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DISCLAIMER

OpenAIRE-Connect (731011) is a Research and Innovation Action (RIA) co-funded by the European Commission under the Horizon 2020 research and innovation programme

The goal of OpenAIRE-Connect*, OpenAIRE - CONNECTing scientific results in support of Open Science*, is to provide technological and social bridges, and deliver services enabling uniform exchange of research products (literature, data, and methods), with semantic links between them, across research communities and content providers in scientific communication. It will introduce and implement the concept of Open Science as a Service (OSaaS) on top of the existing OpenAIRE infrastructure, delivering out-of-the-box, on-demand deployable tools.

This document contains information on OpenAIRE-Connect core activities, findings and outcomes and it may also contain contributions from distinguished experts who contribute as OpenAIRE-Connect External Advisory Board members. Any reference to content in this document should clearly indicate the authors, source, organisation and publication date.

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GLOSSARY

ABBREVIATION	DEFINITION
Artefact	Term used in the proposal to refer to any digital product of the scientific life-cycle; the naming of such products depends in the specific discipline. In OpenAIRE-Connect their meta classes have been identified as publications, datasets, software, and "other products".
CAB	Catch-All Broker
EAB	External Advisory Board
FAIR	Findable, Accessible, Interoperable, Reusable
GA	General Assembly
ORP	Other Research Products
OSaaS	Open Science as a Service
PEB	Project Excecutive Board
PSC	Project Steering Committee
Product	The term currently used in OpenAIRE-Connect to refer to an "artefact". The naming has been changed during the discussions in the definition of the OpenAIRE-Connect data model
RCD	Research Community Dashboard
Research Communities	Communities requiring tools to deposit, share, interlink, and find all kinds of research products relevant to their discipline
Research Initiatives	Organizations requiring tools for monitoring their research impact in terms of the research products they funded or enabled/supported the creation of
QATF	Quality Assurance Task Force
VRE	Virtual Research Environment

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DELIVERABLE SUMMARY

This deliverable reports the overal activities of OpenAIRE-Connect in its first year of operation. Activities are mainly split in technical and networking, with the technical part being more prominent in preparation of the services to be tested: research community dashboard, research initiative dashboard, and catch-all broker service. Networking efforts mainly focused on the identificaiton of the optimal strategies to engage in the testing (and in the effective adoption) research communities, research initatives, and schoalrly communication content providers.

1 EXPLANATION OF THE WORK CARRIED OUT BY THE BENEFICIARIES AND OVERVIEW OF THE PROGRESS

1.1 OBJECTIVES

OpenAIRE-Connect extends the **technological services** and **networking bridges** (human/social/support) today offered by the OpenAIRE infrastructure in order to foster the expansion of an Open Science publishing paradigm and facilitate the emergence of shared solutions to it. Specifically, OpenAIRE-Connect adds to the OpenAIRE portfolio three classes of services:

- *Research community services*: tecnical services offering support for a uniform transition of research communities towards Open Science publishing; e.g. publishing research products beyond articles and datasets, and interlinking them to enhance re-use, hence reproducibility, hence transparent assessment, hence scientific reward;
- *Content provider services*: technical services leveraging the transition of content providers towards Open Science publishing; e.g. entrusting content providers into dynamcally acquiring links form their products to other products, in order to move from a "frozen" model of scholarly communication to an "in-sync" one;
- *Support services*: networking services for building research community capacities for European and global alignment on Open Science publishing; i.e. Open Science is a "vertical" matter specific to communities, which can only partially be supported by "horizontal" discipline-agnostic solutions; communities need guide on how to achieve optimal Open Science publishing practices in respect of their scientific best practices, their technical services (research infrastructures), and optimizing their cost by reusing existing solutions.

To this aim, OpenAIRE-Connect will make a two-fold effort:

1) **Technical activities** will deliver **Open Science as-a-Service (OSaaS)** solutions (terms coined by the project), i.e. on-demand **Open Science publishing services.** The project aimed to deliver two services, namely the Research Community Dashboard and the Catch-All Broker Service (see Figure 1). However, as described in this report, during the first year of development, the activities figured out that a third service in support of communites was necessary, namely the Research Initiative Service, specifically focused on monitoring the Open Science impact of of a research initiative;
2) **Networking activities will complement technical activities** to favour and drive the adoption of the services and strengthen the emerging Open Science social environment, to facilitate a cultural and technological shift towards common Open Science publishing practices.

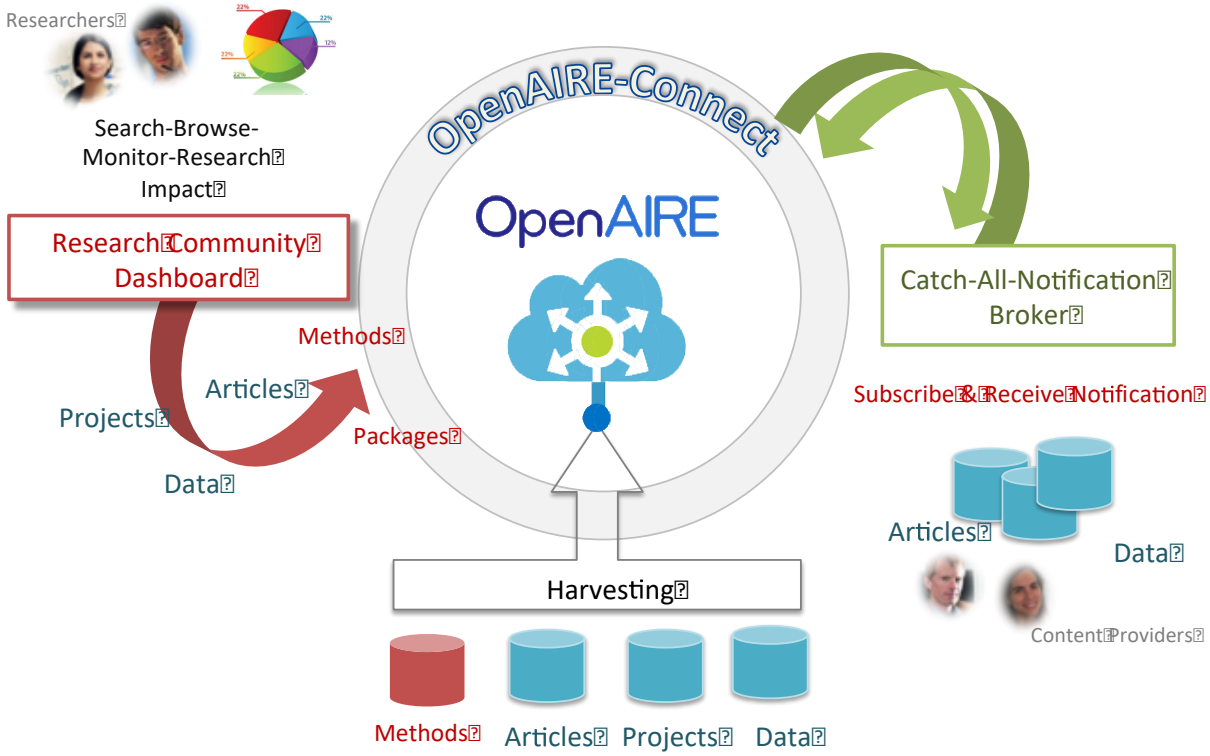


Figure 1 - Research Community Dashboard and Catch-All Notification Broker Service

As clearly stated in the project proposal, OpenAIRE-Connect activities are intertwined with the ones of the OpenAIRE infrastructure main funding projects, namely OpenAIRE2020 and the recently kicked-off OpenAIRE-Advance. More specifically, the technical services produced in the project will be added to the OpenAIRE's portfolio and play a key role in:

1) The sustainability of the infrastructure: research community services are today proposed as added-value to research infrastructures and clusters; research infrastructure endeavours remain focused on supporting thematic services to scientists while compensating the degree of Open Science publishing functionality they are not yet implementing with the inclusion of OpenAIRE-Connect services;
2) The development of the European Open Science Cloud roadmap: the European Commission has recently requested the main "horizontal" e-infrastructure endeavours, namely OpenAIRE and EOSC-Hub (https://www.eosc-hub.eu/), to define a common roadmap in support of EOSC. The activity is intended as a cooperation annex of the two projects, in terms of governance, netwroking, and technical services. Recently, due to its pivotal role with PIDs, the project FREYA (https://www.project-freya.eu/en/about/mission) is being enganged in the cooperation as a liaison. Both in terms of networking and technical services, OpenAIRE-Connect services are one of the pillars of this cooperation as they place in between research infrastructure thematic services and the scholarly communication infrastructure.

Due to all these dependencies, OpenAIRE-Connect could not be seen as an autonomous project and its activities have been in some cases accelerated and in others slowed-down or diverted in order to fulfill the overall picture objectives of improving the life of scientists in Europe and beyond. This explains the delay of of some of its deliverables, especially on the side of networking, and the planning of service delivery.

OBJECTIVE 1 – RESEARCH COMMUNITY SERVICES: UNIFORMLY SUPPORT THE TRANSITION OF RESEARCH COMMUNITIES TOWARDS OPEN SCIENCE PUBLISHING.

The project has met its expectations but designing and implementing the extensions to OpenAIRE TRL6-TR9 services as indicated in the proposal and delivering the first version of the services to be tested. The extensions, which regarded the OpenAIRE data model and the delivery of the Research Community Dashboard, were devised in synergy with the research communites carried on board in the project but also with other extra-communities engaged in the definiton and testing of the services as part of the networking activities. The introduction of extra-communities and the study of thir requirements has led to two main divertions with respect the initial project ideas and concepts, but still in full respect of its vision and mission:

Data model At proposal writing the idea was to identify two "novel" classes of first-level citizen products (note: in the proposal products were referred to as "artefacts"; communities largely agreed/preferred to use the term "products"): *methods* and *research packages*. After long discussions with the communities it emerged that: (i) "method" could be misintepreted across different communities, which already have a clear meaning for it, not necessarily the one meant by the project; and (ii) research packages have not yet received an adequate understading to reach the necessary critical mass to become a "first-level citizen" in the OpenAIRE information space. Accordingly a different extension of the model was proposed that introduced "software" in place of "methods" and "Other products" as a generic category whose subtypes can be "research objects", "workflows", "protocols", etc. The idea is that research software (static piece of code in a repository) is well reckognized across different discipilines, while "other products" includes all objects that do not fall in the categories of publications, datasets, and software. In particular, the models allow communities to define specific vocabularies for the kind of software or other products they introduce. As part of the EOSC collaboration, other "first-level citizen" products are being discussed, for example Virtual Appliances (intended as virtual machines, e.g. Dockers). The idea is that the OpenAIRE information space can flexibly add new "main" classes of products whenever the necessary understanding, awarness, and critical mass is reached across different disciplines.

Communities The analysis of community requirements has led to a more fine grained vision of the services actually required by the communities, which resulted in clear distinction between:

1. *Research communities*: communities requiring tools to share and find their research products: these communities need to create a virtual space where their products can be interlinked, deposited (via Zenodo), and collected from a number of content providers, ranging from publications repositories to data repositories and repositories of other kinds of products;
2. *Research initiatives*: communities requiring tools for monitoring research impact: these communities need to track all products that have been produced "thanks to their existence". A good example is that of a research infrastructure (RI) whose services support the generation of datasets, allow scientists to write articles, etc. In this process, the RI aims at reporting to the funders the amount of products that are being produced thanks to its endevaour.

The two communities differ in the functionalities they require and therefore required the introduction of distinct Dashboards, now named: *Research Community Dashboard* and *Research Inititaive (Impact) Dashboard*. The configurable mining services forseen in the project are to be included in the second dashboard, while the former needs to introduce the possibility of selecting disciplines of interest (selected from subject vocabularies, e.g. DEWEY, ACM, Mesh) to identify relevant products and include them in the community space.

The current results are:

1) OpenAIRE information space services (back-ends) and Zenodo.org have been upgraded to include software and other products, as well as the concept of “community” and “research initiative”;
2) The Research Community Dashboard has been delivered and ready to be tested by the communities;
3) The Research Initiative Dashboard is under development.

The first phase of testing is organized into sessions with small groups of scientists and the developers of the system, to identify via personal interaction and Q&A all possible glitches, bugs, and missing requirements.

OBJECTIVE 2 – CONTENT PROVIDER INFRASTRUCTURE SERVICES: LEVERAGE THE TRANSITION OF CONTENT PROVIDERS TOWARDS OPEN SCIENCE PUBLISHING

The project has met the expectations by adapting the Broker Service of OpenAIRE to the changes in the OpenAIRE information space introduced by the data model extension. The Broker service is today capable of:

1) including among the target content providers software repositories and data repositories;
2) sending events regarding links between articles and software, as well as articles and datasets.

The tests will include publishers, data repositories, and software repositories. Managers of the services will have to report on the appropriateness and usefuleness of the notifications sent to them. Initially the focus will be on links between software and articles, which are often missing on the repository side.

OBJECTIVE 3 - NETWORKING AND SUPPORT SERVICES: BUILD THE COMMUNITY CAPACITIES FOR EUROPEAN AND GLOBAL ALIGNMENT ON OPEN SCIENCE PUBLISHING

The liaison strategy successfully recruited several communities, research initiatives, and content providers in the ambit of EOSC-Hub and via OpenAIRE global liaisons, which will add to the list of testers of the BETA services. The consequent analysis of their scenarios and requirements shed light on the initial goals of the project and has been crucial for the re-design of the data model and services described above. The process required by OpenAIRE-Connect partners to identify these diversions from the original plan and concretize new proposals, took at least 6 months of discussions and validation with the external and internal communities, including those committed to the project via EOSC-Hub. This resulted in delays in the drafting of the deliverables, namely D2.2 Liason Strategy Report, as well as in the delivery of milestones, namely the guidelines and the Catch-All Broker back-ends/front-end updates. On the other hand, the Liaison Stretagy has been devised and actually implemented during the first year of the project by engaging communities well beyond the xpectations of the project)as indicated in the latest version of the deliverable). Moreover the guidelines for software have been delivered and already endorsed by several known international initiatives, while the guidelines for “other products” are begin reviewed by EOSC-Hub partners and research infrastructures interested in OpenAIRE-Connect (e.g. SoBigData.eu).

The OpenAIRE-Connect interoperability guidelines have been produced, in respect of the changes to the data model extensions, which now include the extra classes of products “software” and “other products”:

- *Software guidelines*: they can be found here http://software-guidelines.readthedocs.io/en/latest/index.html. The guidelines are open to feedback and have

been revised and endorsed by several initiatives on software description: CodeMeta (SSI, UK), SoftwareHeritage (FR), and DOE CODE (OSTI, US);

- *Other products guidelines*: they can be found here http://guidelines-other-products.readthedocs.io. Guidelines are open to feedback and will be jointly scrutinized/tested in the context of EOSC cooperation with SoBigData.org and EOSC-Hub project, where EGI Virtual App DB will test its compliance with the guidelines.

Table 1 - OpenAIRE-Connect Deliverables relative to the reporting period

Del. No.	Title	Lead Beneficiary	Due date	State
D1.1	Quality Plan	ARC	Feb. '17	Submitted
D4.1	OpenAIRE Data Model Extension	CNR	Feb. '17	Submitted
D4.2	OpenAIRE back-end and Invenio upgrade: specification and release plan	CNR	Mar. '17	Submitted
D2.1	Dissemination Roadmap	UMINHO	Apr. '17	Submitted
D4.3	Configurable mining algorithms: specification and release plan	ARC	Apr. '17	Submitted
D6.2	Data Management Plan	UNIWARSAW	Apr. '17	Submitted
D5.1	Catch-All Notification Broker Back-end: specification and release plan	CNR	May '17	Submitted
D1.2	Key Performance Indicatrors report	ARC	Jun. '17	Submitted
D4.4	Research Community Dashboard: specification and release plan	ARC	Aug. '17	Submitted
D5.2	Catch-All Notification Broker Web User Interface: specification and release plan	ARC	Aug. '17	Submitted
D3.1	Detailed report on extend support content for OpenAIRE portal	UMINHO	Oct. '17	Submitted
D1.3	Progress report I	CNR	Dec. '17	Submitted
D2.2	Liaison strategy report	UMINHO	Dec. '17	Submitted
D4.5	OpenAIRE publishing APIs: specification and release plan	~~ARC~~ (CNR)	Dec. '17	Submitted

Table 2 - OpenAIRE-Connect Milestones relative to the reporting period

Mil. No.	Title	Lead Beneficiary	Due date	State
MS9	M3.1 - OpenAIRE-Connect Interoperability Guidelines	CNR	Nov. '17	Achieved
MS17	M4.1 - TRL6 Software: OpenAIRE back-ends and Invenio upgraded to research methods and packages	CNR	Sep. '17	Achieved

2 EXPLANATION OF THE WORK CARRIED PER WP

2.1 WORK PACKAGE 1: COORDINATION (CNR)

Work Package leader: CNR – Beneficiaries: Athena RC

INTRODUCTION

The coordination of OpenAIRE-Connect required constant re-planning based on the strong dependencies with its "mother" projects OpenAIRE2020 and OpenAIRE-Advance and especially on their ongoing involvement with the European Open Science Cloud roadmap. The relationship between the results of OpenAIRE-Connect and these initiatives is tight and requirements and timings of the project had often been dictated by "external" requirements or calls of efforts. Overall, taming such hectic scenario has been challenging, has affected the timing of some of the deliverables, but has not affected the delivery of the project, which is still on track, with motivated partners.

SUMMARY OF ACTIVITY

2.1.1 T1.1 PROJECT ADMINISTRATIVE COORDINATION (CNR)

The European Union transferred the pre-financing payment to the Coordinator on 22 December 2016. In accordance with the OpenAIRE-Connect Agreement, the pre-financing was distributed to the partners in a single payment. The **Advance Payments** (80% of the pre-financing amount – 5% for the Guarantee Fund, distributed in proportion to the partner's allocation of Maximum Grant Amount) were transferred to the partners by the Coordinator CNR in January 2017.

Project **reporting templates and guidelines** were produced in the early phases of the project to facilitate administrative reporting at the consortium level.

Throughout the reporting period, partners were supported via the **"Project Office"** (composed of participants from CNR) in understanding their administrative obligations to the European Commission and in performing the requested tasks. The Project Office regularly responds to questions on financial rules in H2020.

BlueBRIDGE partners were asked to report their effort claimed per work package before the GA. These **Effort Reports** were checked and assembled by the Coordinator and presented to the PSC and GA during the planned meeting.

The Project Office collaborated with ARC and EAB members prior to the meeting in order to make travel arrangements, and handled the reimbursement requests of the EAB members following the meeting.

OpenAIRE-Connect, as with any other Horizon 2020 project, has to comply with the Open Access (OA) mandate to publications and participates in the Open Data Pilot. **ARC is maintaining a common source of funds of 10,000 € for Article Processing Charges in order to support compliance with OA.** This amount is roughly equivalent to 4 publications in Open Access Journals (at 1,000 € each) and 3 publications in Hybrid Journals (at 2,000 € each). During the first project period, the OpenAIRE-Connect Project Steering Committee defined a policy for the internal allocation of the Open Access & Publication Processing Charge funds. The policy includes a request procedure, allocation policy (financial scheme), criteria for selection, and the timing of proposal evaluations.

An **in-depth document presenting the "Administrative and Financial Status"** of OpenAIRE-Connect was submitted to the General Assembly by the Project Office prior to the General Assembly meeting held on 8 February 2018. At this time, partners were also informed of end-of-the-period reporting procedures, obligations, and deadlines, and templates were made available for use on the project VRE.

CNR and ARC jointly collaborated in running the Project Office. In particular:

- CNR was responsible of sharing knowledge about H2020 financial rules, including reporting obligations, supporting the eligible establishment of subcontracts, when necessary, managing reimbursement of costs, and overall budget associated with the External Advisory Board. CNR also provided to the planning, organisation, scribing and follow-up of EAB, PSC and GA;
- ARC managed the travel arrangements and reimbursement requests for External Advisory Board members;
- CNR managed the distribution of the advance payments to all project partners, dealt with the Consortium evolution, including management of the consortium agreement, and addressed innovation management, including guidance concerning IPR issues;
- CNR and ARC proposed a procedure of allocation of the Open Access publishing funds.

2.1.2 T1.2 PROJECT SCIENTIFIC AND TECHNICAL COORDINATION (CNR)

This task was initiated at Month 1 with the organization of the kick-off meeting on 25-26 January 2017 in Pisa. During the kick-off meeting **WP and Task Leaders where appointed and the governance bodies where formed.** A planning for the meetings of the Program Steering Committee (PSC), External Advisory Board (EAB) and General Assembly (GA) was agreed.

During the reported period **coordination meetings** were regularly held (see Appendix 1: List of Meetings). Given the highly evolving nature of the project in terms of requirements and opportunities, the role of these meetings and of the many WP dedicated phone calls held in the period (see Appendix 1: List of Meetings) have been fundamental in shaping plans and priorities, monitoring project activities and identifying new and corrective actions.

A series of **collaboration tools** were set up and maintained operational to facilitate exchange and monitoring within the project. These include a project VRE giving access to: (i) a shared workspace storing and giving access to contractual documents, deliverables and any other document, including presentations and dissemination material, produced by the project; (ii) social networking facilities enabling communication within the project; (iii) a wiki[1] supporting the implementation of deliverables of type "other" and maintaining additional information about project major activities, like meetings held, collaboration and cooperation with other projects and initiatives, credits and citation policies, deliverables and milestones, project activity leaders, etc., (iv) a ticketing system (Activity Tracker) where technical activities and also WPs, Tasks, deliverables and milestone, are listed with their advance status and responsibilities.

[1] https://services.d4science.org/group/openaire-connect_coordination/wiki

2.1.3 T1.3 QUALITY AND RISK MANAGEMENT (ATHENA RC)

In the very early stage of the project, ARC composed D1.1 Quality Plan, that documents the general quality policies, procedures and practices to be followed by partners throughout the duration of the project. According project timeplan, D1.1 was submitted on time (M2) and delivered to the consortium.

Along with D1.1, ARC organized the frame so as to set and measure Key Performance Indicators based on the initial list in the Project Grant Agreement. ARC created a google doc so as WP leaders to work collaboratively:

https://docs.google.com/spreadsheets/d/1rN_3CX-8VZuUl6iOE1Y07GXq402qhUrixMabXp1EG20/edit#gid=0

WP Leaders were asked to check the list and complete the numbers at M6. D1.2 was finally delivered within its deadline. New round of updateas is planned to be performed during the first weeks of 2018.

2.2 WORK PACKAGE 2: DISSEMINATION AND EXPLOITATION (ARC)

Work Package leader: Athena RC – Beneficiaries: CNR, UNIWARSAW, JISC, UniHB, UMINHO, CNRS, PIN, IRD, ICRE8

INTRODUCTION

The initial focus of WP2 in the fist half of the project was two fold: a) to refine and where possibly adapt the objectives around the Research Community Dashboard (RCD) and the corresponding outreach approach as the developments of EOSC were emerging, and b) to gauge the interest of data repositories around the Catch-all Broker service.

The branding issue was an overall concern of the partners as we needed to follow a service/user centric approach (vs. a project one). Our efforts were concentrated around aligning dissemination activities wtih OpenAIRE's overall communication strategy, which was shaping up after September of 2017. OpenAIRE-Connect services are part of the OpenAIRE portfolio of services, hence they will benefit from the exact same branding and promotion strategy that is forseen for the rest of OpenAIRE services. The uniform strategy in branding is now well established and be included in the communication plan for OpenAIRE services that is due to be released gradually in 2018.

SUMMARY OF ACTIVITY

2.2.1 T2.1 COMMUNICATION AND ADVOCACY MATERIAL (ARC, UMINHO)

In the first year, the team produced the projet logo, adopted the OpenAIRE ppt template, produced one RCD leaflet/card (to be either distributed separately or in a "sleeve" with a stack of cards accopmanying all other OpenAIRE services), included OpenAIRE-Connect services in an OpenAIRE generic leaflet, placing RCD and Catch-all Broker in context, produced a poster template with look and feel of OpenAIRE-Connect.

The OpenAIRE-Connect (micro)website, www.openaire.eu/connect, hosted under the www.openaire.eu portal was created acting as the reference point for the community and the dissemination and exchange of information, documents, etc.

The connect.openaire.eu site was created to be ready to host the first page of the RCD service and its community instantiations.

OpenAIRE-Connect uses the popular Communication channels of OpenAIRE and where needed with the #OpenAIRE-Connect hashtag, and uses the OpenAIRE Newsletter as a means for dissemination to 12K users.

2.2.2 T2.2 OUTREACH AND DISSEMINATION (ALL)

OpenAIRE-Connect was published in the OpenAIRE blog and presented in various events around Europe. UMINHO focused on presentations of the Catch-all Broker, CNR-ISTI presented the technical approach and solution, while Athena RC presented the strategic side of the services. ICRE8 presented OpenAIRE-Connect as a vehicle to start building regional SDSN portals (even before the official start of the project), and UniHB presented the to the broader oceanographic community.

Date	Type	Orgzn	Event name & URL	Location	Audience (type, #s)
2016-05-30	Meeting presentation	ICRE8	UN SDSN Leadership Council meeting on "How to make the UN Sustainable Development Goals Europe's Business"	Brussels, Belgium	Ministry of Foreign Affairs of the Netherlands, the SDG Charter, the European Economic and Social Committee (EESC), the Sustainable Development Solutions Network (SDSN) and 350 high level policy makers, politicians, people from business sector and NGOs.
2016-09-20	Meeting presentation	ICRE8	"Entrepreneurship in Higher Education and Research Commercialization", Athens University of Economics and Business, https://acein.aueb.gr/en/events/workshop-entrepreneurship-in-higher-education-and-research-commercialization/	Athens, Greece	Tel Aviv University Professors AUEB professors and rector The Assoc. Minister of Research and Innovation, Prof. Costas Fotakis
2016-10-10	Meeting presentation	ICRE8	ICRE8 - Athens Office of Resilience workshop http://www.icre8.eu/icre8-athens-office-of-resilience-workshop-	Athens, Greece	10 ICRE8 researchers 2 representatives of Resilient Athens Office
2017-01-15	Information day	Athena RC	INFRA information day	Amsterdam	Presented the RCD in the context of operational service in OpenAIRE-Advance. 200

Date	Type	Orgzn	Event name & URL	Location	Audience (type, #s)
					participants.
2017-06-28	Conference presentation	UMINHO	Open Repositories 2017 Conference https://or2017.net/	Brisbane, Australia	Users and developers of open digital repository platforms from higher education, government, galleries, libraries, archives and museums
2017-06-29	Simple Attendance	ICRE8	EAERE 23rd Annual Conference http://www.eaere-conferences.org/index.php?y=2017	Athens, Greece	700 scientists
2017-09-04	Meeting presentation	Athena RC	Bilateral meeting with KISTI, Korea's Institute for Research	Athens, Greece	4 high level representatives from Korea, building national infrastructure
2017-09-07	Conference presentation	ICRE8	3rd International SDSN Mediterranean Conference and Official Launch of the SDSN Greece http://www.unsdsn.gr/3rd-international-sdsn-mediterranean-conference-of	Athens, Greece	150 participants from the SDSN community
2017-09-07	Conference session and presentation	CNR-ISTI	Open Science FAIR http://www.openscience-fair.eu/	Athens, Greece	Researchers, Research support staff, Research Infrastructures managers, Repository Managers, Librarians
2017-09-08	Workshop presentation	Athena RC	Workshop for data issues for SDSN	Athens, Greece	40 participants interested in data management for SDSN
2017-09-20	Poster	MARUM UniHB	RDA 10th Plenary meeting https://www.rd-alliance.org/rda-10th-plenary-poster-session	Montréal, Canada	Data practitioners, computer scientists, researchers, policy makers and private sector representatives
2017-10-26	Conference presentation	MARUM UniHB	2nd JPI Oceans Conference http://www.jpi-oceans.eu/news-events	Lisbon, Portugal	Stakeholders from research and industry
2017-11-28	Conference presentation	Athena RC	EOSCpilot stakeholder event	Brussels, Belgium	300 participants related to EOSC developments
2017-12-01	Conference presentation	CNR-ISTI	Digital Infrastructures for Research 2017 https://www.digitalinfrastructures.eu/	Brussels, Belgium	Researchers, innovators, data producers, scientific domain experts, librarians, data science practitioners, service providers, project leaders, policy makers and funders
2017-12-04	Meeting presentation	Athena RC	Bilateral meeting with Chinese Academy of	Athens, Greece	5 high level representatives from CAS, interested in the

Date	Type	Orgzn	Event name & URL	Location	Audience (type, #s)
			Science		OpenAIRE model for building Chinese Open Research Cloud (focus on environmental sciences)
2017-12-15	Poster (accepted)	UMINHO	Open Science Conference	Berlin, Germany	Open Science community (200+)

2.2.3 T2.3 COLLABORATION WITH RDA (ALL PARTNERS INVOLVED IN THE TASK)

The partners have been active in their liaison with the RDA groups (as described in the DoA) and with their participation they ensure a cross-fertilization of ideas and potential implementation of solutions.

More specifically UniHB had a physical presence with an OpenAIRE-Connect poster in RDA 10th plenary (Sept 2017) in Montreal, Canada. Furthermore, ISTI-CNR has identified in collaboration with EOSC-Hub a number of topics to be brought in RDA as part of existing WGs and IGs, which can be of particular relevance to the EOSC case. These include investigations on a common notion of "research community" (definition, description, and PIDs) and identification of common understanding and frameworks for "usage stats for data". These resulted in synergies with the RDA WG on Usage stats for Data (ref. T. Cruise and M. Fenner, DataCite) and with the RDA IG on Community IG to identify (ref. D. Kaoureas, Naturalis).

2.2.4 T2.4 OPENAIRE-CONNECT CATALOGUE OF SERVICES (ARC AND CNR)

The first presentation of the Research Community Dashboard and the Catch-All Broker have been described based on the *eInfraCentral* (www.einfracentral.eu) data model, have been registered in the BETA version of the OpenAIRE service catalogue, and have also been published in the beta version of the eInfraCentral catalogue:

- Research Community Dashboard: http://beta.einfracentral.eu/service/4.04
- Broker Service: http://beta.einfracentral.eu/service/4.11
- Open Science helpdesk (for research communities): http://beta.einfracentral.eu/service/4.17

A second pass is currently in the works based on the new version of the eInfraCentral catalogue model, which includes pricing, access rights, and QoS. Future work will include the instances of the community RCDs and how these will be recorded in the service catalogue.

2.2.5 T2.5 EXPLOTATION & SUSTAINABILITY (ARC AND CNR)

This task is officially starting at M13, but due to EOSC developments Athena RC and CNR have started considering different exploitation aspects, especially as the workprogramme 2018-19 requested open science services in RI cluster and advanced research communities calls. CNR, Athena RC, CERN and ICM drafted estimates of the costs for Research Community Dashboard, Research Initiative Dashboard, and Catch-All Broker based on implementation/operational aspects and community requirements as they are being recorded in OpenAIRE-Connect. In doing so, these services baame part of a wider OpenAIRE "offer" to the cluster projects, and in some cases actual tasks in proposals for *advanced community* proposals (INFRAIA). Initial feedback shows that the communities approached (CESSDA, DARIAH, CLARIN, Elixir, EPOS,

RISIS, AriadnePlus) see the benefit of RCD as an off-the-shelf service readily serving their Open Science needs.

2.3 WORK PACKAGE 3: SUPPORT AND TRAINING (UMINHO)

Work Package leader: UMINHO – Beneficiaries: CNR, Athena RC, UNIWARSAW, JISC, UniHB, CNRS, PIN, IRD, ICRE8

INTRODUCTION

In the first year, the team drafted the OpenAIRE-connect guidelines (two new OpenAIRE: i) guidelines OpenAIRE Guidelines for Software Repository Managers; ii) OpenAIRE Guidelines for Other Research Products (ORP) Repository Managers), produced the detailed report on Extend support content in OpenAIRE portal, supported the content of several presentations in content providers events, promoted one training at the Open Science FAIR Conference for and with research communities, included OpenAIRE-Connect services in the new OpenAIRE portal and planned support actions, materials (factsheets) and guides for 2018.

SUMMARY OF ACTIVITY

2.3.1 T3.1 OPENAIRE-CONNECT INTEROPERABILITY GUIDELINES

The development of the OpenAIRE-connect guidelines for exchanging packages of interlinked research products between scientific communication sources have started within the analysis of requirements carried on with the pilot communities and in parallel and in relation with the process of OpenAIRE data model extension. This process led to the integration of new controlled vocabularies for properties of software and other research products, and new terms to be added to controlled vocabularies already in use by the OpenAIRE infrastructure.

This software guidelines effort has been complemented by involving external initiatives (CodeMeta, DOE CODE, SHARE-OMTD, SoftwareHeritage) with a long and knowledgable experience in the definition of metadata for software citation and reuse in the revision of the guidelines and in the definition of crosswalks[2] from their proposed models. The guidelines are today quite “mature” and being used to realize the first export tries with software products in the EGI Virtual Appliance DBs and DOE CODE.

The same efforts are taken for “other products” guidelines involving EGI (via EOSC-Hub, M. Chatziangelou)) and several communities into the analysis of the products they manage and verify they find a straightforward match when describing them for citation. This set of guidelines, which basically describe “whatever product is not a publication, a dataset, or software”, requires more careful planning and the import of the first description of other products will take place only experimentally in the BETA services. An ongoing cooperation with Galaxy community of ELIXIR and the CWL community (CWLViewer service) will play the role of case study for this activity (ref. R. Drysdale, N. Juty, J. Lanfear).

[2] Crosswalks from OpenAIRE-Connect guidelines to other data models, https://docs.google.com/spreadsheets/d/1mKs-Pg_JuLcpqEkQqlSCs2gGC7nEEbhxdTbIoGcU6NI/edit?usp=sharing

The development of specific OpenAIRE-connect guidelines in the context of the OpenAIRE infrastrucuture guidelines (composed of a set of three different guidelines: for Literature Repository Managers, for Data Archive Managers and the OpenAIRE CERIF-XML profile), aimed to: i) Facilitate programmatic exchange of research products across the scholarly communication infrastructure; ii) Complete the set of OpenAIRE guidelines, which define exchange mechanisms for publications and datasets; iii) Will be used to push & publish research products within OpenAIRE services.

Taking into account these objetives and based on the data model and requirements analisys two new guidelines were drafted and are available for consultion and endorsment by the commmunity.

OpenAIRE Guidelines for Software Repository Managers The OpenAIRE Guidelines for Software Repository Managers 1.0 provide orientation for software repository managers to define and implement their local software management policies according to the requirements of the OpenAIRE - Open Access Infrastructure for Research in Europe. These guidelines are intended to provide indications on how to cite software products in order to make them first citizens of the scholarly communication ecosystem. http://software-guidelines.readthedocs.io/en/latest/
OpenAIRE Guidelines for Other Research Products (ORP) Repository Managers The OpenAIRE Guidelines for Other Research Products (ORP) Repository Managers 1.0 provide orientation for repository managers to define and implement their local management policies according to the requirements of the OpenAIRE - Open Access Infrastructure for Research in Europe. These guidelines are intended to provide indications on how to cite ORPs products. http://guidelines-other-products.readthedocs.io/en/latest/

2.3.1.1 SUMMARY OF PIN ACTIVITY

Analysis of various Cultural Heritage requirements to define strategies for the adoption and dissemination of the Reseaerch Community Dahsboard and the Research Initiative Dashboard within the CH research communities, mainly identifed in PARTHENOS (cluster project) and ARIADNE respectively. PIN has also recommended suitable protocols and APIs for automatic publication of products metadata to be included in the guidelines

2.3.2 T3.2 SUPPORT TO RESEARCH PROVIDERS AND RESEARCH COMMUNITIES

The report on Extend support content in OpenAIRE portal (Deliverable 3.1) developed presents the extended support contents about OpenAIRE-Connect, reflecting the new services for Research Communities and Research initiatives and the catch-all broker service available via the OpenAIRE dashboard for content providers. The report outlines all the new support information and training content to integrate the OpenAIRE Open Science helpdesk. The overall structure of support information of new OpenAIRE portal is presented, followed by the extended support contents which will be incorporated in the existing structure. These extended content assumes an important contribute within Open Science Helpdesk, to assist the OpenAIRE-connect stakeholders in all matters related to the Open Science-as-a-service.

The following table, presented in the report, describes the work being developed to extend the support content for OpenAIRE portal based on the specific helpdesk and training plans within OpenAIRE-connect project:

Support content in OpenAIRE portal: Sections / Resources / Contents
RESOURCES
Guides
> Guides for each service (Research Communities & Research Infrastructures) - how to install, how to configure, how to use, who to approach, costs, etc. > Research Community Dashboard - how to implement, how to share, how to link, how to gather, how to monitor > Research Infrastructure Dashboard - how to track, how to monitor, how to identify, how to discover
Factsheets
> Research Community Dashboard > Research Infrastructure Dashboard - how to access, how to configure, how to use, who to approach, functionalities, benefits, costs, etc.
HELPDESK
FAQs
> FAQ for Research Communities, with subsets for each community > FAQ for Research Infrastructures > FAQ for Content Providers - dashboard, functionalities, ...
Ask a Question
New ticket categories: > Research Communities - help on how to use the Research Community Dashboard > Research Infrastructures - help on how to use the Research Infrastructure Dashboard
TRAINING
Webinars
> Webinars for Research Communities > ad hoc webinars for research community operators and researchers to use the Dashboard > Webinars for Content Providers > ad hoc webinar for provider managers to adopt the Cath-All Broker service - provide access to the recorded webinars
Workshops
> Workshops with OA publishers, thematic repositories, data archives > Workshops with researchers and research communities - provide access to the results of each workshop, as well as their recordings
Online courses
> Online courses (FOSTER EU) - how to use Research Community Dashboard - how to use Research Infrastructure Dashboard - how to use the Catch-All Broker Service

2.3.3 T3.3 TRAINING TO RESEARCH PROVIDERS AND RESEARCH COMMUNITIES

On September 2017 OpenAIRE-connect team held a workshop during the Open Science FAIR conference aiming to create a forum where research communities especially interested/relevant to open science publishing paradigms can compare, confront and align their practices by identifying common patterns and methodologies. The result has become important feedback and validation to the architecture, information models, and vision of the services to be provided by OpenAIRE in support of Open Science.

Title: Open Science as a Service: Tools for Research Communities **Event: Open Science FAIR Conference** **Date:** 2017-09-07 **Location:** Athens, Greece **Topic:** Open Science as a Service: Tools for Research Communities **Participants:** Research communities, Research Infrastructures (over 60 participants) **Duration:** 1.5 hrs.	**Programme:** Welcome and Introduction "Open Science Publishing Challenges - an overview", Paolo Manghi, OpenAIRE, ISTI-CNR (IT) Communityperspectives of OpenScience "A Structural Biology view of Open Science", Chris Morris, STFC (UK) "An Ecology and Evolution view of Open Science", Antica Culina, KNAW (NL) "The ELIXIR view of Open Science", Thanasis Vergoulis, Athena Research and Innovation Centre (GR) OpenAIRE-Connect Services for Open Science as-a-Service "The Research Community Dashboard", Paolo Manghi, OpenAIRE, ISTI-CNR (IT) "The Catch-All Broker Service", Alessia Bardi - ISTI-CNR (IT)

Workshop results and feedback: As a result of the discussions occurred during and at the end of the meeting, it became clear that research communities find it hard to understand and tackle the complexity of Open Science publishing. In the context of RIs part of these challenges is overcome by the existence of a board or legal entity which can issue top-down decisions, or at least recommend them. This strength is particularly evident in the decisions taken about standards for interoperability or dataset publishing policies. Still, reproducibility of science is typically out of such monitors. Where governance does not exist (i.e. the community is not supported by an RI), the issues are even harder to tackle, since communities identify themselves only by the kind of research they perform but find it impossible to converge on such open and complex challenges. These challenges could be explored in the context of EOSC. For example by identifying models that allow "RI-less communities" to exploit existing RIs and "virtually" build their own RIs out of the services of existing ones (mission of EOSC). Such "virtual" RIs would build and rely on their own "governance", supporting their own research mission, vision and best practices, but rely on services provided by third parties.

Finally, representative of research infrastructures urged OpenAIRE to establish collaborations with RIs to enable automated publishing (push of metadata and links in OpenAIRE) or harvesting from RI sources metadata for datasets, tools, and links to publications. The RIs of ELIXIR, Instruct-WestLife, and OpenRiskNet showed interest in establishing such collaborations. More generally, it became clear how RIs, and more in general communities, need recommendations and counseling to kick-start an Open Science virtuous circle. OpenAIRE could be the "public" entity that will establish "offices".

2.3.4 T3.4 LEGAL ADVISORY SUPPORT (ARC)

This task builds on existing results (guides from OpenAIRE and OpenMinted – www.openminted.eu) and recommendations within the European data landscape. Preliminary work has been carried out to identify issues where publishing of research products (to publications, data and software) may be hindered: OA and licensing. The guidelines so far consist of two published documents (create-OpenMinted-OpenAIRE) and one tool to be integrated in the OpenAIRE suite of guides:

- http://openminted.eu/support-training/
- https://openminted.github.io/releases/license-matrix/

All legal tools and guidelines are merged with the OpenAIRE guidelines on IPR, copyright, publishing licensing and will be published as factsheets and guides specifically targeting research communities. Further work will involve around monitoring community data (or metadata) to identify best practices and gaps and to adapt recommendations accordingly, i.e., strengthen where necessary.

2.4 WORK PACKAGE 4: THE RESEARCH COMMUNITY DASHBOARD: OPEN SCIENCE SERVICES FOR RESEARCH COMMUNITIES (ARC)

Work Package leader: Athena RC – Beneficiaries: CNR, UNIWARSAW, JISC, UniHB, UMINHO, CNRS, PIN, IRD, CERN, ICRE8

INTRODUCTION

Requirements have been collected from the research communities involved in the project and from communities engaged during hte project life-time via the active collaboration with EOSC-Hub, RDA, and teh various OpenAIRE liaisons. The requirements helped in the definition of the OpenAIRE model extensions by specifying their current practice and ambitions on publishing of research products in their specific disciplines. In addition to the requirements of the research communities, requirements and expectations from the existing "consumers" of the OpenAIRE infrastructure, including data sources, portal end-users, OpenAIRE data curators and third-party services have been considered. As a result, the data model has been extended with the entities “software” and “other products” and a new services has been introduced to address all identified needs, namely the “Research Initiative Dashboard”:

1. *Research Community Dashboard (RCD)*: the service offers access to a virtual space (a graph) including metadata descriptions of all products relevant to the community as well as links between such products; the graph is built by i) scientists depositing their products (via Zenodo) or claiming products and links (assocaiting a DOI to the community, specifying a link between products) or (ii) by services collecting product metadata and links from a number of content providers, ranging from publications repositories to data repositories and repositories of other kinds of products. RCD administrators can also specify a list of subjects selected from known controlled vocabularies (e.g. DEWEY, ACM, Mesh) which determine when a product associated to such subject is to be included in the community graph.
2. *Research Initiative Dashboard* (RID): the service offers monitoring tools to initiatives in the need of tracking the products that are being produced as a result of their activities; examples are

infrastructures like EGI, whose services are supporting scientists at producing articles, data, software, etc., and RDA whose netwokring services are supporting scientists at producing similar products.

The data model changes have been applied and the first results are visible in the OpenAIRE BETA infrastructure at https://beta.explore.openaire.eu. From the explore page products can already be browsed by community and links between articles and software have been made available. Similarly, Zenodo back-ends and deposition form was enhanced to include custom community vocabularies for software prodcuts and other products. A new versioning field and ORCID fields were also added. Zenodo export formats were further updated to include the OpenAIRE community and custom subtype in the output.

The first release of the the RCD has been delivered and is available in the BETA infrastructure at http://beta.connect.openaire.eu. The first version of the requirements of the Research Community Dashboard was delivered. Based on these requirements there is constant progress on working on a prototype for the administration and the community portals. The administration web application provides basic configuration possibilities to the community experts. The portal is parameterized to follow the configuration defined by the community experts. The search and claim of software is already supported. Also, the prototype of the interface of configurable mining algorithms is already available. The integration of this interface in the Research Community Dashboard has already been initiated. Following the changes of the data model, the APIs were enhanced to include the possibility to serve requests for software. Because of the importance of the reporting procedures that a community may follow, the APIs were updated to serve more efficiently the results of CSV and HTML formats.

For the moment, the Reserch Initatives are exposed as communities in the Research Community Dashbard. This is the case for example for EGI. For the next period of testing, a dedicated UI will be delivered for Research Initatives which will include similar tools (limited to monitoring) and the configurable mining algorithms (T4.3). Developments of the mining algorithm configuration UIs are in progress.

SUMMARY OF ACTIVITY

2.4.1 T4.1 OPENAIRE EXTENSION TO RESEARCH METHODS AND PRODUCT PACKAGING (NOW SOFTWARE AND OTHER PRODUCTS)

2.4.1.1 SUMMARY OF CNR ACTIVITY

CNR has contributed to this activity by leading the discussion on the extension of the OpenAIRE data model for the representation of products different from publications and datasets. At proposal writing, the idea was to extend the data model with new entities fro methods and research packages. After discussions with the communities and existing clients of OpenAIRE services it has been agreed to extend the model with entities for software and other research products, instead.

In particular, OpenAIRE-Connect extends the OpenAIRE data model with (i) entities for the representation of research communities, software and other research products; (ii) relationships between those new entities and the already existing OpenAIRE entities; (iii) new controlled vocabularies for properties of software and other research products; (iv) new terms to be added to controlled vocabularies already in use by the OpenAIRE infrastructure.

Requirements have been collected from the research communities involved in OpenAIRE-Connect, namely Marine environmental science (UNIHB), Cultural Heritage & Humanities (PIN), Neuroinformatics (CNRS),

Fisheries and Aquaculture Management (IRD), Environment and Economy (ICRE8/SDSN Greece), which helped the definition of the model extensions by specifying their current practice and desires about the publishing of research products in their specific disciplines. In addition to the requirements of the research communities, requirements and expectations from the existing "consumers" of the OpenAIRE infrastructure, including data sources (providing content to OpenAIRE), portal end-users of various roles (researchers, project coordinators, general public, research communities), OpenAIRE data curators (responsible of the workflows for collecting, harmonising, de-duplicating, inferring content), and third-party services (accessing content via APIs), have been considered.

Finally, CNR has upgraded the OpenAIRE back-end services to conform to the new data model. This required changes in the data collection and transformation services, in the graph management services, and in the data provision services (e.g. index). Furthermore, CNR has supported the activity for upgrading the model of Zenodo accordingly.

2.4.1.2 SUMMARY OF JISC ACTIVITY

During the reporting period, Jisc has contributed to the progress of T4.1 mainly through work in two areas: the development and ongoing refinement of the data model as well as the internal consultation and coordination regarding this work across different teams.

With regards to the development of the extended OpenAIRE data model, we have added our experiences from developing and providing services for content providers. Specifically, we sought to ensure that the extensions of the data model (specified in D4.1) also reflect preferences of this user group. In this process, we specifically drew on experience from the teams who developed and are currently running Jisc's Publications Router and the new Research Data Shared Service. With the basic architecture and top-level entities of the data model now specified, we are contributing to and revising entity properties; e.g. definition of properties of "software" and framework for research packages.

A focus of our work on the data model has been to monitor that OpenAIRE data model extensions remain conceptually compatible with the data models and frameworks of related Jisc services. We have therefore assessed all proposed extensions to ensure that the proposed entities and their definitions can be cross-walked to other data models. As a precondition for the feasibility of the interoperability pilot (T7.8), this general level of interoperability has been a primary concern for our involvement in the task. The fact that the extended OpenAIRE data model follows the CERIF data model helps to facilitate this interoperability.

Liaising with and coordinating our work on T4.1 with other relevant teams across Jisc has been a major internal focus during the reporting period. To strengthen coordination, flow of information, and feedback across the teams working on related projects, we have initiated a regular internal meeting series for European projects with relevant work on data models and solutions for federated repository environments. In the current reporting period, three such meetings have taken place. Through this activity, we were able to consult with a wider internal audience on the data model development, adding experience from team members working on Publications Router, Research Data Shared Service, CORE, and others. In addition to the added expertise, this involvement has also helped to facilitate preparations for the interoperability pilot (T7.8).

2.4.1.3 SUMMARY OF PIN ACTIVITY

PIN has contributed by identifying Cultural Heritage communities and sub-communities to become stakeholders and content providers of OpenAIRE. PIN has actively participated to the extension of the

OpenAIRE data model, to the identification of suitable functionalities for the dashboard services to be delivered by the project, and to the identification of protocols and APIs for "continuous" publishing into OpenAIRE of product metadata (related with API task in WP4). In particular it has identified relevant keywords for automatic indexing of publications in existing online repositories, listed projects indicating pertinence with the CH community, and identified of available online services and APIs to be used for automatic harvesting and ingestion of publication information.

2.4.2 T4.2 OPENAIRE'S ZENODO FOR RESEARCH METHODS AND PACKAGES

2.4.2.1 SUMMARY OF CERN ACTIVITY

CERN co-wrote D4.2 (specification and release plan), specifying the upgrades needed for Zenodo for OpenAIRE-Connect. Due to an upload storage incident[3] in July we had to re-prioritize and focus on mitigating the incident and implement further preventive measures. This caused a delay on implementing the changes to the deposit form. The deposit form changes were delivered during October to December including a new versioning field, ORCID fields and custom per community subtypes for software and other general resource types. Export formats were further more updated to include the OpenAIRE community and custom subtype in the output.

2.4.2.2 SUMMARY OF CNR ACTIVITY

CNR reviewed the Zenodo upgrade specifications and provided expert input on the OpenAIRE data model for Zenodo. CNR participated in the design of the Zenodo deposit form changes as well as the design of the interactions between Zenodo and the OpenAIRE infrastructure.

2.4.3 T4.3 CONFIGURABILITY OF TEXT MINING ALGORITHMS

2.4.3.1 SUMMARY OF ARC ACTIVITY

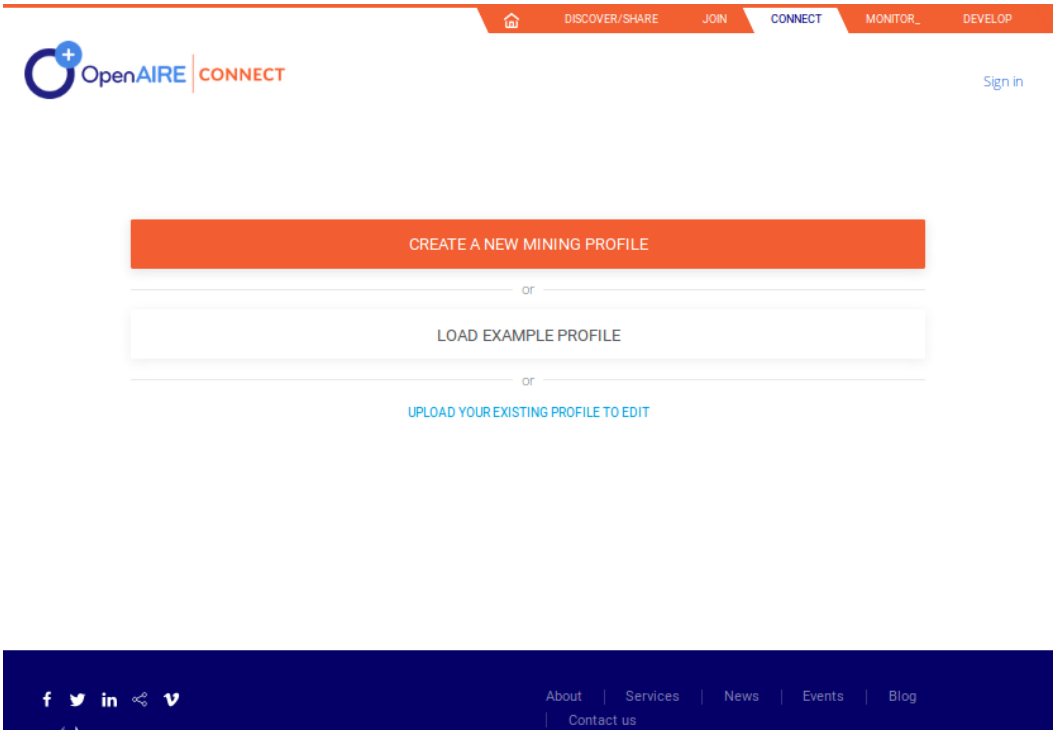
OpenAIRE-Connect aims at equipping the research Initaitive Dashboard with manully configurable text-mining algorithms, aiming at identifying links between publications and a given research initiative; for example such rules can detect the presence of a mandatory acknowledgment statement in the acknowledgment section of an article such as "these research activities have been co-funded by RDA". The side effect of positive matches is to link an article to a research initiative and therefore be able to report it as part of the impact.

During the first year of OpenAIRE-Connect project, great progress has been made on implementing the mining configuration interactive platform. This platform allows the community users to upload and fine-tune their mining rules by abstracting on several hands-on details, such as "vicinance" of words, "similarity functions", etc. with terms and concepts closer to the non-expert users.

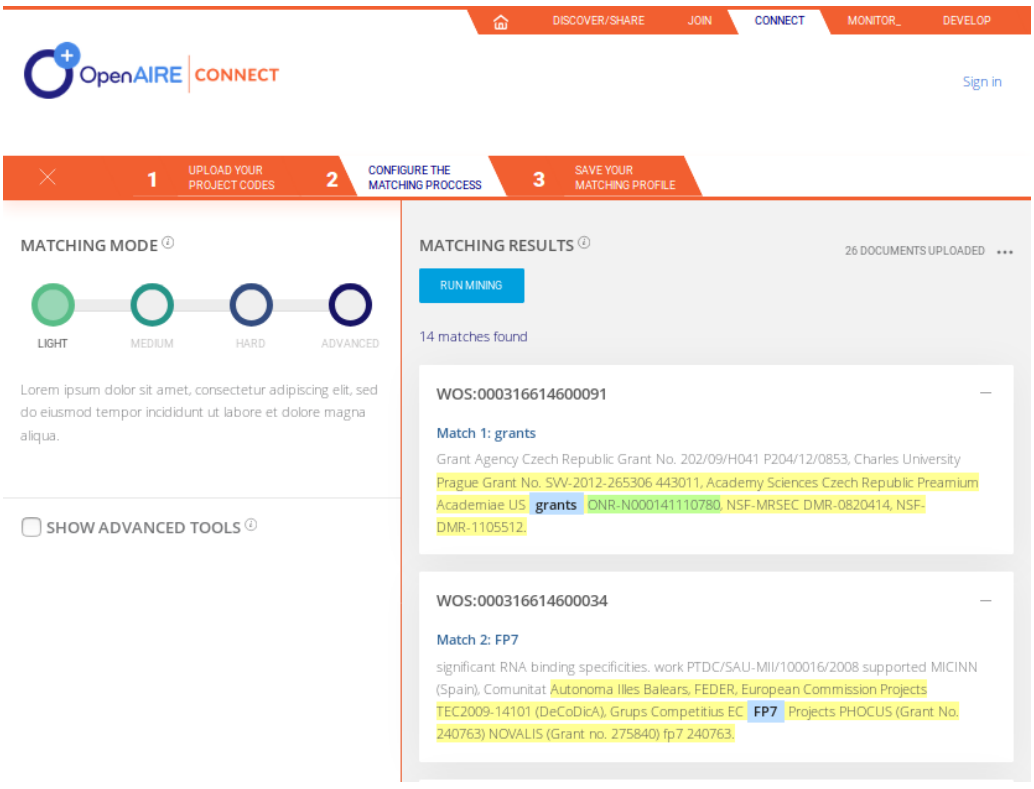
A BETA version of this platform is temporary online at http://shovel.madgik.di.uoa.gr:4200 and is currently under integration with the main OpenAIRE portal. Some screenshots of the web GUI are following. Using

[3] http://blog.zenodo.org/2017/07/19/upload-storage-incident/

this platform, the community user configures and tests his mining algorithm. Then the algorithm is validated by the mining team of OpenAIRE-Connect before being integrated online.



Mining configuration interactive platform's homepage



Mining configuration interactive platform's configuration and test page

Since this platform is not ready yet for production the mining team has already implemented and configure the mining algorithm for several communities.

Table 4 - Community and research impact activities: publications (mining) and datasets (harvesting)

Community	Status	Number of related publications	Number of related datasets
Neuroinformatics (CNRS)	Ready - Under integration in Beta	32	N/A
Environment and Economy (ICRE8/SDSN Greece)	Ready - Under integration in Beta	4692	1068
Digital Humanities & Cultural Heritage (PIN)	Ready - Under integration in Beta	10	N/A
Marine environmental science (UNIHB)	Work in progress	10929	3383
Fisheries and Aquaculture Management (IRD)	Work in progress	1054	69

, depicts the progress that has been made with several communities. For all these tasks first input and feedback during all the implementation stages is provided by the corresponding communities' representatives (e.g., IRD, UNIHB, PIN, ICRE8,CNRS).

Table 4 - Community and research impact activities: publications (mining) and datasets (harvesting)

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Marine environmental science (UNIHB)	Work in progress	10929	3383
Fisheries and Aquaculture Management (IRD)	Work in progress	1054	69

2.4.3.2 SUMMARY OF PIN ACTIVITY

Preliminary analysis of text mining algorithms used within ARIADNE and PARTHENOS projects for possible integration within OpenAIRE mining cluster.

Definition of relevant protocols for text mining and automatic entities and links extraction for publications indexing.

2.4.4 T4.4 RESEARCH COMMUNITY DASHBOARD

2.4.4.1 SUMMARY OF ARC ACTIVITY

Based on the needs of the communities and the changes in the data model, ARC wrote the Deliverable "D4.4 Research Community Dashboard: specification and release plan".

The first prototype of the Research Community Dashboard administration portal is available at http://beta.connect.openaire.eu. The community experts can choose which of the available entities will be accessible through the community portal. Additionally, they can add in the pages of the community portal help texts to give extra information to the community members; they can give the text and its position in the page (top, left, right, bottom). The community portal is parameterized in a way that follows the configuration that the expert defined through the administration tool.

Following the changes of the data model search, browse and claiming functionalities for software are already available in the community portal.

2.4.4.2 SUMMARY OF CNR ACTIVITY

CNR has participated in discussions with ARC for technical enhancements and developments of the service that will allow the interaction between the portals and the communities' profiles store. CNR has participated with ARC and UMinho to the analysis of requirements that led to the distinction between research communities and research initiatives described in Section 1 (Objective 1 – Research community services: Uniformly support the transition of research communities towards Open Science publishing.

2.4.4.3 SUMMARY OF PIN ACTIVITY

Preparatory activities for the analysis of the preliminary user requirements to be used for the development of the Research Community Dashboard.

Contribution to preparation of the test sessions for the Research Community Dashboard.

2.4.5 T4.5 OPENAIRE PUBLISHING APIS

2.4.5.1 SUMMARY OF ARC ACTIVITY

Following the changes of the data model, the APIs were enhanced to include the possibility to serve requests for software. This is already available in the BETA installation of the API[4]. The parameters that are supported are doi, openaireSoftwareID, fromDateAccepted, toDateAccepted, title, openaireProviderID, openaireProjectID, hasProject, FP7Project, OA.

Because of the importance of the reporting procedures that a community may follow, we have updated the API to serve more efficiently the results of the API requests in CSV and HTML formats.

2.4.5.2 SUMMARY OF CNR ACTIVITY

The goal of this task is to design, implement, and deploy APIs that can be used by authorised third-parties to publish products in the OpenAIRE information space.

CNR took the lead of this task on December 2017 and worked on the initial design of the APIs.

2.5 WORK PACKAGE 5: THE CATCH-ALL BROKER SERVICE: OPEN SCIENCE SERVICES FOR SCIENTIFIC COMMUNICATION CONTENT PROVIDERS (CNR)

Work Package leader: CNR – Beneficiaries: Athena RC, JISC, UniHB, UMINHO

INTRODUCTION

This WP will deliver the Catch-All Broker Service, capable of serving any kind of content providers with subscription and notification services relative to events regarding research literature, data, methods, packages or interlinks between them. Providers will be able to be notified about information relative to their collection of products, according to defined topics of interest (e.g. links to methods, links to project, links to data). The OpenAIRE literature broker service will be extended both at back-end and front-end level to handle the broader domain of research methods and relative packaging and to target content providers of any typology (beyond literature repositories). All tasks will follow a methodology of requirements analysis, prototyping, and agile deployment cycles in coordination with WP6.

SUMMARY OF ACTIVITY

The Catch-All Broker Service is currently in development regimen. The back-end service (T5.1) run at the CNR data centre1, while the front-end service (T5.2) is already deployed in the ICM data centre as part of the Content provider dashboard service2 expected from OpenAIRE2020.

2.5.1 T5.1 CATCH-ALL BROKER BACK-END

The Task will undertake standard phases of requirement analysis, design, development, testing, and deployment with the support of WP6. CNR will lead this activity by first involving representatives of content providers (Jisc, UMinho, UniHB) in the scientific communication domain to capture the requirements in

[4] http://beta.services.openaire.eu:8480/search/api/software/
[1] http://broker1-dev-dnet.d4science.org:8080/openaire/index.html#/datasources
[2] http://beta.repomanager.openaire.eu

terms of subscriptions (i.e. kind of information and events of interest to providers) and notifications (i.e. how to be notified of relevant information) over a graph of interlinked research products. Based on such input, CNR will design and develop the extension of OpenAIRE brokering services back-ends for literature to handle any kind of productsand serve any kind of content providers in the scientific communication. The extension will take into account interoperability with other similar initiatives worldwide, the Jisc Broker Service being the main use-case, in order to pave the way for an interoperability framework for scientific communication broker services.

2.5.1.1 SUMMARY OF CNR ACTIVITY

The broker service realised in the context of the OpenAIRE2020 project was adjusted according to the requirements provided by ARC, in charge for the development of the frontend services. The service API consists of a REST component exposing functionalities relative to two layers:

1) the generic broker API for the management of events, notifications, subscriptions, and topic types;
2) the OpenAIRE oriented API offers a view of the broker service based on the OpenAIRE use case, in which data providers are considered potential subscribers, and allowing therefore the following operations:
    a. get the datasources with assigned events;
    b. get a paged view of the events for a given datasource, by topic;
    c. search for the events relative to a given datasource;
    d. get a paged view of the notifications sent to a data provider;
    e. perform a subscription;
    f. get the list of subscriptions performed by a given user (by email);
    g. get the list of topics of the events of a datasource.

The back-end services underlying the Catch-All broker were adapted to reflect the data model extensions described in D4.1 (OpenAIRE data model extension). This allowed to prepare the ground for the realisation of the business logics needed to generate events relative to any kind of research products. During the technical meeting (Athens, June 2017) the task participants confirmed the interest for links between any type of research products, therefore the next stage of WP5 will consist of (i) extend the information space analysis algorithms in order to identify such links, and (ii) deploy the Catch-All broker service in the ICM data centre.

2.5.1.2 SUMMARY OF JISC ACTIVITY

Jisc's work in the current reporting period was focused on gathering a detailed understanding and requirements of the Catch-All-Broker (CAB) functionalities from the perspective of content providers. Additionally, we have started our analysis of the interoperability requirements which need to be met for the CAB to interoperate with other services such as Jisc's Publications Router.

The focus of Jisc's work until now has identified two main requirement levels for interoperability: First, the technical interoperability of both systems, particularly the exchange of research product metadata data through an appropriate and informative payload. Second, the business and use case interoperability of systems, concentrating on non-technical challenges. This affects various questions, e.g. whether (or which) users see an added value in receiving additive notifications from different systems to complement their repository records; and how data exchange pipelines between systems can be constructed in order to comply with potential licensing restrictions and other contractual arrangements between broker service and various content providers.

Jisc have therefore consulted within Jisc in order to further define the use case of the Catch-All Broker, particularly in relation to complementary services such as Publications Router. In preparation of this, we have created briefing and requirement documentation and are collecting further feedback from Jisc's Publications Router and Research Data Shared Service team. This ongoing work helps to ensure that crucial considerations regarding interoperability are taken into account in the CAB back-end development. Furthermore, it contributes indirectly to the preparation of the interoperability pilot (T7.8) by broadly setting the framework in which the pilot can proceed.

2.5.2 T5.2 CATCH-ALL BROKER FRONT-END

The Task will undertake standard phases of requirement analysis, design, development, testing, and deployment with the support of WP6. ARC will lead this activity involving representatives of content providers (Jisc, UMINHO, UniHB) in the definition of functional requirements for a user interface allowing content provider managers to configure, test, and commit subscriptions, and to handle the history of notifications. Based on such requirements, and on the results of T5.1, ARC will extend TRL6 OpenAIRE's repository manager dashboard to include user interfaces supporting any kind of content providers at subscribing to any information available in the OpenAIRE information graph as extended in OpenAIRE-Connect.

2.5.2.1 SUMMARY OF ARC ACTIVITY

After discussions with the representatives of the content providers during the technical meeting in Athens and in numerous conference calls, ARC defined the requirements for the user interface. The existing user interface of the Broker (from the OpenAIRE2020 project) was evaluated and redesigned to cover the functionality requirements. In its current status, the Broker front-end supports the following functionalities:

- Get all of the events for a given datasource in a paged view;
- Provide search functionalities on the events of a datasource;
- See a list of all the topics with generated events for a datasource;
- Manage the subscriptions of a datasource:
    - See the list of active subscriptions;
    - Subscribe to new events;
    - See a list of all notifications that were sent to a data provider.

In the next phase of Task 5.2, it is planned to continue the interactions with the data providers, keep evaluating the user interface and respond accordingly to the comments, extend its functionalities to support more kinds of datasources, and finally support the alerts that will be generated by the backend.

2.5.2.2 SUMMARY OF JISC ACTIVITY

Jisc have supported the development of the Catch-All-Broker frontend through review of the initial CAB user-interface specification and release plan (D5.2) and by validating its design features and service requirements. For the initial CAB UI specification and release plan, we have provided peer-review.

Jisc have also started to exchange information to collect additional information from Jisc's Research Data Shared Service, which is also in the progress of developing an interface to allow users manage the records of research data products. Through this ongoing consultation, we hope to be able to benefit from additional

user requirements for content providers and further inform the development of the CAB UI and its functionalities.

2.6 WORK PACKAGE 6: SERVICE OPERATION AND MAINTENANCE (UNIWARSAW)

Work Package leader: UNIWARSAW – Beneficiaries: CNR, Athena RC, CERN

INTRODUCTION

The project is still in development phase, and the services operation was less important during the first year of the project. This period has been used mostly for the improvement of the existing infrastructure and preparations for the new services to be deployed. New infrastructure has been set up for development requirements. The WP progress is in line with planning, and matches its expected goals.

SUMMARY OF ACTIVITY

2.6.1 T6.1 DEVELOPMENT, TESTING AND DEPLOYMENT OF SERVICES IN OPENAIRE INFRASTRUCTURE

2.6.1.1 SUMMARY OF CNR ACTIVITY

CNR has contributed by serving as a mediator between partners in the need to operate, test, and deploy software on the development, beta, and production systems. This activity included the provisioning of tools to support the software life-cycle: from software development, to testing and integration (SVN, Redmine, build system, continuous integration system, software artifact repository).

Moreover, in this context CNR coordinated the activities for the system and software developments, deployments and upgrades, such as (i) adapting the OpenAIRE literature broker back-end services in order to reflect the changes needed to implement Catch-All broker service; (ii) collaborate with ARC to the design and develop the API needed by the Research Community Dashboard.

2.6.1.2 SUMMARY OF ICM ACTIVITY

ICM supported development of the OpenAIRE Connect services by provisioning resources for the services development and testing. For the reporting period this also includes a dedicated server for the new Joomla-based portal.

2.6.1.3 SUMMARY OF ARC ACTIVITY

ARC with the support of ICM has led the deployment of the new AAI in OpenAIRE machines. We have updated the already existing LDAP of BETA with eduPerson schema and we have requested new machines for installing Shibboleth and OpenAIRE SSO services.

2.6.2 T6.2 OPERATION AND MAINTENANCE OF SERVICES IN OPENAIRE INFRASTRUCTURE

2.6.2.1 SUMMARY OF CNR ACTIVITY

CNR implemented the changes described in D4.1 (OpenAIRE Data Model extension) to include research method and packages in the OpenAIRE information space.

Furthermore, due to its central coordinator role, CNR has identified possible refactoring or improvement of the OpenAIRE services as a whole, in order to produce a better production system. These include: (i) coordination of the activities for the system and software upgrades, such as invasive upgrade of the legacy software to Java8; (ii) upgrading administrative user interfaces for workflow management, (iii) advancing developments for distribution of workflow execution workload via a cluster of working nodes; (iv) starting developments with UoA and ARC of workflows for tracking and validating quality during aggregation activities; (v) coordination of the activities for the implementation and integration of the workflow for the generation of the OpenAIRE Linked Open Data information space, in synergy with UBONN and ARC.

Finally, CNR coordinated and supervised the initial stages of design and development of the Catch-All Broker service and the Research Community Dashboard.

2.6.2.2 SUMMARY OF ICM ACTIVITY

The primary infrastructure for the OpenAIRE is maintained at ICM. As it is expected to grow significantly, ICM prepared in cooperation with CNR new procedures for better and faster handling new resource requests. Also the initial period of the project has been used to improve the overall administrative and operational procedures to ensure smooth operation of the services in the future. Among other activities ICM worked on preparation for hosting new generation of OpenAIRE software, preparation for the upgrade of the Hadoop cluster responsible for Information Space processing Cloudera 5 distribution, as this proven to work well with IIS cluster already. Other system upgrades have been performed according to schedule.

2.6.2.3 SUMMARY OF ARC ACTIVITY

Software lifecycle activities relating to releasing updated configurations of mining algorithms linking research results to communities. Work included fine-tuning and testing of inference algorithms following community user-feedback, as well as testing of the mining configuration platform developed in T4.3.

2.6.2.4 SUMMARY OF CERN ACTIVITY

During the year CERN has provided system maintenance and security updates of both the quality assurance and production infrastructure for Zenodo. We furthermore performed changes in the DNS infrastructure for Zenodo, by moving the domain name from Gandi.net to CERN DNS infrastructure. This allowed us to take advantage of CERN's spam protection system by directing both incoming and outgoing mail flow through CERN mail services, and thus reduce spam on the support line by a significant factor.

We further deployed a new status page (status.zenodo.org), that publicly displays uptime for the website, the search engine and the storage infrastructure. We also launched a new support contact form that, depending on request type, requests the correct information needed in order to handle a support request more efficiently.

After an upload file storage incident in July (reported in OpenAIRE2020), we implemented further measures to prevent file loss and corruption. These measures were successful in detecting efficiently detecting a new incident caused by a manual system maintenance intervention performed by the CERN storage team. Due to the detection, no files were lost or corrupted.

2.6.3 T6.3 DATA MANAGEMENT

2.6.3.1 SUMMARY OF CNR ACTIVITY

CNR reviewed the redaction of D6.2 (Data Management Plan OpenAIRE-Connect).

2.6.3.2 SUMMARY OF ICM ACTIVITY

ICM has prepared Data Management Plan, Deliverable D6.2. The data management plan is intrinsically connected with other OpenAIRE-related DMPs, and similar procedures will be applied for data management

2.7 WORK PACKAGE 7: END-USER DRIVEN PILOTS (CNR)

Work Package leader: CNR – Beneficiaries: Athena RC, JISC, UniHB, CNRS, PIN, IRD, ICRE8

INTRODUCTION

This WP is about assessment, adoption, and usage monitoring of the OpenAIRE-Connect services. To this aim the WP will run 7 pilots, 5 relative to the Research Community Dashboard and 2 to the Catch-All Broker Service. ARC and CNR will coordinate the overall activities. In cooperation with the research community partners (UniHB, CNRS, PIN, IRD, ICRE8) and the content provider partners (Jisc, UniHB, UMNIHO), common testing plans for the use-cases will be identified and the relative assessment questionnaires prepared. Each pilot will identify a pool of users and engage them in two testing sessions. The assessments and recommendations resulting from each session will be returned to WP4 and WP5, the first to refine the BETA services, the second to deliver the production-ready TRL8 technology behind OpenAIRE-Connect services.

Activities in this work package are planned to start in M15.

SUMMARY OF ACTIVITY

There are no activities planned during the first year of the project. Some preliminary activities have been however performed by UniHB and PIN, mainly related to the promotion of Open Science publishing principles in the communities and activities in preparation for the first testing phase that will start in M16.

2.7.1 T7.1 TESTING, ASSESSMENT, AND MONITORING OF THE PILOTS

This is a P2 Activity.

2.7.2 T7.2 DASHBOARD PILOT: NEUROINFORMATICS RESEARCH COMMUNITY

This is a P2 Activity.

2.7.3 T7.3 DASHBOARD PILOT: EARTH AND ENVIRONMENTAL SCIENCE RESEARCH COMMUNITY

2.7.3.1 SUMMARY OF UNIHB ACTIVITY

Compiled the community profile required to configure the first release of the Research Community Dashboard and identify the community-related products within the OpenAIRE graph. This includes an extensive list of EU projects relevant to this community, a list of data sources pertinent to the community, and a list of subjects relvenat ot the communty.

UniHB (namely Dr. Pesant) contributed significantly to promote open science practices within the Earth and Environmental Science Research community by co-organising 8 community workshops (mainly in marine science). He also promoted the OpenAIRE-Connect Dashboard at an EU Parliament event (EuroMarine Blue Science for Blue Growth), an EU DG-RTD consultation for the development of the Blue Cloud, a consultation for the G7 extended observatories, and an open science forum at the JPI Oceans Conference

2.7.4 T7.4 DASHBOARD PILOT: DIGITAL HUMANITIES AND CULTURAL HERITAGE RESEARCH COMMUNITY

2.7.4.1 SUMMARY OF PIN ACTIVITY

Identification of a list of users in charge of identifying existing gaps in publication interlinks among Cultural Heritage communities and who will be engaged in future testing of the Dashboard.

Preliminary investigation of relevant protocols for information extraction and aggregation into the dashboard from different Cultural Heritage repositories.

Preparatory activities for the identification of publications and other CH products to be included within the Cultural Heritage community’s information cloud.

2.7.5 T7.5 DASHBOARD PILOT: FISHERIES AND AQUACULTURE MANAGEMENT RESEARCH COMMUNITY

This is a P2 Activity.

2.7.6 T7.6 DASHBOARD PILOT: ENVIRONMENT AND ECONOMY RESEARCH COMMUNITY

This is a P2 Activity.

2.7.7 T7.7 CATCH-ALL BROKER SERVICE PILOT: CONTENT PROVIDERS

This is a P2 Activity.

2.7.8 T7.8 CATCH-ALL BROKER SERVICE PILOT: BROKER SERVICES INTEROPERABILITY

This is a P2 Activity.

3 DEVIATIONS FROM ANNEX 1

3.1 ACTIVITIES

No major deviations from the Annex I. Anyway the following should be highlighted:

The coordination of OpenAIRE-Connect required constant re-planning based on the strong dependencies with its “mother” projects OpenAIRE2020 and OpenAIRE-Advance and especially on their ongoing involvement with the European Open Science Cloud roadmap. The relationship between the results of OpenAIRE-Connect and these initiatives is tight and requirements and timings of the project had often been dictated by “external” requirements or calls of efforts. Overall, taming such hectic scenario has been challenging, has affected the timing of some of the deliverables, but has not affected the delivery of the project, which is still on track, with motivated partners.

As for T4.1 “Openaire Extension To Research Methods And Product Packaging”: the OpenAIRE data model has been extended with the entities "software" and "other research products" instead of the entities "research methods" and "research packages" mentioned in the DoA, which could not fully address requirements and expectations of the research communities involved in OpenAIRE-Connect and of the existing "consumers" of the OpenAIRE infrastructure.

In particular, communities and consumers were specifically interested in being able to publish and search for "software", while the term "research package" indicates a type of research products whose use is not widely spread and univocally understood.

In order to capture current practices of communities and to enable the realisation of "researcher-friendly" publishing tools, CNR, CERN and the OpenAIRE-Connect communities agreed to introduce in the OpenAIRE data model the "software" entity and a more generic entity "other research product" that can be further specialised into "research package", "protocol", "workflow" and additional subtypes that better reflect the discipline-specific character of the communities.

As for the issuing of project deliverables: Some deliverables, although strictly monitored, due to the previous motivations were submitted with delay, yet this did not cause any cascading effects on the planned project activities. In particular:

- **D2.1 Dissemination Roadmap, D2.2 Liaison Stategy Report** and **D3.1 Detailed report on extend support content for OpenAIRE portal** had a considerable delay as it was deemed necessary to wait for better alignment with OpenAIRE-Advance and EOSC developments (clear message and branding approach, research community definition: addressing Ris vs. ad-hoc communities).
- **D1.3 Progress Report**, was delayed to wait for consolidation of financial reports by Beneficiaries and the delivery of D3.1 and D4.5.

3.2 USE OF RESOURCES

The following tables report respectively:

- Summary of budget, planned payments and performed payments;
- Planned effort distribution (PM and percentage) for the whole project timefrane;
- Real effort distribution (PM and percentage) for P1;

- Real cost distribution (EUR and percentage) for P1.

Following please find the explanations of a few perceived deviations from effort spending in the first period:

- **As for the actual effort consumed:** it should be reported that UniHB and CERN engagement cannot be characterized by a linear effort projection. Their engagement is required in the second stage of the project, when Scientists and Policy Makers will be invited to the VREs. Their work links to the deliveries of other WPs and its mobilization was planned for the second reporting period of the project;
- **As for the exceeding of the 90% limit:** this is highlighted in the following table.

Summary of budget, and of planned, performed and claimed payments

Cost Category	tbdist	Total	CNR	ARC	UNIW	JISC	UniHB	UMINHO	CNRS	PIN	IRD	CERN	ICRE8
Personnel	0€	1.378.170€	360.000€	319.500€	133.000€	107.200€	105.000€	68.750€	84.780€	56.250€	56.090€	45.600€	42.000€
Other Direct Costs	0€	220.100€	37.000€	64.900€	24.000€	10.500€	12.500€	33.700€	9.500€	6.000€	6.000€	10.000€	6.000€
Subcontracting	0€	0€	0€	0€	0€	0€	0€	0€	0€	0€	0€	0€	0€
Indirect Costs	0,00€	399.567,50€	99.250,00€	96.100,00€	39.250,00€	29.425,00€	29.375,00€	25.612,50€	23.570,00€	15.562,50€	15.522,50€	13.900,00€	12.000,00€
Total Project Costs	**0,00€**	**1.997.837,50€**	**496.250,00€**	**480.500,00€**	**196.250,00€**	**147.125,00€**	**146.875,00€**	**128.062,50€**	**117.850,00€**	**77.812,50€**	**77.612,50€**	**69.500,00€**	**60.000,00€**
Total EC Contribution	**0,00€**	**1.997.837,50€**	**496.250,00€**	**480.500,00€**	**196.250,00€**	**147.125,00€**	**146.875,00€**	**128.062,50€**	**117.850,00€**	**77.812,50€**	**77.612,50€**	**69.500,00€**	**60.000,00€**
			25%	**24%**	**10%**	**7%**	**7%**	**6%**	**6%**	**4%**	**4%**	**3%**	**3%**

Payments planned	tbdist	Total	CNR	ARC	UNIW	JISC	UniHB	UMINHO	CNRS	PIN	IRD	CERN	ICRE8
Total Prefinancing (80% minus guarantee fund 5%)	0€	1.498.378€	372.187,50€	360.375,00€	147.187,50€	110.343,75€	110.156,25€	96.046,88€	88.387,50€	58.359,38€	58.209,38€	52.125,00€	45.000,00€
First Payment according to claim (up to 90%)	0€	299.676€	74.437,50€	72.075,00€	29.437,50€	22.068,75€	22.031,25€	19.209,38€	17.677,50€	11.671,88€	11.641,88€	10.425,00€	9.000,00€
Final Payment	0€	199.784€	49.625,00€	48.050,00€	19.625,00€	14.712,50€	14.687,50€	12.806,25€	11.785,00€	7.781,25€	7.761,25€	6.950,00€	6.000,00€
Total Payment	**0€**	**1.997.837,50€**	**496.250,00€**	**480.500,00€**	**196.250,00€**	**147.125,00€**	**146.875,00€**	**128.062,50€**	**117.850,00€**	**77.812,50€**	**77.612,50€**	**69.500,00€**	**60.000,00€**

Payments performed & claimed	tbdist	Total	CNR	ARC	UNIW	JISC	UniHB	UMINHO	CNRS	PIN	IRD	CERN	ICRE8
Total Prefinancing (80% minus guarantee fund 5%)	0€	1.498.378,13	372.187,50	360.375,00	147.187,50	110.343,75	110.156,25	96.046,88	88.387,50	58.359,38	58.209,38	52.125,00	45.000,00
First Payment (up to 90%)		307.289,50	62.270,83	59.161,03	42.395,93	27.358,76	13.018,60	29.081,44	12.994,68	25.395,84	11.891,85	750,60	22.969,96
Final Payment													
Total Payment	**0€**	**1.805.667,63€**	**434.458,33€**	**419.536,03€**	**189.583,43€**	**137.702,51€**	**123.174,85€**	**125.128,31€**	**101.382,18€**	**83.755,21€**	**70.101,23€**	**52.875,60€**	**67.969,96€**

Note:

- **YELLOW cells**: 90% limit to be taken into account for beneficiaries exceeding
- **RED cells**: beneficiaries claiminng more than 90%

Planned effort distribution (PM and percentage) for the whole project timefrane

WP/Task Title	Leader	TOTAL PM	CNR	ARC	UNIW	JISC	UniHB	UMINHO	CNRS	PIN	IRD	CERN	ICRE8
WP1 Project Coordination	**CNR**	**19,00**	**13,00**	**6,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
Task 1.1 Administrative and Financial Coordination	*CNR*	*6,00*	*6,00*										
Task 1.2 Scientific and Technical Coordination	*CNR*	*7,00*	*7,00*										
Task 1.3 Quality and Risk Management	*ARC*	*6,00*		*6,00*									
WP2 Dissemination and Exploitation	**ARC**	**37,00**	**5,00**	**10,00**	**1,00**	**1,00**	**3,00**	**13,00**	**1,00**	**1,00**	**1,00**	**0,00**	**1,00**
Task 2.1 Communication and advocay material	*ARC*	*5,00*		*2,00*				*3,00*					
Task 2.2 Outreach and dissemination	*UMINHO*	*16,00*	*2,00*	*2,00*		*0,50*	*1,00*	*9,00*	*0,50*	*0,50*	*0,50*		
Task 2.3 Collaboration with RDA	*UniHB*	*4,00*	*1,00*	*1,00*	*1,00*		*1,00*						
Task 2.4 OpenAIRE-Connect Catalogue of Services	*ARC*	*2,00*		*2,00*									
Task 2.5 Exploitation and Sustainability	*ARC*	*10,00*	*2,00*	*3,00*		*0,50*	*1,00*	*1,00*	*0,50*	*0,50*	*0,50*		*1,00*
WP3 Support and Training	**UMINHO**	**38,00**	**7,00**	**7,00**	**2,00**	**2,00**	**2,00**	**10,00**	**2,00**	**2,00**	**2,00**	**0,00**	**2,00**
Task 3.1 Interoperability guidelines	*CNR*	*13,50*	*2,00*	*1,00*		*1,00*	*0,50*	*1,00*	*2,00*	*2,00*	*2,00*		*2,00*
Task 3.2 Support to content providers and research communities	*UMINHO*	*10,00*	*2,50*	*1,50*		*0,50*	*1,00*	*4,50*					
Task 3.3 Training to content providers and research communities	*UMINHO*	*9,50*	*2,50*	*1,50*		*0,50*	*0,50*	*4,50*					
Task 3.4 Legal advisory support	*ARC*	*5,00*		*3,00*	*2,00*								
WP4 Research Community Dashboard	**ARC**	**65,00**	**20,00**	**23,00**	**8,00**	**2,00**	**2,00**	**1,00**	**1,00**	**1,00**	**1,00**	**5,00**	**1,00**
Task 4.1 Extension to research methods and artefact packaging	*CNR*	*17,60*	*12,00*			*2,00*	*1,00*	*1,00*	*0,40*	*0,40*	*0,40*		*0,40*
Task 4.2 Zenodo for research methods and packaging	*CERN*	*8,00*	*3,00*									*5,00*	
Task 4.3 Configurability of text mining algorithms	*ARC*	*14,70*		*5,00*	*8,00*		*0,50*		*0,30*	*0,30*	*0,30*		*0,30*
Task 4.4 Researcher Community Dashboard	*ARC*	*19,70*	*5,00*	*13,00*			*0,50*		*0,30*	*0,30*	*0,30*		*0,30*
Task 4.5 Publishing APIs	*ARC*	*5,00*		*5,00*									
WP5 Catch-All Broker Service	**CNR**	**42,00**	**22,00**	**15,00**	**0,00**	**2,00**	**2,00**	**1,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
Task 5.1 Catch-All Broker Back-end	*CNR*	*24,50*	*22,00*			*1,00*	*1,00*	*0,50*					
Task 5.2 Catch-All Broker Front-end	*ARC*	*17,50*		*15,00*		*1,00*	*1,00*	*0,50*					
WP6 Service operation and maintenance	**UNIW**	**35,00**	**5,00**	**2,00**	**27,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**1,00**	**0,00**
Task 6.1 Development, testing and deployment	*CNR*	*9,50*	*3,00*	*1,00*	*5,00*							*0,50*	
Task 6.2 Operation and maintenance	*UNIW*	*22,50*	*1,00*	*1,00*	*20,00*							*0,50*	
Task 6.3 Data Management	*UNIW*	*3,00*	*1,00*		*2,00*								
WP7 End-user Driven Pilots	**CNR**	**61,50**	**8,00**	**8,00**	**0,00**	**9,00**	**8,50**	**0,00**	**11,00**	**5,00**	**6,00**	**0,00**	**6,00**
Task 7.1 Testing, assesment and monitoring of the pilots	*CNR*	*14,50*	*4,50*	*4,50*		*1,00*	*1,00*		*1,00*	*0,50*	*1,00*		*1,00*
Task 7.2 Dashboard Pilot: Neuroinformatics	*CNRS*	*11,00*	*0,50*	*0,50*					*10,00*				
Task 7.3 Dashboard Pilot: Earth and Environmental Sciences	*UniHB*	*7,00*	*0,50*	*0,50*			*6,00*						
Task 7.4 Dashboard Pilot: Digital Humanities and Cultural Heritage	*PIN*	*5,50*	*0,50*	*0,50*						*4,50*			
Task 7.5 Dashboard Pilot: Fisheries and Aquaculture Management	*IRD*	*6,00*	*0,50*	*0,50*							*5,00*		
Task 7.6 Dashboard Pilot: Environment and Economy	*ICRE8*	*6,00*	*0,50*	*0,50*									*5,00*
Task 7.7 Catch-all Broker Pilot: Content providers	*UMINHO*	*4,50*	*0,50*	*0,50*		*2,00*	*1,50*						
Task 7.8 Catch-all Broker Pilot: broker services interoperability	*JISC*	*7,00*	*0,50*	*0,50*		*6,00*							
TOTAL		**297,50**	**80,00**	**71,00**	**38,00**	**16,00**	**17,50**	**25,00**	**15,00**	**9,00**	**10,00**	**6,00**	**10,00**
			27%	**24%**	**13%**	**5%**	**6%**	**8%**	**5%**	**3%**	**3%**	**2%**	**3%**

Real effort distribution (PM and percentage) for P1

WP/Task Title	Leader	TOTAL PM	CNR	ARC	UNIW	JISC	UniHB	UMINHO	CNRS	PIN	IRD	CERN	ICRE8
WP1 Project Coordination	**CNR**	**3,70**	**3,31**	**0,39**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
Task 1.1 Administrative and Financial Coordination	*CNR*	*1,00*	*1,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*
Task 1.2 Scientific and Technical Coordination	*CNR*	*2,31*	*2,31*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*
Task 1.3 Quality and Risk Management	*ARC*	*0,39*	*0,00*	*0,39*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*
WP2 Dissemination and Exploitation	**ARC**	**6,40**	**0,00**	**1,22**	**0,00**	**0,63**	**0,00**	**3,40**	**0,00**	**0,69**	**0,16**	**0,00**	**0,30**
Task 2.1 Communication and advocay material	*ARC*	*1,36*	*0,00*	*0,36*	*0,00*	*0,00*	*0,00*	*1,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*
Task 2.2 Outreach and dissemination	*UMINHO*	*4,02*	*0,00*	*0,50*	*0,00*	*0,63*	*0,00*	*2,40*	*0,00*	*0,33*	*0,16*	*0,00*	*0,00*
Task 2.3 Collaboration with RDA	*UniHB*	*0,36*	*0,00*	*0,36*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*
Task 2.4 OpenAIRE-Connect Catalogue of Services	*ARC*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*
Task 2.5 Exploitation and Sustainability	*ARC*	*0,66*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,36*	*0,00*	*0,00*	*0,30*
WP3 Support and Training	**UMINHO**	**5,74**	**0,00**	**0,63**	**0,00**	**0,23**	**0,00**	**1,10**	**0,14**	**1,59**	**0,05**	**0,00**	**2,00**
Task 3.1 Interoperability guidelines	*CNR*	*4,11*	*0,00*	*0,00*	*0,00*	*0,23*	*0,00*	*0,10*	*0,14*	*1,59*	*0,05*	*0,00*	*2,00*
Task 3.2 Support to content providers and research communities	*UMINHO*	*1,13*	*0,00*	*0,63*	*0,00*	*0,00*	*0,00*	*0,50*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*
Task 3.3 Training to content providers and research communities	*UMINHO*	*0,50*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,50*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*
Task 3.4 Legal advisory support	*ARC*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*
WP4 Research Community Dashboard	**ARC**	**10,01**	**2,13**	**3,28**	**0,00**	**1,12**	**0,00**	**0,00**	**1,03**	**0,50**	**0,35**	**0,90**	**0,70**
Task 4.1 Extension to research methods and artefact packaging	*CNR*	*4,02*	*1,73*	*0,00*	*0,00*	*1,12*	*0,00*	*0,00*	*0,43*	*0,24*	*0,10*	*0,00*	*0,40*
Task 4.2 Zenodo for research methods and packaging	*CERN*	*1,20*	*0,30*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,90*	*0,00*
Task 4.3 Configurability of text mining algorithms	*ARC*	*1,12*	*0,00*	*0,45*	*0,00*	*0,00*	*0,00*	*0,00*	*0,30*	*0,12*	*0,15*	*0,00*	*0,10*
Task 4.4 Researcher Community Dashboard	*ARC*	*3,29*	*0,10*	*2,45*	*0,00*	*0,00*	*0,00*	*0,00*	*0,30*	*0,14*	*0,10*	*0,00*	*0,20*
Task 4.5 Publishing APIs	*ARC*	*0,38*	*0,00*	*0,38*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*
WP5 Catch-All Broker Service	**CNR**	**7,63**	**4,49**	**2,02**	**0,00**	**1,12**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**
Task 5.1 Catch-All Broker Back-end	*CNR*	*5,05*	*4,49*	*0,00*	*0,00*	*0,56*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*
Task 5.2 Catch-All Broker Front-end	*ARC*	*2,58*	*0,00*	*2,02*	*0,00*	*0,56*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*
WP6 Service operation and maintenance	**UNIW**	**9,47**	**1,50**	**0,12**	**6,75**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**1,10**	**0,00**
Task 6.1 Development, Testing and Deployment	*CNR*	*1,12*	*1,00*	*0,12*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*
Task 6.2 Operation and maintenance	*UNIW*	*8,35*	*0,50*	*0,00*	*6,75*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*1,10*	*0,00*
Task 6.3 Data Management	*UNIW*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*
WP7 End-user Driven Pilots	**CNR**	**0,97**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,00**	**0,07**	**0,11**	**0,00**	**0,79**
Task 7.1 Testing, assesment and monitoring of the pilots	*CNR*	*0,11*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,11*	*0,00*	*0,00*
Task 7.2 Dashboard Pilot: Neuroinformatics	*CNRS*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*
Task 7.3 Dashboard Pilot: Earth and Environmental Sciences	*UniHB*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*
Task 7.4 Dashboard Pilot: Digital Humanities and Cultural Heritage	*PIN*	*0,07*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,07*	*0,00*	*0,00*	*0,00*
Task 7.5 Dashboard Pilot: Fisheries and Aquaculture Management	*IRD*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*
Task 7.6 Dashboard Pilot: Environment and Economy	*ICRE8*	*0,79*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,79*
Task 7.7 Catch-all Broker Pilot: Content providers	*UMINHO*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*
Task 7.8 Catch-all Broker Pilot: broker services interoperability	*JISC*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*	*0,00*
TOTAL		**43,92**	**11,43**	**7,66**	**6,75**	**3,10**	**0,00**	**4,50**	**1,17**	**2,85**	**0,67**	**2,00**	**3,79**
			26%	**17%**	**15%**	**7%**	**0%**	**10%**	**3%**	**6%**	**2%**	**5%**	**9%**

Real cost distribution (EUR and percentage) for P1

Cost Category	tbdist	Total	CNR	ARC	UNIW	JISC	UniHB	UMINHO	CNRS	PIN	IRD	CERN	ICRE8
Personnel	0€	207.510€	49.817€	37.366€	30.293€	18.218€	0€	15.427€	10.396€	20.167€	8.035€	0€	17.792€
Other Direct Costs	0€	38.321€	0€	9.963€	3.624€	3.669€	10.415€	7.838€	0€	150€	1.478€	600€	584€
Subcontracting	0€	0€	0€	0€	0€	0€	0€	0€	0€	0€	0€	0€	0€
Indirect Costs	0,00€	61.457,90€	12.454,17€	11.832,21€	8.479,19€	5.471,75€	2.603,72€	5.816,29€	2.598,94€	5.079,17€	2.378,37€	150,12€	4.593,99€
Total Project Costs	**0,00€**	**307.289,50€**	**62.270,83€**	**59.161,03€**	**42.395,93€**	**27.358,76€**	**13.018,60€**	**29.081,44€**	**12.994,68€**	**25.395,84€**	**11.891,85€**	**750,60€**	**22.969,96€**
Total EC Contribution	**0,00€**	**307.289,50€**	**62.270,83€**	**59.161,03€**	**42.395,93€**	**27.358,76€**	**13.018,60€**	**29.081,44€**	**12.994,68€**	**25.395,84€**	**11.891,85€**	**750,60€**	**22.969,96€**
			20%	**19%**	**14%**	**9%**	**4%**	**9%**	**4%**	**8%**	**4%**	**0%**	**7%**

4 APPENDIX 1: LIST OF MEETINGS

Date	Meeting Type	Location
25-26 JAN 2017	Kick-Off Meeting	Pisa, Italy (CNR)
20 JAN 2017	WP4 & Communities Technical Meeting - OpenAIRE-Connect data model	Audio conference
11 APR 2017	WP4 & PIN Technical Meeting - Cultural Heritage and Digital Humanities community	Audio conference
13 APR 2017	WP4, CNRS & ICRE8 - Neuroinformatics and Environment & Economy communities	Audio conference
19 APR 2017	WP4 Technical Meeting - Research community dashboard	Audio conference
27 SEPT 2017	WP4 & Communities Technical Meeting - OpenAIRE-Connect data model	Audio conference
28 SEPT 2017	WP2 & WP4 Dissemination Meeting - Introducing OpenAIRE-Connect to the European Genome-Phenome Archive (EGA community)	Audio conference
11 OCT 2017	WP4 & WP5 Technical Meeting - JISC/CNR: data model and broker	Audio conference
15 NOV 2017	WP4, WP7 & Communities Technical Meeting - Research Community Dashboard: setting up the test phase	Audio conference
21 NOV 2017	WP2 & WP Dissemination - Introducing OpenAIRE-Connect to the OpenTox conference	Basel (CH)
12 DEC 2017	WP4 Technical Meeting - Zenodo and the OpenAIRE-Connect data model	Audio conference
14 DEC 2017	WP2 & WP Dissemination - Introducing OpenAIRE-Connect to the INSTRUCT community	Audio conference