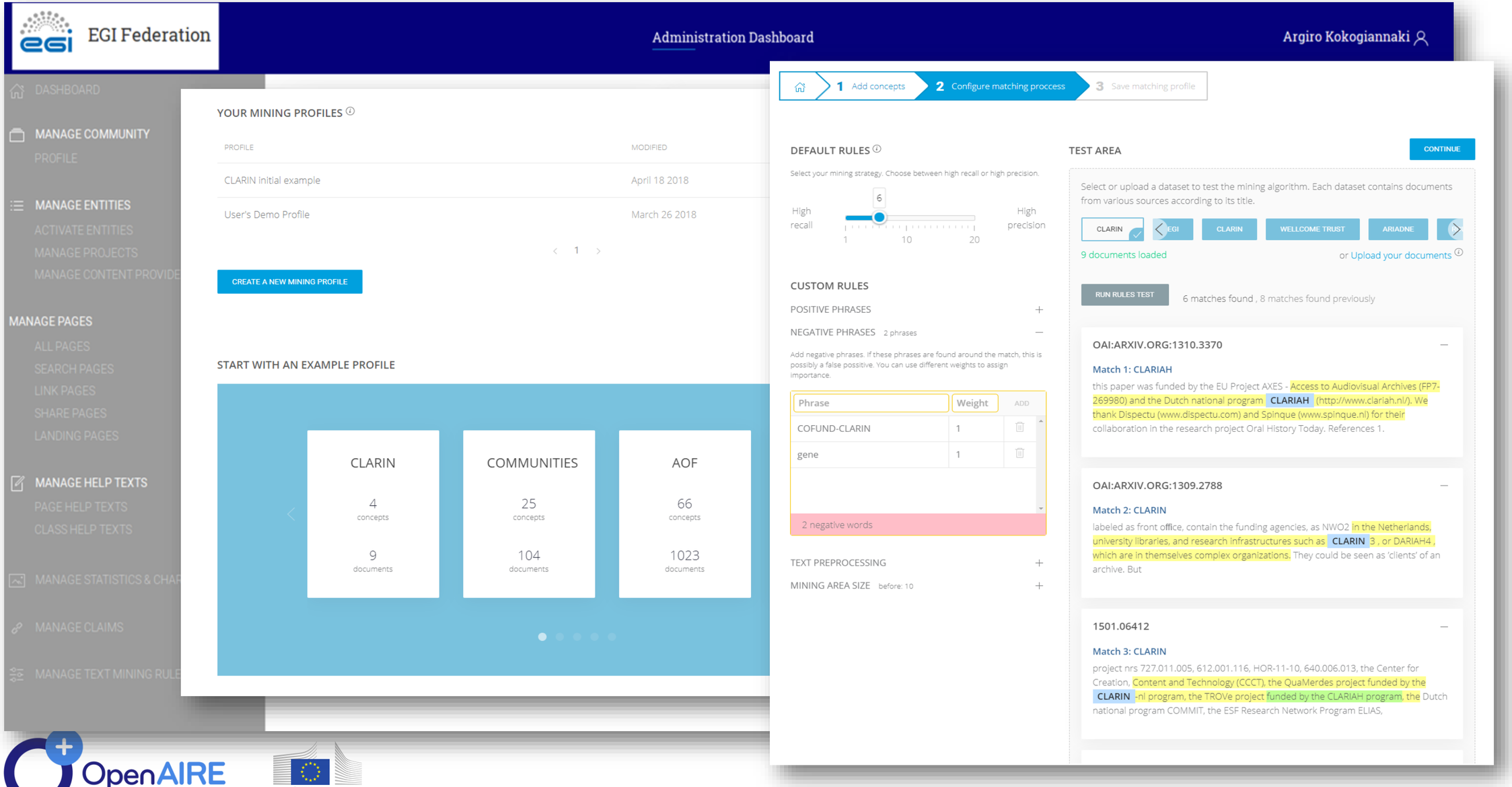
Deposit a product in one of the related content provider

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



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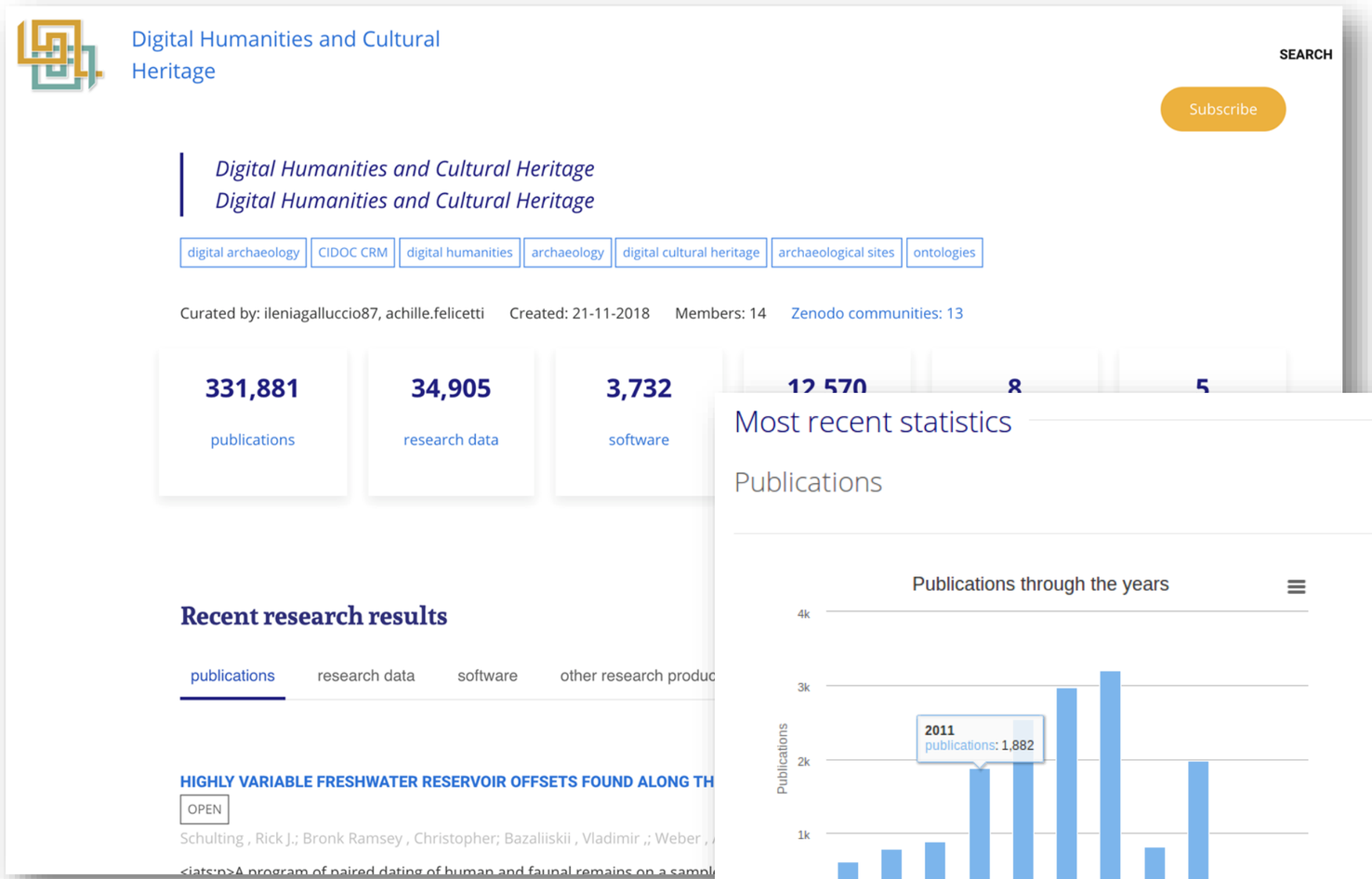
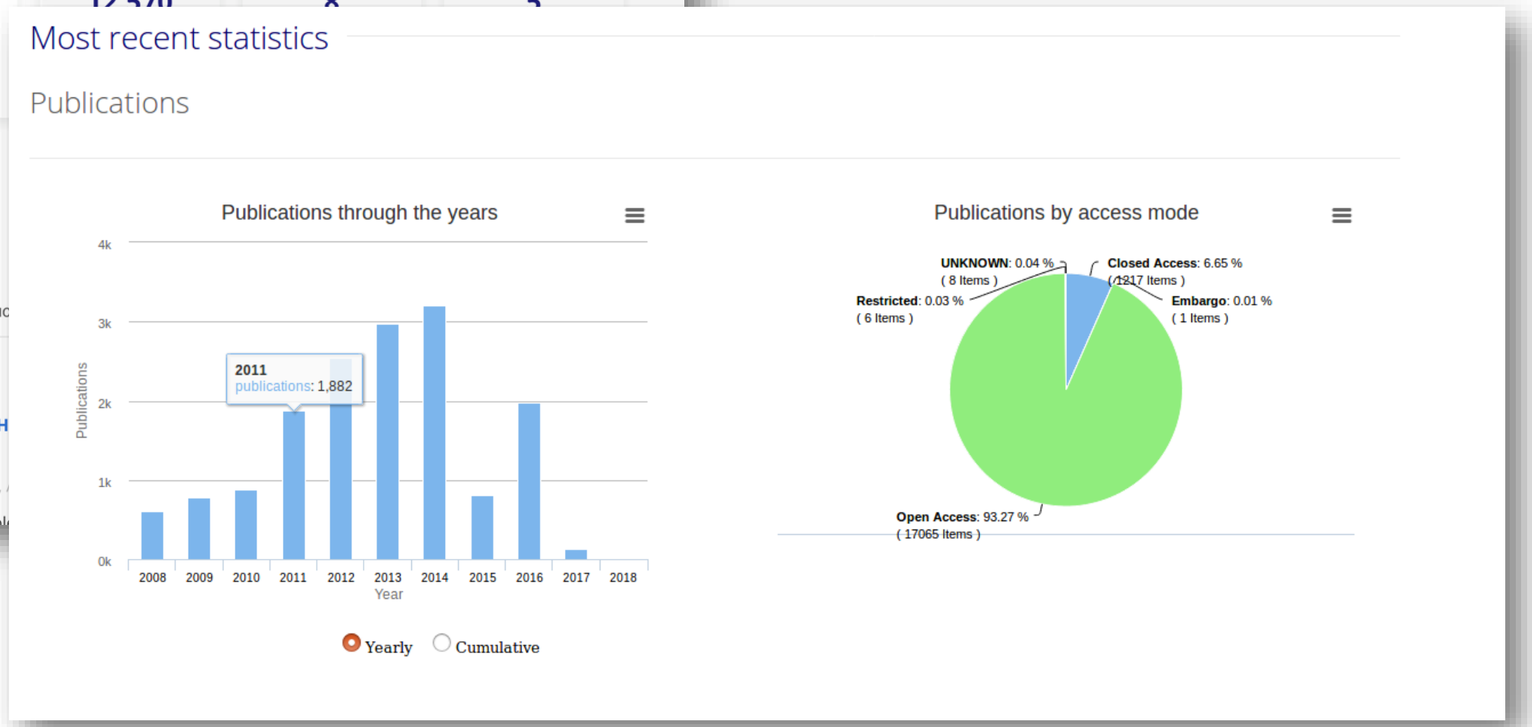
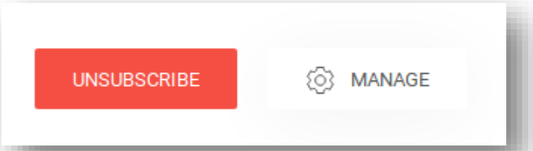
Customized portal for end users







OpenAIRE

European Commission

Configuring the dashboards

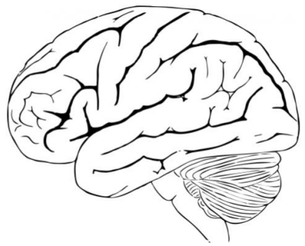
- Relevant Zenodo communities
- Relevant OpenAIRE-compatible content providers
- Relevant subjects/keywords
- Relevant projects (among those integrated into OpenAIRE)

Research Communities on board

Sustainable and Development Solutions Network - Greece

Fisheries & Aquaculture Management

Digital Humanities and Cultural Heritage



Neuroinformatics

European Marine Science

AGINFRA

OpenAIRE CONNECT

Research Infrastructures/initiatives on board

RDA
RESEARCH DATA ALLIANCE

CLARIN
Common Language Resources and Technology Infrastructure

ADVANCE
elixir
GREECE

egi

instruct
ERIC

DARIAH-EU

ARIADNE plus

Coming soon

EPOS IT ADVANCE
EUROPEANPLATEOBSERVINGSYSTEM

RISIS2
Research infrastructure for research and innovation policy studies

Submitted

Social Mining & Big Data Ecosystem
SoBigData
RESEARCH INFRASTRUCTURE

EMBRC
EUROPEAN MARINE BIOLOGICAL RESOURCE CENTRE

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TESTING PLAN & STATUS

Beta release 1 (April 2018)

- **Webinar demo for Community Managers**
- **Live tests with 2 end-users per Community**

✓

1st Testing Phase (May-July 2018)

Beta release 2 (Dec. 2018)

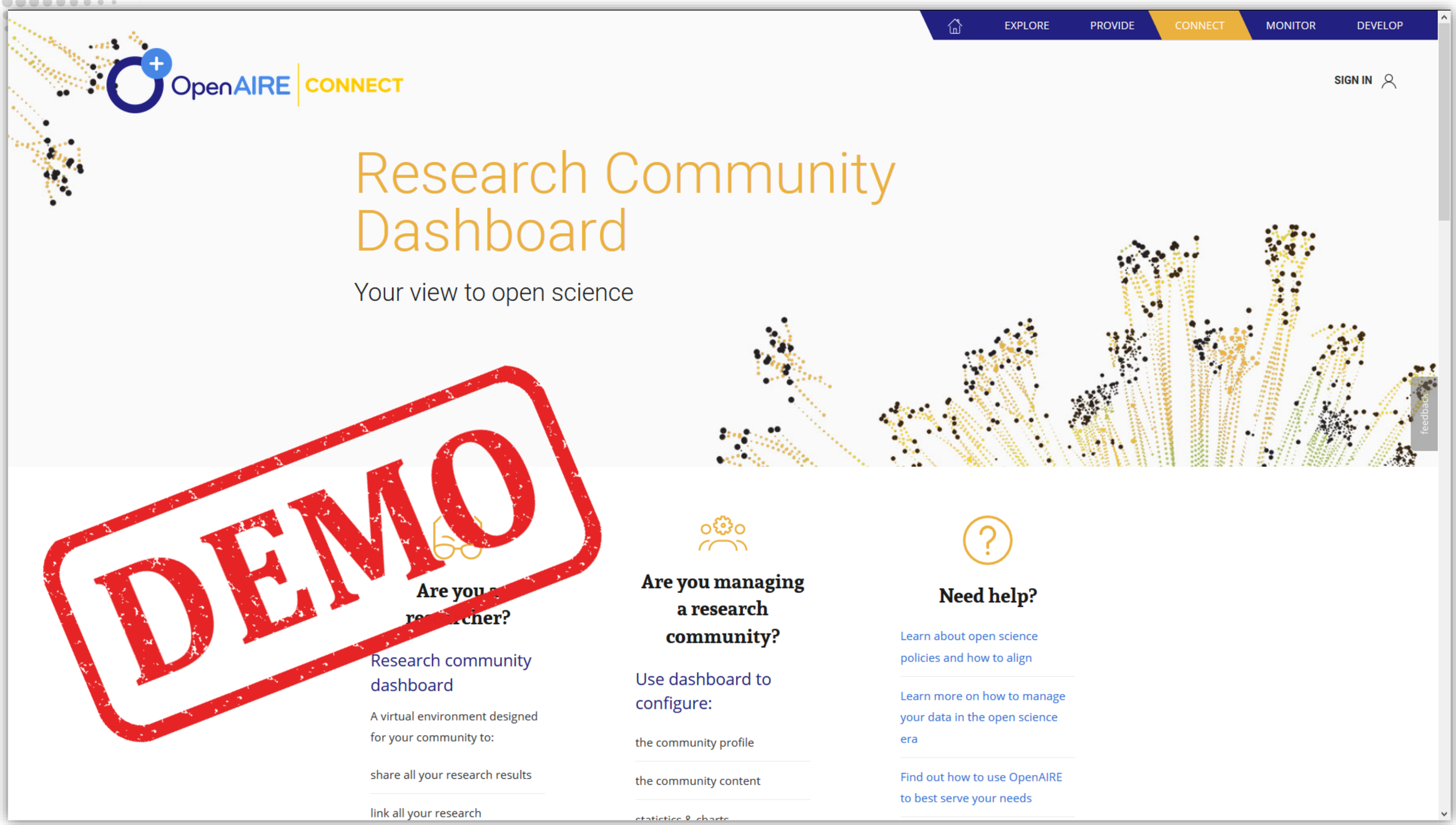
2nd Testing Phase (ongoing)

- **Webinar for Community Managers**
- **Webinar demo for 5 end users per Community**
- **Live tests with 2 end users per Community**
- **Tests within the Communities workshops (outreach)**

Beta release 2 improvements

- **Test the production ready-ness of the RCD**
- **Tests within the Communities outreach workshops**
- **Test user-friendly-ness and effective acquisition of testing results**

3rd Testing Phase (April-June 2019)



beta.connect.openaire.eu

EMS Use Case: three-tier Approach

1. Past Projects

FIFTH FRAMEWORK PROGRAMME

SIXTH FRAMEWORK PROGRAMME

SEVENTH FRAMEWORK PROGRAMME

HORIZON 2020

Consiglio Nazionale delle Ricerche

NERC SCIENCE OF THE ENVIRONMENT

CSIC Consejo Superior de Investigaciones Científicas

Agence Nationale de la Recherche ANR

DFG Deutsche Forschungsgemeinschaft

...

2. atlas

UNDERSTANDING DEEP ATLANTIC ECOSYSTEMS

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	5,062	3,697	2,284	662	5
publications	research data	software	other research products	projects	content providers

2. atlas Open Scien full life cycle

Publish

This project has received funding from t
Horizon 2020 research and innovation p
grant agreement No 678760 (ATLAS).

ORCID

Claim

zenodo

Scientific ISSN — Journal

Catch-all

OpenAIRE APP BOX

- Publication details
- Dynamically incorporate publications in your site (HTML)
- Dynamically incorporate research data in your site (HTML)
- View EC progress report (HTML)
- Download EC progress report (CSV)

LINK RESEARCH RESULTS

DEPOSIT PUBLICATIONS

Monitor

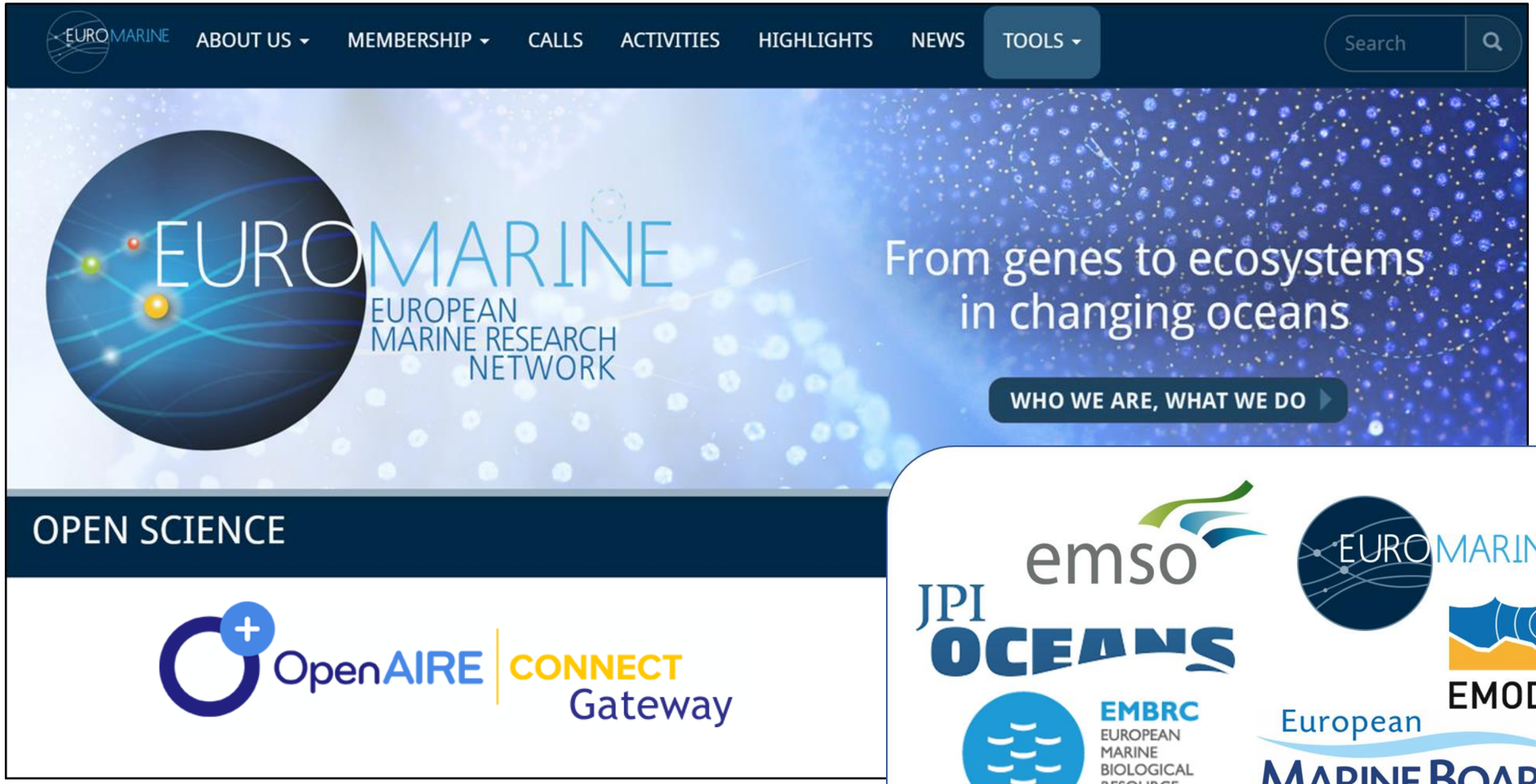
European Commission

OpenAIRE CONNECT

European Commission

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

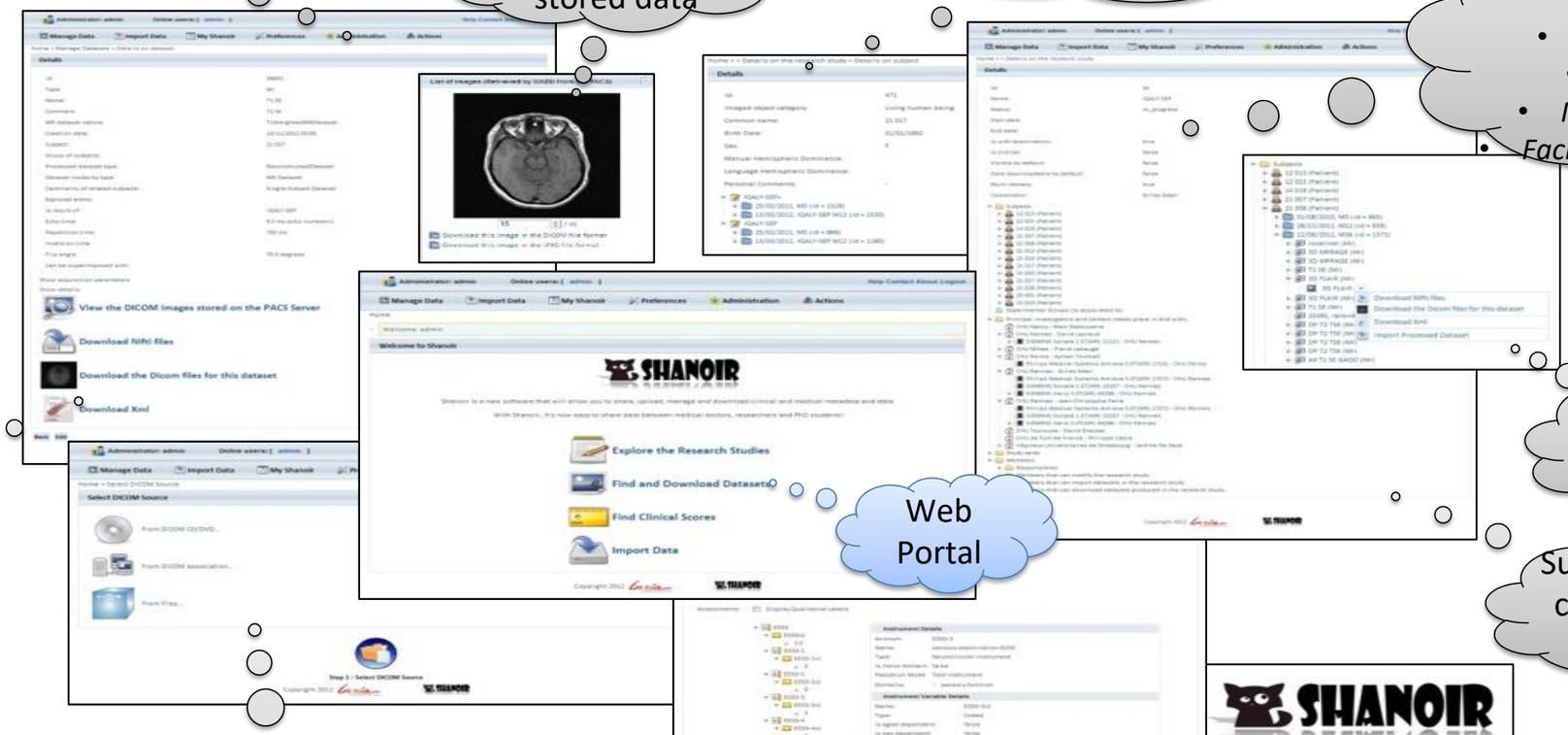
Download stored data

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*



Download Processed data

Support for processed (derived) data

Web Portal

Support for multi-centric research studies

Collect neuroimaging data from several sources :
- *Dicom CD / DVD*
- *PACS (via Dicom Q& R)*
- *Nifti / Analyze image files*

Support for clinical and neuropsychological scores

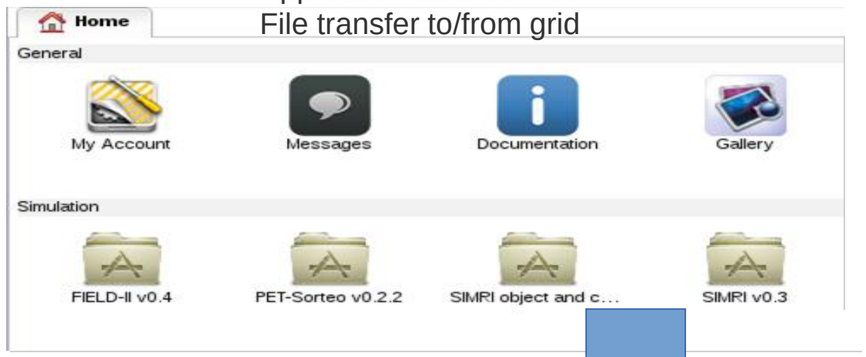
User access control

Virtual Imaging Platform (VIP)

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

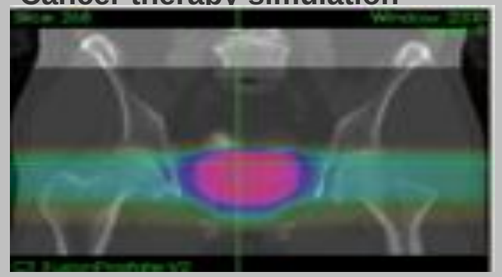
Web portal

Application as a service
File transfer to/from grid



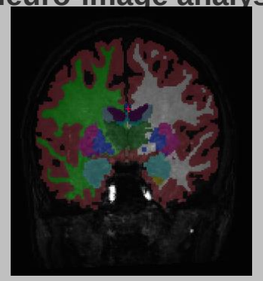
Scientific applications

Cancer therapy simulation



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

Neuro-image analysis

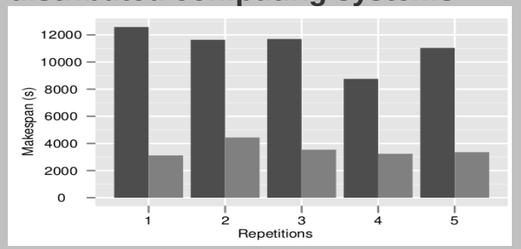


Brain tissue segmentation with Freesurfer

Image simulation

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

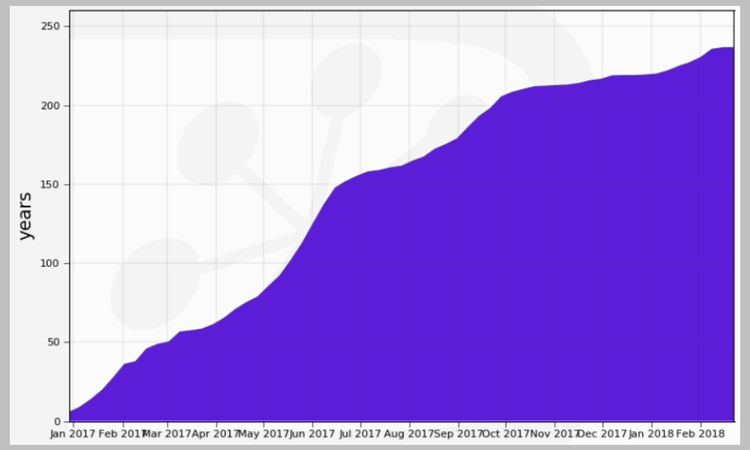
Modeling and optimization of distributed computing systems



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

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

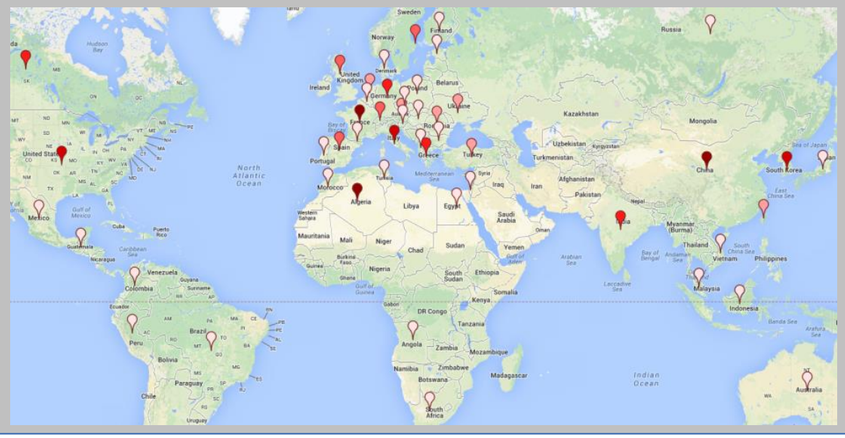


France-Grilles

DIRAC

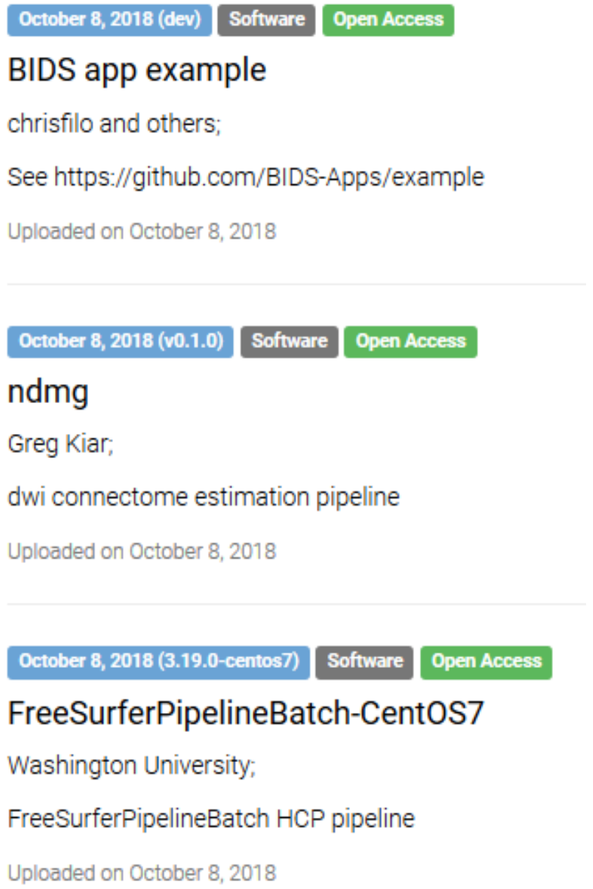
Users

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



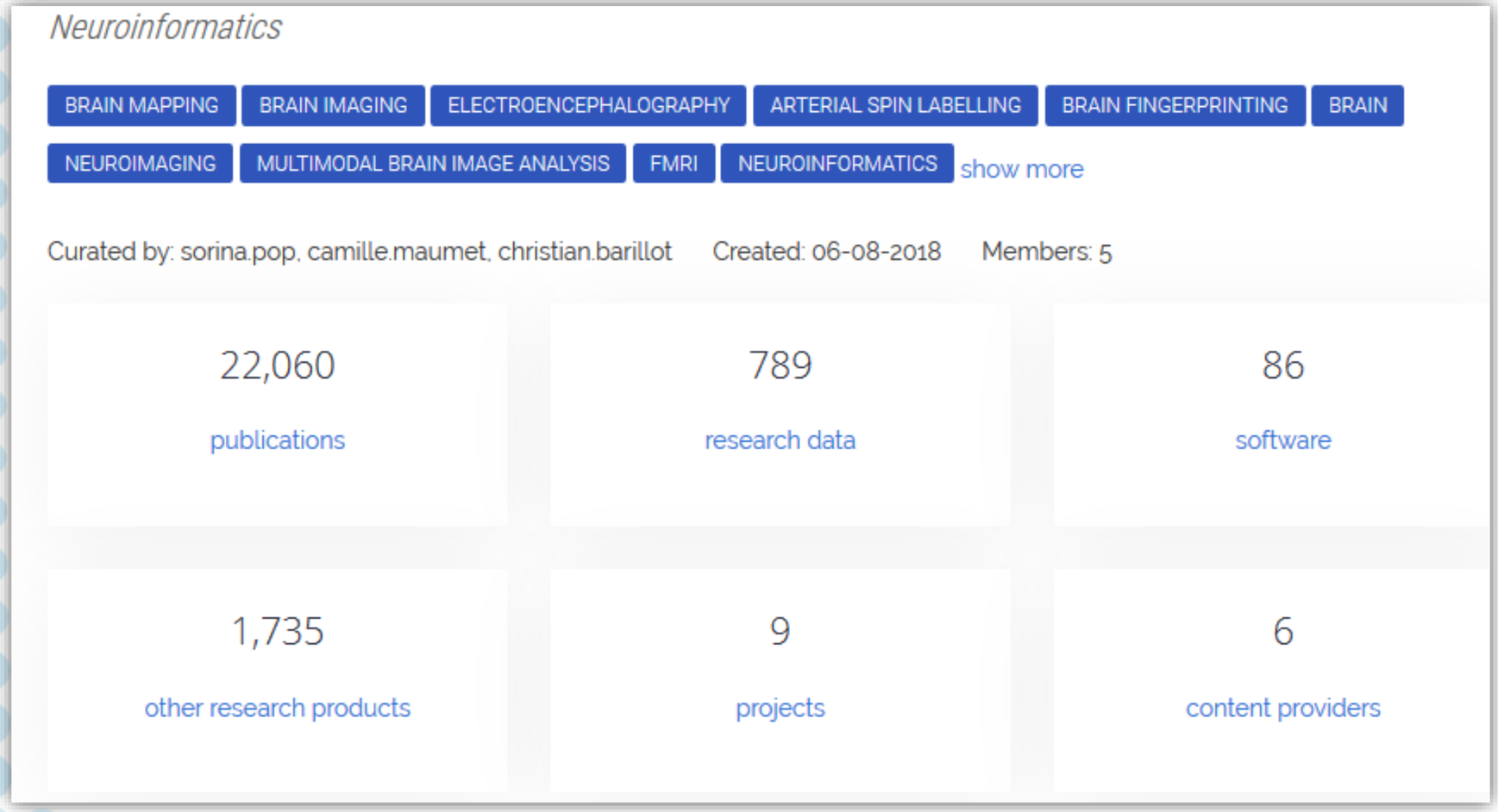
Neuroinformatics software descriptors published to

OpenAIRE CONNECT
European Commission

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



- **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.**

OpenAIRE CONNECT

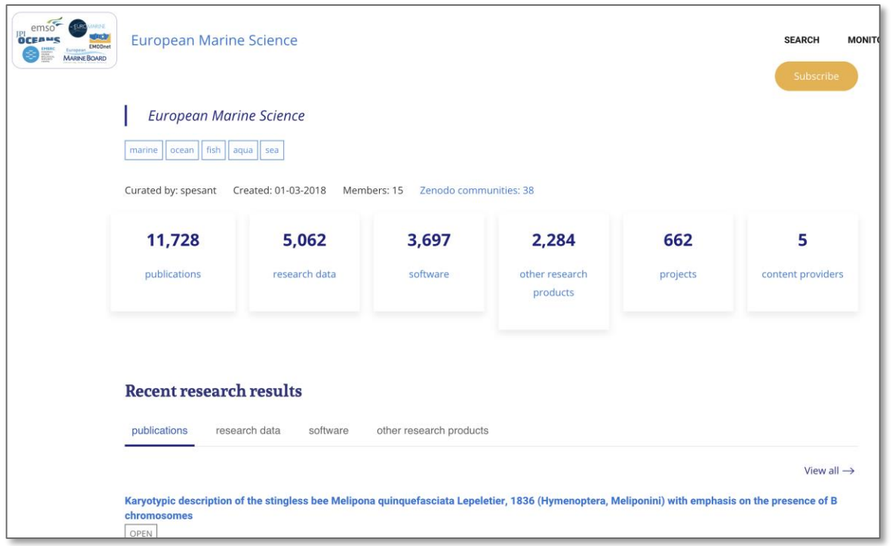
Support/Dissemination materials

SUPPORT & DISSEMINATION KITS

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



Thank you!

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