D13.4 Periodical assessment of the services

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Deliverable Abstract
The report provides assessment and statistics of services provided under virtual access. Furthermore, a set of key common metrics (number of users, number of visits to web-site and marketplace, satisfaction, etc) have been used to perform a global analysis of the impact of the Virtual Access to the EOSC-hub services that shows a remarkable growth of all these metrics during the project lifetime.

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TERMINOLOGY

https://wiki.eosc-hub.eu/display/EOSC/EOSC-hub+Glossary

Executive summary

This deliverable is providing an overview of the installations for the forth reporting period (M27-M36/39) that are provided through the Virtual Access mechanism to the research communities. Values of the installation metrics, which has been defined to measure installations usage and uptake, have been reported. Installation metrics can be generic (e.g., number of users, marketplace visits, etc) or specific for a given installation.

A set of key common metrics have been used to perform an analysis of the impact of the Virtual Access to the EOSC-hub services. This set includes the *number of users*, as a measurement of the service uptake, *website, and marketplace visits*, as an estimation of the interest on the EOSC-hub services, *average of reached countries*, as an indication of the EOSC-hub service coverage, *satisfaction*, which reflects the quality of the offered services, and *integration of the service providers*, as a measurement of the adoption of the EOSC-hub Federation and Collaboration services in the European Research Area.

Virtual Access has been supported by several activities within EOSC-hub. To increase usage of the installation a proper communication and outreach to new users have been established by WP3 *Innovation Management, Communication and Stakeholder Engagement*. WP2 *Strategy and Business Development* have been working on definition and creation of Service catalogue to expose information about services to the users via Marketplace and EOSC-hub website. Procedures and guidelines for training provisioning have been produced by WP11 *Training and Services for Service operators, Research and Higher Education*. WP4 *Federated Service Management* has been working on establishing a service management system to support installation provisioning and metrics gathering.

During initial months of the project some of those activities have been delayed for various reasons. The one that had the most significant impact on Virtual Access was the delay in launching the EOSC-hub marketplace, where customers can discover and order installations. This delay has been caused by the additional work required to launch the EOSC Portal and integrate the Marketplace with it.

Nowadays, the majority of installations are exposed to the users and customers on EOSC-hub website (Federation services) or on the EOSC-hub marketplace connected to EOSC portal. Installations present on EOSC-hub marketplace can be now ordered by customers.

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1. Introduction

Virtual Access (VA) is financial instruments to reimburse the access provisioning costs to access providers. This instrument is provided by the European Commission to increase the sharing of research infrastructures and services that otherwise would not be available to international user groups.

In VA, the services – also called “installations” – must be made available ‘free of charge at the point of use’ for European or International researchers. VA access is open and free access to services

through communication networks to resources needed for research, without selecting the researchers to whom access is provided.

Virtual Access to services of the EOSC-hub catalogue applies to the following four categories:

- **Common services**, including baseline services like compute and storage, and specialized services for data management, federation of storage and data, service and data discovery, orchestration of compute and data workflows, etc.
- **Thematic services** delivering community-specific data and applications;
- **Federation services** necessary in order to have federated IT service management processes involving multiple distributed providers.
- **Collaboration services** enabling the sharing of open source software, applications and other research objects.

1.1 Installations

Within EOSC-hub project 38 installations are part of Virtual Access work package.

Following installations have been subject to change since the beginning of the project:

EUDAT – B2HANDLE

- Change of provider and change of start date from M01 to M10
- B2HANDLE installation transferred from SURFsara to GRNET. SURFsara's effort for the period PM10-PM36 (26 project months) and the equivalent budget, according to GRNET PM rate plus overhead, will be transferred to GRNET. The number of PMs is 2.25 PMs (17437.5 €)

EGI – Helpdesk

- During the period PM01-PM24 the EGI GGUS helpdesk installation was offered in-kind. The equivalent Virtual Access costs for 24 months (12 PMs) will be retained by EGI.eu in a central pot, in order to build an effort reserve in case the EGI Foundation must find a new service provider.

Lifewatch

- Change of start date from M1 to M19 do to delay of work within WP7

CMS – Dynamic On Demand Analysis Service

- Change of start date from M8 to M3 without budget change

EOSC-hub – Marketplace

- Change of start date from M1 to M11 due to additional work required by EOSC portal

EUDAT - B2SAFE DPM

- Installation has been removed from WP13 since it didn't reach production

EUDAT - Sensitive data services

- ePouta component has been removed from the installation due to delay with integration work in WP6

Following installations' end date has been extended from M36 to M39 due to the impact of the COVID-19 pandemic:

- CMS
- DARIAH
- EISCAT
- EO Pillar
- IFREMER
- LifeWatch
- LNEC
- WeNMR

Following installations' end date has been extended from M36 to M39 due to delay of INFRAEOSC-03 project. The extension has been made to ensure the continuity of EOSC Portal operations:

- EOSC Portal AAI - operations and maintenance
- EGI CA GOCDB- CMDB for EOSC Core components
- EOSC Portal Marketplace and Catalogue
- Messaging for EOSC-hub proposed core services
- EGI CA Ops portal -SOMBO and metrics dashboard
- EOSC Portal component monitoring and messaging
- EOSC Portal Helpdesk - operations and maintenance

1.2 Metrics definition

For each installation several metrics has been defined between the provider and WP13 leader, taking into account following categories:

- **Number of users** – depending on the nature of installation, number could be defined based on accounts (if registration was required) or number of unique IPs (if registration is not needed to benefit of the service)
- **Usage** – the goal of this metric is to report how much the service is used. This metric depended on functionality provided by the service.
- **Number and names of the countries reached** – the goal of this metric was to report how broadly the service is used and how the geographical coverage is changing with time
- **Satisfaction** – the goal of this metric is to provide subjective feedback about the service from the customers.
    - Satisfaction feedback has been organized and collected by WP4 responsible for customer relationship
    - Customers were asked with the scale (1-5) about each installation:
        - Overall, how satisfied or dissatisfied are you with the received service?
        - How would you rate the quality of the service?
        - How would you rate the quality of documentation and customer support?

- **Marketplace views** – the goal of this metrics is to provide information about how often the service is being viewed by the potential customers
    - This metric is not applicable to federation services due to the nature of the service. Federation services are enabling federation and are supporting delivery of customer facing services. Thus, cannot be ordered.
- **Marketplace Orders** – the goal of this metrics is to provide information about how often the service is being ordered via EOSC-hub Marketplace
    - This metric is not applicable to federation services due to the nature of the service. Federation services are enabling federation and are supporting delivery of customer facing services. Thus, cannot be ordered.

2. Installations

3.1 CLARIN - The Component MetaData Infrastructure

Description	Provides a framework to describe and reuse existing metadata blueprints. There are 3 concrete services offered that build on this framework: the Virtual Language Observatory (metadata search portal), the Virtual Collection Registry (publication platform for link collections) and the Language Resource Switchboard (a bridge providing tools that can process a given data object).
Task	T13.1.1
URL	www.clarin.eu/services
Service Category	Thematic Services
Service Catalogue	https://marketplace.eosc-portal.eu/services/virtual-language-observatory https://marketplace.eosc-portal.eu/services/language-resource-switchboard https://marketplace.eosc-portal.eu/services/virtual-collection-registry
Location	Germany
Duration	M07-M36
Modality of access	The read-only services are available under wide access. Certain parts that require writing rights can be accessed by anyone with academic credentials. Other interested scientists can register an account in the CLARIN Identity Provider.
Support offered	Dedicated hands-on training events on how to create community specific CMDI profiles and how to efficiently convert existing metadata descriptions into CMDI will be provided. The training material will be provided as in-kind contribution.
Operational since	non-EOSC-hub versions: 2010 (VLO), 2012 (VCR), 2016 (LRS) EOSC-hub version: July 2018 (VLO), January 2019 (VCR), March 2019 (LRS)

3.1.1 Definitions

User: Individual researchers accessing the installation. No registration. User is counted based on unique IP addresses.

3.1.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M7-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M36
Number of visits to metadata search portal	2017: 5,103 visits/year = 425 visits/month	no registration, reported is number of visits over a certain timespan – measured using Matomo	16 July until 31 August: 389 visits = 259 visits/month	1 September until 31 May: 4,749 visits = 528 visits/month	1 June 2019 until 29 February 2020 5825 visits = 647 visits/month	1 March 2020 until 31 December 2020 10128 visits = 1013 visits/month
Usage: Number of harvested metadata records	1 August 2018: 896,473	The number of metadata records harvested via OAI-PMH and inserted into the Virtual Language Observatory.	896,473	909,388	907429	1203949
Usage: Number of virtual collections registered	2017: 0	The number of virtual collections made publicly available via the virtual collection registry over a certain timespan. Note: the baseline is low since not much publicity was made before the EOSC-hub release.	Data not reported	7	7 (and 3 tests)	13
Usage: Number of connected processing tools via the LR Switchboard	1 January 2018: 60 (source)	The number of web applications registered at the Language Resource Switchboard that can process incoming requests.	Data not reported	70	72	154
Number and names of the countries reached (measurement for metadata search portal)	2017: 89 countries (list available upon request)	(based on IPs, measured using Matomo)	45	101	112	155
Satisfaction	not applicable	5-point scale Customer Satisfaction measurement measured using Mopinion. In July 2018 integrated into the Virtual Language Observatory.	3 (based on only 4 ratings in August)	3.9 (based on 120 responses)	3.8 (based on 105 responses)	3.9 (based on 74 responses)
Marketplace views	not applicable	Google analytics (from Marketplace)	Data not reported. Marketplace is not operational yet.	Virtual language observatory 41 Language resource switchboard 36 Virtual collection registry 30	Virtual language observatory 69 Language resource switchboard 21 Virtual collection registry 63	Virtual language observatory 50 Language resource switchboard 43 Virtual collection registry 64

Marketplace Orders	not applicable	from Marketplace	Data not reported. Marketplace is not operational yet.	Virtual language observatory 1 Language resource switchboard 0 Virtual collection registry 0	Virtual language observatory 1 Language resource switchboard 0 Virtual collection registry 1	Virtual language observatory 0 Language resource switchboard 0 Virtual collection registry 0

3.1.3 Scientific publications

Reporting period	List of references
Period 1	not available
Period 2	not available
Period 3	not available
Period 4	not available

3.1.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	no trainings
Period 2	https://eosc-hub.eu/clarin-vlo	no activities	no trainings
Period 3	no activities	no activities	no trainings

Period 4	https://www.clarin.eu/blog/clarin-services-european-open-science-cloud	through the blog and video on CLARIN services in EOSC	The blog and video on CLARIN services in EOSC are supposed to be a good starting point for exploring the services; no additional training is considered necessary. The idea behind this was to provide a low-threshold introduction for potential new users, which is also accessible and citable as Virtual Collection. CLARIN also organized an online training session in March 2020 on the topic of connecting language processing tools to the Language Resource Switchboard. In addition, also the integration of catalogues (resource providers) was presented. All of the training material remains available online in the form of screencasts and textual instruction material.

3.2 CMS - Dynamic On Demand Analysis Service (DODAS)

Description	DODAS (Dynamic On Demand Analysis Service) provides the end-user with an automated system that simplifies the process of provisioning, creating, managing and accessing a pool of heterogeneous (possibly opportunistic) computing resources. DODAS allows to generate both HTCondor batch systems and BigData platform such as Spark, HDFS. Moreover, the service provides a pluggable system which allow to support multi cloud providers such as EGI Federated Cloud, OpenStack, OpenNebula, Amazon AWS and Microsoft Azure etc.
Task	T13.1.2
URL	https://dodas-ts.github.io/dodas-doc/
Service Category	Thematic Services
Service Catalogue	https://marketplace.eosc-portal.eu/services/dynamic-on-demand-analysis-service-dodas-portal
Location	Bologna & Bari (IT)
Duration	M03-M39
Modality of access	The service is freely accessible to scientific communities.

Support offered	The planned activities are: training CMS Site Manager and Data Manager on service description and best practices to use and configure site specific CMS parameters, training for data analysts for using their private computing resources through DODAS and to share them with collaborators, training for data analysts finalised to R&D on advanced analysis techniques. Moreover, there will be support for the integration of specific use cases and workflows as required by research communities.
Operational since	March 2018

3.2.1 Definitions

User: a user is an individual researcher using the clusters instantiated

3.2.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M3-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M39
# of active users	10	Number of users using the instantiated clusters (batch systems or big data). Data is collected through the users' communities monitoring system.	10 active users. 8 from CMS plus 2 from AMS. NOTE: Users mentioned here for CMS can be checked in the historical monitoring of the Experiment filtering by siteName. Regarding AMS we still don't have a central service storing this and we'll take care of it in the upcoming months.	32 users. NOTE: to make the estimation homogeneous and experiment independent we take the number from Infrastructure Manager.	41	28 Due to the CNAF incident we took this number from communities' information
Usage: CPU time and storage consumed by DODAS at Bari and CNAF	0	CNAF and Bari resources made available for the TS. Data will be collected both from the DODAS monitoring system and accounting at two sites. (These are new resources, installed and configured for the EOSC-hub project)	BARI: "CPU Hours": 148,051.78, "Disk GB-Hours": 792,542.91 (risultati dal 2018-01-01 CNAF:"CPU Hours": 308,068.78, "Disk GB-Hours": 5,986,141.3 Value taken from the underling Openstack Provider.	BARI: "CPU Hours": 1,122,077.27, "Disk GB-Hours": 5173505.44, CNAF: "CPU Hours": 541,744.2, "Disk GB-Hours": 9,798,183.68	BARI: "CPU Hours 1550025.81", "Disk GB-Hours":8590717.82 CNAF: "CPU Hours": 1189349.61, "Disk GB-Hours": 20327609.54	BARI: "CPU Hours 2113542.08" "Disk GB-Hours": 16319238.16" CNAF: "CPU Hours": 2839469.74, "Disk GB-Hours": 45256728.6

Usage: number of jobs	0	Number of grid/cloud jobs submissions over the measurement's period using the clusters instantiated through the DODAS TS (These are new resources, installed and configured for the EOSC-hub project)	~ 30k (11,894 (CMS) + 17,465 (OpenData)) + ~20k (AMS) NOTE: while OpenData belong to CMS this is a new Use case so for the sake of completeness we consider this as a new activity always related to CMS. NOTE2: Also, in that case number of AMS Jobs is not tracked in a central service. While we've the source of the information in the HTCondor logs, we are not storing them in a persistent manner. We'll improve this in the upcoming months.	522,933 (CMS) + ~600k (AMS) NOTE: numbers of AMS Jobs are not tracked in a central service. While we've the source of the information in the HTCondor logs, we are not storing them in a persistent manner. Still work in progress	~200k CMS ~ 150k Fermi ~ 200k AMS NOTE: numbers of AMS and Fermi Jobs are not tracked in a central service. While we've the source of the information in the HTCondor logs, we are not storing them in a persistent manner. Still work in progress	~150k CMS ~40k FERMI ~645 k AMS ~8k Theoreitcal physicist NOTE: numbers of AMS and Fermi Jobs are not traken in a central service. While we've the source of the information in the HTCondor logs, we are not storing them in a persistent manner.
Usage: number Clouds accessible through DODAS	0	Number of Cloud Providers used to generate complete DODAS Clusters Metric will be based on the deployments registered on the DODAS PaaS Orchestrator / Infrastructure Manager / Identity and Access Management and Experiment Dashboard.	2 (Imperial College + T-System) These are taken from IM and CMS Dashboard. About T-System: Both AMS and CMS using this IaaS provider.	4 (Imperlial College, T-System and Google Cloud and Amazon) Both T-System and Google Cloud have been used by AMS and CMS experiments	7 Distinct providers have been accessed (ASI, EGI Federated Clouds, AWS) Both CMS and AMS used all the mentioned providers	3 distinct providers (ASI, AWS, INFN-Cloud)
Usage: Total Number of Cluster deployments	0	Number of cluster deployments made through the DODAS Core Services. Metric will be based on the deployments registered on the DODAS PaaS Orchestrator and Infrastructure Manager	622 distinct cluster deployments. Value taken from IM Database	1,084 distinct cluster deployments	647 distinct cluster deployments	646 distinct cluster deployments. NOTE: this is under-estimate because of the CNAF incident caused the loss of a fraction of the info

Number and names of the countries reached	1	sum of individual users + communities Metric based on the aggregated information on users registered on the DODAS-IAM and users submitting jobs on the clusters instantiated through DODAS Baseline is based on the number of users registered in DODAS-IAM at the beginning of project.	3 Those are values taken from IAM-Dodas service.	4	4	4
Satisfaction	not applicable	Periodic satisfaction feedback reports, on a scale of 1 to 5, will be requested per reporting period to the uses registered to DODAS-IAM, and to communities they represent	4.5 This is a mean value based on the answers we got from the use cases/communities' representatives. NOTE: For the upcoming months we are implementing a more automated system for rating the DODAS satisfaction.	Not available	Considering an estimation of an average value in the range of 1: poor – 6: excellent based on all the feedbacks received, DODAS have got a rate of 4.83.	Not available
Communities: number of scientific communities and/or use cases adopting DODAS	1	New communities adopting DODAS. Data will be taken from the DODAS-IAM - TS's authentication and authorization system, where new communities will be registered under different Groups Baseline is the CMS community	4 (CMS, AMS, ImpCollege, OpenData) Number come from the group organization of DODAS-IAM	5 (CMS, AMS, Imperial College, OpenData and Virgo)	4 (CMS, AMS, Virgo, Fermi)	5 (CMS, AMS, Virgo, Fermi and Theoretical Physicist)
Visits: number of visit/requests to the DODAS core services	0	Number of people registered in the DODAS-IAM service. Since we refer to DODAS TS services the baseline is 0 since those resources were not there before.	31 "Number of people registered in the DODAS-IAM service."	56	94	108

Marketplace views	not applicable	from Marketplace	Data not reported. Marketplace is not operational yet.	57	20	162
Marketplace Orders	not applicable	from Marketplace	Data not reported. Marketplace is not operational yet.	0	1	1

3.2.3 Scientific publications

Reporting period	List of references
Period 1	not available
Period 2	D. Spiga et al. "DODAS: How to effectively exploit heterogeneous clouds for scientific computations", PoS(ISGC 2018 & FCDD)024, DOI: https://doi.org/10.22323/1.327.0024
Period 3	Using DODAS as deployment manager for smart caching of CMS data management system (ACAT, 2019) D. Spiga et al. Sep.2019, Exploiting private and commercial clouds to generate on-demand CMS computing facilities with DODAS, https://doi.org/10.1051/epjconf/201921407027
Period 4	1. The DODAS Experience on the EGI Federated Cloud (CHEP 2019) • *EPJ Web Conf.* 245 (2020) 07033 DOI10.1051/epjconf/202024507033 2. Dynamic integration of distributed, Cloud-based HPC and HTC resources using JSON Web Tokens and the INDIGO IAM Service • *EPJ Web of Conferences 245, 07020 (2020) CHEP 2019 https://doi.org/10.1051/epjconf/202024507020*

3.2.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings

Period 1	• DODAS: How to effectively exploit heterogeneous clouds for scientific computations
	  ○ http://indico4.twgrid.org/indico/event/4/session/19/contribution/29
	• Exploiting private and commercial clouds to generate on-demand CMS computing facilities with DODAS
	  ○ https://indico.cern.ch/event/587955/contributions/2937198/attachments/1682105/2702791/CHEP-2018-Spiga.pdf
	• BoF: HPC, Containers and Big Data Analytics: How can Cloud Computing contribute to the New Challenges
	  ○ https://2018.isc-program.com/?page_id=10&id=bof138&sess=sess357
	• The AMS and DAMPE computing models and their integration into DODAS
	  ○ https://agenda.infn.it/materialDisplay.py?contribId=116&sessionId=17&materialId=slides&confId=15310
		A lot of meeting and internal discussions with AMS researchers.	no trainings

Period 2	• Using DODAS as deployment manager for smart caching of CMS data management system
	  ○ https://indico.cern.ch/event/708041/contributions/3276221/
	• Dynamic On Demand Analysis Service
	  ○ https://events.ego-gw.it/indico/getFile.py/access?contribId=11&resId=0&materialId=slides&confId=77
	• Vacuum model for job execution
	  ○ https://indico.cern.ch/event/759388/contributions/3361772/attachments/1815562/2968683/20190321-mcnab-vacuum.pdf
	• DODAS as no CE solution
	  ○ https://indico.egi.eu/indico/event/4431/session/16/contribution/99
		Several internal meeting with AMS, CMS and Virgo community which recently started exploiting resources.	Training event in the context of SOS18 school: https://agenda.infn.it/event/15534/sessions/5373/#20180920

Period 3	• The DODAS Experience on the EGI Federated Cloud https://indico.cern.ch/event/773049/contributions/3473791/attachments/1937555/3211482/CHEP2019-DODAS_EGI.pdf • Dynamic integration of distributed, Cloud-based HPC and HTC resources using JSON Web Tokens and the INDIGO IAM Service https://indico.cern.ch/event/773049/contributions/3473805/attachments/1931644/3211480/CHEP19-CnafParma.pdf • K8s WLCG https://indico.cern.ch/event/739899/contributions/3662113/attachments/1959839/3256804/DODAS_K8S_pre-gdb.pdf	Several internal meeting with AMS , CMS, Virgo community and FERMI that is now using DODAS too.	Training event: https://agenda.infn.it/event/19049/timetable/#20190916 Training course on Batch As a System https://agenda.infn.it/event/20268/timetable/#20191125 Training course on Big Data Clusters https://agenda.infn.it/event/20847/timetable/#20191209

Period 4	• Dynamic On Demand Analysis Service for data processing in EOSC
	  ○ EOSC-hub - FREYA and SSHOC 16-19 November 2020
	• The DODAS experience with multiple scientific communities and infrastructures
	  ○ EOSC-hub week 2020
	• Update of INFN XCache activities: first attempt of moving towards a data-lake scenario.
	  ○ WLCG Doma April 2020
		Several internal meeting with AMS, CMS, Virgo, FERMI and theoretical Physicists DODAS too	• A 2 day training event was organized for Lebanon researchers,
			• Dedicated technical lectures and hands-on sessions on clouds, and related scientific services, were also presented during the **CODATA-RDA schools in 2019 and 2020** and during the **"Multiscale, Machine learning and QSAR (MM-QSAR) Methods applied to biomolecules"** schools in 2020 as part of the Elective course Master in Theoretical Chemistry and Computational Modelling (EMTCCM).

3.3 DARIAH - DARIAH Science Gateway

Description	The DARIAH (Digital Research Infrastructure for the Arts and Humanities) Thematic Service (TS) aims to enhance and improve the usage of the cloud-based services and technologies in the domain of the digital arts and humanities research. It will enable end-users to seamlessly store, describe (metadata) and share their datasets, discover, browse and reuse datasets shared by the others and to perform analysis on various data volumes. The DARIAH TS is providing the following services: • DARIAH Science Gateway, • Invenio-based repository in the cloud, • DARIAH repository (based on CDSTAR. The DARIAH Science Gateway is a web-oriented portal, developed during the EGI-Engage project (DARIAH Competence Centre) and is specially tailored for the researchers coming from digital arts and humanities disciplines. It currently offers several cloud-based services and applications: Semantic and Parallel Semantic Search Engines (SSE, PSSE), DBO@Cloud, Workflow Development and supports several file transfers protocols. The Invenio-based repository is the cloud is a service that enables researchers and scholars to easily create, deploy and configure their own Invenio-based repository and host it on the cloud infrastructure (Federated Cloud). The service aims to a smaller research groups lacking in adequate technical support and budget to acquire their own infrastructure for hosting data repositories. DARIAH repository is a new service based on the Common Data Storage ARchitecture (CDSTAR), a system for storing and searching objects in research projects.
Task	T13.1.3

URL	DARIAH Science Gateway - https://dariah-gateway.lpds.sztaki.hu/ DARIAH repository - https://projects.gwdg.de/projects/dariah-de-repository Invenio-as-a-Service portal - https://dariah-portal.cloud.ba.infn.it
Service Category	Thematic Services
Service Catalogue	https://marketplace.eosc-portal.eu/services/dariah-science-gateway
Location	INFN (IT), SZTAKI (HU), GWDG (GER)
Duration	M01-M39
Modality of access	On the DARIAH Science Gateway, services SSE, PSSE and DBO@Cloud can be freely used (on authentication is required). All other services as well as Invenio-based repository and DARIAH repository require authentication. All services are free of charge.
Support offered	The training material (presentations, demos, and training videos) on how to access and exploit core DARIAH services will be prepared. Training events (workshops and hackathons) will take place at major DARIAH and other relevant digital arts and humanities events and conferences.
Operational since	non-EOSC-hub versions: Sep 2016 (DARIAH SG), June 2017

3.3.1 Definitions

User: Individual users from digital arts and humanities research domain (no registration required). Members of the DARIAH-EU community (with a valid DARIAH IdP account). Have the access right to upload and modify records on the repositories and request cloud infrastructure and services via DARIAH SG.

3.3.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M39
# of users: Number of registered users	36	Number of registered users of the sub-services (users with valid DARIAH IdP account)	36	40	40	40
Visits: Number of visits	249	Number of visits of the sub-services collected via Google Analytics	77	173	246	1200

Usage: number of supported services/applications on the gateway	5	Number of end-user applications and user-cases based on the DARIAH TS services. Number of new applications integrated into DARIAH SG (number of new portlets). Number of external services accessing to DARIAH TS services via APIs.	5	5	5	5
Usage DARIAH Repository: number of objects/DOIs	NA	Number of published data sets/DOIs f are collected via the service	NA	566	836	1140
Usage DARIAH Repository: number of collections	NA	Number of collections available via the data repository	NA	70	117	165
Number and names of the countries reached	10	Based on the IPs, measured using Google Analytics	10	10	10	46
Satisfaction	not applicable	from WP4	Data not reported	Data not reported	Data not reported	Data not reported
Marketplace views	not applicable	Google analytics (from Marketplace)	Data not reported. Marketplace is not operational yet.	86	71	112
Marketplace Orders	not applicable	from Marketplace	Data not reported. Marketplace is not operational yet.	0	1	1

3.3.3 Scientific publications

Reporting period	List of references
Period 1	not available
Period 2	DORN, Amelie et al. Opening up traditional cultural knowledge by means of European infrastructures: the examples of exploreAT ! & EGI Engage. Revista de Humanidades Digitales, [S.l.], v. 3, mar. 2019. ISSN 2531-1786. Disponible en: http://revistas.uned.es/index.php/RHD/article/view/23188. Fecha de acceso: 31 jul. 2019 doi: https://doi.org/10.5944/rhd.vol.3.2019.23188

Period 3	not available
Period 4	not available

3.3.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	Collaboration in social sciences and humanities in a networked European research area [web]
Period 2	no activities	no activities	no trainings
Period 3	Communication with the SSHOC project in the context of integrating the DARIAH TS service with the SSHOC Switchboard.	Data analysis and knowledge extraction in Digital Humanities (DARIAH TS presentation + round table) (eosc-hub dissemination list: https://wiki.eosc-hub.eu/display/EOSC/Dissemination+Activities)	no trainings
Period 4	no activities	no activities	No trainings

3.4 EGI - Application store

Description	The EGI Applications Database (AppDB) is a central service that stores and provides to the public, information about: ● software solutions in the form of native software products and/or virtual appliances, ● the programmers and the scientists who are involved, and ● publications derived from the registered solutions ● enabling users to deploy and manage Virtual Machines to the EGI Cloud infrastructure through the VMOps Dashboard Reusing software products, registered in the AppDB, means that scientists and developers may find a solution that can be directly utilized on the European Grid & Cloud Infrastructures without reinventing the wheel. This way, scientists can spend less or even no time developing, porting or even using a software solution to the Distributed Computing Infrastructures (DCIs). AppDB, thus, aims to avoid duplication of effort across the DCI communities, and to inspire scientists less familiar with DCI programming and usage.
Task	T13.3.1
URL	https://appdb.egi.eu/
Service Category	Collaborative Services
Service Catalogue	Service is not published on EOSC-hub website yet.
Location	IASA (Greece)
Duration	M01-M36
Modality of access	All the services are free at the point of use. The software repositories do not require any registration. The other services require authentication and in some cases registration, using either institutional credentials or personal certificates released by IGTF federation.
Support offered	Technical support is provided via the helpdesk central support team, and by the individual service providers. EGI Outreach activities include also webinars, trainings, and hands-on sessions during conferences and events.
Operational since	2008

3.4.1 Definitions

User: Three types of users have been identified, (a). Researchers (account owners), (b) typical visitors (anyone with or without account), (c) Cloud Resource Providers

3.4.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M36
Users: Nb of researchers	988	Extracted from the database. Total number of person profiles at the end of the reporting period.	1,023	1,069	1111	1184
Users: Nb of Cloud Resource Providers	18	Extracted from the database. Total number of the cloud resource providers using AppDB for retrieving Virtual Appliances Measurements will be taken at the end of the reporting period.	19	32	34	25
Usage: Nb of visits	Not available	Results are extracted from a local instance of Matomo (Piwik), which is an open analytics platform. Count of the visits within the reporting period. If someone visits the service for the first time, or if someone visits a page or downloads a file more than 30 minutes after their last page view, this will be recorded as a new visit.	89,843	62,465	93694	116,488
Usage: Nb of SW items updated (incl new registrations)	15	Extracted from the database. Count of the items that got updated within the reporting period. New registrations are also included.	16	5	3	4
Usage: Nb of SW releases submitted	40	Extracted from the database. Count of the new SW releases submitted to the AppDB system within the reporting period.	35	21	14	18
Usage: Nb of Virtual Appliances updated (incl. new registrations)	15	Extracted from the database. Count of the items that got updated. New registrations are also included.	28	37	11	22

Usage: Nb of Virtual Appliance versions submitted	45	Extracted from the database. Count of the new Virtual Appliance versions submitted to the AppDB system.	59	55	51	64
Usage: Nb of VMs instantiated using the AppDB VMOps dashboard	Not available	Extracted from the database. Count of the Virtual Machines instantiated at Cloud resource providers by the AppDB VMOps service within the reporting period.	535	600	287	101
Number and names of the countries reached	55	Results are extracted from a local instance of Matomo (Piwik), which is an open analytics platform Count and list of items within the reporting period.	56	84	104	128

Satisfaction	Not applicable	from WP4	Number of responses: 17 Overall, how satisfied or dissatisfied are you with the received service? • Very satisfied 35.3% • Somewhat satisfied 41.2% • Neither satisfied nor dissatisfied 17.6% • Somewhat dissatisfied 5.9% • Very dissatisfied 0.0% How would you rate the quality of the service? • Very high quality 11.8% • High quality 64.7% • Neither high nor low quality 17.6% • Low quality 5.9% • Very low quality 0.0% How would you rate the quality of documentation and customer support? • Very high quality 0.0% • High quality 47.1% • Neither high nor low quality 52,9% • Low quality 0.0% • Very low quality 0.0%	Number of responses: 3 Overall, how satisfied or dissatisfied are you with the received service? • Very satisfied 0.0% • Somewhat satisfied 66.6% • Neither satisfied nor dissatisfied 33.3% • Somewhat dissatisfied 0.0% • Very dissatisfied 0.0% How would you rate the quality of the service? • Very high quality 0.0% • High quality 33.3% • Neither high nor low quality 66.6% • Low quality 0.0% • Very low quality 0.0% How would you rate the quality of documentation and customer support? • Very high quality 0.0% • High quality 66.6% • Neither high nor low quality 33,3% • Low quality 0.0%	Number of responses: 1 Overall, how satisfied or dissatisfied are you with the received service? • Very satisfied 0.0% • Somewhat satisfied 100% • Neither satisfied nor dissatisfied 0% • Somewhat dissatisfied 0.0% • Very dissatisfied 0.0% How would you rate the quality of the service? • Very high quality 0.0% • High quality 200% • Neither high nor low quality 0% • Low quality 0.0% • Very low quality 0.0% How would you rate the quality of documentation and customer support? • Very high quality 0.0% • High quality 100% • Neither high nor low quality 0% Low quality 0.0%	Data not reported
Marketplace views	Not applicable	Google analytics (from Marketplace)	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.

Marketplace Orders	Not applicable	from Marketplace	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace	Not applicable Service cannot be ordered, so is not part of Marketplace	Not applicable Service cannot be ordered, so is not part of Marketplace

3.4.3 Scientific publications

The installation does not directly produce scientific results; it enables large scale systems that do to work effectively. As such, it does not directly produce scientific publications.

3.4.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	no trainings
Period 2	no activities	no activities	no trainings
Period 3	no activities	no activities	no trainings
Period 4	no activities	no activities	no trainings

3.5 EGI - Applications on-demand

Description	Applications on Demand gives you access to online applications and application-development and hosting frameworks to support compute-intensive data analysis. Features: • User-friendly access to online applications that can be executed on parallel architectures (EGI Cloud and High-Throughput Compute) • Application development and hosting frameworks where custom applications can be executed on EGI Cloud Compute and High-Throughput Compute services • User support is available by an international network of consultants.
Task	T13.3.2
URL	https://marketplace.egi.eu/42-applications-on-demand-beta
Service Category	Common services

Service Catalogue	https://marketplace.eosc-portal.eu/services/elastic-cloud-compute-cluster-ec3 https://marketplace.eosc-portal.eu/services/ws-pgrade https://marketplace.eosc-portal.eu/services/chipster
Location	• Application development and hosting framework 1 (WS-PGRADE): MTA SZTAKI, Budapest • Application development and hosting framework 2 (EC3): UPV, Valencia • Application development and hosting framework 3 (Catania Science Gateway - CSG): INFN, Catania
Duration	M01-M36
Modality of access	All the elements of the service are free at the point of use. Access is controlled via the Marketplace (commercial or other form of inappropriate users are blocked).
Support offered	Technical support is provided via the helpdesk central support team, and by the individual service providers. EGI Outreach activities include also webinars, trainings, and hands-on sessions during conferences and events.
Operational since	January 2017 (Alpha) April 2017 (Beta)

3.5.1 Definitions

User: A person requesting access to any of the applications or application development environments that are part of the service.

3.5.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M36
# of users	5 (between March 2017-Dec. 2017)	Number of users requested access to the service. Access requests are received and approved via the Marketplace. (EGI/EOSC)	26	65	89	126

Usage	3 0 2	Number of new users per Application development/hosting environment: • EC3 (UPV) • WS-PGRADE (MTA SZTAKI) • CSG with Chipster (INFN) Basis is the requests through Marketplace, but that is double checked by the providers.	10 1 12 (2 requests to use the Jupyter notebooks, 1 request to access the EGI VMOps dashboard)	14 (EC3) 1 (WS-PGRADE) 29 (CSG) 7 (VMOps dashboard) 14 (Notebooks)	0 0 23 (CSG) 1	4 0 28 4 1
Number and names of the countries reached	3		14	21	10	13

Satisfaction	not applicable	From WP4	Overall, how satisfied or dissatisfied are you with the received service? • Very satisfied 100% • Somewhat satisfied 0% • Neither satisfied nor dissatisfied 0% • Somewhat dissatisfied 0% • Very dissatisfied 0% How would you rate the quality of the service? • Very high quality 100% • High quality 0% • Neither high nor low quality 0% • Low quality 0% • Very low quality 0% How would you rate the quality of documentation and customer support? • Very high quality 100% • High quality 0% • Neither high nor low quality 0% • Low quality 0% • Very low quality 0%	Overall, how satisfied or dissatisfied are you with the received service? • Very satisfied 7% • Somewhat satisfied 58% • Neither satisfied nor dissatisfied 14% • Somewhat dissatisfied 7% • Very dissatisfied 14% How would you rate the quality of the service? • Very high quality 15.4% • High quality 46.1% • Neither high nor low quality 30.8% • Low quality 7.7% • Very low quality 0% How would you rate the quality of documentation and customer support? • Very high quality 21.4% • High quality 21.4% • Neither high nor low quality 42.9% • Low quality 14.2% • Very low quality 0%	Number of responses: 14 Overall, how satisfied or dissatisfied are you with the received service? Very satisfied: 28.6% Somewhat satisfied: 42.8% Neither satisfied nor dissatisfied: 14.3% Somewhat dissatisfied: 0 Very dissatisfied: 14.3% How would you rate the quality of the service? Very high quality = 28.6% High quality = 28.6% Neither high nor low quality = 28.6% Low quality = 7.1% Very low quality = 7.1% How would you rate the quality of documentation and customer support? Very high quality = 15.3% High quality = 46.2% Neither high nor low quality = 30.8% Low quality = 0% Very low quality = 7.7%	Number of responses: 3 Overall, how satisfied or dissatisfied are you with the received service? • Very satisfied: 0% • Somewhat satisfied: 100% • Neither satisfied nor dissatisfied: 0% • Somewhat dissatisfied: 0 • Very dissatisfied: 0% How would you rate the quality of the service? • Very high quality = 0% • High quality = 33% • Neither high nor low quality = 33% • Low quality = % • Very low quality = % How would you rate the quality of documentation and customer support? • Very high quality = % • High quality = 33% • Neither high nor low quality = % • Low quality = 33% • Very low quality = %

Marketplace views	not applicable	Google analytics (from Marketplace)	Data not reported. Marketplace is not operational yet.	not available Service is not published on EOSC-hub marketplace yet.	elastic-cloud-compute-cluster-ec3 131 ws-pgrade 14 chipster 56	elastic-cloud-compute-cluster-ec3 165 ws-pgrade 6 chipster 70
Marketplace Orders	not applicable	from Marketplace	Data not reported. Marketplace is not operational yet.	not available Service is not published on EOSC-hub marketplace yet.	elastic-cloud-compute-cluster-ec3 5 ws-pgrade 0 chipster 4	elastic-cloud-compute-cluster-ec3 3 ws-pgrade 0 chipster 3

3.5.3 Scientific publications

Reporting period	List of references
Period 1	not available
Period 2	• "The EGI Applications on Demand service" paper in Future Generation Computer Systems (FGCS) journal https://www.egi.eu/wp-content/uploads/2019/04/1-s2.0-S0167739X18314481-main.pdf • "Changes of dimension of EEG/ECoG nonlinear dynamics predict epileptogenesis and therapy outcomes", Neurobiology of Disease, Volume 124, April 2019, pp. 373-378, https://doi.org/10.1016/j.nbd.2018.12.014 • "Molecular modelling and biological studies show that some μ-opioid receptor agonists might elicit analgesia acting as MMP-9 inhibitors", Future Medical Chemistry, April 2019, DOI: 10.4155/fmc-2018-0535
Period 3	• not available
Period 4	• Evolution of compact groups from intermediate to final stages. A case study of the H I content of HCG 16 https://doi.org/10.1051/0004-6361/201936349

3.5.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	no trainings

Period 2	no activities	no activities	The EC3 portal in the EGI Applications on Demand service: how to create virtual elastic clusters in the EGI Federation to deploy elastic and virtual clusters over multi-clouds" was organized on May 16th, 2019. Agenda: https://indico.egi.eu/indico/event/4537/ A total of 29 participants attended the webinar.
Period 3	no activities	no activities	no trainings
Period 4	no activities	no activities	EGI webinar programme: https://www.egi.eu/webinars/

3.6 EGI - Check-In

Description	The EGI Check-in service is an Identity and Access Management solution that makes it easy to secure access to services and resources. Through Check-in, users are able to authenticate with the credentials provided by the IdP of their Home Organisation (e.g. via eduGAIN), as well as using social identity providers, or other selected external identity providers. Check-in provides an intuitive interface for communities to manage their users and their respective groups, roles and access rights. For communities operating their own group management system, Check-in has a comprehensive list of connectors that allows to integrate their systems as externally managed Attribute Authorities.
Task	T13.2.1
URL	aai.egi.eu
Service Category	Federation Services
Service Catalogue	https://marketplace.eosc-portal.eu/services/egi-check-in
Location	Athens, Greece
Duration	M01-M39
Modality of access	All the services are free at the point of use. The software repositories do not require any registration. The other services require authentication and in some cases registration, using either institutional credentials or personal certificates released by IGTF federation.
Support offered	Technical support is provided via the helpdesk central support team, and by the individual service providers. EGI Outreach activities include also webinars, trainings, and hands-on sessions during conferences and events.
Operational since	01/01/2018

3.6.1 Definitions

User: Individual Users and Research communities willing to use EOSC-Hub Services and Service Providers

3.6.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M39
Number of registered users	92	Provided by Check-in User Registry	461	1,163	1980	3934
Number of user logins (per month)	200	Extracted from web server access logs	621	1,506	1802	2803
Number and names of integrated services providers	18	Provided by Check-in Service Provider admin UI	31	69	84	118
Number and names of user communities accessing resources via Check-in	2	Provided by Check-in User Registry	4	12	32	48
Number and names of the countries reached	15	Extracted from web server access logs	49	59	66	87

Satisfaction	Not applicable	from WP4	Number of responses: 4 Overall, how satisfied or dissatisfied are you with the received service? • Very satisfied 100% • Somewhat satisfied 0% • Neither satisfied nor dissatisfied 0% • Somewhat dissatisfied 0% • Very dissatisfied 0% How would you rate the quality of the service? • Very high quality 33% • High quality 77% • Neither high nor low quality 0% • Low quality 0% • Very low quality 0% How would you rate the quality of documentation and customer support? • Very high quality 0% • High quality 77% • Neither high nor low quality 33% • Low quality 0% • Very low quality 0%	Number of responses: 2 Overall, how satisfied or dissatisfied are you with the received service? • Very satisfied 100% • Somewhat satisfied 0% • Neither satisfied nor dissatisfied 0% • Somewhat dissatisfied 0% • Very dissatisfied 0% How would you rate the quality of the service? • Very high quality 100% • High quality 0% • Neither high nor low quality 0% • Low quality 0% • Very low quality 0% How would you rate the quality of documentation and customer support? • Very high quality 50% • High quality 50% • Neither high nor low quality • Low quality 0% • Very low quality 0%	Number of responses: 5 Overall, how satisfied or dissatisfied are you with the received service? Very satisfied 80% Somewhat satisfied 20% Neither satisfied nor dissatisfied 0% Somewhat dissatisfied 0% Very dissatisfied 0% How would you rate the quality of the service? Very high quality 40% High quality 60% Neither high nor low quality 0% Low quality 0% Very low quality 0% How would you rate the quality of documentation and customer support? Very high quality 60% High quality 40% Neither high nor low quality Low quality 0% Very low quality 0%	Data not reported
Marketplace views	Not applicable	Google analytics (from Marketplace)	Data not reported. Marketplace is not operational yet.	101	66	171

Marketplace Orders	Not applicable	from Marketplace	Data not reported. Marketplace is not operational yet.	0	3	7

3.6.3 Scientific publications

The installation does not directly produce scientific results, it enables large scale systems that do to work effectively. As such, it does not directly produce scientific publications.

3.6.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	EOSC-hub tech-talk: AAI https://indico.egi.eu/indico/event/4086/	no activities	no trainings
Period 2	DI4R2018 – EOSC Service Architecture: AAI integration activities in the context of EOSC-Hub https://indico.egi.eu/indico/event/3973/session/34/?slotId=0#20181009 DI4R2018 – Towards the EOSC AAI service for research communities https://indico.egi.eu/indico/event/3973/session/14/?slotId=0	ESFRI Workshop on Ris and EOSC: AARC Blueprint Architecture and its evolution – towards the EOSC AAI for research communities https://www.esfri.eu/esfri-events/esfri-ris-eosc-liaison-workshop?qt-event=1#qt-event	EOSC-hub Week 2019 – Training on the EOSC-hub AAI: the service provider perspective https://www.eosc-hub.eu/events/eosc-hub-week-2019/programme/training-aai-service-provider-perspective
Period 3	https://www.eoscsecretariat.eu/eosc-symposium2019/authentication-and-authorisation-infrastructure-aai	no activities	no trainings
Period 4	no activities	AAI integration support for FNS-Cloud project	EOSC-hub AAI training for communities The EGI AAI Check-In service for scientific communities

3.7 EGI - DIRAC

Description	The service is a workload management service used to distribute computing tasks among the available resources both HTC and cloud. EGI Workload manager (also known as DIRAC4EGI) is a service is provided to the EGI community as • A workload management service used to distribute the users' computing tasks among the available resources both HTC and cloud. • Service for managing massively distributed data. The service is a DIRAC instance on EGI federated resource. It is coordinated by the EGI Foundation and operated by IN2P3 on resources provided by CYFRONET. Workload Manager provides a Workload Management Service (WMS) for High Throughput Computing resources based on DIRAC, which improves the general job throughput compared with native management of grid computing resources. Cloud computing resources are managed as well in a uniform and transparent way for the users. • Workload Manager configuration allows to choose appropriately computing and storage resources maximising their usage efficiency for particular user requirements. • Workload Manager File Catalogue includes replica, metadata and provenance functionality simplifying the development of scientific application accessing data in distributed environments. • All the Workload Manager functionality is accessible through friendly user interfaces, including a Web Portal. It has an open architecture and allows easy extensions for the needs of particular applications. DIRAC data and job management systems ensure proven production scalability up to peaks of more than 100 thousand concurrently running jobs for the LHCb experiment. This is by far large enough for the computing requirements of environmental science in a sensible temporal horizon. This service platform eases scientific computing by overlaying distributed computing resources in a transparent manner to the end-user. For example, WeNMR, a structured biology community, uses DIRAC for a number of community services, and reported an improvement from previous 70% to 99% with DIRAC job submission. The benefits of using this service include but not limited to: • Maximize usage efficiency by choosing appropriately computing and storage resources on real-time • Large–scale distributed environment to manage and handle data storage, movement, accessing and processing • Handle job submission and workload distribution in a transparent way • Interoperable, handle different storage supporting both cloud and grid capacity • User-friendly interface that allows to choose among different DIRAC services, manage the complete lifecycle from search of data to processing analysis
Task	T13.3.4
URL	Workload Manager in EGI Wiki
Service Category	Common Services
Service Catalogue	https://marketplace.eosc-portal.eu/services/egi-workload-manager
Location	IN2P3 and CYFRONET
Duration	M01-M36

Modality of access	All the services are free at the point of use. The software repositories do not require any registration. The other services require authentication and in some cases r egistration, using either institutional credentials or personal certificates released by IGTF federation.
Support offered	Technical support is provided via the helpdesk central support team, and by the individual service providers. EGI Outreach activities include also webinars, trainings, and hands-on sessions during conferences and events.
Operational since	2014

3.7.1 Definitions

User: The service suits for the established Virtual Organization communities, long tail of users, SMEs and Industry

- EGI and EGI Federation participants
- Research communities

3.7.2 Metrics

Metric name	**Baseline**	**Define how measurement is done**	**Period 1 M1-M8**	**Period 2 M9-M17**	**Period 3 M18-M26**	**Period 4 M27-M36**
# of users	500	DIRAC Registry, DIRAC Accounting	524	577	574	n/a
Usage	4.5millon jobs	DIRAC Accounting	4.7 Million jobs	11.2 Million jobs	7.7. Million jobs	7.8 million jobs
Number and names of the countries reached	10	DIRAC Accounting	12	12	10	10
Satisfaction	not applicable	From Wp4	Very satisfied 25% Somewhat satisfied 50% Neither satisfied nor dissatisfied 25%	Very satisfied 25% Somewhat satisfied 75%	no responses to the survey	Very satisfied 25% Somewhat satisfied 25% Neither satisfied nor dissatisfied 25% Somewhat dissatisfied 25%

Marketplace views	not applicable	Google analytics (from Marketplace)	Data not reported. Marketplace is not operational yet.	not available Service is not published on EOSC-hub marketplace yet.	14	49
Marketplace Orders	not applicable	from Marketplace	Data not reported. Marketplace is not operational yet.	not available Service is not published on EOSC-hub marketplace yet.	0	0

3.7.3 Scientific publications

Reporting period	List of references
Period 1	not available
Period 2	not available
Period 3	not available
Period 4	not available

3.7.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	no trainings
Period 2	• Support EISCAT-3D CC • Enable VIRGO to setup the service and success with job submission • Complete integration with OpenCoastS • Enable job submission to Cloud for WeNMR • DIRAC user meeting, 14-17 May 2019, London	Engage new communities (LoFAR, ELI-NP) during Design your e-Infrastructure workshop, 9 May, Amsterdam	Virgo Winter School, 7-8 Nov 2018

Period 3	• Enable lofar, km3net, vo.access.egi.eu community • Special support for the WeNMR to enable COVID-19 jobs to pass with a priority • Extra sites connected to support WeNMR • Support EISCAT-3D CC	Engage KM3Net community via the ESCAPE Project	no trainings
Period 4	• "WeNMR - Structural biology in the cloud - 10 years of experience of using EGI services". EOSC-week conference , May 19th, 2020 • Interview and live demo of HADDOCK in the closing plenary of the EOSC-week conference, May 20th, 2020 • "Drug repurposing against SARS-Cov2 using HADDOCK". Interdisciplinary consortia for the study of pandemics, CIC biomaGUNE Spain, Dec. 15, 2020.	Training events with computational practicals EGI Webinar, April 27, 2020 - *"WeNMR - Structural biology in the cloud - 10 years of experience of using EGI services."*	note: DIRAC workshop postponed for 2021

3.8 EGI - GOCDB

Description	GOCDB (http://goc.egi.eu) is a central information repository consisting of two parts: a web portal interface for CRUD operations and a REST API for data queries. It is a key tool for the configuration management of the EGI Federation and WLCG. It is a definitive information source, with the emphasis on user communities to maintain their own data. It is intentionally designed to have no dependencies on other operational tools (other than the EGI CheckIn service to provide an alternative authentication mechanism).
Task	T13.2.2
URL	https://goc.egi.eu
Service Category	Federation Services
Service Catalogue	https://marketplace.eosc-portal.eu/services/egi-configuration-database
Location	UK

Duration	M01-M39
Modality of access	GOCDB is accessed through a web portal by users and an API for automated processes. Some API queries do not require authentication, others require IGTF X509 certificates. Authentication for the web portal is by X509 user certificate or through the EGI Check-in service. Un-registered authenticated users can access basic data, to make changes users must register with the service and be given a role over the site or 'NGI' they wish to change. All the underlying codebase is published on GItHub under an Apache 2 license.
Support offered	Technical support is provided via the helpdesk. Extensive user documentation is also available. The service is supported during working hours.
Operational since	The first version of GOCDB went into production circa 2004.

3.8.1 Definitions

User: GOCDB users are

- Service providers that are part of federation and publish information related to service provisioning. Information is necessa ry to manage the infrastructure.
- Individuals representing Service providers. Maintaining information related to services.
- Services that depend on information gathered by the installation and connect to it to retrieve information.

3.8.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M39
Number and names of the countries reached	70 (August 2018)	Each site with an entry in GOCDB has a field defined for "country" which is selected from a pre-populated list by the site administrator. We count the number of unique countries appearing in site list PI output (https://goc.egi.eu/gocdbpi/public/?method=get_site).	70	70	70	70
Users: Number of production service providers registered in GOC DB	694 (August 2018)	Counting registered service providers (aka sites) registered in GOCDB.	695	699	707	714

Users: Number of unique individuals with role in GOCDB	1551 (August 2018)	Counting unique individuals with assigned role in GOCDB. This is measured by counting those users appearing in the relevant PI query (https://goc.egi.eu/gocdbpi/private/?method=get_user) that have a role over any site.	1,552	1,547	1554	1,586
Users: Number unique IPs connected to GOCDB over rolling month	This metric was not readily available for the baseline (because of how we currently handle logs) but will be available for period 1.	This will be the number of unique IP addresses logged in our load balancers contacting GOCDB over the final 28 days of the reporting period.	1,959	2,607	6525	4990
Usage: Number of queries to the API over a 24-hour period.	79168 (August 2018)	This is the number of queries logged by GOCDB to the GOCDB PI over the day before the stat is collected.	98,743	86,581	130,162	159,946

Satisfaction	not applicable	From WP4	Number of responses: 6 Overall, how satisfied or dissatisfied are you with the received service? • Very satisfied 50% • Somewhat satisfied 50% • Neither satisfied nor dissatisfied 0% • Somewhat dissatisfied 0% • Very dissatisfied 0% How would you rate the quality of the service? • Very high quality 50% • High quality 50% • Neither high nor low quality 0% • Low quality 0% • Very low quality 0% How would you rate the quality of documentation and customer support? • Very high quality 50% • High quality 33% • Neither high nor low quality 17% • Low quality 0%	Number of responses: 3 Overall, how satisfied or dissatisfied are you with the received service? • Very satisfied 100% • Somewhat satisfied 0% • Neither satisfied nor dissatisfied 0% • Somewhat dissatisfied 0% • Very dissatisfied 0% How would you rate the quality of the service? • Very high quality 67% • High quality 33% • Neither high nor low quality 0% • Low quality 0% • Very low quality 0% How would you rate the quality of documentation and customer support? • Very high quality 67% • High quality 33% • Neither high nor low quality 0% • Low quality 0% • Very low quality 0%	Number of responses: 9 Overall, how satisfied or dissatisfied are you with the received service? Very satisfied 77.78% Somewhat satisfied 22.22% Neither satisfied nor dissatisfied 0% Somewhat dissatisfied 0% Very dissatisfied 0% How would you rate the quality of the service? Very high quality 66.67% High quality 33.33% Neither high nor low quality 0% Low quality 0% Very low quality 0% How would you rate the quality of documentation and customer support? Very high quality 44.44% High quality 55.56% Neither high nor low quality 0% Low quality 0% Very low quality 0%	Data not reported

			• Very low quality 0%			
Marketplace views	not applicable	Google analytics (from Marketplace)	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	4	15
Marketplace Orders	not applicable	from Marketplace	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	0	0

3.8.3 Scientific publications

The installation does not directly produce scientific results, it enables large scale systems that do to work effectively. As such, it does not directly produce scientific publications.

3.8.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	no trainings
Period 2	no activities	no activities	no trainings
Period 3	GOCDB roadmap presented at CHEP2019 https://indico.cern.ch/event/773049/contributions/3473372/	no activities	no trainings
Period 4	no activities	no activities	no trainings

3.9 EGI - Operations portal

Description	The Operations Portal is the central portal for operations management of the EGI federated infrastructure. The Operations Portal offers a portfolio of management tools that includes: dashboards (Detect, track and follow-up problems and incident on the resource centers), tools to manage Virtual Organisation (Register, update, consult information about virtual communities) , communications tools (Contact and inform the different actors of the project for specific problems or global announcements), indicators and metrics (distribution of users , user numbers evolution, scientific discipline and VO distribution) .
Task	T13.2.9
URL	https://operations-portal.egi.eu
Service Category	Federation Services
Service Catalogue	https://marketplace.eosc-portal.eu/services/egi-operational-tools
Location	IN2P3 Computing Center, Villeurbanne, France
Duration	M01-M39
Modality of access	All the services are free at the point of use. The software repositories do not require any registration. The other services require authentication and in some cases registration, using either institutional credentials or personal certificates released by IGTF federation.
Support offered	Technical support is provided via the helpdesk central support team, and by the individual service providers. EGI Outreach activities include also webinars, trainings, and hands-on sessions during conferences and events.
Operational since	October 2004

3.9.1 Definitions

User: unique IP without traffic generated by robots, worms, or replies with special HTTP status codes

3.9.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M39
Users: Nb of users	1,000	Results are extracted from local instance of Matomo (Piwik) which is an open analytics platform. Number of unique IP visiting pages during the report period .	1,082	1,319	1686	1249
Usage: Nb of Pages	45,000	Results are extracted from local instance of Matomo (Piwik) which is an open analytics platform. Number of visited pages during the report period	73,000	74,324	79060	73850
Number and names of the countries reached	45	Results are extracted from local instance of Matomo (Piwik) which is an open analytics platform.	59	62	55	521

Satisfaction	Not applicable	from WP4	Number of responses: 6 Overall, how satisfied or dissatisfied are you with the received service? • Very satisfied 83% • Somewhat satisfied 17% • Neither satisfied nor dissatisfied 0% • Somewhat dissatisfied 0% • Very dissatisfied 0% How would you rate the quality of the service? • Very high quality 50% • High quality 50% • Neither high nor low quality 0% • Low quality 0% • Very low quality 0% How would you rate the quality of documentation and customer support? • Very high quality 17% • High quality 67% • Neither high nor low quality 17% • Low quality 0% • Very low quality 0%	Number of responses: 3 Overall, how satisfied or dissatisfied are you with the received service? • Very satisfied 67% • Somewhat satisfied 0% • Neither satisfied nor dissatisfied 0% • Somewhat dissatisfied 33% • Very dissatisfied 0% How would you rate the quality of the service? • Very high quality 67% • High quality 33% • Neither high nor low quality 0% • Low quality 0% • Very low quality 0% How would you rate the quality of documentation and customer support? • Very high quality 67% • High quality 0% • Neither high nor low quality 33% • Low quality 0% • Very low quality 0%	Number of responses: 5 Overall, how satisfied or dissatisfied are you with the received service? Very satisfied 60% Somewhat satisfied 20% Neither satisfied nor dissatisfied 0% Somewhat dissatisfied 20% Very dissatisfied 0% How would you rate the quality of the service? Very high quality 60% High quality 0% Neither high nor low quality 40% Low quality 0% Very low quality 0% How would you rate the quality of documentation and customer support? Very high quality 60% High quality 0% Neither high nor low quality 40% Low quality 0% Very low quality 0%	Data not reported

Marketplace views	Not applicable	Google analytics (from Marketplace)	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	3	12
Marketplace Orders	Not applicable	from Marketplace	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	0	0

3.9.3 Scientific publications

The installation does not directly produce scientific results, it enables large scale systems that do to work effectively. As such, it does not directly produce scientific publications.

3.9.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	no trainings
Period 2	no activities	no activities	no trainings
Period 3	no activities	no activities	no trainings
Period 4	no activities	no activities	no trainings

3.10 EGI - Software repositories

Description	The EGI Software Repository ecosystem is a collection of services for supporting the management and the provisioning of the software artefacts that compose the UMD (Unified Middleware Distribution) and the CMD (Cloud Middleware Distribution), the Community Repositories, and the operational tools developed by the consortium. The following sub-services are included: • Repository back-end • Repository front-end • Composer • UMD, CMD & Community repositories The Repository back-end and the Composer services are the units within the EGI Software Repository ecosystem that are responsible for the construction of UMD and CMD releases and their related repositories. The Repository front-end is for making the produced repositories and all the required information, available to the public. Finally, the EGI Software repository is strongly integrated with the Application Database (AppDB). In this case, the AppDB acts as the backend "engine" for creating and managing the Community repositories populated through the EGI Software Repository system.
Task	T13.3.3
URL	http://repository.egi.eu/
Service Category	Federation services
Service Catalogue	https://marketplace.eosc-portal.eu/services/egi-validated-software-and-repository
Location	IASA (Greece)
Duration	M01-M36
Modality of access	All services remain free at the point of use. Software repositories do not require any registration. Other services may require a uthentication and, in some cases, registration, using either institutional credentials or personal certificates released by the IGTF federation.
Support offered	Technical support is provided by the helpdesk central support team and by individual service providers. Moreover, webinars, training, and hands-on sessions may be provided by EGI Outreach activities during conferences and events.

Operational since	2011

3.10.1 Definitions

User: Remote nodes/systems

3.10.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M36
Users: Nb of users	320	At least, all the EGI Cloud & HTC resource providers	320	320	312	312
Usage: Nb of visits	not available	Results are extracted from a local instance of Matomo (Piwik), which is an open analytics platform. Count of visits within the reporting period. If a someone visits the service for the first time, or if someone visits a page or downloads a file more than 30 minutes after their last page view, this will be recorded as a new visit.	75,551	98,364	73427	94,596
Usage: Nb of packages	14400	Extracted from the database. Total number of packages (RPMs & DEBs), at the end of the reporting period.	45,896	47,375	48809	49,447
Usage: Nb of package downloads	not available	Results are extracted from a local instance of Matomo (Piwik), which is an open analytics platform. The total number of downloads made within the reporting period. Only downloads of registered packages (RPMs & DEBs) will be taken into account.	18,959,533	13,979,566	23,119,490	49,496,862
Number and names of the countries reached	not available	Results are extracted from a local instance of Matomo (Piwik), which is an open analytics platform Count and list of items within the reporting period	64	64	66	66

Satisfaction	Not applicable	From WP4	Number of responses: 5 Overall, how satisfied or dissatisfied are you with the received service? • Very satisfied 80% • Somewhat satisfied 20% • Neither satisfied nor dissatisfied 0% • Somewhat dissatisfied 0% • Very dissatisfied 0% How would you rate the quality of the service? • Very high quality 20% • High quality 80% • Neither high nor low quality 0% • Low quality 0% • Very low quality 0% How would you rate the quality of documentation and customer support? • Very high quality 0% • High quality 40% • Neither high nor low quality 20%	Number of responses: 2 Overall, how satisfied or dissatisfied are you with the received service? • Very satisfied 100% • Somewhat satisfied 0% • Neither satisfied nor dissatisfied 0% • Somewhat dissatisfied 0% • Very dissatisfied 0% How would you rate the quality of the service? • Very high quality 50% • High quality 50% • Neither high nor low quality 0% • Low quality 0% • Very low quality 0% How would you rate the quality of documentation	Number of responses: 4 Overall, how satisfied or dissatisfied are you with the received service? Very satisfied 50% Somewhat satisfied 50% Neither satisfied nor dissatisfied 0% Somewhat dissatisfied 0% Very dissatisfied 0% How would you rate the quality of the service? Very high quality 50% High quality 50% Neither high nor low quality 0% Low quality 0% Very low quality 0% How would you rate the quality of documentation and customer support?	Data not reported

			• Low quality 20% • Very low quality 20%	and customer support? • Very high quality 50% • High quality 0% • Neither high nor low quality 50% • Low quality 00% • Very low quality 20%	Very high quality 50% High quality 25% Neither high nor low quality 25% Low quality 0% Very low quality 0%	
Marketplace views	Not applicable	Google analytics (from Marketplace)	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	4	23
Marketplace Orders	Not applicable	from Marketplace	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	0	0

3.10.3 Scientific publications

The installation does not directly produce scientific results, it enables large scale systems that do to work effectively. As such, it does not directly produce scientific publications.

3.10.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	no trainings
Period 2	no activities	no activities	no trainings
Period 3	no activities	no activities	no trainings
Period 4	no activities	no activities	no trainings

3.11 EOSC-hub - Accounting

Description	The Accounting system collects, aggregates, stores, and displays compute (serial and parallel jobs), storage, and cloud resource usage data collected from Resource Centres of the EOSC-hub infrastructure. Accounting information is gathered from distributed sensors into a central Accounting Repository where it is processed to generate summaries that are made available through the Accounting Portal. The Accounting Repository, based on the APEL software, has a MySQL database backend, and needs to ensure the exchange of accounting information with peer e-Infrastructures. The Accounting Portal receives and stores the site, user, and VO level aggregated summaries generated by the Accounting Repository and provides views via a web portal, for example, by grouping sites in a country on custom time intervals. The databases are organized into a CPU record database, a User record database, and a topology database. The Accounting repositories store compute (serial and parallel jobs), storage, and cloud resource accounting data collected from Resource Centres of the EGI Federation. Accounting information is gathered from distributed sensors into a central accounting repository where it is processed to generate summaries that are available through the EGI Accounting Portal. The Accounting Repository, based on the APEL software, has a MySQL database backend, and needs to ensure the exchange of accounting information with peer e-Infrastructures. The Accounting Portal receives and stores the site, user, and VO level aggregated summaries generated by the Accounting Repository and provides views via a web portal, for example, by grouping sites in a country on custom time intervals. The databases are organized into a CPU record database, a User record database, and a topology database.
Task	T13.2.5
URL	https://accounting.egi.eu/
Service Category	Federation Services
Service Catalogue	https://marketplace.eosc-portal.eu/services/egi-accounting
Location	UK and Spain

Duration	M01-M36
Modality of access	Do not require user authentication for basic access, which is requested for advanced features.
Support offered	Technical support will be provided via the central helpdesk.
Operational since	2004

3.11.1 Definitions

User: Site administrators, service providers, managers of research communities, infrastructure managers, other installations

3.11.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M36
Users: Number of users	8,997 (June 2018)	Distinct UserDNs contained on Accounting data, this covers the users that have accounted jobs in the last 18 months since earlier ones are anonymized. Pilot and Robot jobs group many users that cannot be known, so the real number will be bigger by a unknown factor.	9,092	9,534	9667	9735
Number and names of the countries reached	47	From https://accounting.egi.eu/egi/countries/ Countries with accounting in the last year, the Country names were copy pasted from the CSV output	47	46	45	42

Satisfaction	Not applicable	From WP4	Number of responses: 2 Overall, how satisfied or dissatisfied are you with the received service? • Very satisfied 50% • Somewhat satisfied 0% • Neither satisfied nor dissatisfied 50% • Somewhat dissatisfied 0% • Very dissatisfied 0% How would you rate the quality of the service? • Very high quality 00% • High quality 50% • Neither high nor low quality 50% • Low quality 0% • Very low quality 0% How would you rate the quality of	Number of responses: 1 Overall, how satisfied or dissatisfied are you with the received service? • Very satisfied 100% • Somewhat satisfied 0% • Neither satisfied nor dissatisfied 0% • Somewhat dissatisfied 0% • Very dissatisfied 0% How would you rate the quality of the service? • Very high quality 00% • High quality 100% • Neither high nor low quality 0% • Low quality 0% • Very low quality 0% How would you rate the quality of documentation and customer support? • Very high quality 0% • High quality 100% • Neither high nor low quality 0% • Low quality 0%	Number of responses: 3 Overall, how satisfied or dissatisfied are you with the received service? Very satisfied 100% Somewhat satisfied 0% Neither satisfied nor dissatisfied 0% Somewhat dissatisfied 0% Very dissatisfied 0% How would you rate the quality of the service? Very high quality 100% High quality 0% Neither high nor low quality 0% Low quality 0% Very low quality 0% How would you rate the quality of documentation and customer support? Very high quality 66.67% High quality 33.33% Neither high nor low quality 0% Low quality 0% Very low quality 0%	Data not reported

			documentation and customer support? • Very high quality 0% • High quality 50% • Neither high nor low quality 0% • Low quality 50% • Very low quality 0%	• Very low quality 0%		
Marketplace views	Not applicable	Google analytics (from Marketplace)	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	5	28
Marketplace Orders	Not applicable	from Marketplace	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	0	0

3.11.3 Scientific publications

The installation does not directly produce scientific results, it enables large scale systems that do to work effectively. As such, it does not directly produce scientific publications.

3.11.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	no trainings
Period 2	Presentation at the EOSC-hub week meeting	no activities	no trainings
Period 3	no activities	no activities	no trainings
Period 4	no activities	no activities	no trainings

3.12 EOSC-hub - ARGO Messaging Service

Description	The ARGO Messaging Service is a Publish/Subscribe Service, which implements the Google PubSub protocol. It provides an HTTP API that enables Users/Systems to implement message-oriented service using the Publish/Subscribe Model over plain HTTP. In the Publish/Subscribe paradigm, Publishers are users/systems that can send messages to named-channels called Topics. Subscribers are users/systems that create Subscriptions to specific topics and receive messages.
Task	T13.2.8
URL	https://argoeu.github.io/
Service Category	Federation Services
Service Catalogue	Service is not published on EOSC-hub website yet.
Location	Athens, Zagreb
Duration	M01-M39
Modality of access	require the users to be authenticated, either with institutional credentials or IGTF personal certificates or service tokens.
Support offered	Technical support will be provided via the central helpdesk.
Operational since	2013

3.12.1 Definitions

User: Sites, Service Providers, Operation Centers, Central Operations teams.

3.12.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M39
Usage: Number of messages send via the Argo Messaging Service (per day)	300,000	Count Messages sent via the logs	514,503	299,791	429,587	450,396
Users: Number and names of services using the AMS	2 (Operations Portal, Monitoring)	Count Services Authorised to use the Service.	2 (Operations Portal, Monitoring)	3 (Operations Portal, Monitoring, APPDB)	5 (Operations Portal, Marketplace orders, Accounting Monitoring, APPDB)	5 (Operations Portal, Marketplace orders, Accounting Monitoring , APPDB)
Number and names of the countries reached	3	Extracted from server access logs	3	3	4	4

Satisfaction	Not applicable	From WP4	No feedback received	No feedback received	Number of responses: 3 Overall, how satisfied or dissatisfied are you with the received service? • Very satisfied 100% • Somewhat satisfied 0% • Neither satisfied nor dissatisfied 0 % • Somewhat dissatisfied 0 % • Very dissatisfied 0 % How would you rate the quality of the service? • Very high quality 100% • High quality 0% • Neither high nor low quality 0% • Low quality 0% • Very low quality 0% How would you rate the quality of documentation and customer support?	Data not reported

					• Very high quality 100% • High quality 0% • Neither high nor low quality 0% • Low quality 0% • Very low quality 0%	
EOSC-hub website views	Not applicable	Google analytics (from WP3)	not available Service is not published on EOSC-hub website yet.	not available Service is not published on EOSC-hub website yet.	not available	not available
Marketplace views	Not applicable	Google analytics (from Marketplace)	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	3	12
Marketplace orders	Not applicable	From Marketplace	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	0	0

3.12.3 Scientific publications

The installation does not directly produce scientific results, it enables large scale systems that do to work effectively. As such, it does not directly produce scientific publications.

3.12.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	no trainings
Period 2	no activities	no activities	no trainings
Period 3	no activities	no activities	no trainings

Period 4	no activities	No activities	No trainings

3.13 EOSC-hub - ARGO Monitoring

Description	ARGO Monitoring is a flexible and scalable framework for monitoring status, availability and reliability provided by infrastructures with medium to high complexity. It can generate multiple reports using customer defined profiles (e.g. for SLA management, operations etc) and has built-in multi-tenant support in the core framework.
Task	T13.2.10
URL	http://argo.egi.eu/
Service Category	Federation Services
Service Catalogue	https://marketplace.eosc-portal.eu/services/egi-service-monitoring
Location	Athens, Lyon, Zagreb
Duration	M01-M39
Modality of access	The service does not require user authentication for basic access.
Support offered	Technical support will be provided via the central helpdesk.
Operational since	2013

3.13.1 Definitions

User: Sites, Service Providers, Operation Centers, Central Operations teams.

3.13.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M39
Users: ARGO Web UI statistics - Number of users (per month)	170	Extracted from web server access logs	310	322	300	216
Users: ARGO Web UI statistics - Number of sessions (per month)	580	Extracted from web server access logs	915	813	638	642
Usage: ARGO Web UI statistics - Number of visited pages (per month)	2,300	Extracted from web server access logs	3,212	4,700	2227	2435
Users: Number of NGIs monitored by ARGO	33	Count entries in Monitoring Engine(s)	33	31	46	45
Users: Number of Service providers (aka sites) monitored by ARGO	300	Count entries in Monitoring Engine(s)	277	300	373	369
Users: Number of Services monitored by ARGO	1,000	Count entries in Monitoring Engine(s)	1,581	1,108	1217	1361
Number of probes supported by ARGO	65	Count entries in Monitoring Engine(s)	78	80	98	117
Number and names of the countries reached	17	Google analytics for the portals	56	52	53	60

Satisfaction	Not applicable	From WP4	No feedback received	No feedback received	Number of responses: 4 Overall, how satisfied or dissatisfied are you with the received service? Very satisfied 75% Somewhat satisfied 0% Neither satisfied nor dissatisfied 25% Somewhat dissatisfied 0% Very dissatisfied 0% How would you rate the quality of the service? Very high quality 75% High quality 0% Neither high nor low quality 25% Low quality 0% Very low quality 0% How would you rate the quality of documentation and customer support? Very high quality 75% High quality 0% Neither high nor low quality 25% Low quality 0% Very low quality 0%	Data not reported
Marketplace views	Not applicable	Google analytics (from Marketplace)	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	16	23

Marketplace orders	Not applicable	from Marketplace	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	0	3

3.13.3 Scientific publications

The installation does not directly produce scientific results, it enables large scale systems that do to work effectively. As such, it does not directly produce scientific publications.

3.13.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	no trainings
Period 2	no activities	no activities	no trainings
Period 3	no activities	no activities	no trainings
Period 4	EOSC-HUB Week 2020	no activities	EOSC-HUB Week 2020

3.14 EOSC-hub - Marketplace

Description	EOSC-hub Marketplace (MP) is a user-facing platform where productional EOSC-hub services can be promoted, discovered, ordered and accessed. Interaction between the user and e-infrastructure involve numerous processes from a service management point of view which requires the Marketplace as a business tool which supports partial service catalogue management, order management, the management of service level agreements (SLAs, OLAs) and the service reporting. Functionalities offered by the Marketplace are: 1. Service catalogue management: Creation, publishing and updating the services in the MP backoffice. All services are classified and presented as part of a 3-level (service category, service, service option) hierarchy implemented to enhance user experience in the system. 2. Authentication: The login procedure including the user registration during the first access. 3. Discover and order services: Finding and ordering services within the Marketplace. The users can customise their orders selecting available service options and attributes. 4. Check-Out: Submitting a service order together with a set of information to profile it. 5. Order handling: basing on given information and procedures behind it a set of User Request is created, ready to be handled by the Operational Team. 6. SLA management: accepted user's order results in creating corporate or custom SLA for the user, available on the user dashboard.

Task	T13.2.6
URL	https://marketplace.eosc-hub.eu
Service Category	Collaborative Services
Service Portfolio url	Service is not published on EOSC-hub website yet.
Location	Poland
Duration	M11-M39
Modality of access	do not require user authentication for basic access, which is requested for advanced features.
Support offered	Technical support will be provided via the central helpdesk.
Operational since	November 2018

3.14.1 Definitions

User:

- EOSC - hub service providers and service owners to publish and manage service and service instances to users (in scope of order management)
- end users (researchers, SMMs, project representatives etc.) to search and find suitable services, asking and gaining access to them
- EOSC-hub operations - for additional operations around order management (categorisation management, accepting services to be published in the MP etc.)

3.14.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M11-M17	Period 3 M18-M26	Period 4 M27-M39
Users: Number of entries (services) in the MP	18 (EGI and EUDAT)	Retrieved from the MP back office – number of services available for the users	not applicable	75	185	283 This number excludes a bot attack that took place on the May 20 and 21st of 2020.
Users: Number of views (unique Ips)	not applicable	Google analytics	not applicable	1,107	4243	13470 This number excludes a bot attack that took place on the May 20 and 21st of 2020.
Number and names of the countries reached – based on unique views	Data not reported	Google analytics	not applicable	47	64	141
Usage: Number or orders issued	not applicable	Retrieved from the MP back office	not applicable	94	185	169 This number excludes a bot attack that took place on the May 20 and 21st of 2020.
Satisfaction	not applicable	From WP4	not applicable	No results received	no responses to the survey	no responses to the survey
Marketplace views	not applicable	Google analytics (from Marketplace)	not applicable	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.
Marketplace orders	not applicable	from Marketplace	not applicable	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.

3.14.3 Scientific publications

The installation does not directly produce scientific results, it enables large scale systems that do to work effectively. As such, it does not directly produce scientific publications.

3.14.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	no trainings
Period 2	no activities	no activities	no trainings
Period 3	no activities	no activities	no trainings
Period 4	no activities	no activities	no trainings

3.15 EOSC-hub - RCAuth Online CA

Description	The RCauth.eu service is a token translation service (TTS) that can on-the-fly identify entities based on federated credentials and issue to them PKIX credentials in real-time, focusing on converting SAML-to-PKIX. It is based on the results of the AARC (AARC Consortium, 2015) Pilot to introduce CILogon (Basney, Fleury, & Gaynor, 2014) like capabilities for European Infrastructures. The AARC pilot system comprises several components, as discussed in its sustainability model study (Groep, 2016). The Delegation Service is identified in the model study as a single component that would particularly benefit from having just a single instance for Europe, serving all relying parties equally in an open, collaborative, and non-discriminatory fashion. It should be open to all Research Infrastructures (both pan-European and otherwise) and the generic e-Infrastructures that would be accepting and relying on the credentials emanating from the RCauth.eu token translation service.
Task	T13.2.3
URL	https://rcauth.eu/
Service Category	Federation Services
Service Portfolio url	Service is not published on EOSC-hub website yet.

Location	Athens, Chilton Oxfordshire England, Amsterdam,
Duration	M01-M36
Modality of access	require the users to be authenticated, either with institutional credentials or IGTF personal certificates.
Support offered	Technical support will be provided via the central helpdesk.
Operational since	summer 2016

3.15.1 Definitions

User: Users authenticating via a Federated Identity Management System (FIMS) operated by an eligible Registration Authority – typically a FIMS Identity Provider (IdP) operated by an academic or research organisation.

3.15.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M36
Number and names of user communities using RCauth CA for obtaining certificates	3	extrapolated from web server logs	3	3	3	3
Number of certificates issued by the Rcauth CA	195	extrapolated from server logs	297	231	242	304
# of users	46	extrapolated from server logs	51	37	24	22
Number and names of the countries reached	Not available	Note: By design RCAuth Online CA is accessed only indirectly via Identity Providers / Proxy Identity Providers thus it does not receive information about to the actual origin of the requests.	Not applicable	not applicable	not applicable	Not applicable

Satisfaction	Not available	From Wp4	Number of responses: 1 Overall, how satisfied or dissatisfied are you with the received service? • Very satisfied 0% • Somewhat satisfied 0% • Neither satisfied nor dissatisfied 100% • Somewhat dissatisfied 0% • Very dissatisfied 0% How would you rate the quality of the service? • Very high quality 0% • High quality 0% • Neither high nor low quality 100% • Low quality 0% • Very low quality 0% How would you rate the quality of documentation and customer support? • Very high quality 0% • High quality 0% • Neither high nor low quality 100% • Low quality 0% • Very low quality 0%	Number of responses: 1 Overall, how satisfied or dissatisfied are you with the received service? • Very satisfied 100% • Somewhat satisfied 0% • Neither satisfied nor dissatisfied 0% • Somewhat dissatisfied 0% • Very dissatisfied 0% How would you rate the quality of the service? • Very high quality 100% • High quality 0% • Neither high nor low quality 0% • Low quality 0% • Very low quality 0% How would you rate the quality of documentation and customer support? • Very high quality 0% • High quality 100% • Neither high nor low quality 0%	Number of responses: 2 Overall, how satisfied or dissatisfied are you with the received service? Very satisfied 50% Somewhat satisfied 50% Neither satisfied nor dissatisfied 0% Somewhat dissatisfied 0% Very dissatisfied 0% How would you rate the quality of the service? Very high quality 50% High quality 50% Neither high nor low quality 0% Low quality 0% Very low quality 0% How would you rate the quality of documentation and customer support? Very high quality 50% High quality 50% Neither high nor low quality 0% Low quality 0% Very low quality 0%	Data not reported

				• Low quality 0% • Very low quality 0%		
Marketplace views	Not available	Google analytics (from Marketplace)	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.
Marketplace Orders	Not available	from Marketplace	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.

3.15.3 Scientific publications

The installation does not directly produce scientific results, it enables large scale systems that do to work effectively. As such, it does not directly produce scientific publications.

3.15.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	no trainings
Period 2	no activities	no activities	no trainings
Period 3	no activities	no activities	no trainings
Period 4	no activities	no activities	no trainings

3.16 EOSC-hub - Security Monitoring

Description	Pakiti provides a monitoring mechanism to check the patching status of Linux systems. Pakiti uses the client/server model, with clients running on monitored machines and sending reports to the Pakiti server for evaluation. The report contains a list of packages installed on the client system, which is subject to analysis done by the server. The Pakiti server compares versions against other versions which are obtained from various distribution vendors. Detected vulnerabilities identified using CVE identifiers are reported as the outcome, together with affected packages that need to be updated. Secant is a security cloud assessment framework that is used to check security characteristics of virtual machines and their images. The framework instantiates the machine in a contained environment and runs a set of security probes against it. The probes combine external and internal checks and aim at typical configuration error or vulnerabilities commonly misused by Internet attackers. Both Pakiti and Secant are provided as backend services that are used primarily by other services not the end user.
Task	T13.2.10
URL	https://github.com/CESNET/pakiti-server https://github.com/CESNET/secant
Service Category	Federation Services
Service Catalogue	Service is not published on EOSC-hub website yet.
Location	CESNET (Czech Republic)
Duration	M01-M36
Modality of access	Pakiti is accessed through a web portal by users and an API for automated processes. Users need to authentication using their X.509 certificates and process is granted based on roles in GOC DB and EGI SSO systems. Secant communicates with other services (AppDB) via message bus and requires they are properly authorized to send/get messages. All the underlying codebase is available from GiHub as open source.
Support offered	Technical support is provided via the central helpdesk.
Operational since	Pakiti: 2010 Secant: 2018

3.16.1 Definitions

User: Sites, Service Providers, Operation Centers, Central Operations teams, Security teams of Operations Centers and Infrastructures

3.16.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26
Usage: Number of sites reporting to Pakiti	Not available (number of production sites)	Retrieved from service records	188	152	142
Users: Number and names of services using Secant	1	Count from authorized services	1 (Application Store)	1 (Application Store)	1 (Application Store, supporting development)
Usage: Number of analysed images reported by Secant	Not available (depends on number of Vas in AppDB)	Retrieved from service logs	15	10	20
Number and names of the countries reached via Pakiti	Not available (depends on production sites)	Retrieved from service records	43	40	37

Satisfaction	Not applicable	From WP4	Number of responses: 2 Overall, how satisfied or dissatisfied are you with the received service? • Very satisfied 100% • Somewhat satisfied 0% • Neither satisfied nor dissatisfied 0% • Somewhat dissatisfied 0% • Very dissatisfied 0% How would you rate the quality of the service? • Very high quality 50% • High quality 50% • Neither high nor low quality 0% • Low quality 0% • Very low quality 0% How would you rate the quality of documentation and customer support? • Very high quality 50% • High quality 50% • Neither high nor low quality 0% • Low quality 0% • Very low quality 0%	No data received	Number of responses: 3 Overall, how satisfied or dissatisfied are you with the received service? Very satisfied 66.67% Somewhat satisfied 33.33% Neither satisfied nor dissatisfied 0% Somewhat dissatisfied 0% Very dissatisfied 0% How would you rate the quality of the service? Very high quality 33.33% High quality 66.67% Neither high nor low quality 0% Low quality 0% Very low quality 0% How would you rate the quality of documentation and customer support? Very high quality 33.33% High quality 66.67% Neither high nor low quality 0% Low quality 0% Very low quality 0%

Marketplace views	Not applicable	Google analytics (from Marketplace)	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.
Marketplace Orders	Not applicable	from Marketplace	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.

3.16.3 Scientific publications

The installation does not directly produce scientific results, it enables large scale systems that do to work effectively. As such, it does not directly produce scientific publications.

3.16.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	no trainings
Period 2	no activities	no activities	no trainings
Period 3	no activities	no activities	no trainings

3.17 EOSC-hub - Service Portfolio Management Tool

Description	The Service Portfolio/Catalogue Management Tool (SPMT). SPMT makes it possible to manage definitions of the different classes of services and service components and it is designed following the FitSM service portfolio management process. The SPMT provides a programmatic interface and a web-user interface to the service portfolio and catalogue database (API and GUI). The tool facilitates the management of service definitions during the full lifecycle, from the service definition (which is created and progressively specified as part of the service portfolio) and later as an information object of the service catalogue.
Task	T13.2.7
URL	https://eosc.agora.grnet.gr & https://eosc-hub-devel.agora.grnet.gr (used for the demonstration of new features in a staging environment)
Service Category	Federation Services

Service Catalogue	Service is not published on EOSC-hub website yet.
Location	Athens, Greece
Duration	M01-M36
Modality of access	require the users to be authenticated, either with institutional credentials via EGI Check-IN and then Classified by the tool to the following roles SuperAdmin (Administrator of the tool), Admin (Manages and Reviews Services and Service Admins) , Service Admin (allowed to modify its own services), Observers (read only)
Support offered	Technical support will be provided via the central helpdesk.
Operational since	1/3/21018

3.17.1 Definitions

User: Service Providers that are part of EOSC-hub, Service Portfolio Managers

3.17.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M36
Number of Services in Catalogue	0	counting entries in internal DB	43	43	42	42
Number of Services in Portfolio	0	counting entries in internal DB	30	30	30	30
Number of Users of the Service	0	counting entries in internal DB	30	41	47	47
Number and names of the countries reached	3	Extracted from web server access logs	34	57	57	57
Satisfaction	Not applicable	From WP4	Data not reported	Data not reported	Data not reported	Data not reported

Marketplace views	Not applicable	Google analytics (from Marketplace)	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace
Marketplace orders	Not applicable	from Marketplace	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace

3.17.3 Scientific publications

The installation does not directly produce scientific results, it enables large scale systems that do to work effectively. As such, it does not directly produce scientific publications.

3.17.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	no trainings
Period 2	no activities	no activities	no trainings
Period 3	no activities	no activities	no trainings
Period 4	no activities	no activities	no trainings

3.18 EUDAT - B2FIND

Description	B2FIND provides a discovery service allowing users to find distributed research data collections based on metadata steadily harvested from research data collections from EUDAT data centres and other community repositories. The service offers faceted browsing and it allows in particular to discover data that is stored through the EUDAT and EOSC storage services. Research communities and data providers benefit from publishing and giving visibility to their metadata and individual researchers from searching research data from everywhere and seeing data in the context with an across community approach.
Task	T6.1. / T13.4.2
URL	http://b2find.eudat.eu
Service Category	Common Services

Service Catalogue	https://marketplace.eosc-portal.eu/services/b2find
Location	DKRZ (German Climate Computing Center)
Duration	M01-M36
Modality of access	B2FIND doesn't need registration for usage of the discovery portal.
Support offered	Technical support is provided via guidelines for data providers, a central helpdesk system and support organisation. EUDAT offers an online training program for community decision-makers and data managers, researchers and end-users. EUDAT also provides training sessions onsite on conferences.
Operational since	2014

3.18.1 Definitions

There are two kinds of usage or 'users':

- Data provider: Scientific Community or Research Infrastructure, interested in publishing meta data in B2FIND, to make their research data visible and searchable
- End user: Single scientist searching for research data

3.18.2 Metrics

Metric name	Baseline	Measurement	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M36
# of integrated data providers communities	19	check http://b2find.eudat.eu/group	19	22	24 (further 34 Communities are already searchable on the testmachine: http://eudat7-ingest.dkrz.de/group)	37 (51 already on the testmachine: http://eudat7-devel.dkrz.de/group)
# of users	20	Estimated visitors of the website per week	30	100	150	108
Usage	50	Estimated search requests (maybe multiple or combined requests by same user) per week	100	200	300	220

Number and names of the countries reached	not available	Data providers come from different countries over Europe or are international data registries Users come from all of the world: The search portal is open, and the origin of the visitors are not detected	9 ~20	10 ~30	11	12
Satisfaction	Not applicable	From WP4	Data not provided	Data not provided	Data not provided	Data not provided
Marketplace views	Not applicable	Google analytics (from Marketplace)	Data not reported. Marketplace is not operational yet.	263	173	62
Marketplace Orders	Not applicable	from Marketplace	Data not reported. Marketplace is not operational yet.	4	2	4

3.18.3 Scientific publications

Reporting period	List of references
Period 1	not available
Period 2	not available
Period 3	not available
Period 4	Quimbert E., Jeffery K., Martens C., Martin P., Zhao Z. (2020) Data Cataloguing. In: Zhao Z., Hellström M. (eds) Towards Interoperable Research Infrastructures for Environmental and Earth Sciences. Lecture Notes in Computer Science, vol 12003. Springer, Cham. https://doi.org/10.1007/978-3-030-52829-4_8

3.18.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	B2FIND training at LifeWatch & ENVRIplus International Summer School | Lecce, 9-13 July 2018

Period 2	clara working meeting at KIT EUDAT Hackathon EOSC-hub week NFDI4Earth Plenary RDA Plenary DI4Research	PaNOSC Kickoff meeting, January 2019, Grenoble ENVRIplus, March 2019, Helsinki GI Forum of ifgi, April 2019, Münster IVOA interop meeting, May 2019, Paris	no trainings
Period 3	EUDAT Hackathon FZJ EUDAT Hackathon SNIC/KTH EUDAT F2F MD Core meeting EOSC Symposium RDA Plenary 14th 2nd GO FAIR International IN meeting EOSC Nordic Policy Workshop DataCite - EUDAT F2F meeting	Open Science Fair, September 2019, Porto MTSR, October 2019, Rome HBP integration meeting, October 2019, Jülich IVOA interop meeting, October 2019, Groningen CINES F2F ICEDIG/Herbadrop, November 2019, Montpellier EISCAT 3D integration meeting, February 2020, Kiruna Joint PaNOSC and ExPaNDS meeting, February 2019, Lund	EUDAT/PRACE Summerschool, Trieste, September 23th - 27th 2019
Period 4	RDA Plenary 15th RDA DDP IG RDA MD IG International FAIR Convergence Symposium GO-FAIR Discovery IN EOSC Nordic Conference	AtMoDat Data Maturity Workshop, July 2020, Webinar SLKS Community integration, August 2020, virtual meeting FAIRsFAIR / CODATA Workshop for Metadata Catalogue integration I, September 2020 FAIRsFAIR / CODATA Workshop for Metadata Catalogue integration II, November 2020 EOSC-hub/FREYA/SSHOC Conference, November 2020, virtual meeting	no trainings due to Corona

3.19 EUDAT - B2NOTE

Description	B2NOTE is a standalone service, it has been designed to be integrated with the existing EUDAT services. Currently, B2NOTE allows to annotate files located in B2SHARE. The service is called as a "widget" within the B2SHARE User Interface. B2NOTE allows the user to easily and intuitively create three types of annotations: a semantic tag coming from identified ontology repositories (only Bioportal at the moment but we are working toward integrating more vocabularies), a free-text keyword that can be used when the user do not find a semantic term in particular and a free-text comment.
Task	T13.4.4
URL	https://b2note.eudat.eu
Service Category	Common Services
Service Catalogue	https://marketplace.eosc-portal.eu/services/b2note
Location	BSC (General Provider)
Duration	M01-M36
Modality of access	open, using b2access authentication system.
Support offered	Technical support is provided via a central helpdesk system and support organisation. EUDAT offers an online training program for community decision-makers and data managers, researchers and end-users. EUDAT also provides training sessions onsite on conferences.
Operational since	2017

3.19.1 Definitions

User: individual users registered in the B2ACCESS system.

3.19.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M36

# of users	10	number of users using the system, they are individual users registered in the B2ACCESS system. The information is extracted from the internal DDBB from B2NOTE, and it is the number of different users creating annotations.	8	15	24	version 1 (retired in 12/2020): 10 version 3 (current): 34
Usage	15	number of semantic annotations included during this period. Extracted from the MONGO DB of the B2NOTE service.	15	28	48	version 1 (retired in 12/2020): 46 version 3 (current): 17
Number and names of the countries reached	Not available	missing (this information is stored in B2ACCESS, so we don't have access to this information from the B2NOTE service).	Not available	Not available	Not available	8
Satisfaction	Not applicable	From WP4	Data not reported	Data not reported	Data not reported	Data not reported
Marketplace views	Not applicable	Google analytics (from Marketplace)	Data not reported. Marketplace is not operational yet.	70	24	39
Marketplace Orders	Not applicable	from Marketplace	Data not reported. Marketplace is not operational yet.	1	1	1

3.19.3 Scientific publications

Reporting period	List of references
Period 1	not available
Period 2	not available
Period 3	not available
Period 4	not available

3.19.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	no trainings
Period 2	no activities	no activities	no trainings
Period 3	no activities	no activities	no trainings
Period 4	no activities	no activities	no trainings

3.20 EUDAT - B2SHARE

Description	The EUDAT B2SHARE data publication service enables researchers to safely store and publish research data and to long-term preserve their data sets. The service provides a web interface that allows a user to create record by uploading files and annotating the record with metadata according to a default metadata schema. Records are always published as part of a community defined in the service. A community may mandate a user to add community-specific metadata upon creation of new records on top of the default metadata fields required by EUDAT. All records have EPIC PIDs provided by the B2HANDLE service and DOIs provided by the DataCite DOI service. All files have EPIC PIDs attached and can be annotated using EUDAT's B2NOTE annotation service. Users can update their existing records by changing the metadata of those records. In case files need to be changed or updated, the record can be versioned thereby creating a new record with updated files that is linked to the old version. A pseudo-record is created that contains references to all versioned records and upon request automatically links to the latest version. Metadata of public records are harvested by metadata aggregators such as B2FIND to allow other researchers to discover data sets published in B2SHARE. Any visitor can search through the published records in B2SHARE and download files attached to it. User can get access by registering through B2ACCESS. User-specific tokens are used to authenticate through the REST API to allow a user to update records in a non-web-based workflow. To search the site and to get record-specific information using the API no authentication is required.
Task	T13.4.6
URL	https://b2share.eudat.eu https://trng-b2share.eudat.eu (training instance)
Service Category	Common Services
Service Catalogue	https://marketplace.eosc-portal.eu/services/b2share
Location	CSC (General Provider)

Duration	M01-M36
Modality of access	B2SHARE is an open accessible service which requires a registration (e.g. B2ACCESS) to upload and publish data objects, to use the search functionality no registration is required.
Support offered	Technical support is provided via a central helpdesk system and support organisation. EUDAT offers an online training program for community decision-makers and data managers, researchers and end-users. EUDAT also provides training sessions on-site on conferences. EUDAT offers a training instance of B2SHARE that allows users to practice data publication or the use of the REST API.
Operational since	2014

3.20.1 Definitions

There are several types of users, these are controlled using roles defined by B2SHARE:

- Site administrator: has full control over the website and all its content, generally the owner of the service
- Community administrator: administers a community defined in B2SHARE, can review records created under a community by other users
- Community member: user that is part of a community, can publish records under this community if that community only allows members to publish in it
- User: user that is registered through B2ACCESS and can create new and administer its own existing records through the interface and REST API
- Visitor: any anonymous user, can search for records in the website that are marked as public

3.20.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M36
# of users	370	Counting the number of unique users logged in during a month period	469	220	235	185
Usage	788	Number of file downloads.	4.011	6.181 (due technical error downloads for 11/2018 and 02/2019 cannot be reported)	26055 (due technical error downloads for 01/2020 cannot be reported)	16106

	792	Total number of records (open access, closed access, drafts)	10.118	10.425	11269	11537
	3882	Total number of files in records	13.574	14.791	115543 (large increase due to LTER community)	117205
	149,08 GiB	Total storage used	227,14 GiB	302,75 GiB	563,2 GiB	328.93 GiB
	11	Total number of communities	13	15	18	19
Number and names of the countries reached	not available	Using external software, like GoAccess or Matomo	48	52	104	123
Satisfaction	Not applicable	From WP4	Data not reported	Data not reported	Data not reported	Data not reported
Marketplace views	Not applicable	Google analytics (from Marketplace)	Data not reported. Marketplace is not operational yet.	119	135	66
Marketplace Orders	Not applicable	from Marketplace	Data not reported. Marketplace is not operational yet.	4	2	1

3.20.3 Scientific publications

Reporting period	List of references
Period 1	not available
Period 2	not available
Period 3	not available
Period 4	not available

3.20.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings

Period 1	no activities	no activities	no trainings
Period 2	no activities	no activities	no trainings
Period 3	no activities	no activities	no trainings
Period 4	no activities	no activities	no trainings

3.21EUDAT - Helpdesk

Description	The EUDAT Helpdesk system, is a ticketing system based on Request Tracker with interfaces to provide the 1st level support and dispatch incoming request to the adequate service expert teams and other downstream support teams. The system is designed to fulfill the helpdesk requirements according to OLAs related to EUDAT services.
Task	T13.2.12
URL	https://eudat.eu/contact-support-request
Service Category	Federation Services
Service Catalogue	Service is not published on EOSC-hub website yet.
Location	BSC-CNS (Barcelona)
Duration	M01-M39
Modality of access	open, using B2ACCESS authentication.
Support offered	Technical support is provided via a central helpdesk system
Operational since	2009

3.21.1 Definitions

User: Any potential user of the EOSC-hub services, the helpdesk will receive the request from any potential or current user of the infrastructures within the EOSC-hub.

3.21.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M39

# of users	500	number of individual users creating tickets or accessing the system. They are extracted from the mysql data base from the RT TTS system. The authentication is managed by the B2ACCESS service.	507	1,183	101	93
# of tickets per period	150	number of real tickets received by the system (no automatic notifications, only real user tickets), the information is extracted from the RT database and counting only real tickets, using the filtering done by 1st level support.	166	305	163	138
Number and names of the countries reached	Not Available	this information is not available, as it is not accessible from RT system, as it is stored in the B2ACCESS service.	Not Available	Not Available	Not Available	Not Available
Satisfaction	Not applicable	From Wp4	Data not reported	Data not reported	Data not reported	Data not reported
Marketplace views	Not applicable	Google analytics (from Marketplace)	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.
Marketplace orders	Not applicable	from Marketplace	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.

3.21.3 Scientific publications

The installation does not directly produce scientific results, it enables large scale systems that do to work effectively. As such, it does not directly produce scientific publications.

3.21.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	no trainings
Period 2	no activities	no activities	no trainings
Period 3	no activities	no activities	no trainings
Period 4	no activities	no activities	no trainings

3.22 EUDAT - Long-term preservation services

Description	eTDR (Europen certified Trusted Digital Repository) are services provided to ensure that digital information remains findable, accessible, interoperable and reusable. It includes capacity/resource planning and application of long-term preservation techniques/technologies. It also combines policies, processes and actions to ensure access to "born-digital" and reformatted data, regardless of the challenges of technological changes or failures (metadata, file format, media).
Task	T13.4.7
URL	https://www.cines.fr/en/europe/eudat-cdi/etdr/
Service Category	Common Services
Service Catalogue	https://marketplace.eosc-portal.eu/services/etdr-european-trusted-digital-repository
Location	CINES (Centre Informatique National de l'Enseignement Supérieur) in Montpellier, France DANS-KNAW (Data Archiving and Networked Services) in The Hague, Netherlands
Duration	M01-M36
Modality of access	eTDR services require assistance from digital preservation experts to validate users DMP (Data Management Plan) - which is a prerequisite to start uploading archives. Authentication is needed and access is role based.
Support offered	Technical support is provided via a central helpdesk system and support organisation. EUDAT offers an online training program for community decision-makers and data managers, researchers and end-users. EUDAT also provides training sessions onsite on conferences.
Operational since	2017

3.22.1 Definitions

User: Research communities willing to use EUDAT and EOSC-Hub long-term preservation services.

3.22.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M36
# of users	1	Provided by B2TDR admin UI, number of accounts	1	1	1	1
Usage	4 Million	Provided by B2TDR admin UI. Files are all archives preserved in the system.	4 Million	4 Million	4 Million	4 Million
Number and names of the countries reached	Not available		6	6	6	6
Satisfaction	not applicable	From WP4	Data not reported	Data not reported	Data not reported	Data not reported
Marketplace views	not applicable	Google analytics (from Marketplace)	Data not reported. Marketplace is not operational yet.	Not available Service is not published on EOSC-hub marketplace yet.	Not available Service is not published on EOSC-hub marketplace yet.	146
Marketplace orders	not applicable	from Marketplace	Data not reported. Marketplace is not operational yet.	Not available Service is not published on EOSC-hub marketplace yet.	Not available Service is not published on EOSC-hub marketplace yet.	1

3.22.3 Scientific publications

Reporting period	List of references
Period 1	Not available
Period 2	Not available

Period 3	Not available
Period 4	Not available

3.22.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	1 (EUDAT conference, Porto – 23-25/01/2018 – Poster)	no activities	no trainings
Period 2	None	no activities	PATC DMP training (4-6/02/2019)
Period 3	1 (BIODIVERSITY-Next conference, Leiden - 22-25/10/2019 - Poster)	no activities	no trainings
Period 4	No activities	no activities	no trainings

3.23 EUDAT - Software repositories

Description	Web-based git repository service for source code management, as well as registry for Docker images, including issue tracking, wiki, task management and continuous integration functionality. Gitlab allows users to develop software code, work collaboratively on files and documents recording all changes by applying source control and revision control software. Each user using GItlab can organize the software in projects stored in repositories which allow seeing the entire evolution of the project, communicating and sharing it with other collaborators. Gitlab provides powerful web platform with user-friendly interface, with main functionality: • Manage and browse software projects. • Manage the access rights to the projects and groups of projects. • Prepare documentation pages attached to each project. • Report bugs and request features using issue tracking system. • Define workflows to incorporate the changes in source code in the production version using continuous integration. • Store large files and images in repository.
Task	T13.3.5
URL	https://gitlab.eudat.eu/

Service Category	Federation service
Service Catalogue	Service is not published on EOSC-hub website yet.
Location	KIT (General Provider)
Duration	M01-M36
Modality of access	Do not require authentication to access public area, requires AAI registration (B2ACCESS or Check-in) to access private areas depending on user profile and role for the given project with full read/write rights or in read-only mode.
Support offered	Technical support will be provided via the central helpdesk.
Operational since	5.2017

3.23.1 Definitions

User: Scientists, software developers, service providers, researchers, who are working on software projects, documentation, virtual images or scientific material, which needs to be stored, updated and shared with others.

3.23.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M36
# of users	47	metric provided by administration dashboard	85	141	246	332
Usage: Number of projects	17	metric provided by administration dashboard	35	60	99	133
Usage: Number of merge requests	47	metric provided by administration dashboard	74	86	89	151
Number and names of the countries reached	8	metric provided by administration dashboard	12	15	17	17
Satisfaction	Not applicable	From WP4	Data not reported	Data not reported	Data not reported	Data not reported

Marketplace views	Not applicable	Google analytics (from Marketplace)	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.
Marketplace orders	Not applicable	from Marketplace	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.

3.23.3 Scientific publications

The installation does not directly produce scientific results, it enables large scale systems that do to work effectively. As such, it does not directly produce scientific publications.

3.23.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	no trainings
Period 2	no activities	no activities	no trainings
Period 3	no activities	no activities	no trainings
Period 4	no activities	no activities	no trainings

3.24 EUDAT - SVMON

Description	The software version monitoring framework SVMON collects the information on software versions of services and their components within EOSC-Hub. The software version monitoring framework consists of the web-based central portal which collects the information on software versions, stores it in the database and displays it in a compact overview table and the agent software, which runs on the service instances and reports the collected information to the central portal. The portal is integrated with EGI and EUDAT configuration databases, GOCDB and DPMT respectively and provides the joint view on the services. The information collected at SVMON is available for further usage via API, which provide the data in json format. The aim of SVMON is to facilitate the configuration management and change management processes, automate the service management tasks and ensure integrity of configuration data.

Task	T13.2.11
URL	http://svmon.eudat.eu/
Service Category	Federation Services
Service Catalogue	Service is not published on EOSC-hub website yet.
Location	KIT (general provider)
Duration	M01-M36
Modality of access	The access requires authentication using institutional credentials.
Support offered	Technical support is provided via a central helpdesk system and support organisation. EUDAT offers an online training program for community decision-makers and data managers, researchers and end-users. EUDAT also provides training sessions onsite on conferences.
Operational since	2016

3.24.1 Definitions

User: Managers of configuration and change management processes, service providers, service users (interested in version of service they would like to use).

3.24.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M36
Users: number of production services connected to SVMON	20	SVMON web interface	25	25	21	21
Users: number of unique users accessed the SVMON	30	extraction from database	60	70	70	55
Usage: number of website visitors per month	not available	extraction from logs	40	150	180	140

Number and names of the countries reached	10	extraction from logs	8	8	8	9
Satisfaction	not applicable	from WP4	Data not reported	Data not reported	Data not reported	Data not reported
Marketplace views	not applicable	Google analytics (from Marketplace)	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.
Marketplace Orders	not applicable	from Marketplace	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.

3.24.3 Scientific publications

The installation does not directly produce scientific results, it enables large scale systems that do to work effectively. As such, it does not directly produce scientific publications.

3.24.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	no trainings
Period 2	no activities	no activities	no trainings
Period 3	no activities	no activities	no trainings
Period 4	no activities	no activities	no trainings

3.25EUDAT - B2DROP

Description	B2DROP is a secure and trusted data exchange service for researchers and scientists to keep their research data synchronized and up-to-date and to exchange with other researchers. B2DROP is an ideal solution to store and exchange data with colleagues and team members, synchronise multiple versions of data, ensure automatic desktop synchronisation of large files.
Task	T13.4.1

URL	https://b2drop.eudat.eu
Service Category	Common Services
Service Catalogue	https://marketplace.eosc-portal.eu/services/b2drop
Location	Juelich (General Provider)
Duration	M01-M36
Modality of access	B2DROP is an open and accessible service, free of charge up to a quota of 20GB, which requires registration.
Support offered	Technical support is provided via a central helpdesk system and support organisation. EUDAT offers an online training program for community decision-makers and data managers, researchers and end-users. EUDAT also provides training sessions onsite on conferences.
Operational since	2014

3.25.1 Definitions

User: Individual Researchers/Users and Research communities who wants to collaborate with other users or synchronise their data.

3.25.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M36
# of users	1,350	Provided by B2DROP admin UI, number of accounts	1,807	1,943	2519	2031
# of files	1.8 Mio.	Provided by B2DROP admin UI. Files are all files stored in the system.	3.0 Mio	3.0 Mio	3.5 Mio	3.0 Mio
# of shares	5,250	Provided by B2DROP admin UI	9,198	8,837	9134	8719
# of published files	27	Provided by B2DROP DB, published files are files which were published by the users	58	87	156	163

# of connected services	2	Provided by B2DROP admin UI, other services integrated with B2DROP.	2	2	2	2
Number and names of the countries reached	21	log-file analysis	48	88	111	95
Satisfaction	Not applicable	From WP4	Data not provided	Data not provided	Data not provided	Data not provided
Marketplace views	Not applicable	Google analytics (from Marketplace)	Data not reported. Marketplace is not operational yet.	387	196	114
Marketplace Orders	Not applicable	from Marketplace	Data not reported. Marketplace is not operational yet.	8	2	3

3.25.3 Scientific publications

Reporting period	List of references
Period 1	not available
Period 2	not available
Period 3	not available
Period 4	not available

3.25.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	no trainings
Period 2	no activities	no activities	no trainings

Period 3	no activities	no activities	no trainings
Period 4	no activities	no activities	no trainings

3.26 EUDAT - B2ACCESS

Description	The B2ACCESS service is a Identity and Authorisation Management (IAM) system which arbitrates authenticated access to registered services in the context of the EUDAT Collaborative Data Infrastructure (CDI). The role of the B2ACCESS service is to allow these services to make authentication and the authorisation decisions, and to perform any other processing required, when the end user accesses these services. When connecting to a CDI service that requires a login (eventually with further attributes) the access request is redirected to the B2ACCESS instance and the user can effectively login by using his/her primary credential (such as username and password). EUDAT identifiers provided by the B2ACCESS service are persistently bound to the user's primary identity. Primary identities can be provided by external identity providers, e.g. shibboleth IdPs of the users' home organisations or OpenID providers such as the Google IdP, or they can be provided by the B2ACCESS service itself, if the users registered genuinely on this service. B2ACCESS may use and store the Attributes provided by the IdP. The B2ACCESS Service Provider makes sure that the end user's attributes are only forwarded to lower-level Service Providers which the end user wants to access. Service Providers must have declared to the B2ACCESS SP that they comply with the GEANT Data Protection Code of Conduct. This implies that these lower-level Service Providers will only use personal information that is relevant to provide their service.
Task	T13.2.14
URL	https://b2access.eudat.eu
Service Category	Federation Services
Service Catalogue	https://marketplace.eosc-portal.eu/services/b2access
Location	Juelich (General Provider)
Duration	M01-M36
Modality of access	B2ACCESS is an open and accessible service, free of charge.
Support offered	Technical support is provided via a central helpdesk system and support organisation. EUDAT offers an online training program for community decision-makers and data managers, researchers and end-users. EUDAT also provides training sessions onsite on conferences.
Operational since	2015

3.26.1 Definitions

User: Individual Researchers/Users and Research communities willing to use EUDAT and EOSC-Hub Services/Service Providers.

3.26.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M36
# of users	1,065	Provided by B2ACCESS DB	1,328	2,266	3266	4234
# of connected services	12	Provided by B2ACCESS admin UI/config	21	36	44	24
Number and names of the countries reached	Data not provided		48	88	111	95
Satisfaction	Not applicable	From WP4	Data not provided	Data not provided	Data not provided	Data not provided
Marketplace views	Not applicable	Google analytics (from Marketplace)	Data not reported. Marketplace is not operational yet.	55	120	27
Marketplace Orders	Not applicable	from Marketplace	Data not reported. Marketplace is not operational yet.	1	0	2

3.26.3 Scientific publications

The installation does not directly produce scientific results, it enables large scale systems that do to work effectively. As such, it does not directly produce scientific publications.

3.26.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	EOSC-hub tech-talk: AAI https://indico.egi.eu/indico/event/4086/	no activity	no trainings

Period 2	no activity	no activity	no trainings
Period 3	no activity	no activity	no trainings
Period 4	no activity	no activity	no trainings

3.27EUDAT - B2HANDLE

Description	B2HANDLE is a service for storing, managing and accessing persistent identifiers (PIDs) and essential metadata and managing namespaces. B2HANDLE is specifically designed to be used as a middleware support service by other community middleware or data infrastructure services, facilitating automation of Digital Object management processes. B2HANDLE offers in total 3 services users can book: 1. PID hosting: Reliable hosting, resolution and replication. Operational processes have been put in place to ensure balance, transparent to B2HANDLE users, which includes middleware services. 2. Profile management: B2HANDLE can consult with clients to design PID profiles, i.e., schemas for essential metadata. B2HANDLE ensures that fundamental design principles are upheld by all profiles used within B2HANDLE, thereby providing unified metadata across the participating B2HANDLE customers and user communities. 3. Search: The B2HANDLE central PID catalog is an optional service to provide reverse-lookups and filtering/searching across metadata fields across all B2HANDLE nodes that participate in the search service. Limitations may exist due to Handle volumes or metadata complexity and will be dealt with on an individual basis.
Task	T13.4.3
URL	https://dp.eudat.eu/operations/B2HANDLE
Service Category	Common Services
Service Catalogue	https://marketplace.eosc-portal.eu/services/b2handle
Location	Greece
Duration	M10-M36

Modality of access	Authentication/authorization is required to mint handles (minting is create, replace, update, delete of a handle). Authentication/authorization is required to do a reverse-lookup. Handles are globally resolvable without authentication and worldwide via a proxy with the URL: hdl.handle.net.
Support offered	Technical support is provided via a central helpdesk system and support organisation. EUDAT offers an online training program for community decision-makers and data managers, researchers and end-users. EUDAT also provides training sessions onsite on conferences.
Operational since	2014

3.27.1 Definitions

User: There are 3 types of users:

- The handle provider user/admin who administers the prefixes, user accounts and hosts the handle services.
- The prefix user who mints handles and can do reverse-lookups
- The general user who is able to resolve handles

3.27.2 Metrics

Metric name	**Baseline**	**Define how measurement is done**	**Period 1 M1-M8**	**Period 2 M9-M17**	**Period 3 M18-M26**	**Period 4 M27-M36**
# of users	11	counting number of EUDAT/EOSC-HUB prefixes in handle database	NA	14	14	18
Usage	18.6 million	counting number of handles in handle database for each EUDAT/EOSC-HUB prefix Count number of handle resolutions and updates from handle logfiles for each prefix	NA	14,544,458	16,424,369	31,867,864
Number and names of the countries reached	8		NA	9	9	9

Satisfaction	Not applicable	From WP4	NA	Data not provided	Data not provided	Data not provided
Marketplace views	Not applicable	Google analytics (from Marketplace)	NA	166	70	25
Marketplace Orders	Not applicable	from Marketplace	NA	1	6	3

3.27.3 Scientific publications

Reporting period	List of references
Period 1	not available
Period 2	not available
Period 3	not available
Period 4	not available

3.27.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	No activities	No activities	no trainings
Period 2	No activities	No activities	no trainings
Period 3	No activities	No activities	no trainings
Period 4	No activities	No activities	no trainings

3.28EUDAT - Data Project Management Tool (DPMT)

Description	The Data Project Management Tool (DPMT) is a service that a. allows to manage the information about the projects (business cases) being run by the e-Infrastructure, b. allows to record the project enabling activities on the implementation of data management plans, c. allows managing the configuration information using a data base that records the setup and changes of configuration items in the federated environment with multiple providers, d. manages information about service and resource providers as well as about their service and resource offers, e. manages information about customers The DPMT is EUDATs e-Infrastructure registry for information about service providers, their service and resource offer, about the actual provided service instances and their multi-tenant service components. It registers the EUDAT customers, business cases (data projects) and linked (billable) resources with identifiers used for service and resource provisioning orders as well as for the accounting.
Task	T13.2.13
URL	https://dp.eudat.eu
Service Category	Federation Services
Service Catalogue	Service is not published on EOSC-hub website yet.
Location	MPCDF (General Provider)
Duration	M01-M36
Modality of access	Authentication required. Role based access rights. Role assignment by the DPMT admins on request and after initial login to the DPMT.
Support offered	Technical support is provided via a central helpdesk system and support organisation. EUDAT offers an online training program for community decision-makers and data managers, researchers and end-users. EUDAT also provides training session's onsite on conferences.
Operational since	2016

3.28.1 Definitions

User: Service Providers (managers, staff members), Customers (PIs, managers), federation coordinators (e.g. operations coordinator, user engagement coordinator).

3.28.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M9	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M36
# of users	130	Number of registered accounts	170	226	244	251
Usage	70/20/60/100/50	Number of {projects/providers/services instances/service component installations/storage resources} registered	80/25/63/114/51	143/35/87/125/57	158/34/89/129/68	200/40/110/131/74
Number and names of the countries reached	18	Countries of the providers and the customers	18	18	18	18
Satisfaction	not applicable	From WP4	Data not reported	Data not reported	Data not reported	Data not reported
Marketplace views	not applicable	Google analytics (from Marketplace)	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.
Marketplace orders	not applicable	from Marketplace	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.	Not applicable Service cannot be ordered, so is not part of Marketplace.

3.28.3 Scientific publications

The installation does not directly produce scientific results, it enables large scale systems that do to work effectively. As such, it does not directly produce scientific publications.

3.28.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	no activities	no activities	no trainings

Period 2	no activities	no activities	several trainings for individual CDI providers; one 1 CDI secretariat training and 1 CDI (member) training
Period 3	no activities	no activities	no trainings
Period 4	no activities	no activities	no trainings

3.29 EUDAT – Sensitive data services

Description	The TSD - Service for Sensitive Data, is a platform to collect, store analyse and share sensitive data in compliance with the Norwegian regulation regarding individual's privacy. TSD is used by researchers working at universities and in other public research institutions (UH-sector, university hospitals etc.). TSD is primarily an IT-platform for research even if in some case it is used for clinical research and commercial research. TSD is developed and operated by UiO in collaboration with Uninett/Sigma2 and is a part of the national infrastructure for research data (NIRD).
Task	T13.4.8
URL	TSD: https://www.uio.no/english/services/it/research/sensitive-data/
Service Category	Common Services
Service Catalogue	https://marketplace.eosc-portal.eu/services/tds
Location	TSD: Norway
Duration	M01-M36
Modality of access	Access to the TSD is given via an account issued by the local operators.
Support offered	Technical support is provided for both TSD trough the local helpdesk and support system. Training material will be available in the EOSC-hub.
Operational since	TSD: 2014;

3.29.1 Definitions

User:

TSD: the minimal unit to offer the TSD resource is the "project", intended as a basic installation, with 1TB disk, 2 virtual machines and a virtually infinite number of users.

3.29.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M36
# of users	TSD: 450 ePouta: 28,3 (Average daily users)	TSD: Amount of projects ePouta: Number of users. Note: for most ePouta use cases a single user represents a whole organization. Nbr of end users is not known to the service provider as they are managed by the customer admin.	TSD: 507 ePouta: 36,9 (average daily users)	TSD: 755 ePouta: 47,6	TSD: 1264	TSD: 1577
Usage	ePouta: 11,1 TiB	ePouta: total used memory by VMs on the platform	ePouta: 22,2 TiB	ePouta: 28,1 TiB	NA	NA
Number and names of the countries reached	ePouta: 1	ePouta: nbr of countries with organizations securely connected to the ePouta	ePouta: 2	ePouta: 2	NA	NA
Satisfaction	not applicable	From WP4	Data not reported	Data not reported	Data not reported	Data not reported
Marketplace views	not applicable	Google analytics (from Marketplace)	Data not reported. Marketplace is not operational yet.	ePouta: 162	TSD: 144	TSD: 144 ePouta: 122
Marketplace Orders	not applicable	from Marketplace	Data not reported. Marketplace is not operational yet.	ePouta: 2	TSD: 0	TSD: 2 ePouta: 5

3.29.3 Scientific publications

Reporting period	List of references
Period 1	not available
Period 2	not available

Period 3	not available
Period 4	not available

3.29.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	EOSC-hub Open day – presentation of the two services.	No activities	no trainings
Period 2	EOSC-hub week – presentation of the two services.	No activities	no trainings
Period 3	No activities	No activities	no trainings
Period 4	No activities	No activities	No trainings

3.30INCD - The On-demand Operational Coastal Circulation Forecast Service (OPENCoastS)

Description	Forecast systems are fundamental assets for emergency response and everyday management of coastal regions The OPENCoastS service assembles on-demand circulation forecast systems for selected areas in the north Atlantic coast and keeps them running operationally for a period defined by the user. This service generates daily forecasts of water circulation (water levels, vertically averaged velocities and wave parameters) over the region of interest for 48 or 72 hours, based on numerical simulations of the relevant physical processes.
Task	T13.1.8
URL	https://opencoasts.ncg.ingrid.pt/
Service Category	Thematic Services
Service Catalogue	https://marketplace.eosc-portal.eu/services/opencoasts-portal
Location	Portugal
Duration	M09-M39

Modality of access	It is aimed to open the OPENCoastS service free of charge.
Support offered	Several training activities are planned
Operational since	June 2018

3.30.1 Definitions

Deployment: a numerical-model-based forecast for circulation in a coastal region created by someone in the opencoasts platform via its web portal interface. To produce the actual forecasts, numerical model simulations are scheduled and executed daily for each deployment.
User: can be individual researchers or organizations. Users can setup deployment for their individual use or for shared purposes (some users will setup deployments while others may just access them).

3.30.2 Metrics

Metric name	**Baseline**	**Define how measurement is done**	**Period 1 M1-M8**	**Period 2 M9-M17**	**Period 3 M18-M26**	**Period 4 M27-M39**
# of users: Number of service registered users	not available	Number of users registered in the platform. OPENCoastS portal requires user registration which allows to monitor their number.	20	157	204	158
Usage metric 1: Number of international deployments (forecast systems) of the service	not available	Cumulative number of deployments created in the platform. The platform keeps logs of submissions.	14	46	114	337
Usage metric 2: Number of requested extensions for operational deployments	not available	Number of operational forecasts extension requests. The platform keeps logs of requests of extensions.	1	17	1	12
Number of the countries reached	1	Users affiliation or users country of origin. This information is collected from the user profile in the platform	8	24	17	27

Satisfaction	not applicable	Positive user feedback from user satisfaction questionnaire. This information is collected in the platform configuration assistant in the forecast submission step (on a scale of 1 to 5).	100% (from questionnaires at hands-on training)	100% (from questionnaires at hands-on training)	100% (from questionnaires at hands-on training)	100% (from questionnaires at hands-on training)
Marketplace views	not applicable	Google analytics (from Marketplace)	Data not reported. Marketplace is not operational yet.	41	54	105
Marketplace Orders	not applicable	from Marketplace	Data not reported. Marketplace is not operational yet.	1	1	5

3.30.3 Scientific publications

Reporting period	List of references
Period 1	1- Alberto Azevedo, André Fortunato, Joana Teixeira, João Rogeiro, Anabela Oliveira, Marta Rodrigues, Jorge Gomes, Mário David, João Pina, 2018. OPENCoastS.pt – Serviço de previsão em tempo real a pedido para a circulação na ZEE portuguesa. 5.as Jornadas de Engenharia Hidrográfica Book of Abstracts, http://www.hidrografico.pt/images/contents/Documentacao/jornadas_2018/Actas_5JEH.pdf 2- A.B. Fortunato, A. Oliveira, J. Rogeiro, J. Teixeira, A. Azevedo, J. Gomes, M. David, J. Pina, 2018. Generation of operational forecasts on demand: the OPENCoastS platform, 17thIMUM Book of Abstracts, http://imum2018.mpimet.mpg.de/fileadmin/user_upload/imum2018/template/img/Book_of_Abstracts_revised.pdf
Period 2	1- João Rogeiro, Anabela Oliveira, Jorge Gomes, João Pina, João Martins, Mário David, Joana Teixeira, Alberto Azevedo, André Fortunato, 2018. OPENCoastS On-demand Operational Coastal Circulation Forecast Service. Digital Infrastructures for Research 2018, https://indico.egi.eu/indico/event/3973/session/26/contribution/85 2- Anabela Oliveira, João Rogeiro, Alberto Azevedo, André Fortunato, marta Rodrigues, Joana Teixeira, Jorge Gomes, Mário David, João Pina, João Paulo Martins, 2018. High-resolution coastal 109odelling and forecasting using HPC lessons learned from a decade-long experience, IBERGRID 2018, https://indico.lip.pt/event/437/contributions/1383/ 3- André B. FORTUNATO, João ROGEIRO, Joana TEIXEIRA, Anabela OLIVEIRA, Alberto AZEVEDO, Xavier BERTIN, Laura LAVAUD, Mário DAVID, João PINA, Jorge GOMES, Sonia CASTANEDO, Fernando MENDEZ, Pedro LOPES, Marta RODRIGUES; GERAÇÃO AUTOMÁTICA DE SISTEMAS DE PREVISÃO COSTEIRA: A PLATAFORMA OPENCOASTS; IX Congresso sobre Planeamento e Gestão de das Zonas Costeiras, Lisboa 2019 http://www.aprh.pt/ZonasCosteiras2019/docs/REV_IXzonasCosteiras_88.pdf 4 – Anabela Oliveira, Marta Rodrigues, João Rogeiro, AndréB. Fortunato,Joana Teixeira, Alberto Azevedo, and Pedro Lopes 2019. OPENCoastS: An Open-Access App for Sharing Coastal Prediction Information for Management and Recreation, Lecture Notes in Computer Science book series (LNCS, volume 11540), João M. F. Rodrigues•Pedro J. S. Cardoso•Jânio Monteiro•Roberto Lam•Valeria V. Krzhizhanovskaya•Michael H. Lees•Jack J. Dongarra•Peter M. A. Sloot (Eds.), 794-807.
Period 3	1 - A. Oliveira, A.B. Fortunato, J. Rogeiro, J. Teixeira, A. Azevedo, L. Lavaud, X. Bertin, J. Gomes, M. David, J. Pina, M. Rodrigues, P. Lopes, OPENCoastS: An open-access service for the automatic generation of coastal forecast systems, Environmental Modelling & Software, 2019, 104585,ISSN 1364-8152, https://doi.org/10.1016/j.envsoft.2019.104585. 2 - OPENCoastS: on-Demand Forecast Tool for Management, Marta Rodrigues, João Rogeiro, Samuel Bernardo, Anabela Oliveira, André B. Fortunato, Joana Teixeira, Pedro Lopes, Alberto Azevedo, Jorge Gomes, MÃ¡rio David, João Pina, in Proccedings of the Fourteenth International MEDCOAST Congress on Coastal and Marine Sciences, Engineering Management and Conservation MEDCOAST 2019, 22-26 October 2019, Marmaris, turkey, ISBN: 978-605-69747-0-0

Period 4	1- Oliveira et al (submitted) Forecasting coastal and estuarine hydrodynamics with OPENCoastS, Environmental Modeling and Software.

3.30.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	1- Promotional video 2 - Flyer 3 - two presentations at International conferences (Jornadas de Hidrografia, IMUM2018)	1-Publicizing of service in the SCHISM modelling community (provided by Joseph Zhang, SCHISM lead developer) 2-Publizing of talk+hands-on training at IMUM2018 (through IMUM organizers) 3-Development of OPENCoastS manual available online at https://opencoasts.ncg.ingrid.pt/ 4- sample grid for testing the service at https://opencoasts.ncg.ingrid.pt/	0 (training developed at IMUM from 11-14 of September 2018)
Period 2	1 - three presentations at international conferences (DI4R 2018, IBERGRID 2018, ICCS2019) 2- two presentations at national conference	1 - Production of OPENCoastS videos available on YouTube https://www.youtube.com/results?search_query=opencoasts 2 - Online classes from the OPENcoastS e-Tutorial: from processes knowledge to on-demand circulation forecasts - 13th of December 2018 course: http://opencoasts.lnec.pt/index_en.php#eventos	1- hands-on tutorial on OPENCoastS during the IMUM 2018 workshop: http://imum2018.mpimet.mpg.de/fileadmin/user_upload/imum2018/template/img/OPENCoastS_training_2018_v2.pdf 2- OPENcoastS e-Tutorial: from processes knowledge to on-demand circulation forecasts - 13th of December 2018 https://www.eosc-hub.eu/training-event/opencoasts-e-tutorial-processes-knowledge-demand-circulation-forecasts-13th-december
Period 3	1 - one presentation at an international conference (MEDCOAST2019) 2 -training flyer 3 - one journal paper in open access in a SCI expanded journal (Environmental Modelling & Software) 4 - 1 conference paper	1 - Publicizing service through hands-on training dissemination (through medcoasts organizers) 2 - Publicizing service at CMEMS portal (https://marine.copernicus.eu/usecases/opencoasts-demand-marine-data-forecast-service-coastal-management/)	1- hands-on tutorial on OPENCoastS during the MEDCOASTS 2019 conference: https://conference.medcoast.net/
Period 4	1 - one journal paper submitted to a SCI expanded journal (Environmental Modelling & Software)	1 - Online classes from the 2nd OPENcoastS e-Tutorial: 27-29 January 2021 course: http://opencoasts.lnec.pt/index_en.php#eventos 2- public release of software at https://gitlab.com/opencoasts/eosc-hub/webportal	1 - Online classes from the 2nd OPENcoastS e-Tutorial: 27-29 January 2021 course: http://opencoasts.lnec.pt/index_en.php#eventos

3.31WeNMR

Description	The WeNMR thematic services are providing access to a variety of tools for structural biology and computational modelling covering NMR, cryo-electron microscopy, and integrative modelling. AMBER - The AMBER-based Portal Server for NMR structures is a web interface to set up and run calculations with the AMBER package. The interface allows the refinement of NMR structures of biological macromolecules through restrained Molecular Dynamics (rMD). The AMBER portal can handle various restraint types. As an ancillary service, it provides access to a web interface to AnteChamber, enabling the calculation of force field parameters for organic molecules such as ligands in protein–ligand adducts. CS-ROSETTA3 - CS-Rosetta is a protocol which generates 3D models of proteins, using only the 13CA, 13CB, 13C', 15N, 1HA and 1HN NMR chemical shifts as input. Based on these parameters, CS ROSETTA uses a SPARTA-based selection procedure to select a set of fragments from a fragment-library (where the chemical shifts and the 3D structure of the fragments are known). The fragments are assembled using the Rosetta protocol. The generated models are rescored based on the difference between the back-calculated chemical shifts of the generated models and the input chemical shifts, and when available, with a post-scoring procedure based on unassigned NOE lists. DISVIS - allows to visualize and quantify the information content of distance restraints (e.g. from cross-linking MS experiments) between macromolecular complexes. It performs a full and systematic 6-dimensional search of the three translational and rotational degrees of freedom to determine the number of complexes consistent with the restraints. In addition, it outputs the percentage of restraints being violated and a density that represents the center-of-mass position of the scanning chain corresponding to the highest number of consistent restraints at every position in space. FANTEN - a user-friendly web tool for the determination of the anisotropy tensors related to NMR Pseudo Contact Shifts (PCSs) and Residual Dipolar Couplings (RDCs). GROMACS - GROMACS (www.gromacs.org) is a versatile package to perform molecular dynamics, i.e. simulate the Newtonian equations of motion for systems with hundreds to millions of particles. GROMACS is able to work with many biochemical molecules like proteins, lipids and nucleic acids. The server is aimed to provide a user friendly and efficient MD experience by performing many preparation and optimization steps automatically. HADDOCK - (High Ambiguity Driven protein-protein DOCKing) is an integrative, information-driven flexible docking approach for the modelling of biomolecular complexes. HADDOCK distinguishes itself from ab-initio docking methods in the fact that it encodes information from identified or predicted protein interfaces in ambiguous interaction restraints (AIRs) to drive the docking process. HADDOCK can deal with a large class of modelling problems including protein-protein, protein-nucleic acids and protein-ligand complexes. POWERFIT - automatically fits high-resolution atomic structures into cryo-EM densities. To this end it performs a full-exhaustive 6-dimensionalcross-correlation search between the atomic structure and the density. It takes as input an atomic structure in PDB- or mmCIF-format and a cryo-EM density with its resolution and outputs positions and rotations of the atomic structure corresponding to high correlation values. SPOTON - is a robust algorithm developed to identify and classify the interfacial residues as Hot-Spots (HS) and Null-Spots (NS) with a final accuracy of 0.95 and a sensitivity of 0.95 on an independent test set. The predictor was developed using an ensemble learning algorithm with up-sampling of the minor class and was trained on a large number of complexes and on a high number of different structural- and evolutionary sequence-based features.
Task	T13.1.10
URL	http://www.eosc-hub.eu/catalogue/WeNMR%20suite%20for%20Structural%20Biology
Service Category	Thematic Services

Service Catalogue	https://eosc-hub.eu/catalogue/WeNMR%20suite%20for%20Structural%20Biology https://marketplace.eosc-portal.eu/services/disvis https://marketplace.eosc-portal.eu/services/powerfit https://marketplace.eosc-portal.eu/services/haddock https://marketplace.eosc-portal.eu/services/amber https://marketplace.eosc-portal.eu/services/cs-rosetta https://marketplace.eosc-portal.eu/services/fanten https://marketplace.eosc-portal.eu/services/spoton
Location	Utrecht (NL), Florence (IT)
Duration	M01-M39
Modality of access	Access provided to non-profit users for free upon registration.
Support offered	The planned activities would encompass user support, training, and continuous operation of the various grid- and cloud-enabled web portals.
Operational since	Some of the services have been operational since June 2008.

3.31.1 Definitions

User: A user is a person making use of at least one of our thematic services. All portals except one (FANTEN) do require user registration. For FANTEN, users are identified by their IP address for collecting the various metrics.

3.31.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M39
# of users: Number of newly registered users per period	1,750	Number of new registered users to the various services over the measurement's period. All portals except FANTEN do require user registration which allows monitoring their number; The baseline is based on the 3/4 of the 2017 registrations.	2,273	3,844	4'356	9'201

Usage: number of user runs submitted to portals	13,800	Number of submissions to the portal over the measurement's period. The various portals are keeping log files of submissions. The baseline is based on the 3/4 of the 2017 submissions.	36,179	24,702	26'606	74'567
Usage: number of jobs submitted to grid/cloud resources	6,750,000	Number of grid/cloud job submissions over the measurement's period. The various portals are keeping log files of submissions. The baseline is based on the 3/4 of the 2017 submissions. Note that not all portals are submitting to grid/cloud resources. Also, the number of jobs reported here consists of either direct submissions via UI or through the DIRAC4EGI service. The number of jobs for the enmr.eu VO in the EGI accounting portal will therefore be smaller since multiple submissions to DIRAC will translate into one pilot job on the grid.	5,034,534	10,343,738	7'480'851	8'133'572 Note that the job packaging was adapted during this period to send more work per job, which is reflected in the CPU hours consumed.
Usage: HS06 CPU Time/Wall Time hours consumed by job submitted to grid/cloud resources	15,168,258/0	The metrics are collected from the EGI accounting portal for the enmr.eu VO. The baseline is based on the 3/4 of the 2017 submissions. No jobs were submitted to the cloud in 2017.	15,685,748 / 0	20,684,686 (grid) / 21,241 (Cloud)	16'577'402 (grid) / 72'292 (cloud)	48'493'86 (grid) / 253'062 (cloud)
Number and names of the countries reached	96 countries	Metrics based on the aggregated users of all portals requiring registration and IP locations for FANTEN	96 countries	108 countries	110	123

Satisfaction	not applicable	Continuous satisfaction feedback on a scale of 1 to 5 (best) on the result pages. An example of satisfaction feedback request can be found on the following example output page of DISVIS: http://milou.science.uu.nl/cgi/enmr/services/DISVIS/disvis/example Online continuous stats for the Utrecht portals available at: https://milou.science.uu.nl/stats.php	• AMPS-NMR: 4.2 (from 10 respondents) • CS-ROSETTA2: 0 respondents • DISVIS: 4.5 (from 13 respondents) • HADDOCK: 4.9 (from 729 respondents) • POWERFIT: 4.8 (from 8 respondents) • SPOTON: 5.0 (from 26 respondents)	• AMPS-NMR: 0 respondents • CS-ROSETTA3: 5.0 (from 4 respondents) • DISVIS: 4.9 (from 15 respondents) • HADDOCK: 4.9 (from 1310 respondents) • HADDOCK2.4: 5.0 (from 23 respondents) • POWERFIT: 5.0 (from 2 respondents) • SPOTON: 4.9 (from 27 respondents)	AMPS-NMR: 4.4 (from 19 respondents) CS-ROSETTA3: 5.0 (from 4 respondents) DISVIS: 4.8 (from 37 respondents) HADDOCK: 4.9 (from 2977 respondents) HADDOCK2.4: 4.9 (from 74 respondents) POWERFIT: 4.8 (from 14 respondents) SPOTON: 4.7 (from 66 respondents)	• AMPS-NMR: 4.4 (from 19 respondents) • DISVIS: 4.8 (from 75 respondents) • HADDOCK: 4.9 (from 3940 respondents) • HADDOCK2.4: 4.9 (from 1368 respondents) • POWERFIT: 4.8 (from 15 respondents) • SPOTON: 4.7 (from 82 respondents)
Marketplace views	not applicable	Google analytics (from Marketplace)	Data not reported. Marketplace is not operational yet.	Disvis 28 powerfit 20 haddock 40 Amber 97 CS-rosetta 20 Fanten 37 Spoton 12	disvis 17 powerfit 12 haddock 57 Amber 122 CS-rosetta 50 Fanten 14 Spoton 23	disvis 42 powerfit 40 haddock 291 Amber 113 CS-rosetta 46 Fanten 30 Spoton 20
Marketplace Orders	not applicable	from Marketplace	Data not reported. Marketplace is not operational yet.	Disvis 2 powerfit 1 haddock 6 Amber 5 CS-rosetta 0 Fanten 1 Spoton 0	disvis 0 powerfit 0 haddock 0 Amber 2 CS-rosetta 1 Fanten 0 Spoton 0	disvis 0 powerfit 0 haddock 0 Amber 0 CS-rosetta 0 Fanten 0 Spoton 0

3.31.3 Scientific publications

Reporting period	List of references

Period 1	2018 citations of the **AMBER** web portal publication: https://scholar.google.com/scholar?as_ylo=2018&hl=en&as_sdt=0,5&sciodt=0,5&cites=6696812766870837905&scipsc= (3 citations in 2018 to date) 2018 citations of the **FANTEN** web portal publication: https://scholar.google.com/scholar?as_ylo=2018&hl=en&as_sdt=0,5&sciodt=0,5&cites=10578718345045994565&scipsc= (8 citations in 2018 to date) 2018 citations of the two main papers about the **HADDOCK** web portal: https://scholar.google.nl/scholar?oi=bibs&hl=en&cites=10355645612647046441&as_sdt=5&as_ylo=2018&as_yhi=2018 (67 citations in 2018 to date) https://scholar.google.nl/scholar?oi=bibs&hl=en&cites=8781684426256885720&as_sdt=5&as_ylo=2018&as_yhi=2018 (91 citations in 2018 to date) 2018 citations of the **DISVIS/POWERFIT** web portals publication: https://scholar.google.com/scholar?as_ylo=2018&hl=en&as_sdt=2005&cites=6482114501244947208&scipsc= (5 citations in 2018 to date) 2018 citations of the **SpotON** web portal: https://scholar.google.com/scholar?as_ylo=2018&hl=en&as_sdt=2005&cites=13166412172304337833&scipsc= (5 citations in 2018 to date) 2018 citations of the **WeNMR** J Grid Comp publications: https://scholar.google.com/scholar?as_ylo=2018&hl=en&as_sdt=2005&cites=17298994020306084446&scipsc= (11 citations in 2018 to date)
Period 2	2018 – 05/2019 citations of the AMBER web portal publication: https://scholar.google.com/scholar?as_ylo=2018&hl=en&as_sdt=0,5&sciodt=0,5&cites=6696812766870837905&scipsc= (6 citations since 2018, 3 new citations in P2) 2018 – 05/2019 citations of the FANTEN web portal publication: https://scholar.google.com/scholar?as_ylo=2018&hl=en&as_sdt=0,5&sciodt=0,5&cites=10578718345045994565&scipsc= (12 citations since 2018, 4 new citations in P2) 2018 citations of the two main papers about the HADDOCK web portal: https://scholar.google.nl/scholar?oi=bibs&hl=en&cites=10355645612647046441&as_sdt=5&as_ylo=2018&as_yhi=2018 (89 citations since 2018, 22 new citations in P2) https://scholar.google.nl/scholar?oi=bibs&hl=en&cites=8781684426256885720&as_sdt=5&as_ylo=2018&as_yhi=2018 (133 citations since 2018, 42 citations in P2) 2018 citations of the DISVIS/POWERFIT web portals publication: https://scholar.google.com/scholar?as_ylo=2018&hl=en&as_sdt=2005&cites=6482114501244947208&scipsc= (9 citations since 2018, 4 new citations in P2) 2018 citations of the SpotON web portal: https://scholar.google.com/scholar?as_ylo=2018&hl=en&as_sdt=2005&cites=13166412172304337833&scipsc= (15 citations since 2018, 10 new citations in P2) 2018 citations of the WeNMR J Grid Comp publications: https://scholar.google.com/scholar?as_ylo=2018&hl=en&as_sdt=2005&cites=17298994020306084446&scipsc= (30 citations since 2018, 19 new citations in P2)

Period 3	2018-06/2020-02 citations of the AMBER web portal publication: https://scholar.google.com/scholar?as_ylo=2018&hl=en&as_sdt=0,5&sciodt=0,5&cites=6696812766870837905&scipsc (6 citations since 2018, 0 new citations in P3) 2018 - 05/2019 citations of the FANTEN web portal publication: https://scholar.google.com/scholar?as_ylo=2018&hl=en&as_sdt=0,5&sciodt=0,5&cites=10578718345045994565&scipsc (18 citations since 2018, 6 new citations in P3) 2018 citations of the two main papers about the HADDOCK web portal: https://scholar.google.nl/scholar?hl=en&as_sdt=2005&cites=10355645612647046441&scipsc=&as_ylo=2018&as_yhi= (208 citations since 2018, 63 new citations in P3) https://scholar.google.nl/scholar?hl=en&as_sdt=2005&cites=8781684426256885720&scipsc=&as_ylo=2018&as_yhi= (393 citations since 2018, 143 citations in P3) 2018 citations of the DISVIS/POWERFIT web portals publication: https://scholar.google.com/scholar?as_ylo=2018&hl=en&as_sdt=2005&cites=6482114501244947208&scipsc= (12 citations since 2018, 3 new citations in P3) 2018 citations of the SpotON web portal: https://scholar.google.com/scholar?as_ylo=2018&hl=en&as_sdt=2005&cites=13166412172304337833&scipsc= (24 citations since 2018, 9 new citations in P3) 2018 citations of the WeNMR J Grid Comp publications: https://scholar.google.com/scholar?as_ylo=2018&hl=en&as_sdt=2005&cites=17298994020306084446&scipsc= (52 citations since 2018, 22 new citations in P3)

Period 4	2018-06/2020-02 citations of the **AMBER** web portal publication: https://scholar.google.com/scholar?as_ylo=2018&hl=en&as_sdt=0,5&sciodt=0,5&cites=6696812766870837905&scipsc= (9 citations since 2018, **3 new citations in P4**) 2018 - 05/2019 citations of the **FANTEN** web portal publication: https://scholar.google.com/scholar?as_ylo=2018&hl=en&as_sdt=0,5&sciodt=0,5&cites=10578718345045994565&scipsc= (25 citations since 2018, **7 new citations in P4**) 2018 citations of the two main papers about the **HADDOCK** web portal: https://scholar.google.nl/scholar?hl=en&as_sdt=2005&cites=10355645612647046441&scipsc=&as_ylo=2018&as_yhi= (331 citations since 2018, **123 new citations in P4**) https://scholar.google.nl/scholar?hl=en&as_sdt=2005&cites=8781684426256885720&scipsc=&as_ylo=2018&as_yhi= (801 citations since 2018, **408 new citations in P4)** 2018 citations of the **DISVIS/POWERFIT** web portals publication: https://scholar.google.com/scholar?as_ylo=2018&hl=en&as_sdt=2005&cites=6482114501244947208&scipsc= (22 citations since 2018, **10 new citations in P4**) 2018 citations of the **SpotON** web portal: https://scholar.google.com/scholar?as_ylo=2018&hl=en&as_sdt=2005&cites=13166412172304337833&scipsc= (41 citations since 2018, **17 new citations in P4**) 2018 citations of the **WeNMR** J Grid Comp publications: https://scholar.google.com/scholar?as_ylo=2018&hl=en&as_sdt=2005&cites=17298994020306084446&scipsc= (76 citations since 2018, **24 new citations in P4**)

3.31.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings

Period 1	**Lectures at international conferences and workshops:** • "Structure, affinity and specificity riddles in biomolecular interactions". MeetU symposium, University Pierre et Marie Curie, Paris, France, January 10th, 2018. • Keynote: "Structural Biology in the Clouds: A Success Story of 10 Years". It Transformation And Cloud Content Management For Life Sciences. Berlin, Germany, March 8-9, 2018. • "HADDOCK goes small molecules. Integrative modelling of biomolecular interactions from fuzzy data". Frontiers in Computational Drug Discovery. Taipei, Taiwan ROC March 16-20, 2018. • "Building bridges between services and e-infrastructure in structural biology". International Symposium on Grids and Clouds. Taipei, Taiwan ROC, March 20-23, 2018. • "Computational aspects of structure determination by NMR". Multidimensional NMR in Structural Biology. Joachimsthal, Germany, August 13-17, 2018. • "High resolution integrative modelling of biomolecular complexes from fuzzy data". 27thICMRBS, Dublin, Ireland, August 19-24, 2018	• Several HADDOCK workshops (NMRFAM+NMRBOX+BioExcel summerschool+Pasteur course+EMBL-EBI course) - see training	• Advanced methods for the integration of diverse structural data, Florence IT (18-23/02/2018) • "Integrative modelling of biomolecular complexes". One day workshop for PhD students at BOKU University, Vienna, Austria, May 9th, 2018 • HADDOCK workshop, NMRFAM Madison Wisconsin, USA (08/06/2018) • HADDOCK workshop, NMRBOX summerschool, UConn medical center, Farmington, CT, USA (12/06/2018) • HADDOCK lecture and tutorial at the BioExcel summerschool in Pula, Sardinia IT, June 18-22, 2018. • EMBO practical course on "Integrative modelling of biomolecular complexes", Barcelona, Spain, July 2-6, 2018. • "Integrative modelling of biomolecular interactions". 3rd Pasteur course on integrative structural biology, Paris, France, July 16-21, 2018 • "Exploring protein docking with HADDOCK", Structural Bioinformatics course, EMBL-EBI, Hinxton UK, September 3-7, 2018.

Period 2	**Lectures at international conferences and workshops:** • "Integrative modelling of protein-peptide complexes". CECAM workshop on Protein-peptide interactions: peptide identification, binding prediction and design, Paris France, October 16-19, 2018. • "Integrative modeling of biomolecular complexes: Moving into membranes". Modeling of Protein Interaction meeting, Lawrence KS, USA, November 8-10, 2018. • "Structural biology in the clouds: A success story of 10 years". Online lecture. Int. Conference on artificial intelligence and robotics & HPC, grid, cloud and identify summit, Putrajaya, Malaysia, November 28, 2018. • **Keynote:**"Adding the structural dimension to the Facebook of life by integrative modelling". Molecular & Computational Biology Symposium, UCD, Dublin, Ireland, November 29-30, 2018. • "HADDOCK: An integrative modeling platform". Biophysical Society satellite workshop: working towards federating structural models and data. Baltimore MD, USA March 1st, 2019. • "Integrative modeling of biomolecular complexes". 63rd Biophysical Society Meeting. Baltimore MD, USA March 2-6, 2019. • "Data-driven HADDOCK strategies in CAPRI rounds 38-45". 7th CAPRI evaluation meeting, EBI, Hinxton UK, April 3-5, 2019. • **Keynote:** "Juggling Research and Services in Bioinformatics". EMBO practical course: From Research to Service - setting up and running a bioinformatics core facility. Izmir, Turkey, May 8-11, 2019. • "Structural Biology in the Clouds: Past, Present and Future". EGI Conference. Amsterdam Science Park, the Netherlands, May 6-7, 2019. • "Integrative modeling of biomolecular complexes". CECAM workshop: "Challenges In Large Scale Biomolecular Simulations 2019: Bridging Theory And Experiments". Cargèse, Corsica, France, May13-17, 2019. • "Integrative modeling of biomolecular complexes: from small molecules to membrane systems". iNext workshop	• Three training events (see training) and various lecture at large international meeting with a broad audience (Biophysical Society meeting, iNext workshop) (see lectures).	• "Exploring protein docking with HADDOCK", Structural Bioinformatics course. EMBL-EBI, Hinxton UK, September 3-7, 2018. • "How to apply bioinformatics to metalloproteins" Italian School on Bioinorganic Chemistry, Rome, IT, February 12-15, 2019. • Instruct-ERIC/CAPRI Workshop on Integrated Modelling of Protein-Protein Interactions, EBI Hinxton UK, April 1-2, 2019.

	on Integrated methodologies and approaches for structural biology. Brno, Czeck Republic, May 29-31, 2019. • "Bioinformatics and molecular dynamics of metalloproteins", National Conference of the Division of Inorganic Chemistry of the Italian Chemical Society, Bologna, IT, September 10-13, 2018. • "WeNMR activities in the EOSC-Hub" DIGITAL INFRASTRUCTURES for RESEARCH 2018, Lisbona, PT, 10 October 2018. • "Bioinformatics of metalloproteins" Workshop of the Winners of the Nasini Prize, Italian Chemical Society, Rome, IT, February 11-12, 2019.		

Period 3	Lectures at international conferences and workshops: **Alexandre Bonvin** "Integrative modeling of biomolecular complexes harvesting evolutionary data". CECAM workshop on coevolutionary approaches to protein and protein-complexes structure prediction and design. Lausanne, Switzerland, June 17-20, 2019. "Integrative modeling of biomolecular complexes". EMBO workshop Synergy of experiment and computation in quantitative systems biology. Nove Hrady, Czech Republic, June 23-28, 2019. "Integrative modeling of biomolecular complexes". BioExcel Summerschool on biomolecular simulations. Pula, Italy, July 1-5, 2019. "Integrative modelling of biomolecular interactions". Pasteur/EMBO course on integrative structural biology, Paris, France, July 9-11, 2019. https://www.pasteur.fr/en/integrative-structural-biology Keynote: "Structural Biology in the Clouds: Past, Present and Future". 48th Asia Pacific Advanced Network conference, Putrajaya, Malaysia, July 22-66, 2019. "Exploring protein docking with HADDOCK", Structural Bioinformatics course. EMBL-EBI, Hinxton UK, September 17-18, 2019. "Structural Biology in the Clouds: Past, Present and Future ", CompBioMed 2019 conference. London UK, September 25-27, 2019. "Integrative modeling of biomolecular complexes". CECAM BImMS 2019 school. Lugano, Switzerland, October 7, 2019. "Integrative modeling of biomolecular complexes". Aviesan symposium on Deciphering the Functional Mechanisms of Biological Macromolecules. Paris, France, October 8, 2019	Training events with computational practicals (see training) and various lecture at large international meeting with a broad audience.	• "Synergy of experiment and computation in quantitative systems biology". EMBO Workshop. Nové Hrady, Czech Republic, June 23-28, 2019. • "Integrative modeling of biomolecular complexes". BioExcel Summerschool on biomolecular simulations. Pula, Italy, July 1-5, 2019. • "Integrative modelling of biomolecular interactions". Pasteur/EMBO course on integrative structural biology, Paris, France, July 9-11, 2019. https://www.pasteur.fr/en/integrative-structural-biology • "Exploring protein docking with HADDOCK", Structural Bioinformatics course. EMBL-EBI, Hinxton UK, September 17-18, 2019. • EMBO practical course on "Practical Integrative Structural Biology", Hamburg, Germany, November 3-8, 2019 • "HADDOCK workshop on Integrative modeling of biomolecular complexes". Coimbra University, Portugal, December 18-19 , 2019.

	EMBO Global Exchange Lecture Course “Structural and biophysical methods for biological macromolecules in solution”, Santiago, Chile, October 14-20, 2019 “Integrative modeling of biomolecular complexes”. From Protein Complexes to Cell-Cell Communication. Esztergom, Hungary, October 27-29, 2019. EMBO practical course on “Practical Integrative Structural Biology”, Hamburg, Germany, November 3-8, 2019 “Integrative modeling of biomolecular complexes”. GIDRM meeting on Computation methods and NMR spectroscopy: A powerful synergy for chemistry, materials science and biology. Pisa, Italy, December 10th, 2019. “HADDOCK workshop on Integrative modeling of biomolecular complexes”. Coimbra University, Portugal, December 18-19, 2019. **Antonio Rosato** "Bioinformatics of metalloproteins".19th International Conference on Biological Inorganic Chemistry. Interlaken, CH, August 11-16, 2019. "Structural bioinformatics of zinc-binding proteins". International Society for Zinc Biology Meeting 2019. Kyoto, Japan, September 9-13, 2019. “Evolutionary constraints in NMR-based protein structure determination”. GIDRM meeting on Computation methods and NMR spectroscopy: A powerful synergy for chemistry, materials science and biology. Pisa, Italy, December 10th , 2019.		

Period 4	**Lectures at international conferences and workshops:** <u>*Alexandre Bonvin*</u> • *"Integrative modeling of biomolecular complexes"*. Applied Bioinformatics in Life Sciences, Leuven, Belgium, February 13-14, 2020. • *"WeNMR - Structural biology in the cloud - 10 years of experience of using EGI services".* EGI Webinar, April 27, 2020 • *"WeNMR - Structural biology in the cloud - 10 years of experience of using EGI services".* EOSC-week conference, May 19th, 2020 • Interview and live demo of HADDOCK in the closing plenary of the EOSC-week conference, May 20th, 2020 • *"Comment résoudre des puzzles tridimensionnels contribue à attaquer le virus.".* Webinar Franco-Sciences, May 26, 2020 • **Keynote:** "*Juggling Research and Services in Bioinformatics*". Online EMBO practical course: From Research to Service - setting up and running a bioinformatics core facility. Sept. 29th, 2020. • *"Integrative modeling of biomolecular complexes"*. North Jersey ACS NMR Topical Group - 2020 Virtual NMR Symposium. Oct. 20, 2020. • *"Drug repurposing against SARS-Cov2 using HADDOCK"*. Interdisciplinary consortia for the study of pandemics, CIC biomaGUNE Spain, Dec. 15, 2020.	Training events with computational practicals (see training) and various lecture at online international meeting with a broad audience.	• *"Integrative modeling of biomolecular complexes"*. Online BioExcel Summerschool on biomolecular simulations. July 22-26, 2020. • *"Integrative modeling of biomolecular complexes"*. CCPBioSim online training week. Oct. 2-9, 2020. • "*Exploring protein docking with HADDOCK*", Structural Bioinformatics course. EMBL-EBI, Hinxton UK, Nov. 26, 2020. • *"Integrative modeling of biomolecular complexes"*. Online BioExcel Winterschool on biomolecular simulations. Nov. 30 – Dec. 4 , 2020. • *"Integrative modeling of biomolecular complexes"*. Online Thermofischer Winterschool on integrative structural biology. China, Dec. 2 – Dec. 4 , 2020. • HADDOCK one day workshop at the International Symposium on Grid and Cloud computing, Taipei, March 22-26, 2021

3.32 EO Pillar

Description	The EO-Pillar service within the EOSC provides access to different services in the field of Earth Observation (EO). The services are categorised into three main classes: data access and computing services, data exploitation services, general user services. The following list provides the individual service components. The currently active EO-Pillar services are: • ADAM - Advance geospatial DAta Access Management (former MEA platform) • EODC JupyterHub for global Copernicus data • EODC Data Catalogue Service • Sentinel Hub • rasdaman EO Datacube • CloudFerro Data Collections Catalog • CloudFerro Infrastructure • CloudFerro Data Related Services - EO Finder • CloudFerro Data Related Services - EO Browser • GEP - High-Resolution Change Monitoring for the Alpine Region • GEP - EO Services for Earthquake Response and Landslides Analysis The following services are in development within the EO-Pillar: • EPOSAR service In the following further details of the services are provided • ADAM: The Advanced geospatial Data Management platform (ADAM) is a tool to access a large variety and volume of global environmental data. ADAM allows you extracting global as well as local data, from the past, current time, as well as short term forecast and long-term projections. Most of the data are updated daily to allow users having always the most recent data to play with. ADAM offers four main interfaces for data access: o the Explorer, a web-based graphic user interface to allow users to explore, access, process and download data. Explorer includes also and Operator Interface, data processing interface and a mobile application (ADAM Mobile); o the Application Processing Interfaces (APIs), that provide a python-library to directly access the ADAM data access and processing capabilities directly integrated in the user's code and applications; o the Jupyter Notebook, a web-based processing environment to allow users to import, write and execute code that runs close to the data, exploiting the power and the APIs on a remote computation environment (no user resources are used); o the QGIS plugin to allow registered ADAM users to access and download data directly on their QGIS local installation. • rasdaman EO Datacube: Datacube Analytics Service for multi-dimensional sensor, image (timeseries), simulation, and statistics data, based on the European Datacube, rasdaman. The service features o access through the open OGC geo standards WMS, WCS, WCPS; o support for many clients, such as Leaflet, WorldWind, Cesium, QGIS, ArcGIS, R, python, and more; o ad-hoc analysis a la "any query, any time, on any size"; o federation between data centers including, e.g., CODE-DE. The datacube technology is suitable for Earth data (image timeseries, weather forecasts, geophysical voxel imagery, etc.), but also for other domains like Life Science (gene expression simulation, brain images, etc.), astrophysics (cosmological simulations, optical and radio astronomy, etc.), and many more domains. • CloudFerro provides an EO Cloud processing platform.

	• EODC provides cloud computing, high performance computing and data storage facilities. • EPOSAR allows for a systematic generation of sub-centimetric ground displacement maps and time series by exploiting Sentinel-1 images. • Geohazards Exploitation Platform (GEP) is focused on the integration of Ground Segment capabilities and ICT technologies to maximise the exploitation of EO data. As a Cloud-based platform, the GEP provides access to virtualized and federated applications based on satellite data. By bringing processing chains close to the data, and by providing a collaborative environment to foster community exchanges, the Geohazards TEP enables users to allocate time and resources effectively to make a step change in exploiting and sharing satellite-based measurements and improving the understanding and investigation of hazards. It provides innovative responses to the geohazards community needs (services & support) and in particular: o On-demand processing services to address AOI-specific analysis o Systematic processing services to address needs for "common information layers" o Enables access to massive Cloud Compute power, managing multi-tenant resources o Access to Copernicus Sentinels-1/2/3 repositories o Access to 70+ TB of EO data archives (ERS and ENVISAT) The Geohazards TEP exposes two thematic applications within the EOSC that are ▪ High-Resolution Change Monitoring for the Alpine Region: this service provides an interferometric product at 50m resolution and 25m pixel spacing systematically for every 6-day Sentinel-1 SLC pair over the Alpine Region. ▪ EO Services for Earthquake Response and Landslides Analysis: a set of on-demand terrain motion services supporting interferogram generation, co-seismic displacement mapping, landslide rapid mapping and landslide displacement field monitoring with Sentinel-1 and Sentinel-2 data. • OSS-X Sentinel Service is a web based system designed to provide EO data users with Search - Cataloguing - Order and Dissemination capabilities for the Sentinel products. • Sentinel Hub service provides access to complete archive of Sentinel-1 GRD, Sentinel-2 (L1C and L2A) data and ESA Archive of Landsat 5,7 and 8. Data are available through OGC compliant WMS, WCS and WMTS services
Task	T13.1.5

URL	ADAM (former MEA platform) https://adamplatform.eu GEP: https://geohazards-tep.eu/ https://geohazards-tep.eu/geobrowser/?id=globalapp https://geohazards-tep.eu/#!communities/details/eoschub https://geohazards-tep.eu/geobrowser/?id=eoschub-alpsmonitoring-app https://geohazards-tep.eu/geobrowser/?id=eoschub-landslide-app EODC: https://jupyterhub.eodc.eu https://csw.eodc.eu/ EPOSAR: https://www.epos-ip.org Sentinel Hub http://sentinel-hub.com/ rasdaman EO Datacube http://eoschub.rasdaman.com:8080/rasdaman/ows CloudFerro https://creodias.eu/servers https://creodias.eu/storage https://creodias.eu/networking-and-security https://discovery.creodias.eu/dataset https://creodias.eu https://finder.creodias.eu/www https://browser.creodias.eu GRNET OSS-X Sentinel Service https://sentinel.eosc.grnet.gr/
Service Category	Thematic Services
Service Catalogue	https://marketplace.eosc-portal.eu/services/eodc-data-catalogue-service https://marketplace.eosc-portal.eu/services/eodc-jupyterhub-for-global-copernicus-data https://marketplace.eosc-portal.eu/services/sentinel-hub https://marketplace.eosc-portal.eu/services/cloudferro-data-collections-catalog https://marketplace.eosc-portal.eu/services/cloudferro-infrastructure https://marketplace.eosc-portal.eu/services/cloudferro-data-related-services-eo-finder https://marketplace.eosc-portal.eu/services/cloudferro-data-related-services-eo-browser https://marketplace.eosc-portal.eu/services/rasdaman-eo-datacube https://marketplace.eosc-portal.eu/services/mea-platform-data-access-and-exploitation-service https://marketplace.eosc-portal.eu/services/gep-eo-services-for-earthquake-response-and-landslides-analysis https://marketplace.eosc-portal.eu/services/gep-high-resolution-change-monitoring-for-the-alpine-region

Location	Services offered on different locations (e.g. Vienna, Warsaw, Athens, etc.)
Duration	M07-M39
Modality of access	Datacube Data Analytics Service will be provided to the project partners to support the EO Pillar use case. The European Datacube engine, rasdaman, will implement the datacube query service, depending on data availability with 3D x/y/t image timeseries and D x/y/z/t weather data. Access will be provided via the OGC standards WMS, WCS, and WCPS. Point of installation tbd. EO Cloud is a cloud processing platform based on open source OpenStack technology. EODC SDIP The infrastructure can be accessed via individual contracts. Some test accounts are available on a free basis. EPOSAR service products will be provided accessible for free in wide access mode Geohazards Exploitation Platform (GEP): basic services can be accessed freely upon registration. Access to advanced (processing) services is provided to requester upon approval of the GEP Governance Board. ADAM It includes activities on training on the usage of EO data and EO data services. The EO pillar will include outreach activities to widen the exploitation of EO satellite data to non-EO communities. OSS-X Sentinel Service will require free registration. Sentinel Playground will be provided for free in wide access mode over web browser. In addition, Sentinel Hub services will be provided to project partners to support EO Pillar use case.
Support offered	It includes activities on training on the usage of EO data and EO data services. The EO pillar will include outreach activities to widen the exploitation of EO satellite data to non-EO communities.
Operational since	Different for the services, some services are available already in 07/2018, others are in operation since 09/2018, further services will follow

3.32.1 Definitions

User: Individual users or research communities that need access to sentinel data.

3.32.2 Metrics

In the initial phase (Period 1) of the project the different EO-Pillar services collected the user metrics in a different individual manner, or the metrics have not been established yet. In the following reporting periods the user metrics will be harmonized.
We aim to provide the following metrics per Period:

- Users per month
- EO Data available (TB)
- EO Data used (TB)
- Number of the countries reached

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M18-M26	Period 4 M27-M39
Users per month	Not applicable	Extract from the internal database	See metrics below	31.198	41076	123280
EO Data available (TB)	Not applicable	Extract from the internal database	See metrics below	23.860	31750	80760
EO Data used (number of requests)	Not applicable	Extract from the internal database	See metrics below	> 200.000	> 200 million	> 350 million
Number of the countries reached	Not applicable	Extract from the internal database	Not applicable	173	> 205	> 200
Satisfaction	not applicable	From WP4	Data not reported	Data not reported	Data not reported	Data not reported

Marketplace views	not applicable	Google analytics (from Marketplace)	Data not reported. Marketplace is not operational yet.	• EODC data catalogue service 61 • EODC jupyterhub for global Copernicus data 63 • Sentinel hub 67 • Cloudferro data collections catalog 29 • Cloudferro infrastructure 279 • Cloudferro data related services eo finder 16 • Cloudferro data related services eo browser 28 • Rasdaman eo datacube 62 • Mea platform data access and exploitation service 13 • Gep eo services for earthquake response and landslides analysis 16 • Gep high resolution change monitoring for the alpine region 11	• eodc-data-catalogue-service 73 • eodc-jupyterhub-for-global-copernicus-data 64 • sentinel-hub 50 • cloudferro-data-collections-catalog 34 • cloudferro-infrastructure 197 • cloudferro-data-related-services-eo-finder 22 • cloudferro-data-related-services-eo-browser 14 • rasdaman-eo-datacube 47 • mea-platform-data-access-and-exploitation-service 13 • gep-eo-services-for-earthquake-response-and-landslides-analysis 33 • gep-high-resolution-change-monitoring-for-the-alpine-region 13	• eodc-data-catalogue-service 50 • eodc-jupyterhub-for-global-copernicus-data 65 • sentinel-hub 104 • cloudferro-data-collections-catalog 74 • cloudferro-infrastructure 97 • cloudferro-data-related-services-eo-finder 13 • cloudferro-data-related-services-eo-browser 61 • rasdaman-eo-datacube 117 • mea-platform-data-access-and-exploitation-service 03 • gep-eo-services-for-earthquake-response-and-landslides-analysis 32 • gep-high-resolution-change-monitoring-for-the-alpine-region 10

Marketplace Orders	not applicable	from Marketplace	Data not reported. Marketplace is not operational yet.	• EODC data catalogue service 0 • EODC jupyterhub for global Copernicus data 1 • Sentinel hub 0 • Cloudferro data collections catalog 0 • Cloudferro infrastructure 4 • Cloudferro data related services eo finder 0 • Cloudferro data related services eo browser 0 • Rasdaman eo datacube 0 • Mea platform data access and exploitation service 0 • Gep eo services for earthquake response and landslides analysis 0 • Gep high resolution change monitoring for the alpine region 0	• eodc-data-catalogue-service 1 • eodc-jupyterhub-for-global-copernicus-data 1 • sentinel-hub 0 • cloudferro-data-collections-catalog 0 • cloudferro-infrastructure 3 • cloudferro-data-related-services-eo-finder 0 • cloudferro-data-related-services-eo-browser 0 • rasdaman-eo-datacube 0 • mea-platform-data-access-and-exploitation-service 0 • gep-eo-services-for-earthquake-response-and-landslides-analysis 1 • gep-high-resolution-change-monitoring-for-the-alpine-region 0	• eodc-data-catalogue-service 1 • eodc-jupyterhub-for-global-copernicus-data 3 • sentinel-hub 1 • cloudferro-data-collections-catalog 0 • cloudferro-infrastructure 1 • cloudferro-data-related-services-eo-finder 0 • cloudferro-data-related-services-eo-browser 0 • rasdaman-eo-datacube 2 • mea-platform-data-access-and-exploitation-service 0 • gep-eo-services-for-earthquake-response-and-landslides-analysis 0 • gep-high-resolution-change-monitoring-for-the-alpine-region 0
CloudFerro: EO data available	not available	Extract from the internal database	> 9 PB	deprecated	deprecated	deprecated
CloudFerro: Number of Users	not available	Extract from the internal database	200	deprecated	deprecated	deprecated
CloudFerro: EOBrowser Collections	not available	https://browser.creodias.eu/	9	deprecated	deprecated	deprecated

Sentinel Hub: number of EOSC-hub users	0	Extract from user management	Data not reported. Marketplace is not operational yet.	Deprecated	deprecated	deprecated
Sentinel Hub: number of requests done by EOSC-hub users	0	Extract from monitoring system	Data not reported. Marketplace is not operational yet.	Deprecated	deprecated	deprecated
CloudFerro: EOFinder Products	not available	http://www.cloudferro.com/eostats/	> 10 M	deprecated	deprecated	deprecated
EODC: EO data available	1	Extract from the internal database	> 3 PB	deprecated	deprecated	deprecated
OSS-X Sentinel: Number of Users	1	Extract from the internal database	2	deprecated	deprecated	deprecated
OSS-X Sentinel: Number of published products (datasets)	10	Extract from the internal database	10	deprecated	deprecated	deprecated
OSS-X Sentinel: Number of Downloads	10	Extract from the internal database	10	deprecated	deprecated	deprecated
OSS-X Sentinel: Number of Page Visits (per year)	1000	Extract form WebServer Logs	1000	deprecated	deprecated	deprecated

3.32.3 Scientific publications

Reporting period	List of references
Period 1	not available
Period 2	not available
Period 3	not available

Period 4	I. Zinno et al., "National Scale Surface Deformation Time Series Generation through Advanced DInSAR Processing of Sentinel-1 Data within a Cloud Computing Environment," in IEEE Transactions on Big Data, vol. 6, no. 3, pp. 558-571, 1 Sept. 2020, doi: 10.1109/TBDATA.2018.2863558. Lanari, R.; Bonano, M.; Casu, F.; Luca, C.D.; Manunta, M.; Manzo, M.; Onorato, G.; Zinno, I. Automatic Generation of Sentinel-1 Continental Scale DInSAR Deformation Time Series through an Extended P-SBAS Processing Pipeline in a Cloud Computing Environment. Remote Sens. 2020, 12, 2961. https://doi.org/10.3390/rs12182961 F. Monterroso et al., "A Global Archive of Coseismic DInSAR Products Obtained Through Unsupervised Sentinel-1 Data Processing," Remote Sens., vol. 12, no. 3189, pp. 1–21, 2020. M. Manunta et al., "The Parallel SBAS Approach for Sentinel-1 Interferometric Wide Swath Deformation Time-Series Generation : Algorithm Description and Products Quality Assessment," IEEE Trans. Geosci. Remote Sens., vol. 57, no. 9, pp. 6259–6281, 2019. De Luca C. et al., "A FULLY AUTOMATIC AND CLOUD-BASED P-SBAS DINSAR PIPELINE FOR SENTINEL-1 PROCESSING," in IGARSS 2019 - 2019 IEEE International Geoscience and Remote Sensing Symposium, 2019, vol. 1, no. 1, pp. 10015–10018. I. Zinno et al., "Surface Deformation Mapping of Italy Through the P-Sbas Dinsar Processing of Sentinel-1 Data in a Cloud Computing Environment," IGARSS 2018 - 2018 IEEE International Geoscience and Remote Sensing Symposium, Valencia, 2018, pp. 2241-2243, doi: 10.1109/IGARSS.2018.8519551. Zinno I., Bonano M., Casu F., De Luca C., Manunta M., Manzo M., Onorato G., and Lanari R.,"MAPPING THE SURFACE DEFORMATION AT NATIONAL SCALE THROUGH THE AWS CLOUD IMPLEMENTATION OF THE S1 P-SBAS PROCESSING CHAIN", BiDS 2019 C. De Luca, G. Onorato, F. Casu, R. Lanari, and M. Manunta, "A GENETIC ALGORITHM FOR PHASE UNWRAPPING ERRORS CORRECTION IN THE SBASDINSAR APPROACH," in IGARSS 2019 - 2019 IEEE International Geoscience and Remote Sensing Symposium, 2019, pp. 266–269.

3.32.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	Sinergise: Analysis Ready Data & STAC workshop, August 2018, USA EPOS TCS-ICS Implementation Workshop, October 2018 EPOS Implementation and Validation Workshop, March 2018 EODC Forum 2018, May 2018	EODC Forum 2018	EODC: hands-on training within the EODC Forum 2018 EODC: individual trainings
Period 2	EODC Forum 2019, May 2019	EODC Forum 2018, May 2019	EODC: hands-on training within the EODC Forum 2019
Period 3	EODC Forum 2020, June 2020	EODC Forum 2020, June 2020	EODC: national training
Period 4	EODC Forum 2021, June 2021	EODC Forum 2021, June 2021	-

3.33 EISCAT - The EISCAT_3D portal

Description	The EISCAT_3D Data Portal offers the following main features: • AAI, user login (certificate or EGI AAI) • Data browser (DIRAC Web) • Data download • Online computing To be provided • data cataloguing with efficient metadata (B2share/B2safe) • discovery (B2find) • pre-defined analysis (B2stage and community analysis software)
Task	T13.1.4
URL	https://www.eiscat.se/eosc
Service Category	Thematic Services

Service Catalogue	https://marketplace.eosc-portal.eu/services/eiscat-data-access-portal
Location	CSC (Finland)
Duration	M19-M39
Modality of access	Access to the infrastructure is granted to user groups according to EISCAT statutes. The prototype portal from the EGI-Engage CC uses VOMS authorisation for community group, with Perun user enrollment. Will primarily be using EGI Checkin/B2Access,
Support offered	The technical support will be provided through a formal service desk with ticketing system. EISCAT will be responsible for science users. CNRS will be responsible for portal technical support. CSC will be responsible for data and compute management support.
Operational since	2019

3.33.1 Definitions

User:

- Scientists in EISCAT member countries or institutes
- Scientists granted EISCAT peer review or third party access

3.33.2 Metrics

Metric name	**Baseline**	**Define how measurement is done**	**Period 1 M1-M8**	**Period 2 M9-M17**	**Period 3 M19-M26**	**Period 4 M27-M39**
# of users	Not applicable	Registered users	Not applicable	Not applicable	Early testers: 2 external users	5
Usage	Not applicable	Number of Jobs	Not applicable	Not applicable	NA (job management recently added)	5
Number of the countries reached	0	Extract from the internal database	Not applicable	Not applicable	2 FI, SE	3

Satisfaction	not applicable	From WP4	Not applicable	Not applicable	NA	NA
Marketplace views	not applicable	Google analytics (from Marketplace)	Not applicable	Not applicable	0	80
Marketplace Orders	not applicable	from Marketplace	Not applicable	Not applicable	0	2

3.33.3 Scientific publications

Reporting period	List of references
Period 1	Not applicable
Period 2	Not applicable
Period 3	not available
Period 4	not available

3.33.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	Not applicable	Not applicable	Not applicable
Period 2	Not applicable	Not applicable	Not applicable
Period 3	2 Poster, 1 Oral presentation	At presentations	2 testers
Period 4	1 Poster, Community reporting	At presentations	3

3.34ENES - The ENES Climate Analytics Service (ECAS)

Description	The ENES Climate Analytics Service (ECAS) enables scientific end-users to perform data analysis experiments on large volumes of research data from multiple disciplines. Users can define parallel processing workflows, executed remotely without needing to download data or provide own computing resources as these are provided by ECAS. Moreover, users can explore workflows others have created and shared, and apply these to their own data. ECAS enables users to write a workflow once and apply it to diverse data without having to customize it again.
Task	T13.1.9
URL	https://ecaslab.cmcc.it/web/home.html (CMCC) - https://ecaslab.dkrz.de/home.html (DKRZ)
Service Category	Thematic Services
Service Catalogue	https://marketplace.eosc-portal.eu/services/enes-climate-analytics-service
Location	Lecce (IT), Hamburg (DE)
Duration	M18-M39
Modality of access	A basic set of resources will be freely available to researchers for training and education according to the wider-access mode data policy.
Support offered	Through the dedicated workflow analysis and consulting task, users should gain the required skills to effortlessly use the proposed service. General training activities are also foreseen.
Operational since	M18 2019

3.34.1 Definitions

User: scientist/researcher running analytics tasks on ECAS

Job: it corresponds to an analytics task run by a user on ECAS

Baseline: the level achieved before the start of the reporting period (i.e. Period 3).

3.34.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M19-M26	Period 4 M27-M39
# of users: Number of active users [50 – 200 – 500] Number of registered users	 134 147	Based on the ECAS internal accounting system	Not applicable	Not applicable	74 active users 36 registered users	87 active users 51 registered users
Usage: 1) number of jobs run 2) number of cores hours used	 606K 6484	Based on the ECAS internal accounting system	Not applicable	Not applicable	1149K jobs 3170 core hours	~500K jobs 2050 core hours
Number of the countries reached	14	Based on country information from users at registration time	Not applicable	Not applicable	19	16
Satisfaction	4,6	Based on feedback from users during training events	Not applicable	Not applicable	5	5,2
Marketplace views	not applicable	Google analytics (from Marketplace)	Not applicable	Not applicable	32	200
Marketplace Orders	not applicable	from Marketplace	Not applicable	Not applicable	1	2

3.34.3 Scientific publications

Reporting period	List of references
Period 1	Not applicable
Period 2	S. Fiore et al., "Towards an Open (Data) Science Analytics-Hub for Reproducible Multi-Model Climate Analysis at Scale," 2018 IEEE International Conference on Big Data (Big Data), Seattle, WA, USA, 2018, pp. 3226-3234. doi: 10.1109/BigData.2018.8622205
Period 3	S. Bendoukha, T. Weigel, S. Fiore, D. Elia, “Enabling server-based computing and FAIR data sharing with the ENES Climate Analytics Service”, eScience 2019 15th International Conference, San Diego, California, USA, September 24 – 27, 2019. Pp. 651-653 Online: https://ieeexplore.ieee.org/abstract/document/9041821
Period 4	Not applicable

3.34.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings

Period 1	EOSC in practice: ENES https://www.eosc-hub.eu/eosc-practice-enes	Poster: "ENES Climate Analytics Service (ECAS), A Contribution to the EOSC-HUB", EUDAT Conference, Putting the EOSC vision into practice": Sharing & preserving research data across disciplines and bordersPorto, Portugal, 22-25 January 2018 Poster: "ENES Climate Analytics Service (ECAS)", RDA 11th Plenary, Berlin, 21-23 March 2018. EGU2018 (ECASLab: a user-friendly, integrated environment for scientific data analytics and visualization in the European Open Science Cloud landscape), Vienna, Austria, 8–13 April 2018 Poster: "Towards Analytics-Hub: a data & computing environment for multi-model data analysis in the Earth System Grid Federation (Poster)" @ CMCC Annual Meeting 2018 EGU2018 (ENES Climate Analytics Service (ECAS)), Vienna, Austria, 8–13 April 2018 The PASC18 Conference, Basel, 2-4 July 2018, Integrating Machine Learning Algorithms and HPDA Frameworks to Run Predictive Analytics on Large-Scale Climate and Weather Datasets	1st ECAS training event: Training for scientific users on usage of the ECAS integrated service 2018 UNIDATA User Workshop Training on ECAS during the SOSC 2018 Second International PhD School Open Science Cloud, Perugia, September 19, 2018 Training during the 3rd ENES Workshop on Workflows, Brussels 13th and 14th September
Period 2	Not applicable	Poster and lightning talk at EOSC-hub week 2019: "The ENES Climate Analytics Service for FAIR data workflows", April 2019 Digital Infrastructures for Research 2018, Panel "Designing Thematic Services", contribution on "Current status, roadmap and future challenges, ECAS", October 2018. Poster: "Towards a New Big Data Analytics Platform for the Climate Community", 14th IEEE eScience international conference, Amsterdam, October 2018	Training on Data Analysis made easy with the ENES Climate Analytics Service (ECAS), EGU GA 2019, 10 April 2019 Training: "Introduction to ECAS for Data Science and Learning" 21/22/24 & 28 May 2019, University of Salento (Lecce), Italy

Period 3	Elastic deployment of ECAS on EGI https://www.egi.eu/about/newsletters/elastic-deployment-of-ecas-on-egi/	IS-ENES3/ESGF Virtual Workshop on Compute and Analytics, "A Climate Analytics Hub for multi-model analysis", 2nd December 2019 Talk: "An HPC-enabled Data Science and Learning Environment for Climate Change Experiments at Scale", International Conference on Parallel Computing (ParCo2019), Prague, Czech Republic, 10-13 September 2019	Training on ECAS during the "EUDAT CDI - PRACE Summer School on managing scientific data from analysis to long term archiving", Trieste, Italy, 27th September, 2019 Tutorial on ECAS during IEEE eScience 2019 conference, San Diego, CA, USA, 25 September 2019

Period 4		• Display at EGU2020 (A Python-oriented environment for climate experiments at scale in the frame of the European Open Science Cloud), Online, 4–8 May 2020 (web) • Display at EGU2020 (Python-based Multidimensional and Parallel Climate Model Data Analysis in ECAS), Online, 4–8 May 2020 (web) • Talk: "ECAS: a data science environment for climate change in the EGI federated infrastructure", EOSC-hub Week 2020, Online, 18-20 May 2020 (web) • Talk: "ECAS environment and climate data analysis", IS-ENES3 webinar on the Access on CORDEX and CMIP6 climate data, Online, 15 June 2020 (web) • High-Performance Data Analytics session during the "ESiWACE2 Summer School on Effective HPC for Climate and Weather", Online, 26th August 2020 (web) • Talk: "Dynamic deployment of the Ophidia HPDA framework on HPC and Cloud environments", EGI Conference 2020, Online, 2-5 November 2020 (web) • Talk: "ENES climate data infrastructure", EGI Conference 2020, Online, 2-5 November 2020 (web)	• Online Training on Data Analytics: How to skip high-volume data transfer and access free computing resources for your CMIP analyses, Online, 8-9th March, 2021 (web)

3.35 IFREMER - Argo data discovery service

Description	"Argo data discovery service" is an interactive interface to Argo ocean data (5 billion distinct ocean observations) and metadata (3 million technical data from 15 000 individual floats). Argo is a global array of 4,000 free-drifting profiling floats that measures the temperature and salinity of the upper 2000 m of the ocean. This is a continuous monitoring of the temperature, salinity, and velocity of the upper ocean, with all data being relayed and made publicly available within hours after collection. The array provides 100,000 temperature/salinity profiles and velocity measurements per year distributed over the global oceans at an average of 3-degree spacing. Some floats provide additional bio-geo parameters such as oxygen or chlorophyll. All data collected by Argo floats are publicly available in near real-time via the Global Data Assembly Centres (GDACs) in Brest (France) and Monterey (California) after an automated quality control (QC), and in scientifically quality controlled form, delayed mode data, via the GDACs within six months of collection. To cite Argo data, please use this DOI: http://doi.org/10.17882/42182 "Argo data discovery service" is a web interface (Angular-JS from NASA-JPL and Ifremer), querying API services on top a an Elasticsearch index (metadata) and a Cassandra database (data).
Task	T13.1.6
URL	http://bluecloud.odatis-ocean.fr/
Service Category	Thematic Services
Service Catalogue	https://marketplace.eosc-portal.eu/services/argo-floats-data-discovery
Location	data provided by Ifremer - France, service activated on EGI (IN2P3 - France) and EUDAT (CSC - Finland)
Duration	M19-M39
Modality of access	Data collections provided on the platform are public but might require specific license or citation agreement from the users. Users will be asked to acknowledge the term of use agreement covering the license of the different data collections available on the platform and they will be requested to cite the platform in their scientific publications. Otherwise access will be opened with minimal resources to any user able to authenticate.
Support offered	The technical support will be provided through a formal service desk with ticketing system. The scientific support might be provided by IFREMER and ULG. Users are expected to share experiences between them via a forum system or social network.
Operational since	July 2019

3.35.1 Definitions

User: a scientific, a scholar, a citizen interested in ocean observation

3.35.2 Metrics

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M19-M26	Period 4 M27-M39
# of users	1	Google analytics	Not applicable	Not applicable	23 users	20
Usage	Not applicable	Estimated	Not applicable	Not applicable	> 100 sessions	> 100 sessions
Number of the countries reached	1	Google analytics	Not applicable	Not applicable	4	4
Satisfaction	not applicable	From WP4	Not applicable	Not applicable	Not applicable	Not applicable
Marketplace views	not applicable	Google analytics (from Marketplace)	Not applicable	Not applicable	23	126
Marketplace Orders	not applicable	from Marketplace	Not applicable	Not applicable	0	1

3.35.3 Scientific publications

Reporting period	List of references
Period 1	Not applicable
Period 2	Not applicable

Period 3	There is no specific scientific publication on "Argo data discovery services" Argo GDAC data provided on EOSC-hub should be cited as Argo float data and metadata from Global Data Assembly Centre (Argo GDAC). SEANOE. https://doi.org/10.17882/42182 There is more than one peer rewiewd publication per day on Argo floats data from Ifremer and USGDAC. The full bibliography is available on: https://www.seanoe.org/data/00311/42182/relateddoc.htm
Period 4	There is no specific scientific publication on "Argo data discovery services" It is regularly presented as an example of cloud scientific data discovery (presented in 2020 to ENVRI-FAIR, Blue-Cloud, Copernicus and DATA-Terra)

3.35.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	Not applicable	Not applicable	Not applicable
Period 2	Not applicable	Not applicable	Not applicable
Period 3	Presented to Data-Terra French e-infrastructure	Introduced to EA-Rise EU project	Euro-Argo workshop in Paris
Period 4	Not Applicable	Not applicable	ENVRI-week (web conference)

3.36 LifeWatch

Description	LifeWatch ERIC is a European Infrastructure Consortium providing e-Science research facilities to scientists seeking to increase our knowledge and deepen our understanding of Biodiversity organisation and Ecosystem functions and services in order to support civil society in addressing key planetary challenges. In EOSC-hub, it is the University of Sevilla (USE) the organization in charge of managing the integration of the e-services linked to LifeWatch into the Marketplace. Due to some initial issues related to the service level agreements (SLAs) between LifeWatch ERIC – The Service Providers – EOSC-hub, the activity of the USE in this project has been delayed with regard to the original plan. After some meetings, it was agreed to move the dates for the planned activities. As a consequence, the roadmap has been modified in order to provide the requested information from WP13 for the periods 3 and 4. Moreover, and considering the original proposal, there have been some changes in the list of e-services to be integrated into the marketplace. These modifications have arisen from causes outside of our control such as the decision of the service providers of not going on with the development or deployment of some e-services (e.g. PAIRQURS, CINDA). In addition, although all the services we are integrating were planned to be part of the LifeWatch ERIC catalog in the near term, this action is still pending. In any case, all the services considered are directly related to LifeWatch, since their ownership belongs to entities that have signed the Joint Research Unit LifeWatch Spain (JRU LW.ES) agreement. This is the case for the Institute of Physics of Cantabria – Spanish National Research Council (IFCA-CSIC), and University of Granada (UGR). Founded in 2014, the JRU LW.ES represents the Spanish National Node supporting LW ERIC. It brings together several organizations and institutions carrying out research, development and innovation activities in biodiversity, supporting knowledge-based strategic solutions for environmental preservation. On the other hand, it is been a while since the Global Biodiversity Information Facility (GBIF) and the e-infrastructure LifeWatch ERIC started conversations for establishing a close and fruitful relationship between them. At present, both organizations work on the definition of a collaboration agreement that satisfies both parts. In the framework of the EOSC-hub project, this willingness is evidenced by the integration of the GBIF Spain (GBIF.ES) services into the EOSC-hub marketplace under the umbrella of LifeWatch thematic services (although none of GBIF.ES's or GBIF's services are part of the LifeWatch ERIC's catalog currently). Therefore, considering all the above, and as part of our commitments in the WP13, metrics of the following services will be provided: • Glacier Lagoons of Sierra Nevada ("Lagunas de Sierra Nevada") (University of Granada - UGR): web focused on citizen collaboration and bio-conservation. • Plant Classification (Institute of Physics of Cantabria - IFCA - CSIC): It has been built a large-scale plant classification algorithm based on the ResNet convolutional neural network architecture. This tool can definitely open the field to active contributions of non-expert users including citizen scientists. • Global Biodiversity Information Facility (GBIF Spain) data access under biogeographic context provides access with advanced facets to GBIF biodiversity data under a biogeographic context. It provides 8 different services: Collections, Species, Species List, Space Portal, Regions, eLearning, Occurrences and Images. • Remote Monitoring and Smart Sensing (Institute of Physics of Cantabria - IFCA - CSIC) is a webserver designed to cover the entire process of working with Sentinel data products.
Task	T13.1.7

URL	http://deep.ifca.es/plants/ https://remote-sensing.ifca.es/hub/login https://lagunasdesierranevada.es/ https://elearning.gbif.es/ https://registros.gbif.es/ https://colecciones.gbif.es/ https://imagenes.gbif.es/ https://regiones.gbif.es/ https://auth.gbif.es/ https://especies.gbif.es/
Service Category	Thematic Services
Service Catalogue	https://marketplace.eosc-portal.eu/services/lifewatch-eric-plants-identification-app https://marketplace.eosc-portal.eu/services/remote-monitoring-and-smart-sensing https://marketplace.eosc-portal.eu/services/lagunas-de-sierra-nevada-glacier-lagoons-of-sierra-nevada https://marketplace.eosc-portal.eu/services/e-learning-platform-of-gbif-spain https://marketplace.eosc-portal.eu/services/gbif-spain-occurrence-records https://marketplace.eosc-portal.eu/services/gbif-spain-collections-registry https://marketplace.eosc-portal.eu/services/gbif-spain-images-portal https://marketplace.eosc-portal.eu/services/gbif-spain-regions-module https://marketplace.eosc-portal.eu/services/gbif-spain-spatial-portal https://marketplace.eosc-portal.eu/services/gbif-spain-species-portal
Location	Seville(ES)
Duration	M19-M39
Modality of access	Glacier Lagoons of Sierra Nevada will be provided as citizen open science tool. Plant Classification will be provided as citizen open science tool. GBIF Spain Data access under biogeographic context will be provided in wide access: users can freely access to data and services. Remote Monitoring and Smart Sensing will be free access for academic researchers under request.
Support offered	It is planned to organise training events and workshops as needed. A set of manuals and video tutorials will be available for some of the services
Operational since	2020

3.36.1 Definitions

User: A user is a person making use of at least one of our thematic services (TS); not all the TS implies user registration

3.36.2 Metrics

3.36.2.1 Remote Monitoring and Smart Sensing

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M19-M26	Period 4 M27-M39
Usage: computational resources	Not applicable	Data provided by IFCA-CSIC	Not applicable	Not applicable	CPUs: 20 RAM: 244 GB STORAGE: 5 TB	CPUs: 20 RAM: 244 GB STORAGE: 5 TB
Number of the countries reached	0	Extract from the internal database	Not applicable	Not applicable	Not applicable	10
Satisfaction	not applicable	From WP4	Not applicable	Not applicable	Not applicable	Not applicable
Marketplace views	not applicable	Google analytics (from Marketplace)	Not applicable	Not applicable	0	77
Marketplace Orders	not applicable	from Marketplace	Not applicable	Not applicable	0	0

3.36.2.2 Plant Classification

Metric name	Baseline	Define how measurement is done	Period 1 M1-M8	Period 2 M9-M17	Period 3 M19-M26	Period 4 M27-M39

# of users: number of unique users (without accounts)	Not applicable	Counting unique IPs	Not applicable	Not applicable	3059	6297
Usage: computational resources	Not applicable	Number of Jobs	Not applicable	Not applicable	CPUs: 2 RAM: 4 GB STORAGE: 25 GB	CPUs: 2 RAM: 4 GB STORAGE: 25 GB
Number of the countries reached	0	Extract from the internal database	Not applicable	Not applicable	14	18
Satisfaction	not applicable	From WP4	Not applicable	Not applicable	Not applicable	Not applicable
Marketplace views	not applicable	Google analytics (from Marketplace)	Not applicable	Not applicable	0	53
Marketplace Orders	not applicable	from Marketplace	Not applicable	Not applicable	0	0

3.36.2.3 GBIF Spain Data Portal Services (without e-Learning)

Metric name	**Baseline**	**Define how measurement is done**	**Period 1 M1-M8**	**Period 2 M9-M17**	**Period 3 M19-M26**	**Period 4 M27-M39**
# of users: Number of users accounts	Not applicable	Number of users registered (number of accounts)	Not applicable	Not applicable	5591	7362
# of users: number of unique users (without accounts)	Not applicable	Counting unique IPs:	Not applicable	Not applicable	8772	11943
Usage: Amount of data stored	Not applicable		Not applicable	Not applicable	5.9 TB	6.2 TB

Usage: computational resources	Not applicable	Data provided by GBIF.ES	Not applicable	Not applicable	Each service in the GBIF.es Data Portal has their own computational resources: Images Portal CPUs: 4 RAM: 6.6 GB STORAGE: 391 GB Regions module CPUs: 4 RAM: 7.1 GB STORAGE: 53 GB Collections registry CPUs: 2 RAM: 3.8 GB STORAGE: 116 GB Spatial Portal CPUs: 16 RAM: 28 GB STORAGE: 169 GB Species Portal CPUs: 4 RAM: 7.1 GB STORAGE: 53 GB	Each service in the GBIF.es Data Portal has their own computational resources: Images Portal CPUs: 4 RAM: 6.6 GB STORAGE: 391 GB Regions module CPUs: 4 RAM: 7.1 GB STORAGE: 53 GB Collections registry CPUs: 2 RAM: 3.8 GB STORAGE: 116 GB Spatial Portal CPUs: 16 RAM: 28 GB STORAGE: 169 GB Species Portal CPUs: 4 RAM: 7.1 GB STORAGE: 53 GB
Number of the countries reached	14	Extract from the internal database	Not applicable	Not applicable	Not applicable	Not applicable
Satisfaction	not applicable	From WP4	Not applicable	Not applicable	Not applicable	Not applicable

Marketplace views	not applicable	Google analytics (from Marketplace)	Not applicable	Not applicable	gbif-spain-collections-registry 0 gbif-spain-images-portal 0 gbif-spain-occurrence-records 17 gbif-spain-regions-module 2 gbif-spain-spatial-portal 0 gbif-spain-species-lists 0 gbif-spain-species-portal 0	gbif-spain-collections-registry 15 gbif-spain-images-portal 31 gbif-spain-occurrence-records 21 gbif-spain-regions-module 26 gbif-spain-spatial-portal 50 gbif-spain-species-lists 26 gbif-spain-species-portal 35
Marketplace Orders	not applicable	from Marketplace	Not applicable	Not applicable	gbif-spain-collections-registry 0 gbif-spain-images-portal 0 gbif-spain-occurrence-records 0 gbif-spain-regions-module 0 gbif-spain-spatial-portal 0 gbif-spain-species-lists 0 gbif-spain-species-portal 0	gbif-spain-collections-registry 0 gbif-spain-images-portal 0 gbif-spain-occurrence-records 0 gbif-spain-regions-module 0 gbif-spain-spatial-portal 0 gbif-spain-species-lists 0 gbif-spain-species-portal 0

3.36.2.4 GBIF Spain e-Learning Office

Metric name	**Baseline**	**Define how measurement is done**	**Period 1 M1-M8**	**Period 2 M9-M17**	**Period 3 M19-M26**	**Period 4 M27-M39**
# of users: Number of users accounts	Not applicable	Number of users registered (number of accounts)	Not applicable	Not applicable	798	1001
# of users: number of unique users (without accounts)	Not applicable	Counting unique IPs:	Not applicable	Not applicable	5230	4956
Usage: computational resources	Not applicable	Data provided by GBIF.ES	Not applicable	Not applicable	CPUs: 4 RAM: 12 GB STORAGE: 64 GB	CPUs: 4 RAM: 12 GB STORAGE: 64 GB
Number of the countries reached	14	Extract from the internal database	Not applicable	Not applicable	Not applicable	Not applicable

Satisfaction	not applicable	From WP4	Not applicable	Not applicable	Not applicable	Not applicable
Marketplace views	not applicable	Google analytics (from Marketplace)	Not applicable	Not applicable	9	60
Marketplace Orders	not applicable	from Marketplace	Not applicable	Not applicable	0	0

3.36.2.5 Glacier Lagoons of Sierra Nevada

Metric name	**Baseline**	**Define how measurement is done**	**Period 1 M1-M8**	**Period 2 M9-M17**	**Period 3 M19-M26**	**Period 4 M27-M39**
# of users: Number of users accounts	Not applicable	Number of users registered (number of accounts). This is done through a simple PHP function that returns the number of registered users based on a range of dates provided. This is only accessible to the web administrator	Not applicable	Not applicable	93	401
# of users: number of unique users (without accounts)	Not applicable	Counting unique IPs. These measures are obtained through Google Analytics	Not applicable	Not applicable	3822	4680
Usage: Amount of data stored	Not applicable	Data stored measured by Lifewatch-ERIC servers for a proper TS performance	Not applicable	Not applicable	47 GB	47 GB

Usage: Computation resources	Not applicable	How many resources computational and storage are being used?	Not applicable	Not applicable	Our equipment is currently pending renovation, but at the moment they consist of two Dell PowerEdge R610 servers (8 CPUs x 2.26 GHz - 32Gb RAM). In addition to we also have a DataStore. These are the equipment on which the VM is deployed: - 1 CPU - 2 Gb RAM - 102 Gb of provisioned Storage (47 Gb Used)	Our equipment is currently pending renovation, but at the moment they consist of two Dell PowerEdge R610 servers (8 CPUs x 2.26 GHz - 32Gb RAM). In addition to we also have a DataStore. These are the equipment on which the VM is deployed: - 1 CPU - 2 Gb RAM - 102 Gb of provisioned Storage (47 Gb Used)
Number of the countries reached	14		Not applicable	Not applicable	47	82
Satisfaction	not applicable	From WP4	Not applicable	Not applicable	Not applicable	Not applicable
Marketplace views	not applicable	Google analytics (from Marketplace)	Not applicable	Not applicable	0	47
Marketplace Orders	not applicable	from Marketplace	Not applicable	Not applicable	0	0

3.36.3 Scientific publications

Reporting period	List of references

Period 1	Not applicable
Period 2	Not applicable
Period 3	GBIF Spain 1. Ramírez-Valiente, J. A., López, R., Hipp, A. L., & Aranda, I. (2019). Correlated evolution of morphology, gas exchange, growth rates and hydraulics as a response to precipitation and temperature regimes in oaks (Quercus). New Phytologist. 2. Pappalardo, P., Morales-Castilla, I., Park, A. W., Huang, S., Schmidt, J. P., & Stephens, P. R. (2020). Comparing methods for mapping global parasite diversity. Global Ecology and Biogeography, 29(1), 182-193. 3. Rodríguez-Merino, A., Fernández-Zamudio, R., García-Murillo, P., & Muñoz, J. (2019). Climatic Niche Shift during Azolla filiculoides Invasion and Its Potential Distribution under Future Scenarios. Plants, 8(10), 424. 4. Mezghani, N., Khoury, C. K., Carver, D., Achicanoy, H. A., Simon, P., Flores, F. M., & Spooner, D. (2019). Distributions and conservation status of carrot wild relatives in Tunisia: A case study in the western Mediterranean basin. Crop Science, 59(6), 2317-2328. 5. Exposito-Alonso, M., Burbano, H. A., Bossdorf, O., Nielsen, R., & Weigel, D. (2019). Natural selection on the Arabidopsis thaliana genome in present and future climates. Nature, 573(7772), 126-129. Remote Monitoring and Smart Sensing 1. Cesini, D., Donvito, G., Costantini, A., Gomez, F. A., Duma, D. C., Fuhrmann, P., ... & Dell'Agnello, L. (2019). Advancements in data management services for distributed e-infrastructures: the eXtreme-DataCloud project. In EPJ Web of Conferences (Vol. 214, p. 04044). EDP Sciences.
Period 4	IFCA-CSIC 1. Aguilar, F. (2020). DataCloud infrastructure to manage FAIR environmental data. Journal of Instrumentation, 15(04), C04009–C04009. https://doi.org/10.1088/1748-0221/15/04/C04009

3.36.4 Dissemination

Reporting period	Communication activities	Outreach to new users	Trainings
Period 1	Not applicable	Not applicable	Not applicable
Period 2	Not applicable	Not applicable	Not applicable

Period 3	Glacier Lagoons of Sierra Nevada. European Researchers' Night promotional video https://www.youtube.com/watch?v=-IvQBg9N1ZU&feature=youtu.be%2F Boat sampling on the Genil River. European Researchers' Night. https://lanochedelosinvestigadores.fundaciondescubre.es/actividades/muestreo-en-barca-en-el-rio-genil/ The best pictures of the Sierra Nevada lagoons. El Independiente de Granada http://www.elindependientedegranada.es/economia/mejores-fotos-lagunas-sierra-nevada This is the bottom of the Sierra Nevada lagoons. El Independiente de Granada https://www.elindependientedegranada.es/economia/asi-es-fondo-lagunas-sierra-nevada Photographic and informative exhibition on the lagoons of Sierra Nevada. Faculty of Science of the UGR. https://www.ugr.es/visitantes/agenda-cultural/exposicion-fotografica-lagunas-sierra-nevada	Glacier Lagoons of Sierra Nevada Photography Contest https://lagunasdesierranevada.es/participa/premios-2019/	3 September 2019 - XV GBIF.ES Workshop on Ecological Niches Modelling https://www.gbif.es/talleres/xv-taller-gbifes-modelizacion-nichos-ecologicos/ October 2019 - II Workshop GBIF.ES online: Handling, visualization and analysis of data in ecology with R (initiation level) https://www.gbif.es/talleres/ii-taller-online-r-en-ecologia-iniciacion/ 21 January 2020 (Barcelona) - GBIF.ES Workshop: Use and management of the GBIF global and national portals https://www.gbif.es/talleres/portales-datos-diba/ 5 March 2020 - Glacier Lagoons of Sierra Nevada video tutorial https://www.youtube.com/watch?v=9ChLWq9C490&feature=youtu.be
Period 4	1. GBIF.es. The New Living Atlases Community. https://biss.pensoft.net/article/59276/ 2. GBIF.es. Remote Support Sessions Help Living Atlas Developers Deploy Data Portal. https://biss.pensoft.net/article/59275/ 3. GBIF.es. Aligning GBIF and the Atlas of Living Australia. https://biss.pensoft.net/article/59274/ 4. IFCA. Remote Monitoring and Smart Sensing. Complete Python package to monitor water quality using remote sensing. https://submit.geopython.net/ml2020/talk/9VLFJM/	1. Glacier Lagoons of Sierra Nevada. 'I Sierra Nevada Lagoons conference'. https://lagunasdesierranevada.es/i-jornadas/	1. 5th March 2020 - Glacier Lagoons of Sierra Nevada video tutorial https://www.youtube.com/watch?v=9ChLWq9C490&feature=youtu.be 2. October 2020 - GBIF.ES online Workshop on the Management, Visualization and Analysis of Ecological Data by using R software (beginner level) - III 3. 12th November 2020 - Webinar GBIF.ES: Publication of biodiversity data through GBIF. An invitation to the business sector