EUROPEAN OPEN SCIENCE CLOUD

Service/Resource Description Templates & Classifications for the EOSC

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Document Revision History

Date	Version	Summary of main changes/Status
30.09.2017	V1.00	First public version
13.03.2018	V1.10	1. Deleted Attributes (Service Full Name, Service Provider Description) 2. Change of Attribute Names (Target Users, User Value, User Base, Service Symbol, Service Multimedia) 3. Change of Attribute Block (Service Provider Name) 4. Changes of Attribute Format (Service ID, Service Name, Service Tagline, Service Description, Service Options, User Base, Service Version, Service Change Log, Service Life Cycle Status, Service TRL, Service Category, Service Subcategory, Required Services, Related Services) 5. Redefined Service Level Targets and Performance Information Block
26.06.2018	V1.11	1. New Subcategories in Category (Compute, Storage, Data, Security, Consulting) 2. Update of Examples in Attributes (Service Order, Service Helpdesk, Service User Manual, Service Training Information, Service Feedback)
31.07.2018	V1.12	1. New Service Category (Aggregator) 2. Deleted Subcategories in Category (Application, Data) 3. Update of Examples in Attributes (Service Life Cycle Status, Service TRL, Service Place, Required Services, Related Services, Service Price, Service Funding) 4. Update of Recommendations in Attributes (Service Name, Target Users, Service Symbol, Service Multimedia, Service Valid For, Service Life Cycle Status, Service TRL, Service Category, Service Subcategory, Required Services, Related Services, Service Funding, Service Level Agreement) 5. Redefined Service Level Targets and Performance Information Block
16.07.2019	V2.00	1. New Sections added (Provider Description, Option Description). Service Level Target Description became a separate section. 2. New Blocks under the Service-Resource Description section (Maturity Information, Contact Information) 3. New Attributes added (Use Cases, Scientific Domain, Scientific Subdomain, Supercategory, Access Type, Access Mode, Certifications, Standards, Order Type, Privacy Policy, Access Policy, Payment Model, Pricing, Monitoring Maintenance, Owner Name, Owner Contact, Support Name, Support Contact, Security Name, Security Contact) 4. Extended and updated Service Classification, providing Lists of Controlled Values for the attributes: Scientific Domain & Subdomain, Category & subcategory, Target Users, Language, Place, Access Type, Access Mode, Funded by, Phase, TRL, Order Type 5. New Types of attributes: Controlled Values (see Updated Classification Appendix), String (max characters), Option ID 6. Multiple values allowed for additional attributes: User Base, Use Cases, Multimedia, Options, Provider Name, Scientific Domain, Scientific Subdomain, Category, Subcategory, Access Type, Access Mode, Certifications, Standards

Definitions

Short name	Definition
Service	The means or a process that organisations use to deliver results that Users/Customers value and wish to achieve. These results are usually intangible although they may also include tangible elements. Services require instantiation by a Service Provider. Services include networking, compute, data & material storage, training, consultancy, etc.
Resource	Any physical or digital asset or infrastructure made available to Users/Customers. Resources are generally tangible elements and most of the times do not require an instantiation. Resources include instruments, data(sets), software, applications, samples, etc.
RI Service/Resource	Services and Resources provided by Research Infrastructures. They include among others access to and use of facilities and instruments, users support and training and other activities and resources that the RIs deliver to Users/Customers.
Physical RI Service/Resource	RI Services and Resources that rely on the access to or use of a physical facility or instrument.
Service/Resource Provider	An organisation, a part of an organisation or a federation that manages and delivers Services and Resources to Users/Customers.
Catalogue	The customer-facing list of all current Services and Resources that can be requested by Users along with relevant information about these Services and Resources. It is a subset of the Portfolio.
Portfolio	An internal list that details all the Services and Resources offered by a Service/Resource Provider, including those in preparation, live and discontinued.
EOSC Portal	An online service implementing a web portal facilitating the access to and use of all live Services/Resources.
Portal (End-)User	Individual that primarily benefits from and uses the Portal.
Customer	An individual or organisation or a part of an organisation that commissions a Service/Resource or a Provider to deliver a Service/Resource.
Service/Resource Request	A user request for information, advice and access to a Service/Resource.
Portal Operator	The organisation responsible for supplying one or more components of the Portal.

Acronyms

Abbreviation	Meaning
API	Application Programming Interface
COBIT	Control Objectives for Information and related Technologies
CoS	Catalogue of Services/resources
EC	European Commission
e-IRG	e-Infrastructure Reflection Group
EOSC	European Open Science Cloud
ERA	European Research Area
ESFRI	European Strategic Framework for Research Infrastructure
HPC	High Performance Computing
IT	Information Technology
ITIL	Information Technology Infrastructure Library
ITSM	IT Service Management
NGI	National Grid Initiative
NOAD	National Open Access Desk
NREN	National Research and Education Network
RI	Research Infrastructure
SDT	Service Description Template
SLA	Service Level Agreement
SP	Service/Resource Provider
TRL	Technology Readiness Level

Table of Contents

List of Tables

List of Figures

1. Introduction

The European Open Science Cloud (EOSC) initiative is established to address the historical lack of a single online catalogue of Services and Resources that potential users could explore across Europe.

Many European Research Infrastructures and Service/Resource Providers have had their own public catalogues; many others were at very early stages of developing their catalogue; they were following diverse standards, frameworks and approaches; some described their services with varying level of detail and complexity, while others had no discoverable or accessible paths to their service and resource offerings.

A services and resources Catalogue aims to present in a well-organised manner the available services and resources that are on offer to a user/customer by a provider. It is the customer-facing list of all services and resources offered. Similarly, to labels on goods or products, containing information on the good as well as pricing, services/resources and their attributes should be explained in a clear and structured manner to guide the user to find the right service/resource.

The development and implementation of a Catalogue is an essential step towards the transformation from technology-oriented organisations into service-oriented organisations. It is a means to communicate and provide clarity to users/customers about the services available to them, to help improve customer relations by sharing information and managing customer expectations.

The eInfraCentral project recognised early enough that a common approach to describing (Goal-1) and exchanging (Goal-2) service-related information is the way forward to enhance discoverability and thus potential uptake of services and use of available scientific resources around Europe and beyond. eInfraCentral worked on this harmonisation in partnership with five key e-infrastructures: GÉANT, OpenAIRE, PRACE, EGI and EUDAT. The approach was to extend best practices followed independently and to enable the harmonisation of service descriptions in a single, common catalogue.

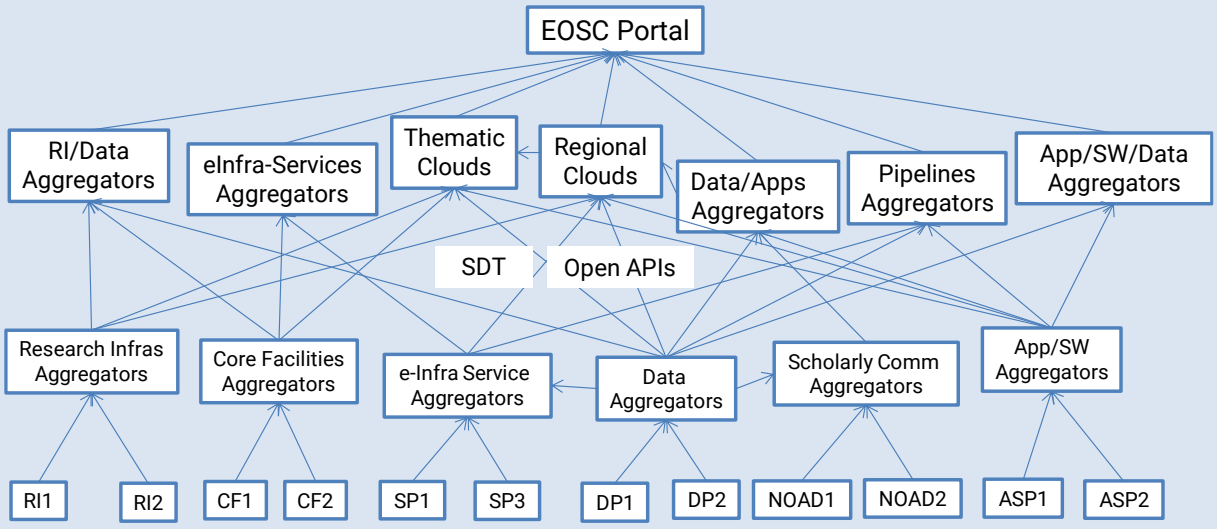

Figure 1: The EOSC ecosystem[1]

[1] Note: App/SW/Data = Applications/Software/Data; App/SW = Applications/Software; RI = Research Infrastructures; CF = Core Facility; SP = Service Provider; DP = Data Provider; NOAD = National Open Access Desk; ASP = Application Software Provider. Source: JNP, eInfraCentral project.

Goal-1 was addressed by the Service/Resource Description Template (SDT)[2] that is widely adopted as the de facto standard scheme for the representation of service-related information in the EOSC Catalogue.

Goal-2 was addressed by a rich set of Open REST API methods for the exchange of information from service and resource providers that complements the SDT. The open APIs include methods and mechanisms for data acquisition (resource metadata, indicators, usage, etc.) from federated catalogues, to enable a seamless synchronisation of content.

Thus, as depicted in Figure 1, the EOSC ecosystem's resource-specific aggregators (data, apps, instruments, etc.) will feed higher-level aggregators (thematic, regional clouds, physical or digital RIs), all of which will in turn allow for the aggregated European Open Science Cloud Portal.

This approach gave fruits with the launch of the eInfraCentral Portal in 2017 and later on the EOSC-hub Portal and finally the EOSC Portal on November 2018.

Following intensive work and the strong community engagement of European e-Infrastructures, the eInfraCentral project developed the first version of the SDT and Service Classification in September 2017, an updated version of which (v1.12) was used at the launch of the EOSC Portal. The Service/Resource Description Template (SDT) and Service Classification constitute important pillars to materialise the EOSC vision and it is now widely adopted as the standard scheme for the representation of service-related information in the EOSC Catalogue.

This work is currently being extended within the EOSC Portal Collaboration Agreement of eInfraCentral, EOSC-hub and OpenAIRE-Advance. CatRIS is currently extending this work on harmonizing the access and presentation of services and resources offered by Research Infrastructures (RIs), Core Facilities (CFs) and Shared Scientific Resources (SSRs).

In more detail, the DTs organise service and resources-related information into blocks to allow Service Providers to conceptualise the service/resource management processes and move progressively from basic to more complex functions.

The DTs currently include four different description templates, each addressing a different phase of the registration, update, maintenance and monitoring processes of a service/resource by a provider, as elaborated in Figure 2.

- The **Service/Resource Provider Description Template** is used during the first step of the registration process (after the Service/Resource Provider Manager or the Service/Resource Manager logins as an Authenticated User) and is described in detail in Chapter 2.
- The **Service/Resource Description Template** is employed during the second step of the registration process. Following the registration of the Provider, the Manager may register its services/resources by completing this template; it is described in detail in Chapter 3.
- The **Service/Resource Option Description Template** is used during the third step of the registration process. At this section, the Manager may make available different options (instantiations) offered for a specific service/resource registered; it is described in detail in Chapter 4.
- The **Service/Resource Performance Description Template** is used for the provider to report performance-level indicators relevant to the service/resource. This template is not filled mandatorily at the registration process but may be used at a later stage on provider's initiative to offer to users/customers a view of various performance aspects of the service/resource; it is described in detail in Chapter 5.

Each of these DTs should have their respective separate online interfaces that will allow a Manager to keep them up to date at the Portal.

The DTs provide definition of their attributes, their format/type (if any) and multiplicity, as well as whether the attribute is mandatory or optional for the implementation of a number of features in a common catalogue.

[2] https://github.com/eInfraCentral/docs

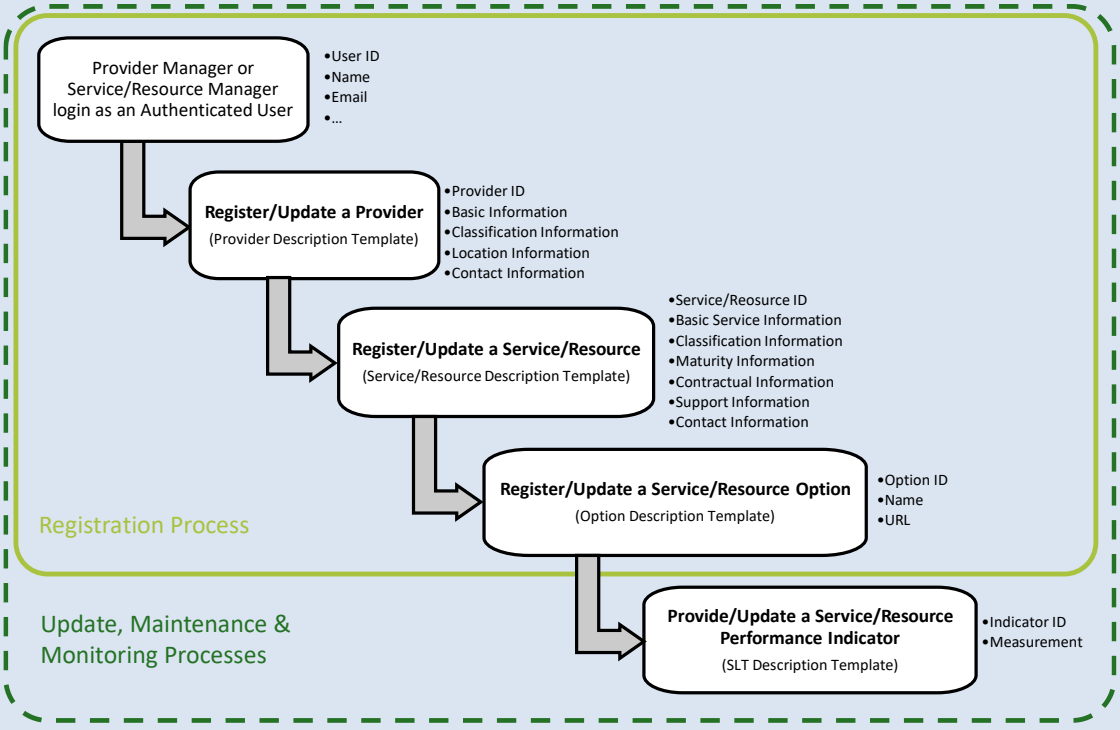

Figure 2: An overview of the EOSC Catalogue Registration, Update, Maintenance & Monitoring process

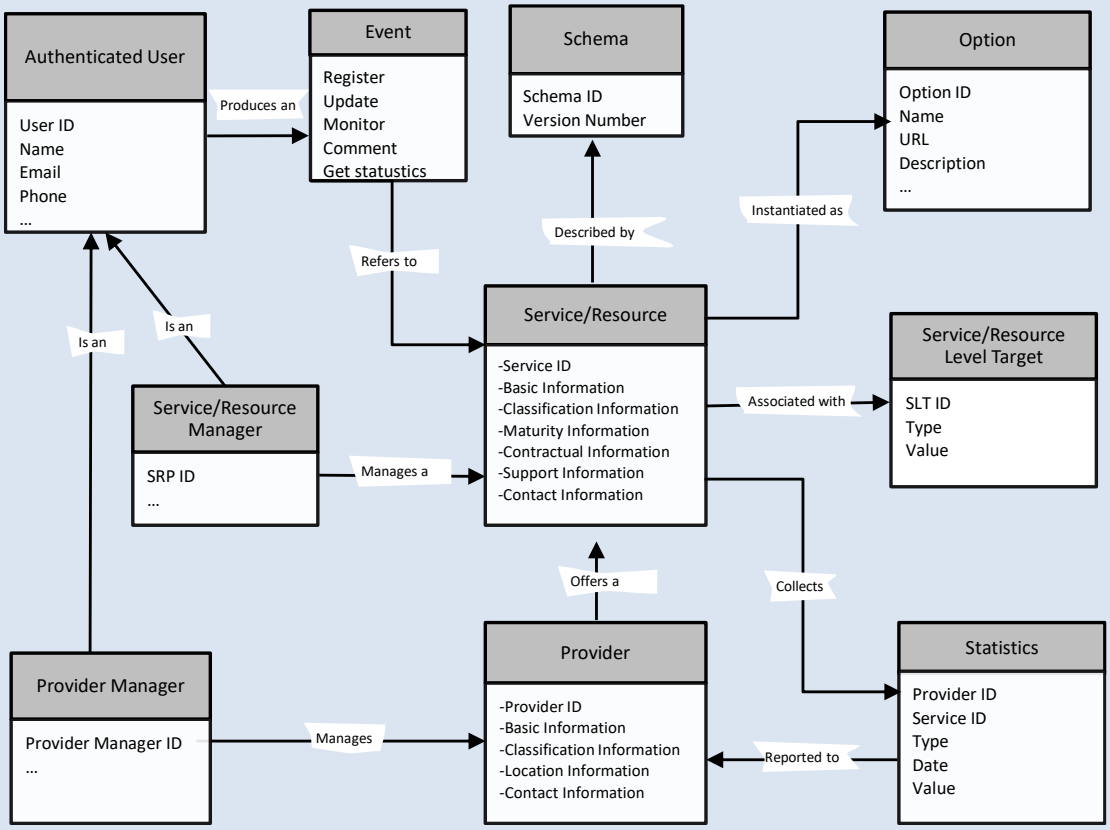

Figure 3: An overview of the EOSC Catalogue data model

The current version of the DTs, are available online at Github. It is an evolving standard, which will incorporate new features from onboarding RIs and e-infrastructures in the EOSC ecosystem as they emerge.

Complementing the DTs, the related Provider and Service/Resource Classifications, have been developed to provide a structured classification of services-resources and a harmonized way in the description of various DT attributes. It also constitutes the basis for the structure and the filtering functions of an EOSC Catalogue. The classifications are included in Chapter 6.

As shown in Figure 3, the main building block within the data model is the Service/Resource. A service/resource is identified by a persistent unique ID, which is generated by the Portal during service/resource registration. Furthermore, a service is described by a set of attributes, according to the DT.

A Service/Resource is managed by a Service/Resource Manager and is provided by a Service/Resource Provider, identified by a Provider ID. A Provider is also described by a set of attributes, according to the respective DT. A Provider Manager is responsible to manage (add, update, maintain) the Provider's profile.

A Service/Resource is associated with one or more performance indicators, which are used for defining indicator measurements.

A Service/Resource is characterised by a set of usage statistics collected by the Portal and reported to the Provider (e.g. the number of visits on a service page, number of orders on the service provider page, number of favourites, average ratings, etc.).

An authenticated user is a Provider's Manager or a Service/Resource Manager who can login in the Portal and generate events for a service/resource, such as add a service, update a service, etc.

2. Service/Resource Provider Description Template

The Service/Resource Provider Description Template is used during the first step of the registration process (after the Service/Resource Provider Manager or the Service/Resource Manager logins as an Authenticated User). The Manager can always use the interface to update the Provider Description.

The information is organised in six blocks, as shown in Figure 4 and presented below:

a) **Basic Information**: basic information about a provider such as the unique service identifier in the catalogue, the name, the description, the logo, the link of the Provider (SP) website, etc.

b) **Classification Information**: information about the classification of the provider, such as the type, scientific domain, category, ESFRI domain, and tags.

c) **Maturity Information**: information about the maturity of the service/resource (Life Cycle status and Timeline).

d) **Location Information**: information about the location of the Provider, coordinating & participating countries, location name, street, number, etc.

e) **Contact Information**: information about the contact persons and position of the Provider

f) **Other Information**: information relevant to the legal status, networks, and activity of the RI.

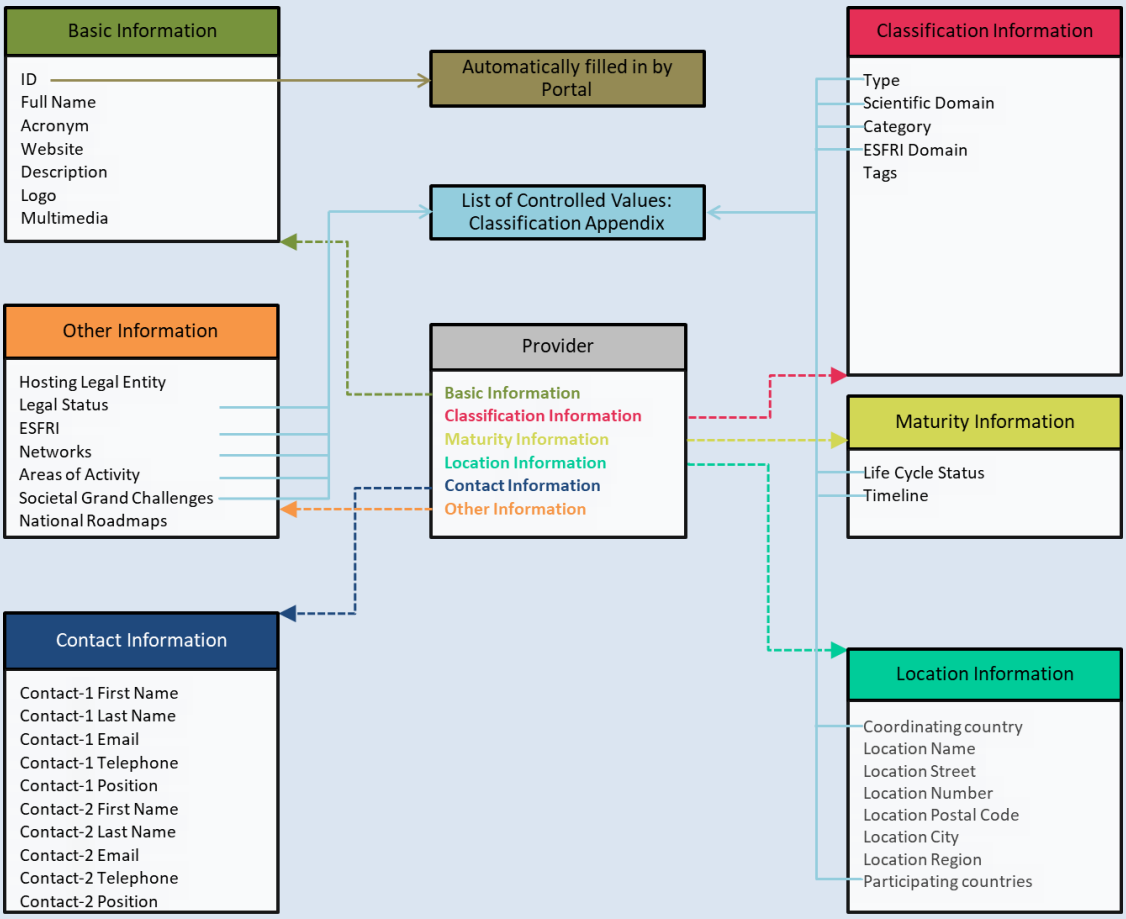

Figure 4: Building blocks of the Provider Description Template

Table 1: Service/Resource Provider Description Template

EUROPEAN OPEN SCIENCE CLOUD

Provider Description for Catalogue (Example)

Basic Information

ID	openaire
Full Name	Open Access Infrastructure for Research in Europe
Acronym	OpenAIRE
Website	https://www.openaire.eu
Description	OpenAIRE represents a pivotal phase in the long-term effort to implement and strengthen the impact of the Open Access policies of the European Commission, building on the achievements of the OpenAIRE projects. OpenAIRE support and accelerate Open Science and Scholarship, of which Open Access is of fundamental importance.
Logo	https://www.openaire.eu/images/OpenAIRE_branding/Logo_Horizontal.png
Multimedia	https://vimeo.com/108790101

Classification Information

Type	Virtual
Scientific domain	Information Science and Technology
Category	Complex Data Facilities
ESFRI Domain	Data, Computing and Digital Research Infrastructures
Tags	Open data, open science, publications, research papers

Maturity Information

Life Cycle Status	Operational

Location Information

Location Name	University of Athens
Location Street	Christou Lada Str.
Location Number	6
Location Postal Code	10561
Location City	Athens
Location Region	Attica
Coordinating Country	Greece
Participating Countries	Germany, Italy, Poland, Switzerland, Portugal, Netherlands, Belgium, Norway, Uruguay, United Kingdom, France, Austria, Bulgaria, Cyprus, Estonia, Denmark, Finland, Hungary, Iceland, Ireland, Israel, Latvia, Lithuania, Luxembourg, Malta, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Turkey, Czechia

Contact Information

Contact-1 First Name	John
Contact-1 Last Name	Smith
Contact-1 Email	john.smith@example.org
Contact-1 Telephone	+01 234 567 8901
Contact-1 Position	Coordinator
Contact-2 First Name	Jack
Contact-2 Last Name	White
Contact-2 Email	jack.white@example.org
Contact-2 Telephone	+01 234 567 8902
Contact-2 Position	Manager

Other Information

Hosting Legal Entity	OpenAIRE
Legal Status	Other (Non-Profit Partnership (NPP))
ESFRI	Not and ESFRI project or landmark
Networks	Open Access Infrastructure for Research in Europe (OpenAIRE)
Areas of Activity	Other
Societal Grand Challenges	Other
National Roadmaps	No

2.1. Basic Provider Information

2.1.1. ID

2.1.1.1. Definition

Unique identifier of the provider.

2.1.1.2. Type

URN; is set during the registration/onboarding process.

2.1.1.3. Multiplicity

One

2.1.1.4. Necessity

Mandatory

2.1.1.5. Example Value

2.1.1.6. openaire

2.1.1.7. General Recommendation

N/A

2.1.2. Full Name

2.1.2.1. Definition

Full Name of the organisation providing/offering the service/resource.

2.1.2.2. Type

String (max 80)

2.1.2.3. Multiplicity

One

2.1.2.4. Necessity

Mandatory

2.1.2.5. Example Value

2.1.2.6. Open Access Infrastructure for Research in Europe

2.1.2.7. General Recommendation

N/A

2.1.3. Acronym

2.1.3.1. Definition

Acronym or abbreviation of the provider.

2.1.3.2. Type

String (max 20)

2.1.3.3. Multiplicity

One

2.1.3.4. Necessity

Mandatory

2.1.3.5. Example Value

OpenAIRE

2.1.3.6. General Recommendation

N/A

2.1.4. Website

2.1.4.1. Definition

Webpage with information about the service/resource provider.

2.1.4.2. Type

URL

2.1.4.3. Multiplicity

One

2.1.4.4. Necessity

Mandatory

2.1.4.5. Example Value

www.openaire.eu

2.1.4.6. General Recommendation

The landing page of the organisation's website.

2.1.5. Description

2.1.5.1. Definition

The description of the provider.

2.1.5.2. Type

String (max 1000)

2.1.5.3. Multiplicity

One

2.1.5.4. Necessity

Mandatory

2.1.5.5. Example Value

2.1.5.6. OpenAIRE represents a pivotal phase in the long-term effort to implement and strengthen the impact of the Open Access policies of the European Commission, building on the achievements of the OpenAIRE projects. OpenAIRE support and accelerate Open Science and Scholarship, of which Open Access is of fundamental importance.

2.1.5.7. General Recommendation

Describe shortly the objective and background of your organisation.

2.1.6. Logo

2.1.6.1. Definition

Link to the logo/visual identity of the service/resource provider.

2.1.6.2. Type

URL

2.1.6.3. Multiplicity

One

2.1.6.4. Necessity

Mandatory

2.1.6.5. Example Value

https://www.openaire.eu/images/OpenAIRE_branding/Logo_Horizontal.png

2.1.6.6. General Recommendation

Provide a URL pointing to the organisation's logo at high quality.

2.1.7. Multimedia

2.1.7.1. Definition

Link to video, slideshow, photos, screenshots with details of the provider.

2.1.7.2. Type

URL

2.1.7.3. Multiplicity

Multiple

2.1.7.4. Necessity

Optional

2.1.7.5. Example Value

https://vimeo.com/108790101

2.1.7.6. General Recommendation

Provide a URL pointing at a high quality videos or slideshow.

2.2. Classification Information

2.2.1. Type

2.2.1.1. Definition

Defines if the Provider is single-sited, distributed, mobile, virtual, etc.

2.2.1.2. Type

List of controlled values: See Table 5: Classification of Providers based on their Type

2.2.1.3. Multiplicity

Multiple

2.2.1.4. Necessity

Mandatory

2.2.1.5. Example Value

Virtual

2.2.1.6. General Recommendation

See Classification

2.2.2. Scientific Domain

2.2.2.1. Definition

A named group of providers that offer access to the same type of resource or capabilities.

2.2.2.2. Type

List of controlled values: See Providers Scientific Domain/Category Classification

Table 6: Classification of Providers based on their Domain/Category

2.2.2.3. Multiplicity

Multiple

2.2.2.4. Necessity

Mandatory

2.2.2.5. Example Value

Information Science and Technology

2.2.2.6. General Recommendation

See Classification

2.2.3. Category

2.2.3.1. Definition

A named group of providers that offer access to the same type of resource or capabilities, within the defined category.

2.2.3.2. Type

List of controlled values: See Providers Scientific Domain/Category Classification

Table 6: Classification of Providers based on their Domain/Category

2.2.3.3. Multiplicity

Multiple

2.2.3.4. Necessity

Mandatory

2.2.3.5. Example Value

Data, Computing and Digital Research Infrastructures

2.2.3.6. General Recommendation

See Classification

2.2.4. ESFRI Domain

2.2.4.1. Definition

ESFRI domain classification.

2.2.4.2. Type

List of controlled values: See Table 7: Classification of Providers based on their ESFRI Domain

2.2.4.3. Multiplicity

Multiple

2.2.4.4. Necessity

Optional

2.2.4.5. Example Value

Data, Computing and Digital Research Infrastructures

2.2.4.6. General Recommendation

See Classification

2.2.5. Tags

2.2.5.1. Definition

Keywords associated to the Provider to simplify search by relevant keywords.

2.2.5.2. Type

String (max 20)

2.2.5.3. Multiplicity

Multiple

2.2.5.4. Necessity

Optional

2.2.5.5. Example Value

Open data, open science, repositories, research papers

2.2.5.6. General Recommendation

Add keywords on the provider's services

2.3. Maturity Information

2.3.1. Life Cycle Status

2.3.1.1. Definition

Current status of the RI life cycle.

2.3.1.2. Type

List of controlled values: See Table 8: Classification of Providers based on their Life Cycle Status

2.3.1.3. Multiplicity

One

2.3.1.4. Necessity

Mandatory

2.3.1.5. Example Value

Operational

2.3.1.6. General Recommendation

See Classification

2.4. Location Information

2.4.1. Location Name

2.4.1.1. Definition

Physical location of the Provider or its coordinating centre in the case of distributed, virtual, and mobile Providers.

2.4.1.2. Type

String (max 20)

2.4.1.3. Multiplicity

One

2.4.1.4. Necessity

Mandatory

2.4.1.5. Example Value

University of Athens

2.4.1.6. General Recommendation

N/A

2.4.2. Location Street

2.4.2.1. Definition

Physical location of the Provider or its coordinating centre in the case of distributed, virtual, and mobile Providers.

2.4.2.2. Type

String (max 20)

2.4.2.3. Multiplicity

One

2.4.2.4. Necessity

Mandatory

2.4.2.5. Example Value

Christou Lada Str

2.4.2.6. General Recommendation

N/A

2.4.3. Location Number

2.4.3.1. Definition

Physical location of the Provider or its coordinating centre in the case of distributed, virtual, and mobile Providers.

2.4.3.2. Type

String (max 20)

2.4.3.3. Multiplicity

One

2.4.3.4. Necessity

Mandatory

2.4.3.5. Example Value

6

2.4.3.6. General Recommendation

N/A

2.4.4. Location Postal Code

2.4.4.1. Definition

Physical location of the Provider or its coordinating centre in the case of distributed, virtual, and mobile Providers.

2.4.4.2. Type

String (max 20)

2.4.4.3. Multiplicity

One

2.4.4.4. Necessity

Mandatory

2.4.4.5. Example Value

10561

2.4.4.6. General Recommendation

N/A

2.4.5. Location City

2.4.5.1. Definition

Physical location of the Provider or its coordinating centre in the case of distributed, virtual, and mobile Providers.

2.4.5.2. Type

String (max 20)

2.4.5.3. Multiplicity

One

2.4.5.4. Necessity

Mandatory

2.4.5.5. Example Value

Athens

2.4.5.6. General Recommendation

N/A

2.4.6. Location Region

2.4.6.1. Definition

Physical location of the Provider or its coordinating centre in the case of distributed, virtual, and mobile Providers.

2.4.6.2. Type

String (max 20)

2.4.6.3. Multiplicity

One

2.4.6.4. Necessity

Mandatory

2.4.6.5. Example Value

Attica

2.4.6.6. General Recommendation

N/A

2.4.7. Coordinating Country

2.4.7.1. Definition

Country, which provides the coordination. In the case of distributed/virtual Providers, the country of the coordinating office (headquarters) should be selected.

2.4.7.2. Type

List of controlled values: See Table 24: Classification of Providers and services and resources based on their Location

2.4.7.3. Multiplicity

One

2.4.7.4. Necessity

Mandatory

2.4.7.5. Example Value

Greece

2.4.7.6. General Recommendation

See Classification

2.4.8. Participating Countries

2.4.8.1. Definition

Providers that are funded by several countries should list here all supporting countries (including the Coordinating country).

2.4.8.2. Type

List of controlled values: See Table 24: Classification of Providers and services and resources based on their Location

2.4.8.3. Multiplicity

Multiple

2.4.8.4. Necessity

Optional

2.4.8.5. Example Value

Germany, Italy, Poland

2.4.8.6. General Recommendation

See Classification

2.5. Contact Information

2.5.1. Contact-1 First Name

2.5.1.1. Definition

First Name of the provider's main contact person/provider manager.

2.5.1.2. Type

String (max 20)

2.5.1.3. Multiplicity

One

2.5.1.4. Necessity

Mandatory

2.5.1.5. Example Value

2.5.1.6. John

2.5.1.7. General Recommendation

N/A

2.5.2. Contact-1 Last Name

2.5.2.1. Definition

Last Name of the provider's main contact person/provider manager.

2.5.2.2. Type

String (max 20)

2.5.2.3. Multiplicity

One

2.5.2.4. Necessity

Mandatory

2.5.2.5. Example Value

2.5.2.6. Smith

2.5.2.7. General Recommendation

N/A

2.5.3. Contact-1 Email

2.5.3.1. Definition

Email of the provider's main contact person/ provider manager.

2.5.3.2. Type

Email

2.5.3.3. Multiplicity

One

2.5.3.4. Necessity

Mandatory

2.5.3.5. Example Value

John.smith@example.org

2.5.3.6. General Recommendation

N/A

2.5.4. Contact-1 Telephone

2.5.4.1. Definition

Telephone of the provider's main contact person/ provider manager.

2.5.4.2. Type

String (max 20)

2.5.4.3. Multiplicity

One

2.5.4.4. Necessity

Mandatory

2.5.4.5. Example Value

+01 234 567 8901

2.5.4.6. General Recommendation

N/A

2.5.5. Contact-1 Position

2.5.5.1. Definition

Position of the provider's main contact person/provider manager.

2.5.5.2. Type

String (max 20)

2.5.5.3. Multiplicity

One

2.5.5.4. Necessity

Optional

2.5.5.5. Example Value

Coordinator

2.5.5.6. General Recommendation

N/A

2.5.6. Contact-2 First Name

2.5.6.1. Definition

First Name of the provider's main contact person to be displayed at the portal.

2.5.6.2. Type

String (max 20)

2.5.6.3. Multiplicity

One

2.5.6.4. Necessity

Optional

2.5.6.5. Example Value

2.5.6.6. Jack

2.5.6.7. General Recommendation

N/A

2.5.7. Contact-2 Last Name

2.5.7.1. Definition

Last Name of the provider's main contact person to be displayed at the portal

2.5.7.2. Type

String (max 20)

2.5.7.3. Multiplicity

One

2.5.7.4. Necessity

Optional

2.5.7.5. Example Value

2.5.7.6. White

2.5.7.7. General Recommendation

N/A

2.5.8. Contact-2 Email

2.5.8.1. Definition

Email of the provider's main contact person to be displayed at the portal.

2.5.8.2. Type

Email

2.5.8.3. Multiplicity

One

2.5.8.4. Necessity

Optional

2.5.8.5. Example Value

jack.white@example.org

2.5.8.6. General Recommendation

N/A

2.5.9. Contact-2 Telephone

2.5.9.1. Definition

Telephone of the provider's main contact person to be displayed at the portal.

2.5.9.2. Type

String (max 20)

2.5.9.3. Multiplicity

One

2.5.9.4. Necessity

Optional

2.5.9.5. Example Value

+01 234 567 8902

2.5.9.6. General Recommendation

N/A

2.5.10. Contact-2 Position

2.5.10.1. Definition

Position of the provider's main contact person to be displayed at the portal.

2.5.10.2. Type

String (max 20)

2.5.10.3. Multiplicity

One

2.5.10.4. Necessity

Optional

2.5.10.5. Example Value

Manager

2.5.10.6. General Recommendation

N/A

2.6. Other Information

2.6.1. Hosting Legal Entity

2.6.1.1. Definition

Name of the organisation/institution legally hosting (housing) the RI or its coordinating centre. A distinction is made between: (1) RIs that are self-standing and have a defined and distinct legal entity, (2) RI that are embedded into another institution, which is a legal entity (such as a university, a research organisation, etc.). If (1) - name of the RI, If (2) - name of the hosting organisation.

2.6.1.2. Type

String (max 80)

2.6.1.3. Multiplicity

One

2.6.1.4. Necessity

Optional

2.6.1.5. Example Value

OpenAIRE

2.6.1.6. General Recommendation

N/A

2.6.2. Legal Status

2.6.2.1. Definition

For independent legal entities (1) - legal status of the Provider. For embedded Providers (2) - legal status of the hosting legal entity.

2.6.2.2. Type

List of controlled values: See Table 9: Classification of Providers based on their Legal Status

2.6.2.3. Multiplicity

One

2.6.2.4. Necessity

Optional

2.6.2.5. Example Value

Other (Non-Profit Partnership (NPP))

2.6.2.6. General Recommendation

See Classification

2.6.3. ESFRI

2.6.3.1. Definition

If the RI is (part of) an ESFRI project indicate how the RI participates: a) RI is node of an ESFRI project, b) RI is an ESFRI project, c) RI is an ESFRI landmark, d) RI is not and ESFRI project or landmark.

2.6.3.2. Type

List of controlled values: See Table 10: Classification of Providers based on their ESFRI Status

2.6.3.3. Multiplicity

One

2.6.3.4. Necessity

Optional

2.6.3.5. Example Value

Not and ESFRI project or landmark

2.6.3.6. General Recommendation

See Classification

2.6.4. Networks

2.6.4.1. Definition

Select the networks the RIs is part of.

2.6.4.2. Type

List of controlled values: See Table 11: Classification of Providers based on their Networks

2.6.4.3. Multiplicity

Multiple

2.6.4.4. Necessity

Optional

2.6.4.5. Example Value

Open Access Infrastructure for Research in Europe (OpenAIRE)

2.6.4.6. General Recommendation

See Classification

2.6.5. Areas of Activity

2.6.5.1. Definition

Basic research, Applied research or Technological development

2.6.5.2. Type

List of controlled values: See Table 12: Classification of Providers based on their Areas of Activity

2.6.5.3. Multiplicity

Multiple

2.6.5.4. Necessity

Optional

2.6.5.5. Example Value

Basic Research, Technological Development

2.6.5.6. General Recommendation

See Classification

2.6.6. Societal Grand Challenges

2.6.6.1. Definition

RI's participation in the grand societal challenges as defined by the European Commission (Horizon 2020)

2.6.6.2. Type

List of controlled values: Table 13: Classification of Providers based on their Societal Grand Challenges

2.6.6.3. Multiplicity

Multiple

2.6.6.4. Necessity

Optional

2.6.6.5. Example Value

Europe in a changing world – inclusive, innovative and reflective societies

2.6.6.6. General Recommendation

See Classification

2.6.7. National Roadmaps

2.6.7.1. Definition

Is the RI featured on the national roadmap for research infrastructures?

2.6.7.2. Type

List of controlled values: Yes/No

2.6.7.3. Multiplicity

One

2.6.7.4. Necessity

Optional

2.6.7.5. Example Value

No

2.6.7.6. General Recommendation

N/A

3. Service/Resource Description Template

The Service/Resource Description Template is employed during the second step of the registration process. Following the registration of the Provider, the Manager may register its services/resources by completing this template. The Manager can always run back to update the description of its services-resources offered.

Service and resources-related information are organised into six blocks, as shown in Figure 5 and presented below:

a) **Basic Information**: basic information about a service/resource such as the unique service identifier in the catalogue, the name, the description, the logo, the link to further information at the Service Provider (SP) site, etc.
b) **Classification Information**: information about the classification of the service/resource, such as the target users, category, scientific domain, language, places offered, tags, etc.
c) **Maturity Information**: information about the maturity of the service/resource, such as the phase, technology readiness level (TRL), certifications, etc.
d) **Contractual Information**: information about the contractual aspects of a service/resource, such as order type, service level agreement (SLA), terms of use, privacy policy, access policy, pricing, etc.
e) **Support Information**: support information for users, such as links to the service/resource manual, related training, helpdesk, etc.
f) **Contact information**: names, emails of key contacts at the provider that can support users with the service/resource.
g) **Other information**: required and related services, etc.

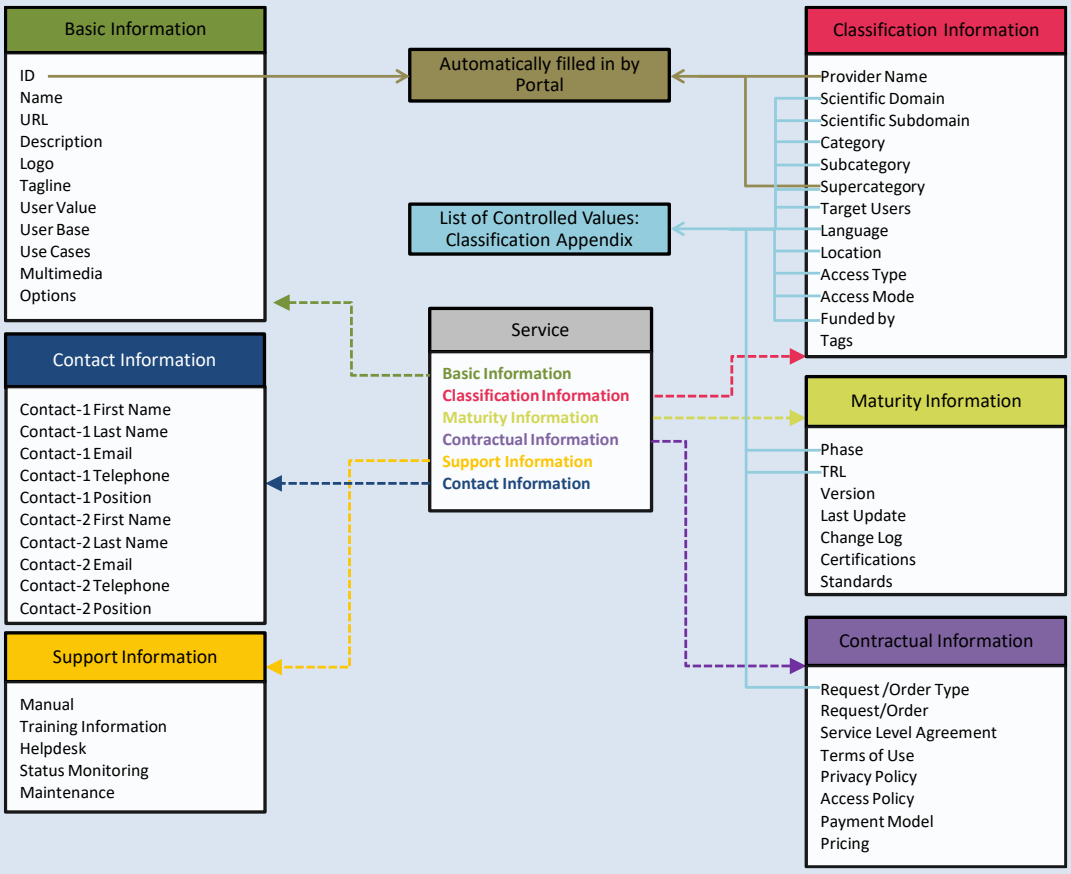

Figure 5: Building Blocks of the Service/Resource Description Template

Table 2: Service/Resource Description Template

EUROPEAN OPEN SCIENCE CLOUD

Service/Resource Description for Catalogue (Example)

Basic Information

ID	eosc.cern-openaire.zenodo
Name	Zenodo
Webpage	https://www.zenodo.org
Description	Zenodo is a general-purpose repository that enables researchers, scientists, projects and institutions to share, preserve and showcase multidisciplinary research results (data, software and publications) that are not part of the existing institutional or subject-based repositories of the research communities.
Logo	https://www.openaire.eu/images/service_images/Zenodo.png
Multimedia	https://zenodo.org/record/802100#.XPdcGo9S-bI
Tagline	A catch-all repository
User Value	Enables everyone to participate in Open Science.
User Base	Used by more than 50K researchers and 3K communities all over the world.
Use Cases	FP7 and H2020 Outputs, Outputs from or related to the Confederation of Open Access Repositories (COAR), Helix Nebula, etc.
Options	-
Endpoint	-

Classification Information

Provider Name	OpenAIRE, CERN
Scientific Domain	Interdisciplinary
Scientific Subdomain	Interdisciplinary
Category	Aggregators & Integrators
Subcategory	Software & Data
Target Users	Researchers, Research group, Research community, Research project, Research manager, Research organization, Innovators, Business
Language	English
Location	World
Access Type	Virtual
Access Mode	Free
Funded by	European Commission, CERN, Alfred P. Sloan Foundation.
Tags	Open Science, data, dataset, data archive, library, repository

Maturity Information

Phase	Production
Technology Readiness Level	TRL 9 - Actual system proven in operational environment

Version	v2.0
Last Update	31/12/2018
Change Log	The changelog and roadmap are maintained at https://help.zenodo.org/whatsnew/ and https://about.zenodo.org/roadmap/
Certifications	-
Standards	ISO 15430

Contractual Information

Order Type	Fully open access
Order	https://www.zenodo.org
Service Level Agreement	http://about.zenodo.org/principles/
Terms Of Use	http://about.zenodo.org/terms/
Privacy Policy	http://about.zenodo.org/privacy-policy/
Access Policy	https://about.zenodo.org/policies/
Payment Model	http://about.zenodo.org/principles/
Pricing	http://about.zenodo.org/principles/

Support Information

User Manual	https://www.openaire.eu/zenodo-guide
Admin Manual	-
Training Information	https://help.zenodo.org/
Helpdesk	https://www.openaire.eu/support/helpdesk
Status Monitoring	https://status.zenodo.org/
Maintenance	https://blog.zenodo.org/

Contact Information

Contact-1 First Name	John
Contact-1 Last Name	Smith
Contact-1 Email	john.smith@example.org
Contact-1 Telephone	+01 234 567 8901
Contact-1 Position	Coordinator
Contact-2 First Name	Jack
Contact-2 Last Name	White
Contact-2 Email	jack.white@example.org
Contact-2 Telephone	+01 234 567 8902
Contact-2 Position	Manager

Other Information

Required Services	eosc.cern-openaire.service
Related Services	openaire.amnesia

3.1. Basic Service Information

3.1.1. ID

3.1.1.1. Definition

A global unique and persistent identifier of the service/resource.

3.1.1.2. Type

URN; is set during the registration/onboarding process.

3.1.1.3. Multiplicity

One

3.1.1.4. Necessity

Automatically filled in by the Portal

3.1.1.5. Example Value

3.1.1.6. openaire.zenodo

3.1.1.7. General Recommendation

The first part denotes the Service/Resource Provider and the second part the unique identifier of the service/resource.

3.1.2. Name

3.1.2.1. Definition

Brief and descriptive name of service/resource as assigned by the service/resource provider.

3.1.2.2. Type

3.1.2.3. String (max 80)

3.1.2.4. Multiplicity

One

3.1.2.5. Necessity

Mandatory

3.1.2.6. Example Value

B2DROP

3.1.2.7. General Recommendation

Should be descriptive from a customer point of view and should be quite simple, such that someone non-technical is able to understand what the service/resource is about. This attribute will be used in the search function to prioritise results.

3.1.3. Webpage

3.1.3.1. Definition

Webpage with information about the service/resource usually hosted and maintained by the service/resource provider.

3.1.3.2. Type

URL

3.1.3.3. Multiplicity

One

3.1.3.4. Necessity

Mandatory

3.1.3.5. Example Value

http://www.service-provider.eu/service-name or http://service-name.service-provider.eu

3.1.3.6. General Recommendation

Create a unique URL for each service/resource and provide the shortest possible alias

3.1.4. Description

3.1.4.1. Definition

A high-level description in fairly non-technical terms of what the service/resource does, functionality it provides and resources it enables to access.

3.1.4.2. Type

String (max 1000)

3.1.4.3. Multiplicity

One

3.1.4.4. Necessity

Mandatory

3.1.4.5. Example Value

B2SHARE is a user-friendly, reliable, and trustworthy service that allows to store and share worldwide small-scale research data, results and metadata from diverse contexts and guarantees their long-term persistence.

3.1.4.6. General Recommendation

Description in one paragraph without bullets or rich HTML. This field is used in the search function to prioritise results.

3.1.5. Logo

3.1.5.1. Definition

Link to the logo/visual identity of the service. The logo will be visible at the Portal.

3.1.5.2. Type

URL

3.1.5.3. Multiplicity

One

3.1.5.4. Necessity

Mandatory

3.1.5.5. Example Value

http://service-name.service-provider.eu/Symbol.jpg

3.1.5.6. General Recommendation

Provide the shortest possible alias

3.1.6. Multimedia

3.1.6.1. Definition

Link to video, screenshots or slides showing details of the service/resource.

3.1.6.2. Type

URL

3.1.6.3. Multiplicity

Multiple

3.1.6.4. Necessity

Optional

3.1.6.5. Example Value

http://service-name.service-provider.eu/Multimedia

3.1.6.6. General Recommendation

Provide the shortest possible alias

3.1.7. Tagline

3.1.7.1. Definition

Short catch-phrase for marketing and advertising purposes. It will be usually displayed close the service name and should refer to the main value or purpose of the service.

3.1.7.2. Type

String (max 100)

3.1.7.3. Multiplicity

One

3.1.7.4. Necessity

Optional

3.1.7.5. Example Value

Store, share and access your files and their metadata on a global scale

3.1.7.6. General Recommendation

Marketing specialists are encouraged to be engaged in order to come up with a catch phrase that can aid service/resource dissemination and visibility.

3.1.8. User Value

3.1.8.1. Definition

The benefit to a user/customer delivered by a service; benefits are usually related to alleviating pains (e.g., eliminate undesired outcomes, obstacles or risks) or producing gains (e.g. increased performance, social gains, positive emotions or cost saving).

3.1.8.2. Type

String (max 1000)

3.1.8.3. Multiplicity

One

3.1.8.4. Necessity

Optional

3.1.8.5. Example Value

For the communities who need to guard against data loss, B2SAFE is a customer facing service that allow data replication and safe storage between geographically distributed centres in the EUDAT CDI.

3.1.8.6. General Recommendation

Benefits are usually related to alleviating pains (e.g., eliminate undesired outcomes, obstacles or risks) or producing gains (e.g. increased performance, social gains, positive emotions or cost saving).

3.1.9. User Base

3.1.9.1. Definition

List of customers, communities, users, etc. using the service.

3.1.9.2. Type

String (max 100)

3.1.9.3. Multiplicity

Multiple

3.1.9.4. Necessity

Optional

3.1.9.5. Example Value

900+ data providers in Europe with different compatibility levels. Adoption in Latin America and Japan.

3.1.9.6. General Recommendation

Description should be as quantified as possible.

3.1.10. Use Cases

3.1.10.1. Definition

List of use cases supported by this service/resource.

3.1.10.2. Type

String (max 100)

3.1.10.3. Multiplicity

Multiple

3.1.10.4. Necessity

Optional

3.1.10.5. Example Value

FP7 and H2020 Outputs, Outputs from or related to the Confederation of Open Access Repositories (COAR), Helix Nebula, etc.

3.1.10.6. General Recommendation

Provide use-cases that can give examples of the benefit of the service for the user.

3.1.11. Options

3.1.11.1. Definition

High-level description of the various options or forms in which the service/resource can be instantiated. Options are further described with the Option Description Template.

3.1.11.2. Type

Option ID

3.1.11.3. Multiplicity

Multiple

3.1.11.4. Necessity

Optional

3.1.11.5. Example Value

service-provider.service-name.optionID

3.1.11.6. General Recommendation

Based on the Option Description Template

3.2. Classification Information

3.2.1. Provider Name

3.2.1.1. Definition

The organisation that manages and delivers the service/resource.

3.2.1.2. Type

Provider ID

3.2.1.3. Multiplicity

Multiple

3.2.1.4. Necessity

Automatically filled in by Portal

3.2.1.5. Example Value

e.g. GEANT, PRACE, EGI, EUDAT, OpenAIRE, etc.

3.2.1.6. General Recommendation

N/A

3.2.2. Scientific Domain

3.2.2.1. Definition

The branch of science, scientific discipline that is related to the service/resource.

3.2.2.2. Type

List of controlled values: See Table 14: Classification of services and resources based on the Scientific Domain

3.2.2.3. Multiplicity

Multiple

3.2.2.4. Necessity

Mandatory

3.2.2.5. Example Value

Natural Sciences

3.2.2.6. General Recommendation

See Classification

3.2.3. Scientific Subdomain

3.2.3.1. Definition

The sub branch of science, scientific sub discipline that is related to the service/resource.

3.2.3.2. Type

List of controlled values: See Table 14: Classification of services and resources based on the Scientific Domain

3.2.3.3. Multiplicity

Multiple

3.2.3.4. Necessity

Mandatory

3.2.3.5. Example Value

Mathematics

3.2.3.6. General Recommendation

See Classification

3.2.4. Category

3.2.4.1. Definition

A named group of services/resources that offer access to the same type of resource or capabilities.

3.2.4.2. Type

List of controlled values: See Table 15: Classification of services and resources based on their Category

3.2.4.3. Multiplicity

Multiple

3.2.4.4. Necessity

Mandatory

3.2.4.5. Example Value

Instrument & Equipment

3.2.4.6. General Recommendation

See Classification

3.2.5. Subcategory

3.2.5.1. Definition

A named group of services/resources that offer access to the same type of resource or capabilities, within the defined service category

3.2.5.2. Type

List of controlled values: See Table 15: Classification of services and resources based on their Category

3.2.5.3. Multiplicity

Multiple

3.2.5.4. Necessity

Mandatory

3.2.5.5. Example Value

Geophysical

3.2.5.6. General Recommendation

See Classification

3.2.6. Target Users

3.2.6.1. Definition

Type of users/customers that commissions a service/resource provider to deliver a service.

3.2.6.2. Type

List of controlled values: See Table 16: Classification of services and resources based on Users/Customers

3.2.6.3. Multiplicity

Multiple

3.2.6.4. Necessity

Mandatory

3.2.6.5. Example Value

Researchers, Innovators, Businesses

3.2.6.6. General Recommendation

See Classification

3.2.7. Language

3.2.7.1. Definition

Languages of the user interface of the service or the resource.

3.2.7.2. Type

List of controlled values: See Table 23: Classification of services and resources based on their Language

3.2.7.3. Multiplicity

Multiple

3.2.7.4. Necessity

Mandatory

3.2.7.5. Example Value

English

3.2.7.6. General Recommendation

See Classification

3.2.8. Location

3.2.8.1. Definition

Countries where the service/resource is offered.

3.2.8.2. Type

List of controlled values: See Table 24: Classification of Providers and services and resources based on their Location

3.2.8.3. Multiplicity

Multiple

3.2.8.4. Necessity

Mandatory

3.2.8.5. Example Value

WW (worldwide)

3.2.8.6. General Recommendation

See Classification

3.2.9. Access Type

3.2.9.1. Definition

The way a user can access the service/resource (Remote, Physical, Virtual, etc.)

3.2.9.2. Type

List of controlled values: See Table 17: Classification of services and resources based on their Access Type

3.2.9.3. Multiplicity

Multiple

3.2.9.4. Necessity

Optional

3.2.9.5. Example Value

Physical

3.2.9.6. General Recommendation

See Classification

3.2.10. Access Mode

3.2.10.1. Definition

The mode a user can access the service/resource (Free, Paid, etc.)

3.2.10.2. Type

List of controlled values: See Table 18: Classification of services and resources based on their Access Mode

3.2.10.3. Multiplicity

Multiple

3.2.10.4. Necessity

Optional

3.2.10.5. Example Value

Peer-reviewed

3.2.10.6. General Recommendation

See Classification

3.2.11. Funded by

3.2.11.1. Definition

Sources of funding for the development and/or operation of the service.

3.2.11.2. Type

List of controlled values: See Table 19: Classification of services and resources based on their Funding

3.2.11.3. Multiplicity

Multiple

3.2.11.4. Necessity

Optional

3.2.11.5. Example Value

3.2.11.6. European Commission

3.2.11.7. General Recommendation

See Classification

3.2.12. Tags

3.2.12.1. Definition

Keywords associated to the service/resource to simplify search by relevant keywords.

3.2.12.2. Type

String (max 20)

3.2.12.3. Multiplicity

Multiple

3.2.12.4. Necessity

Optional

3.2.12.5. Example Value

AIA, Security

3.2.12.6. General Recommendation

This field will be used in the search function to prioritise results.

3.3. Maturity Information

3.3.1. Phase

3.3.1.1. Definition

Development phase of the service/resource.

3.3.1.2. Type

List of controlled values: See Table 20: Classification of services and resources based on their Phase

3.3.1.3. Multiplicity

One

3.3.1.4. Necessity

Optional

3.3.1.5. Example Value

Production

3.3.1.6. General Recommendation

Service/Resource providers may use this attribute for other internal service/resource management purposes.

3.3.2. Technology Readiness Level

3.3.2.1. Definition

The Technology Readiness Level of the Tag of the service/resource.

3.3.2.2. Type

List of controlled values: See Table 21: Classification of services and resources based on their TRL

3.3.2.3. Multiplicity

One

3.3.2.4. Necessity

Optional

3.3.2.5. Example Value

TRL8

3.3.2.6. General Recommendation

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/support/faq;keywords=/2890

3.3.3. Version

3.3.3.1. Definition

Version of the service/resource that is in force.

3.3.3.2. Type

String (max 10)

3.3.3.3. Multiplicity

One

3.3.3.4. Necessity

Optional

3.3.3.5. Example Value

3.1

3.3.3.6. General Recommendation

Only stable releases should be referenced.

3.3.4. Last Update

3.3.4.1. Definition

Date of the latest update of the service/resource.

3.3.4.2. Type

Date (dd/mm/yyyy)

3.3.4.3. Multiplicity

One

3.3.4.4. Necessity

Optional

3.3.4.5. Example Value

2/28/2018

3.3.4.6. General Recommendation

The date should refer to when the updated version became available to users, not when it was developed or released internally in the SP.

3.3.5. Change Log

3.3.5.1. Definition

Summary of the service/resource features updated from the previous version.

3.3.5.2. Type

String (max 1000)

3.3.5.3. Multiplicity

One

3.3.5.4. Necessity

Optional

3.3.5.5. Example Value

Upgrade of user interface. Correction of minor bugs.

3.3.5.6. General Recommendation

Clear, staccato sentences for each updated feature should be used.

3.3.6. Certifications

3.3.6.1. Definition

List of certifications obtained for the service (including the certification body).

3.3.6.2. Type

String (max 100)

3.3.6.3. Multiplicity

Multiple

3.3.6.4. Necessity

Optional

3.3.6.5. Example Value

Gold Label

3.3.6.6. General Recommendation

N/A

3.3.7. Standards

3.3.7.1. Definition

List of standards supported by the service.

3.3.7.2. Type

String (max 100)

3.3.7.3. Multiplicity

Multiple

3.3.7.4. Necessity

Optional

3.3.7.5. Example Value

ISO 27000

3.3.7.6. General Recommendation

N/A

3.4. Contractual Information

3.4.1. Order Type

3.4.1.1. Definition

Described id the service/resource can be accessed with an ordering process.

3.4.1.2. Type

List of controlled values: See Table 22: Classification of services and resources based on their Order Type

3.4.1.3. Multiplicity

One

3.4.1.4. Necessity

Mandatory

3.4.1.5. Example Value

Open access

3.4.1.6. General Recommendation

See Classification

3.4.2. Order

3.4.2.1. Definition

Webpage to request the service/resource from the service/resource provider.

3.4.2.2. Type

URL

3.4.2.3. Multiplicity

One

3.4.2.4. Necessity

Optional

3.4.2.5. Example Value

http://service-name.service-provider.eu/Order

3.4.2.6. General Recommendation

Visible to Customers

3.4.3. Service Level Agreement

3.4.3.1. Definition

Webpage with the information about the levels of performance that a service/resource provider is expected to deliver.

3.4.3.2. Type

URL

3.4.3.3. Multiplicity

One

3.4.3.4. Necessity

Optional

3.4.3.5. Example Value

http://service-name.service-provider.eu/SLA

3.4.3.6. General Recommendation

Look at https://documents.egi.eu/public/ShowDocument?docid=2733 as an example

3.4.4. Terms of Use

3.4.4.1. Definition

Webpage describing the rules, service/resource conditions and usage policy which one must agree to abide by in order to use the service.

3.4.4.2. Type

URL

3.4.4.3. Multiplicity

One

3.4.4.4. Necessity

Optional

3.4.4.5. Example Value

http://service-name.service-provid-er.eu/TermsOfUse

3.4.4.6. General Recommendation

3.4.4.7. Downloadable in several document formats.

3.4.5. Privacy Policy

3.4.5.1. Definition

Link to the privacy policy applicable to the service.

3.4.5.2. Type

URL

3.4.5.3. Multiplicity

One

3.4.5.4. Necessity

Optional

3.4.5.5. Example Value

http://service-name.service-provid-er.eu/PrivacyPolicy

3.4.5.6. General Recommendation

3.4.5.7. Downloadable in several document formats.

3.4.6. Access Policy

3.4.6.1. Definition

3.4.6.2. Webpage to the information about the access policies that apply.

3.4.6.3. Type

URL

3.4.6.4. Multiplicity

One

3.4.6.5. Necessity

Optional

3.4.6.6. Example Value

http://service-name.service-provider.eu/AccessPolicies

3.4.6.7. General Recommendation

3.4.6.8. Downloadable in several document formats.

3.4.7. Payment Model

3.4.7.1. Definition

Webpage with the supported payment models and restrictions that apply to each of them

3.4.7.2. Type

URL

3.4.7.3. Multiplicity

One

3.4.7.4. Necessity

Optional

3.4.7.5. Example Value

http://service-name.service-provider.eu/PaymentModel

3.4.7.6. General Recommendation

3.4.7.7. Downloadable in several document formats.

3.4.8. Pricing

3.4.8.1. Definition

Webpage with the information on the price scheme for this service in case the customer is charged for.

3.4.8.2. Type

URL

3.4.8.3. Multiplicity

One

3.4.8.4. Necessity

Optional

3.4.8.5. Example Value

http://service-name.service-provider.eu/Price

3.4.8.6. General Recommendation

Look at https://cloud.telekom.de/en/infrastructure/open-telekom-cloud/pricing as an example

3.5. Support Information

3.5.1. User Manual

3.5.1.1. Definition

Link to the service/resource user manual and documentation.

3.5.1.2. Type

URL

3.5.1.3. Multiplicity

One

3.5.1.4. Necessity

Optional

3.5.1.5. Example Value

http://service-name.service-provid-er.eu/UserManual

3.5.1.6. General Recommendation

3.5.1.7. Downloadable in several document formats.

3.5.2. Admin Manual

3.5.2.1. Definition

Link to the service/resource admin manual and documentation.

3.5.2.2. Type

URL

3.5.2.3. Multiplicity

One

3.5.2.4. Necessity

Optional

3.5.2.5. Example Value

http://service-name.service-provid-er.eu/UserManual

3.5.2.6. General Recommendation

3.5.2.7. Downloadable in several document formats.

3.5.3. Training

3.5.3.1. Definition

Webpage to training information on the service.

3.5.3.2. Type

URL

3.5.3.3. Multiplicity

One

3.5.3.4. Necessity

Optional

3.5.3.5. Example Value

http://service-name.service-provider.eu/Training

3.5.3.6. General Recommendation

3.5.3.7. Downloadable in several document formats.

3.5.4. Helpdesk

3.5.4.1. Definition

The URL to a webpage with the contact person or helpdesk to ask more information from the service/resource provider about this service.

3.5.4.2. Type

URL

3.5.4.3. Multiplicity

One

3.5.4.4. Necessity

Optional

3.5.4.5. Example Value

http://service-name.service-provider.eu/Helpdesk or http://helpdesk.service-provider.eu

3.5.4.6. General Recommendation

Create a dedicated URL for your services/resources and provide the shortest possible alias

3.5.5. Status Monitoring

3.5.5.1. Definition

Webpage with monitoring information about this service

3.5.5.2. Type

URL

3.5.5.3. Multiplicity

One

3.5.5.4. Necessity

Optional

3.5.5.5. Example Value

http://service-name.service-provider.eu/Monitoring

3.5.5.6. General Recommendation

Create a unique URL for each service/resource and provide the shortest possible alias

3.5.6. Maintenance

3.5.6.1. Definition

Webpage with information about planned maintenance windows for this service

3.5.6.2. Type

URL

3.5.6.3. Multiplicity

One

3.5.6.4. Necessity

Optional

3.5.6.5. Example Value

http://service-name.service-provider.eu/Maintenance

3.5.6.6. General Recommendation

Create a unique URL for each service/resource and provide the shortest possible alias

3.6. Contact Information

3.6.1. Contact-1 First Name

3.6.1.1. Definition

First Name of the service/resource's main contact person/manager.

3.6.1.2. Type

String (max 20)

3.6.1.3. Multiplicity

One

3.6.1.4. Necessity

Mandatory

3.6.1.5. Example Value

3.6.1.6. John

3.6.1.7. General Recommendation

N/A

3.6.2. Contact-1 Last Name

3.6.2.1. Definition

Last Name of the service/resource's main contact person/manager.

3.6.2.2. Type

String (max 20)

3.6.2.3. Multiplicity

One

3.6.2.4. Necessity

Mandatory

3.6.2.5. Example Value

3.6.2.6. Smith

3.6.2.7. General Recommendation

N/A

3.6.3. Contact-1 Email

3.6.3.1. Definition

Email of the service/resource's main contact person/manager.

3.6.3.2. Type

Email

3.6.3.3. Multiplicity

One

3.6.3.4. Necessity

Mandatory

3.6.3.5. Example Value

John.smith@example.org

3.6.3.6. General Recommendation

N/A

3.6.4. Contact-1 Telephone

3.6.4.1. Definition

Telephone of the service/resource's main contact person/manager.

3.6.4.2. Type

String (max 20)

3.6.4.3. Multiplicity

One

3.6.4.4. Necessity

Mandatory

3.6.4.5. Example Value

+01 234 567 8901

3.6.4.6. General Recommendation

N/A

3.6.5. Contact-1 Position

3.6.5.1. Definition

Position of the service/resource's main contact person/manager.

3.6.5.2. Type

String (max 20)

3.6.5.3. Multiplicity

One

3.6.5.4. Necessity

Optional

3.6.5.5. Example Value

Coordinator

3.6.5.6. General Recommendation

N/A

3.6.6. Contact-2 First Name

3.6.6.1. Definition

First Name of the service/resource's main contact person to be displayed at the portal.

3.6.6.2. Type

String (max 20)

3.6.6.3. Multiplicity

One

3.6.6.4. Necessity

Optional

3.6.6.5. Example Value

3.6.6.6. Jack

3.6.6.7. General Recommendation

N/A

3.6.7. Contact-2 Last Name

3.6.7.1. Definition

Last Name of the service/resource's main contact person to be displayed at the portal.

3.6.7.2. Type

String (max 20)

3.6.7.3. Multiplicity

One

3.6.7.4. Necessity

Optional

3.6.7.5. Example Value

3.6.7.6. White

3.6.7.7. General Recommendation

N/A

3.6.8. Contact-2 Email

3.6.8.1. Definition

Email of the service/resource's main contact person to be displayed at the portal.

3.6.8.2. Type

Email

3.6.8.3. Multiplicity

One

3.6.8.4. Necessity

Optional

3.6.8.5. Example Value

jack.white@example.org

3.6.8.6. General Recommendation

N/A

3.6.9. Contact-2 Telephone

3.6.9.1. Definition

Telephone of the service/resource's main contact person to be displayed at the portal.

3.6.9.2. Type

String (max 20)

3.6.9.3. Multiplicity

One

3.6.9.4. Necessity

Optional

3.6.9.5. Example Value

+01 234 567 8902

3.6.9.6. General Recommendation

N/A

3.6.10. Contact-2 Position

3.6.10.1. Definition

Position of the service/resource's main contact person to be displayed at the portal.

3.6.10.2. Type

String (max 20)

3.6.10.3. Multiplicity

One

3.6.10.4. Necessity

Optional

3.6.10.5. Example Value

Manager

3.6.10.6. General Recommendation

N/A

3.7. Other Information

3.7.1. Required Services

3.7.1.1. Definition

List of other services/resources required with this service/resource.

3.7.1.2. Type

Service/Resource ID

3.7.1.3. Multiplicity

Multiple

3.7.1.4. Necessity

Optional

3.7.1.5. Example Value

List of Service/Resource IDs

3.7.1.6. General Recommendation

N/A

3.7.2. Related Services

3.7.2.1. Definition

List of other services/resources that are commonly used with this service/resource.

3.7.2.2. Type

Service/Resource ID

3.7.2.3. Multiplicity

Multiple

3.7.2.4. Necessity

Optional

3.7.2.5. Example Value

List of Service/Resource IDs

3.7.2.6. General Recommendation

N/A

3.7.3. Related Platform

3.7.3.1. Definition

A platform the service is part of.

3.7.3.2. Type

String (max 20)

3.7.3.3. Multiplicity

Multiple

3.7.3.4. Necessity

Optional

3.7.3.5. Example Value

WeNMR Suite

3.7.3.6. General Recommendation

N/A

4. Service/Resource Option Description Template

The Service/Resource Option Description Template is used during the third step of the registration process. At this section, the Manager may make available different options (instantiations) offered for a specific service/resource registered.

Table 3: Service/Resource Option Description Template

Service/Resource Option Description Template (Example)

Basic Information

ID	service-provider.service-name.optionID
Name	premium.service-name
Webpage	http://www.service-provider.eu/service-name/option-name
Description	Enterprise agreements for services with extended support and committed SLA in gold option. On-demand processing and storage capacity, pay-as-you-go payment model, and discount model.
Logo	http://www.service-provider.eu/service-name/option-name/logo

Contact Information

Contact-1 First Name	John
Contact-1 Last Name	Smith
Contact-1 Email	john.smith@example.org
Contact-1 Telephone	+01 234 567 8901
Contact-1 Position	Coordinator
Contact-2 First Name	Jack
Contact-2 Last Name	White
Contact-2 Email	jack.white@example.org
Contact-2 Telephone	+01 234 567 8902
Contact-2 Position	Manager

Other Information

Attribute 1	
Attribute 1	
Attribute 1	
Attribute 1	
Attribute 1	

4.1. Basic Information

4.1.1. ID

4.1.1.1. Definition

Identifier of the service/resource option.

4.1.1.2. Type

URN

4.1.1.3. Example Value

service-provider.service-name.optionID

4.1.1.4. General Recommendation

N/A

4.1.1.5. Multiplicity

One

4.1.1.6. Necessity

Mandatory

4.1.2. Name

4.1.2.1. Definition

Name of the service/resource option.

4.1.2.2. Type

String (max 80)

4.1.2.3. Example Value

Freemium, premium

4.1.2.4. General Recommendation

4.1.2.5. It is recommended to engage marketing specialists to come up with options names that can promote and give an idea of the provided service

4.1.2.6. Multiplicity

One

4.1.2.7. Necessity

Mandatory

4.1.3. Webpage

4.1.3.1. Definition

Webpage with information about the service/resource option.

4.1.3.2. Type

URL

4.1.3.3. Example Value

http://www.service-provider.eu/service-name/option-name

4.1.3.4. General Recommendation

Create a unique URL for each service/resource option and provide the shortest possible alias

4.1.3.5. Multiplicity

One

4.1.3.6. Necessity

Mandatory

4.1.4. Description

4.1.4.1. Definition

The description of the service/resource option.

4.1.4.2. Type

String (max 1000)

4.1.4.3. Example Value

Enterprise agreements for services with extended support and committed SLA in gold option. On-demand processing and storage capacity, pay-as-you-go payment model, and discount model.

4.1.4.4. General Recommendation

Simple, to the point description of the offered option with all the necessary information provided.

4.1.4.5. Multiplicity

One

4.1.4.6. Necessity

Mandatory

4.1.5. Logo

4.1.5.1. Definition

Link to the logo/visual identity of the service/resource provider.

4.1.5.2. Type

URL

4.1.5.3. Example Value

http://www.service-provider.eu/service-name/option-name/logo

4.1.5.4. General Recommendation

Provide a logo URL with a high quality image

4.1.5.5. Multiplicity

One

4.1.5.6. Necessity

Optional

4.2. Contact Information

4.2.1. Contact-1 First Name

4.2.1.1. Definition

First Name of the service/resource option main contact person/manager.

4.2.1.2. Type

String (max 20)

4.2.1.3. Multiplicity

One

4.2.1.4. Necessity

Mandatory

4.2.1.5. Example Value

4.2.1.6. John

4.2.1.7. General Recommendation

N/A

4.2.2. Contact-1 Last Name

4.2.2.1. Definition

Last Name of the service/resource option main contact person/manager.

4.2.2.2. Type

String (max 20)

4.2.2.3. Multiplicity

One

4.2.2.4. Necessity

Mandatory

4.2.2.5. Example Value

4.2.2.6. Smith

4.2.2.7. General Recommendation

N/A

4.2.3. Contact-1 Email

4.2.3.1. Definition

Email of the service/resource option main contact person/manager.

4.2.3.2. Type

Email

4.2.3.3. Multiplicity

One

4.2.3.4. Necessity

Mandatory

4.2.3.5. Example Value

John.smith@example.org

4.2.3.6. General Recommendation

N/A

4.2.4. Contact-1 Telephone

4.2.4.1. Definition

Telephone of the service/resource option main contact person/manager.

4.2.4.2. Type

String (max 20)

4.2.4.3. Multiplicity

One

4.2.4.4. Necessity

Mandatory

4.2.4.5. Example Value

+01 234 567 8901

4.2.4.6. General Recommendation

N/A

4.2.5. Contact-1 Position

4.2.5.1. Definition

Position of the service/resource option main contact person/manager.

4.2.5.2. Type

String (max 20)

4.2.5.3. Multiplicity

One

4.2.5.4. Necessity

Optional

4.2.5.5. Example Value

Coordinator

4.2.5.6. General Recommendation

N/A

4.2.6. Contact-2 First Name

4.2.6.1. Definition

First Name of the service/resource option main contact person to be displayed at the portal.

4.2.6.2. Type

String (max 20)

4.2.6.3. Multiplicity

One

4.2.6.4. Necessity

Optional

4.2.6.5. Example Value

4.2.6.6. Jack

4.2.6.7. General Recommendation

N/A

4.2.7. Contact-2 Last Name

4.2.7.1. Definition

Last Name of the service/resource option main contact person to be displayed at the portal.

4.2.7.2. Type

String (max 20)

4.2.7.3. Multiplicity

One

4.2.7.4. Necessity

Optional

4.2.7.5. Example Value

4.2.7.6. White

4.2.7.7. General Recommendation

N/A

4.2.8. Contact-2 Email

4.2.8.1. Definition

Email of the service/resource option main contact person to be displayed at the portal.

4.2.8.2. Type

Email

4.2.8.3. Multiplicity

One

4.2.8.4. Necessity

Optional

4.2.8.5. Example Value

jack.white@example.org

4.2.8.6. General Recommendation

N/A

4.2.9. Contact-2 Telephone

4.2.9.1. Definition

Telephone of the service/resource option main contact person to be displayed at the portal.

4.2.9.2. Type

String (max 20)

4.2.9.3. Multiplicity

One

4.2.9.4. Necessity

Optional

4.2.9.5. Example Value

+01 234 567 8902

4.2.9.6. General Recommendation

N/A

4.2.10. Contact-2 Position

4.2.10.1. Definition

Position of the service/resource option main contact person to be displayed at the portal.

4.2.10.2. Type

String (max 20)

4.2.10.3. Multiplicity

One

4.2.10.4. Necessity

Optional

4.2.10.5. Example Value

Manager

4.2.10.6. General Recommendation

N/A

4.3. Other Information

4.3.1. Attribute 1

4.3.1.1. Definition

TBA

4.3.1.2. Type

TBA

4.3.1.3. Multiplicity

TBA

4.3.1.4. Necessity

Optional

4.3.1.5. Example Value

TBA

4.3.1.6. General Recommendation

TBA

4.3.2. Attribute 2

4.3.2.1. Definition

TBA

4.3.2.2. Type

TBA

4.3.2.3. Multiplicity

TBA

4.3.2.4. Necessity

Optional

4.3.2.5. Example Value

TBA

4.3.2.6. General Recommendation

TBA

4.3.3. Attribute 3

4.3.3.1. Definition

TBA

4.3.3.2. Type

TBA

4.3.3.3. Multiplicity

TBA

4.3.3.4. Necessity

Optional

4.3.3.5. Example Value

TBA

4.3.3.6. General Recommendation

TBA

5. Service/Resource Performance Description Template

The Service/Resource Performance Description Template is used for the provider to report performance-level indicators relevant to the service/resource, among which the availability (e.g. uptime), usage (e.g. number of users) or delivery time. This template is not filled mandatorily at the registration process but may be used at a later stage on provider's initiative.

Table 4: Service/ Resource Performance Description Template

EUROPEAN OPEN SCIENCE CLOUD

Service/Resource Performance Description Template (Example)

Service Level Targets and Performance Information	
Cost	Free of charge
Requests	15
Users	200
Usage	35,00%
Capacity	3000 service orders per day
Coverage	EU Member States (regional)
Availability	99,99%
Reliability	98.1%
Serviceability/Durability	99.99%, High, Very High, …
Other Performance Indicator Name/Value	Total number of service orders

5.1. Service Level Targets and Performance Information

5.1.1. Cost

5.1.1.1. Definition

The monetary value that a user is requested to pay in order to utilise a specific service, e.g. free of charge, 100 €, etc.

5.1.1.2. Type

String (max 10)

5.1.1.3. Example Value

Free of charge

5.1.1.4. General Recommendation

N/A

5.1.1.5. Multiplicity

One

5.1.1.6. Necessity

Optional

5.1.2. Requests

5.1.2.1. Definition

The total cumulative number of demands for a specific service since it was first offered publicly, e.g. service access requests, service information requests, requests for other material service attributes, etc.

5.1.2.2. Type

Integer

5.1.2.3. Example Value

15

5.1.2.4. General Recommendation

N/A

5.1.2.5. Multiplicity

One

5.1.2.6. Necessity

Optional

5.1.3. Users

5.1.3.1. Definition

The total cumulative number of people who utilise the specific service at the time of reporting.

5.1.3.2. Type

Integer

5.1.3.3. Example Value

200

5.1.3.4. General Recommendation

N/A

5.1.3.5. Multiplicity

One

5.1.3.6. Necessity

Optional

5.1.4. Usage

5.1.4.1. Definition

The level or percentage of actual utilisation of a specific service.

5.1.4.2. Type

String (max 10)

5.1.4.3. Example Value

35.00%

5.1.4.4. General Recommendation

As many decimal points as needed should be used.

5.1.4.5. Multiplicity

One

5.1.4.6. Necessity

Optional

5.1.5. Capacity

5.1.5.1. Definition

The maximum volume of available service provision while maintaining standards of quality and performance. e.g. 30,000 concurrent users, 3,000 service orders per day, etc.

5.1.5.2. Type

String (max 10)

5.1.5.3. Example Value

3000 service orders per day

5.1.5.4. General Recommendation

N/A

5.1.5.5. Multiplicity

One

5.1.5.6. Necessity

Optional

5.1.6. Coverage

5.1.6.1. Definition

The range of geographical areas and/or thematic sectors that a service is addressed to, e.g. EU Member States (regional), high-energy physics (scientific community) etc.

5.1.6.2. Type

String (max 10)

5.1.6.3. Example Value

EU Member States (regional)

5.1.6.4. General Recommendation

N/A

5.1.6.5. Multiplicity

One

5.1.6.6. Necessity

Optional

5.1.7. Availability

5.1.7.1. Definition

The Service Availability, i.e. the fraction of a time period that an item is in a condition to perform its intended function upon demand ("available" indicates that an item is in this condition); availability is often expressed as a probability.

5.1.7.2. Type

String (max 10)

5.1.7.3. Example Value

99.99%

5.1.7.4. General Recommendation

As many decimal points as needed should be used.

5.1.7.5. Multiplicity

One

5.1.7.6. Necessity

Optional

5.1.8. Reliability

5.1.8.1. Definition

A Service Reliability, i.e. the probability that an item will function without failure under stated conditions for a specified amount of time. "Stated conditions" indicate perquisite conditions external to the item being considered. For example, a stated condition for a supercomputer might be that power and cooling must be available - thus a failure of the power or cooling systems would not be considered a failure of the supercomputer.

5.1.8.2. Type

String (max 10)

5.1.8.3. Example Value

98.1%

5.1.8.4. General Recommendation

As many decimal points as needed should be used.

5.1.8.5. Multiplicity

One

5.1.8.6. Necessity

Optional

5.1.9. Serviceability/Durability

5.1.9.1. Definition

Serviceability, i.e. the probability that an item will be retained in, or restored to, a condition to perform its intended function within a specified period of time. Durability, i.e. the ability of a physical product

to remain functional, without requiring excessive maintenance or repair, when faced with the challenges of normal operation over its design lifetime.

5.1.9.2. Type

String (max 10)

5.1.9.3. Example Value

99.99%, High, Very High.

5.1.9.4. General Recommendation

As many decimal points as needed should be used.

5.1.9.5. Multiplicity

One

5.1.9.6. Necessity

Optional

5.1.10. Other Performance Indicator Name/Value

5.1.10.1. Definition

5.1.10.2. Other Service Level Target or Performance Indicator.

5.1.10.3. Type

List of <String, String>

5.1.10.4. Example Value

Total number of service orders

5.1.10.5. General Recommendation

N/A

5.1.10.6. Multiplicity

Multiple

5.1.10.7. Necessity

Optional

6. Provider & Service/Resource Classifications

6.1. Providers Type Classification

Table 5: Classification of Providers based on their Type

No.	(Provider) Type	Description
1	Single-sited	The Provider has one main physical location for users.
2	Distributed	The Provider has multiple physical locations but a unified management structure and a single coordination centre.
3	Mobile	The Provider is changing its physical location on a regular basis (e.g., satellites, research vessels)
4	Virtual	The Provider is exclusively an electronic resource/service.
5	Other	

6.2. Providers Scientific Domain/Category Classification

Table 6: Classification of Providers based on their Domain/Category

No.	Scientific Domain	No.	Category	Description
1	Biological & Medical Sciences	1	Agronomy, Forestry, Plant Breeding Centres	Facilities that enable open field and forest experiments to test the impact of management practices and of environmental conditions on soil, crop, and primary production. These include plants and trees ex-situ collections, experimental facilities for controlled crosses and propagation, and population genetics field testing. The facilities are relevant for Biological- and Environmental Sciences.
		2	Animal Facilities	Facilities that provide husbandry of animals and services to the biomedical research community, usually equipped with highly automated systems that provide the best possible conditions for animal reproduction and maintenance. The main activity is the reproduction and maintenance of animal stocks either of inbred strains or genetically engineered animals, such as transgenic and knock-out mouse lines, or even chemically-induced mutants.
		3	Collections of Biological Resources (e.g. Microorganisms, Biobanks and Seed Banks)	Facilities for storage of collections of microorganisms, biological material and the associated data and information facilities for a population or a large subset of a population, maintained under controlled conditions (temperature, humidity, atmosphere, etc.). The biological resources, including microorganisms, human/animal cells, tissue, blood and DNA, seeds of crops, trees and wild plant species, are conserved for their genetic endowment. Databases established on these provide holistic information on each accession with scientific descriptors, ethno-botanical/zoological/microbiologi-

				cal/medical knowledge, including for the purpose of establishing intellectual property rights and ownership over the biomaterial stored
		4	Bio-Informatics Facilities	Bioinformatics facilities generate knowledge through computer analysis of biological data. These can consist of the information stored in the genetic code, but also experimental results from various sources, patient statistics, and scientific literature. Research in bioinformatics includes method development for storage, retrieval, and analysis of the data. Bioinformatics is a rapidly developing branch of biology and is highly interdisciplinary, using techniques and concepts from informatics, statistics, mathematics, chemistry, biochemistry, physics, and linguistics. It has many practical applications in different areas of biology and medicine.
		5	Biological/Biomedical Engineering and Biotechnology/Nanotechnology Research Facilities	Facilities that are dedicated to application of concepts and methods of bioscience and/or nanoscience, and/or use of living systems and organisms to develop solutions to problems in life- and preclinical sciences using engineering methodologies.
		6	Biomedical Imaging Facilities	Facilities, which are, equipped for visualisation, characterisation, and measurement of biological processes at the cellular and tissue levels in humans and other living systems.
		7	Cell Culture Facilities	Facilities that are equipped to provide robust support for isolation and culture of a variety of cell lines (like mammalian and insect cell lines, mouse and human embryonic stem cells), including serum preparation, feeders, growth factors and mycoplasma testing, this may be on serum-based or serum-free media.
		8	Clinical Research Centres	Facilities that support patient-oriented research, involving a particular person or group of people or using materials from humans. This research can include studies of mechanisms of human disease; studies of therapies or interventions for disease; clinical trials; studies to develop new technology related to disease.
		10	Environmental Health Research Facilities	Environmental health research addresses all potential hazards caused to a human being or an animal by external physical, chemical, and biological factors, and all the related factors impacting behaviours. It encompasses the assessment and control of those environmental factors that can potentially affect health. It is targeted towards preventing disease and creating health-supportive environments. This definition excludes behaviour not related to environment, as well as behaviour related to the social and cultural environment, and genetics. This category includes toxicology and infectious diseases facilities as well as epidemiological study centres.
		11	Genomic, Transcriptomic, Proteomics and Metabolomics Facilities	Multiple sites ranging from single laboratory DNA sequencing and RNA transcript analysis facilities run by biologists for their own department's research to high-throughput facilities aimed at providing a sophisticated

				service for a broad community of biologists run by informaticians, biologists and engineers. Proteomics: physical chemistry developments for clinical and biological applications getting access to proteins network linked to the physiological and pathological stated of the cells. This includes nutrigenomics research.
		12	Structural Biology Facilities	Facilities, which are equipped for visualisation, characterisation, and measurement of biological processes at the molecular level in humans and other living systems. Main technologies include protein crystallisation, X-ray diffraction, mass spectrometry, DSC.
		13	Systems Biology/Computational Biology Facilities	Laboratories that combine all relevant scientific disciplines and the know-how to integrate experimental data with computational and theoretical approaches with the aim of targeting, understanding and engineering pathways, cells, organs and complete organisms.
		14	Telemedicine Laboratories and E-Health Technologies	E-Health is an emerging concept relating to the use of networked digital ICTs (primarily the Internet) to facilitate the organisation & delivery of health care and services. It encompasses applications for providers and organisations (e.g. for storing, exchanging and using clinical or administrative data, or aiding evidence-based practice) and for citizens and patients (e.g. web- based health information, education, virtual consulting), as well as research applications of e- Health technologies.
		15	Translational Research Centres	Translational Research Centres support the integration of evidence-based medicine, social sciences and political sciences with the aim of optimising patient care and preventive measures, which may extend beyond healthcare services. This is the process of turning appropriate biological discoveries into drugs and medical devices that can be used in the treatment of patients.
		16	Other	
2	Chemistry and Material Sciences	1	Analytical Facilities	All facilities where analytical tools are used that are based on one of the following probes or methods: electrons, photons, neutrons, radio frequency, NMR, or analytical chemistry. It does include Surface Science Laboratories dedicated to analysis and characterization of surface and interface phenomena. Different users would come from the scientific domains Chemistry, Earth science, Bio-Medical (including forensic) science and different sensitivities (Analytical Chemistry, electron microscopy laboratories); NMR facilities; surface science laboratories; x- ray diffraction; Electron Microscopy Laboratories, aspects in life sciences, earth, forensics; Surface Science Laboratories.
		2	Chemical Libraries and Screening Facilities	Digital libraries related to chemistry as well as screening facilities.
		3	Intense Light Sources	All facilities that provide access to intense light radiation sources as used for lasers, synchrotrons, Free Electron Lasers. The facilities are relevant to the scientific domains of Physics, Chemistry, Bio-Medical Sciences, Earth and

				Environmental Sciences, Humanities & Arts, Information Science & Technology; Laser Sources for materials synthesis laboratories; Laser Sources for spectroscopy laboratories; Synchrotron Light Sources and X-Ray Diffraction Facilities.
		4	Intense Neutron Sources	Accelerator-based neutron source facility that provides the intense pulsed neutron beam.
		5	Materials Synthesis or Testing Facilities	All single or multi sited facilities run by engineers and materials scientists to process or test materials with regard to predefined specifications. It includes testing and processing equipment, structural and properties characterization instruments. The facilities are relevant to the scientific domains of Engineering, Materials Sciences, Physics, and Chemistry.
		6	Pilot Plants for Process Testing	Plants where processes in biological or chemical systems, including bioenergy/biorefinery research and food processing research, are tested on a pilot level scale. Biology, Chemistry.
		7	Reference Material Repositories	Facilities providing materials with at least one standardised and fully described property that can be used in measurements e.g. as a standard for calibration of instruments or as reference for measuring other materials.
		8	Other	
3	Earth and Environmental Sciences	1	Acoustic Monitoring Stations	Non-audible very low frequency waves infrasound stations, (volcano meteors monitoring, avalanches, landslides); audible frequency stations and hydro acoustic stations (marine mammals, multi-beam, acoustic tomography, echosounders, sodar); high frequency stations (T-phase stations).
		2	Atmospheric Measurement Facilities	Meteorological stations (all physical parameters that can be observed) ; Global Atmospheric Watch (GAW); Airglow; Ionospheric stations (all sky cameras, ionospheric radar); brewers; lidars; chemical compositions, pollution and radionuclides facilities; This includes atmospheric test chambers, used to conduct controlled experiments for climate change research and atmosphere related problems.
		3	Earth Observation Satellites	Including Optical-IR Earth Observation satellites and Radar Earth Observation satellites.
		4	Earth, Ocean, Marine, Freshwater, and Atmosphere Data Centres	Platforms for the exchange of earth, oceanographic, marine, freshwater and atmospheric data and information, and for advisory services in the field of earth, ocean, marine, freshwater and atmospheric data management. National Data Centres, Designated National Agencies for international data exchange and Satellite Data Centres represent the backbone of the data and information infrastructure. National networks are usually put in place to interconnect the data centres of major national institutes. The overall objective is to significantly improve the overview and access to data and data analysis from government and research institutes.

		5	Earthquake Simulation Laboratories	Facilities that are equipped to do computer-assisted earthquake simulation.
		6	Environmental Management Infrastructures	Pilot facilities and experimental infrastructures for management, ecological restoration and environmental mitigation of terrestrial and aquatic ecosystems in natural or degraded conditions (including hydrological and soil management field facilities; decontamination and bioremediation facilities and pilot plants).
		7	Geothermal Research Facilities	Facilities that enable research, development, and demonstration of technologies to advance the use of geothermal energy as a clean, renewable, domestic power source.
		8	In Situ Earth Observatories	Platforms and sensor technologies deployed in situ to collect environmental data (including physical, chemical and biological observations) in support of terrestrial environmental research and management activities. These facilities, including ecological habitat field stations, provide a base for trans-disciplinary research and training, with access to terrestrial field sites for survey and experimental opportunities and often supporting environmental observations and the collection of long-term time series data sets (i.e. on biodiversity).
		9	In Situ Marine/Freshwater Observatories	Platforms and sensor technologies deployed in situ to collect environmental data (including physical, chemical and biological observations) in support of aquatic environmental research and management activities. These facilities, including marine/freshwater research centres, provide a base for trans-disciplinary research and training, with access to marine and freshwater field sites, and equipment (including research vessels that may carry large exchangeable underwater equipment/instruments) for survey and experimental opportunities and often supporting environmental observations and the collection of long-term time series data sets (i.e. on biodiversity). Typical equipment includes: Buoys; Argo; gliders; autonomous underwater vehicles; remotely operated vehicle (Victor); Tide gauges; deep-sea laboratories. Shiptime for stock assessments, polar supply, naval research, and educational courses and non- academic research are not considered in this context. For this inventory, the atmospheric measurement facilities are kept as a separate category. This implies that some marine research centres will also fall under this category if they host an atmospheric measurement site.
		10	Natural History Collections	Facilities that serve as a library of organisms have lived and/or are living on Earth and curation sites for materials relevant for planetary exploration. They contribute to specific research and public education in an easily accessible venue.
		11	Polar and Cryospheric Research Infrastructures	Arctic and Antarctic stations; high altitude and mountain stations; heavy icebreakers; International Partnerships in Ice Core Sciences (IPICS); ANDRILL; Polar Ionospheric stations.

		12	Research Aircraft	-
		13	Solid Earth Observatories, including Seismological Monitoring Stations	Drilling platforms and sensor technologies deployed to collect solid earth data and material in support of solid earth research and management activities. This includes facilities that collect seismological data to be added to the European Integrated Data Archive (EIDA) and made available to the scientific community. Integrated Ocean Drilling Programme (IODP) and Integrated Continental Drilling Programme (ICDP); Sediment Coring Archives; VLBI stations.
		14	Other	
4	Engineering & Energy	1	Aerospace and Aerodynamics Research Facilities	Single-sited facilities providing a controlled wind stream in which objects (aircrafts, vehicles, buildings) are placed in order to measure their aerodynamic properties, using for instance lasers and/or simulate an operation and control during flight/ drive; includes wind tunnels.
		2	Civil Engineering Research Infrastructures	Single-sited, distributed or virtual facilities for the design, construction, testing (including the use of shaking tables) and maintenance of non-military, non-aerospace or non-mechanical large structures, typically including large buildings, transport infrastructures, bridges, dams, tunnels, sewers, plus river, coastal and public health engineering.
		3	Electrical and Optical Engineering Facilities	Single- or multi-sited facilities that offer scientists and engineers access to devices for handling light, utilizing properties of light, and detecting light or access to infrastructure for research and development in the fields of electricity, electronics, and electromagnetism. These infrastructures may either broadly deal with electrical or electronic engineering, or be focused specifically on some of the numerous subtopics, like electronics, electric power, telecommunications, control systems, or other.
		4	Energy Engineering Facilities (non-nuclear)	Combustion, solar, wind, production & distribution, includes, combustion test facilities and associated technologies.
		5	Marine & Maritime Engineering Facilities	Experimental facilities in the fields of hydraulics, geophysical fluid dynamics, ship dynamics and ice engineering research. These include: Basins (both for marine research with waves and/or (tidal) currents and research on inland water issues); multi-directional wave basins; flumes (both for marine research and for research on inland water issues); towing tanks for ship dynamics research; cavitation tunnels; rotation basins for research on Coriolis-dominated issues; facilities for ice research; other hydraulic facilities. The facilities are relevant for the scientific domains Engineering, Earth and Environmental Sciences, Marine and Polar Sciences
		6	Mechanical Engineering Facilities	Facilities dedicated to manufacturing, assembly and testing of components and systems offering services related to control, integration and realization of products and

				processes including modelling and simulation tools. Processing technology, road-transport vehicle development and testing are included.
		7	Other	
5	Humanities & Arts	1	Collections	Sets of often unique objects and items of different types collected usually to be exhibited. Collections normally include a collecting policy for new acquisitions, so only objects and items in certain categories and of a certain quality are accepted into the collection. Objects in a collection are normally catalogued, traditionally in a card index, but nowadays this is being replaced by computerized database also for physical collections. These type of RIs are particularly relevant for the humanities, which often deal with the study of unique artefacts, but they can be relevant for other domains, such as social sciences, life and environmental sciences. PHYSICAL: Museums, Galleries, Analogue audio/visual/multimedia collections, Archaeology, Anthropology and Ethnology Collections, Arts & Art History Collections, Music and Instrument Collections, Datasets (e.g. analogue audio/visual/multimedia datasets). DIGITAL: Archaeology, Anthropology and Ethnology Collections, Arts & Art History Collections, Digitised Manuscript Collections, Music and Instrument Collections, Virtual museums, Virtual galleries, Datasets.
		2	Repositories	Locations for storage of often-unique objects and items of different nature, in general for preservation purposes. Repositories not only have the function to store objects and items but they also guarantee access for future retrieval and study. This type of RI in its general definition is relevant to all scientific domains (for instance as far as physical or virtual facility for the deposit of academic publications such as academic journal articles are concerned); however, some humanities disciplines strongly rely on specific repositories for its analysis. PHYSICAL: Analogue audio/visual/multimedia repositories, Archaeology, Anthropology and Ethnology Repositories, Arts & Art History Repositories. DIGITAL: Data repositories (e.g. digital library), Archaeology, Anthropology and Ethnology Repositories, Arts & Art History Repositories, Digitised Manuscript Repositories.
		3	Databases	Structured sets of data for one or more purposes, usually in digital form. The term database applies to the data and their supporting data structures. The utilisation of databases is spread across all scientific disciplines. Databases are therefore RIs relevant to all scientific domains. Databases in the form of structured meta-data as well as analytical data organised usually within a relational model have been extensively developed as RIs in the Humanities with increasing uptake in all its disciplines: Archaeology, Anthropology and Ethnology Databases, Arts & Art History Databases, History Databases, Digitised Manuscript Databases.

		4	Conceptual Models	Explicit formalisations that map a concept to its intended semantics. Conceptual models are adopted in every research domain (e.g. economic models, mathematical models). In the humanities, however, some conceptual models have developed into RIs indispensable to structure a certain knowledge domain, such as is the case for thesauri and taxonomies (also very much used in life sciences) which have a long tradition in supporting analytical efforts especially in linguistics. Increasingly, digital models built around conceptual ontologies and networks are being developed for modelling specific research domain or for cross-referencing purposes in the Humanities.
		5	Research Archives	Accounting normally for organised sets of unpublished and almost always unique historical records, or the physical place they are located, archives contain primary source documents (texts, maps, pictures etc.) in physical but also increasingly digital form (e.g. text archives structured in databases) that have accumulated over the course of an individual or organisation's lifetime. In general, archives consist of records that have been selected for permanent or long-term preservation on grounds of their enduring cultural, historical, or evidentiary value. Archives are thus particularly relevant to the Humanities, chiefly to historians but also to many other Humanities researchers dealing with primary sources of various kinds. A scientific discipline called archival science, dedicated to the study and practice of organising, preserving, and providing access to information and materials in archives, has established itself within the Humanities: History Archives, Literature and Text Archives.
		6	Research Libraries	Traditionally, large collections of books, or the place in which the collection is housed. However, the term library has extended its meaning to refer to any collection, including digital sources, resources, and services. The collections can be of print, audio, and visual materials in numerous formats, including maps, prints, documents, microform (microfilm/microfiche), CDs, cassettes, videotapes, DVDs, video games, e-books, audiobooks and many other electronic resources. A research library is a collection of useful material for research use. A library is organised for use and maintained by a public body, an institution, a corporation, or a private individual. In addition to providing materials, libraries also provide the services of librarians who are experts at finding and organising information and at interpreting information needs. Modern libraries are increasingly being redefined as places to get unrestricted access to information in many formats and from many sources. They are extending services beyond the physical walls of a building, by providing material accessible by electronic means, and by providing the assistance of librarians in navigating and analysing tremendous amounts of information with a variety of digital tools. Libraries are valuable to all scientific do-

				mains; however, they are of specific relevance to Humanities research which relies on access to historical and rare collections of unique artefacts (e.g. primary sources such as ancient manuscripts) and other sources to study those artefacts and works (secondary and tertiary sources) usually held within libraries and otherwise hardly accessible. A scientific discipline called library and information science, an interdisciplinary or multidisciplinary field dedicated to the analysis, collection, organisation, classification, manipulation, preservation, retrieval and dissemination of information resources, has established itself at the crossroads between social sciences, humanities and computer sciences. Historically, library science has also included archival science.
		7	Research Bibliographies	Large-scale systematic lists of books and other works such as journal articles, reference and access resources. They can be physical publications (i.e. bound volumes) or digital (indexes and catalogues usually in the form of databases). They can be generally divided into enumerative bibliography, which results in an overview of publications in a particular category, and analytical, or critical, bibliography, which studies the production of research material (in the form of books as well as other formats, including recordings, motion pictures, videos, graphic objects, databases, CD-ROMs and websites). As a bibliography can be produced in any field, it could be considered a transversal category; however, it is Humanities research especially that has traditionally relied on such tools to systematise its fields of enquiry – spanning centuries of relevant publications for many humanities disciplines – and circumscribe its research domain.
		8	Other	
6	Information Science & Technology	1	Centralised Computing Facilities	Single-sited facilities with a centralised control that enable high performance computing through supercomputers. These are relevant to all scientific domains.
		2	Communication Networks	Facilities responsible, at national or international levels, for the provision of data communications networks, capacity and services to the research and education community in all scientific domains. The networks typically connect other networks at international, regional or metropolitan level.
		3	Complex Data Facilities	Facilities to store huge and high dimensional data volumes and apply statistical methods to classify or cluster the data in order to extract valuable information. The facilities are relevant to Bio-Medical Sciences; Earth and Environmental Sciences; Physics; Astrophysics; Social Sciences.
		4	Distributed Computing Facilities	Facilities for virtualisation, grid and cloud computing, or capability computing that are loosely coupled, heterogeneous, and geographically dispersed distributed system with non-interactive workloads that involve a large number of files. They federate, share and coordinate distributed resources from different organisations that are not

				subject to centralized control, using open, general-purpose and in some cases standard protocols and interfaces to deliver non-trivial qualities of service relevant to all scientific domains.
		5	Software Service Facilities	Facilities that provide access to well fabricated software for modelling, simulation, development, control and optimization, including software libraries/ repositories or support services for the implementation of the software, their maintenance and adaptation to new hardware platforms as well consultation regarding proper use of the software as well as training facilities for users. These are relevant to all scientific domains.
		6	Other	
7	Physics, Astronomy, Astrophysics and Mathematics	1	Astro-Particle and Neutrino Detectors and Observatories	Range of detectors/observatories, using interactions in water or ice for detecting astrophysical neutrinos, interactions in liquid noble gases or solids for searching for dark matter particles, and light emission in the atmosphere for the detection of gamma rays from astrophysical sources.
		2	Centres for Advanced Research in Mathematics	Research Centres hosting researchers and organizing scientific events at a high level. Three different types of centres can be distinguished according to their aim: a) centres organizing high level one week conferences in mathematics or their interface with sciences and industry; b) centres organizing, over three or more months, targeted advanced scientific programmes at doctoral level or on specific research challenges; c) high-level research institutes with few permanent positions and a highly developed visitor's programme. (High-level mathematics, interface between mathematics and other sciences).
		3	Centres for Development of Industrial Mathematics	Centres devoted to the development of the interface between mathematics and industry. Their research groups offer a wide range of mathematical expertise and are able to interact with scientists from other disciplines (life sciences, bio-medicine, material sciences, engineering, computer sciences, physics, social sciences, etc.) both in the academic or industrial frameworks. (Industrial mathematics, applied mathematics).
		4	Cross-Disciplinary Centres in Mathematics	Specialised structures devoted to the interaction of mathematics with other sciences (e.g. biology, genomics, chemistry, computer sciences …). These structures strive at developing new areas of research where mathematics is known to play a founding role as it did in the development of physics. (Cross-disciplinary centres; mathematical sciences; interaction of mathematics).
		5	Extreme Conditions Facilities	All facilities where materials are studied under extreme physical conditions as in High Magnetic Field Laboratories, High Pressure Laboratories, Low Temperature Laboratories, High Radiation Facilities, and Microgravity platforms.

		6	Gravitational Wave Detectors and Observatories	Instruments using laser interferometry between freely hung test masses up to several km apart in vacuum. The lengths of two perpendicular arms, defined by the test masses, are compared and fluctuations in the arm length differences are recorded and analysed for potential GW signals. Links to earth observation.
		7	High Energy Physics Facilities	High Energy Physics Facilities include accelerators, colliders, targets, light sources and detectors of high-energy particles through electrostatic or oscillating fields accelerating particles to speeds sufficient to cause nuclear and particle reactions.
		8	Mathematics Centres of Competence	Mathematics centres of competence develop mathematical models for applications in all sciences and engineering, including social sciences, and medicine. They analyse the models, develop and implement algorithms for the simulation of the models as well as for the optimization and control of the involved processes. They provide transversal competences, which allow transferring concepts and methods from one specific science to another, and they also provide consulting concerning the use of methods and their implementation for specific applications. When needed, they generate the basic mathematical theory that is needed to perform the described tasks. (Mathematical modelling; numerical and statistical simulation; control theory; optimization; mathematical algorithm repository).
		9	Micro and Nanotechnology Facilities	Micro and nanotechnology facilities deals with the understanding and control of matter at the nanoscale and microscales, at dimensions between approximately 1 and 1000 nanometres, involving imaging, measuring, modelling, and manipulating matter at this length scale.
		10	Nuclear Research Facilities	Nuclear Physics facilities include accelerators, colliders, targets and detectors to study the atomic nucleus, the nuclear matter including its fusion and fission. The facilities can be classified according to their objects of study (hadrons, nuclei, applications), the probes that are used to investigate them (lepton/ photon or hadron/heavy ion beams), or simply by the size of the facility and the type of reactions involved in the various nuclear processes.
		11	Safety Handling Facilities	Facilities that are required to handle materials that potentially cause biosafety, chemical, radioactive, explosive, or engineering hazards. In addition, clean rooms and Actinide Handling Facilities would be included. Includes Biosecurity Level-4 Laboratories.
		12	Space Environment Test Facilities	Includes planetary/space environment simulation chambers and space environment exposure facilities as well as space plasma physics facilities
		13	Telescopes	Includes ground-based telescopes with (1) optical and/or near infrared telescopes, interferometers or (2) reflector telescopes with mirrors of different diameters, operating at radio frequencies, or infrared and/or optical wavelengths and (3) Space-borne telescopes orbiting the earth

				including a wide range of wavelengths, from gamma-rays to the radio.
		14	Underground Laboratories	Underground spaces providing experimental areas of reduced cosmic ray background, reduced seismic noise etc. for a range of experiments in physics and particle astrophysics. Open to members of collaborations involved in installing and running experiments. These facilities also have relevance to ICT and Material Sciences, Environment, Biological and Medical Sciences, Physics.
		15	Other	
8	Social Sciences	1	Data Archives, Data Repositories and Collections	A digital data archive is a centre of expertise in data acquisition, preservation, management, dissemination and promotion of an access to the national and international collections and repositories of digital data. These type of RIs are particularly acute to the social sciences, which often rely on the aggregation of longitudinal data, and to the humanities, which often rely on preservation, but they can be relevant for other domains, particularly, the life and environmental sciences and the medical sciences.
		2	Data mining and Analysis (Methodological) Centres, including statistical analysis	Centres of expertise or methodological resources for extracting patterns from large data sets by combining methods from statistics and artificial intelligence. These RIs enable researchers to overcome the challenge of working with increasingly larger data-sets. Data-mining and statistical techniques populate every scientific domain but what counts as data is domain specific. Therefore, this category should be understood as specific to social sciences because it refers to data in the social sciences.
		3	National Statistical Facilities (offices)	Centres of expertise responsible for the collection and publication of statistics related to the economy, population and society at international, national and regional levels. These infrastructures have been traditionally created by the states but constitute as well powerful resources for the social scientists in particular.
		4	Registers and Survey-led Studies/Databases	Organized and systematic collection of data (time or spatial series) for one or more purposes (research, evidence-based policy, non-governmental organisations) in digital form or not. These type of RIs are particularly acute to the social sciences, which often rely on the aggregation of masses of longitudinal data but they can be relevant for all the other domains, that is, the humanities, the life and environmental sciences, the physical sciences and engineering, and the medical sciences.
		5	Research Data Service Facilities	Facilities for clustering research data and making it permanently accessible, as well as facilities for the provision of all sorts of data services. These often include meta-infrastructures. These types of RIs are particularly relevant to Humanities and Arts; Social Sciences, Medical sciences.
		6	Other	

9	Other	1	Other	

6.3. Providers ESFRI Domain Classification

Table 7: Classification of Providers based on their ESFRI Domain

No.	ESFRI Domain
1	Energy
2	Environment
3	Health & Food
4	Physical Sciences & Engineering
5	Social & Cultural Innovation
6	Data, Computing and Digital Research Infrastructures
7	Other

6.4. Providers Life Cycle Status Classification

Table 8: Classification of Providers based on their Life Cycle Status

No.	(Provider) Life Cycle Status	Description
1	Under Construction	The Research Infrastructure is under construction. Please add the projected start date of user operation.
2	Operational	The Research Infrastructure is constructed and all operations are being offered. Please add the beginning year of the operations.
3	Being Upgraded	The Research Infrastructure is currently being upgraded. It is probable that many services are in containment or unavailable. Please add the projected year of completion of upgrades
4	Other	

6.5. Providers Legal Status Classification

Table 9: Classification of Providers based on their Legal Status

No.	(Provider) Legal Status
1	Association
2	Company
3	ERIC
4	International or intergovernmental organisation or framework
5	University or higher education institution
6	Research organization

7	Other

6.6. Providers ESFRI Status Classification

Table 10: Classification of Providers based on their ESFRI Status

No.	(Provider) ESFRI Status
1	RI is a node of an ESFRI project
2	RI is an ESFRI project
3	RI is an ESFRI landmark
4	Not and ESFRI project or landmark
5	Other

6.7. Providers Networks Classification

Table 11: Classification of Providers based on their Networks

No.	(Provider) Networks
1	4M Association
2	AAA African Archaeologists Association
3	Academic Careers Understood through MEasurement and Norms (ACUMEN)
4	Accessibility Assessment Simulation Environment for New Applications Design and Development (ACCESSIBLE)
5	ACTRIS
6	Advancing 3Rs and International Standards in Biological and Biomedical Research (EUPRIM-Net)
7	AErosol Robotic NETwork (AERONET)
8	African Studies in Europe (AEGIS)
9	Alianza por la Investigación y la Innovación Energéticas (ALINNE)
10	ALISTORE
11	AMICOM
12	AM-SPAN
13	ANAEE
14	ANAEE-Services
15	Animal Health and Welfare ERA-Net (ANIHWA)
16	APARSEN
17	APPA Marina
18	AQUAEXCEL
19	AQUAMED
20	AQUAtic MesoCOSM Facilities

21	ARBO-ZOONET
22	ASEM
23	Asian Pacific Atomic Network
24	ASSEMBLE
25	ASSEMIC
26	Association of International Research and Development Centers for Agriculture
27	ASTARTE - Assessment, STrategy And Risk Reduction for Tsunamis in Europe
28	ASTRONET
29	Astroparticle Physics European Coordination (ApPEC)
30	Atlantic Network of Geodynamical and Space Stations (REAGE)
31	Austrian Centre for Scientific Comuting (ACSC)
32	Baseline Surface Radiation Network (BSRN)
33	BBIB Berlin-Brandenburg Institute of Advanced Biodiversity Research
34	BBMRI
35	BING
36	BIOBANQUES
37	Bio-based Industries Consortium (BIC)
38	Biocenter Finland
39	Biodiversity Research Network (ALTER-Net)
40	Biological Alert Laboratories Network, Spain (RELAB)
41	Biomass Research Infrastructure for Sharing Knowledge (BRISK)
42	BioMedBridges
43	Bio-NMR
44	BioSHaRE
45	BioStruct-X
46	Botanic Gardens Consortium International
47	BRIDGE - Europractice
48	Budapest Neutron Centre
49	CALIPSO
50	CARARE
51	CASyM
52	Census Data Open Linked (CEDAR)
53	Center for Organelle Research (CORE)
54	C-ERIC
55	Chimiothèque Nationale Française
56	CLARIN
57	CLOUDNET

58	CNEF
59	Cohort & Longitudinal Studies Enhancement Resources
60	Collaboration to Clarify the Costs of Curation (4C)
61	Collections Policy Board (CPB)
62	Comité Polar Español (CPE)
63	COMMIT
64	Committee Research with Neutrons (KFN)
65	Common Access to Biotechnological Resources and Information (CABRI)
66	Connecting Africa
67	Consortium for the Barcode of Life
68	Consortium of European Social Science Data Archives
69	Consortium of European Taxonomic Facilities (CETAF)
70	Cooperative Research Ships (CRS)
71	Coordinated Access to Lightsources to Promote Standards and Optimization (CALIPSO)
72	Coordinated Research Infrastructures Building Enduring Life-Science Services (CORBEL)
73	COPERNICUS
74	CoPoRI
75	Core Facility Net
76	Council for the Development of Social Science Research in Africa (CODESRIA)
77	Council of Managers of National Antarctic Programs (COMNAP)
78	CRISP
79	Cultural Heritage Advanced Research Infrastructures (CHARISMA)
80	Data Centre Network
81	Data without Boundaries project (DwB)
82	DFG LIS
83	Digital Research Infrastructure for Arts and Humanities (DARIAH)
84	Digital Services Infrastructure for Social Sciences and Humanities (DASISH)
85	DNFS
86	DTL
87	EAST-NMR
88	EATRIS
89	EcoChange
90	ECRIN
91	EDENext
92	E-FAST
93	EFDA
94	EHRI

95	EIROforum
96	ELIXIR
97	EMBRC
98	EMFL
99	ENIVD
100	Entreprise Europe Network
101	ENVRI
102	EPIZONE European Research Group (ERG)
103	EPOS
104	EPoSS
105	EREA
106	E-RIHS
107	ERINHA
108	ERNCIP
109	ESGI
110	ESHE
111	ESTEEM
112	ESWIRP
113	ETP Nanomedicine
114	Eucowas
115	EU-Life
116	EUMEDCONNECT
117	EU-OPENSCREEN
118	Euraqua
119	EURATOM
120	EURNEX
121	Euro-BioImaging
122	EUROCHAMP-2020
123	EUROfusion
124	European Aerosol Research Lidar Network (EARLINET)
125	European Aquaculture Technology and Innovation Platform (EATIP)
126	European Association for Solar Telescopes (EAST)
127	European Cancer Organisation (ECCO)
128	European Commission for the control of Foot and Mouth Disease (EuFMD)
129	European Consortium for Ocean Research Drilling (ECORD)
130	European Coordination for Accelerator Research & Development
131	European Culture Collections' Organisation (ECCO)

132	European Data Infrastructure (EUDAT)
133	European Energy Research Alliance
134	European Facility for Airborne Research (EUFAR)
135	European Federation for Primatology (EFP)
136	European Grid Infrastructure (EGI)
137	European Infrastructure of Open Screening Platforms for Chemical Biology
138	European Institute for Biomedical Imaging Research (EIBIR)
139	European Labour History Network (ELHN)
140	European Librarians in African Studies (ELIAS)
141	European Life Sciences Infrastructure For Biological Information
142	European Light Microscopy Initiative (ELMI)
143	European Molecular Biology Network (EMBnet)
144	European Monitoring Agency for Drugs and Drug Addition (EMCDDA)
145	European Mouse Mutant Archive (EMMA)
146	European Multidisciplinary Seafloor Observation (EMSO)
147	European Network for Animal Disease and Infectiology Research Facilities (NADIR)
148	European Network of Marine Research Institutes and Stations (MARS)
149	European Network of Vaccine Research and Development
150	European Nuclear Science and Applications Research (ENSAR)
151	European Plant Phenotyping Network (EPPN)
152	European Plate Observing System (EPOS)
153	European Polar Board (EPB)
154	European Research Vessels Operators (ERVO)
155	European Social Survey
156	European Technology Platform for High Performance Computing (ETP4HPC)
157	European VLBI Network (EVN)
158	European Windtunnel Association
159	European, Middle Eastern and African Society for Biopreservation and Biobanking (ESBB)
160	Europeana
161	EUROPLANET RI
162	EU-SOLARIS
163	EUVAS
164	Event Horizon Telescope
165	EVICTS
166	EVN
167	Experimentation in Ecosystem Research (ExpeER)
168	Federation of European Neurosciences (FENS)

169	Finnish BioImaging Network
170	Food and Agricultural Organisation of the United Nations (FAO)
171	FUSENET
172	GALION
173	Gauss Centre for Supercomputing (GCS e.V.)
174	GAW
175	GBIF Nodes Network
176	GCOS
177	GDR 3056 "ChemBioScreen"
178	GÉANT
179	Genomics Research Network
180	German African Studies Association
181	German Consortium for Translational Cancer Research (DKTK)
182	German Data Forum
183	Global Alliance for Zika Virus Control and Prevention
184	Global Atmosphere Watch Programme-cooperation Germany, Austria, Switzerland (GAW-DACH)
185	Global Biodiversity Information Facility (GBIF)
186	Global Earth Observation System of Systems (GEOSS)
187	Global Genome Biodiversity Network (GGBN)
188	Global Lake Ecology Observatory Network (GLEON)
189	Global Millimeter VLBI Array
190	Global Network for Taxonomy (BioNET)
191	GMOS
192	GNSS Service Centre
193	GOOS
194	Goportis - Leibniz Library Network for Research Information
195	GRUAN
196	Grupo Interinstitucional y Comunitario de Pesca Artesanal del Pacífico Chocoano (GIPCA)
197	GUIDE—Gentle User Interfaces for Disabled and Elderly Citizens
198	H2FC
199	HAIDA Network
200	Helmholtz Alliance Drug Research
201	High-Intensity Extreme-Wavelength Ultrafast Lasers
202	HLD
203	Human Brain Project - International Consortium on Brain Imaging (HBP)
204	Human Proteome Project (HUPO)
205	Humanist

206	HVI
207	HYCON2
208	Hydralab IV
209	Ibero-american network for the study of carotenoids as food ingredients (IBERCAROT)
210	IBiSA
211	Ice Age Europe
212	ICOM- International Council of Museums
213	ICOS
214	ICSTI - The International Council for Scientific and Technical Information
215	ICTS
216	IFAR - International Forum for Research Aviation
217	ILT
218	ILTER (International Long Term Ecological Research)
219	iNEXT
220	INFRAFRONTIER
221	INfraStructure in Proton International REsearch
222	InGOS (Integrated non-CO2 Greenhouse Gas Observing Systems)
223	INSTRUCT
224	Integrated Carbon Observation System (ICOS)
225	Integrated Infrastructure Initiative for Neutron Scattering and Muon Spectroscopy (NMI3)
226	Intergovernmental Oceanographic Commission/International Oceanographic Data and Information Exchange (IOC/IODE)
227	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)
228	Internal Magnets for DNP (DNPMAG)
229	International Association of Labour History Institutions (IALHI)
230	International Barcode of Life
231	International Barcode of Life (IBOL)
232	International Cancer Genome Consortium (ICGC)
233	International Council for the Exploration of the Sea (ICES)
234	International Council of Museums (ICOM)
235	International Council on Archives (ICA)
236	International Energy Agency implementing agreement on Ocean Energy Systems
237	International Federation of Data Organizations
238	International Gravity Reference System (IGRS)
239	International Mouse Knock-out Consortium (IKMC)
240	International Mouse Phenotyping Consortium (IMPC)
241	International Mouse Phenotyping Consortium (IMPC)

242	International Mouse Strain Resources (IMSR)
243	International Network for Terrestrial Research and Monitoring in the Arctic (INTERACT)
244	International Network of Ground-Based Microwave Radiometers (MWRnet)
245	International Ocean Drilling Program (IODP)
246	International Panel Survey Methods Workshops
247	International Primatological Society
248	International programme of biodiversity science (DIVERSITAS)
249	International Research Institute of Stavanger (IRIS)
250	International Research Ship Operators (IRSO)
251	International Society for Atmospheric Research using Remotely Piloted Aircraft
252	International Society for Biological and Environmental Repositories (ISBER)
253	International Tokamak Physics Activity (ITPA)
254	International Towing Tank Conference (ITTC)
255	International Virtual Observatory
256	International VLBI Service for Geodesy & Astrometry (IVS)
257	ISBE
258	ISBER
259	ISN
260	ITACA - Innovation Technologies and Applications for Coastal Archaeological sites
261	IUCN-SSC Primate Specialist Group
262	IVOA
263	KARYON - Kernel-Based ARchitecture for safetY-critical cONtrol
264	Labex IRON
265	Laboratory of excellence Medalis
266	Large Binocular Telescope (LBT)
267	LARVANET
268	LASERLAB Europe
269	Lasers for Applications at Accelerator facilities for ion beam generation, acceleration and diagnostics
270	League of Accelerator based photon sources
271	League of European Accelerator-based Photon Sources
272	Ledith
273	LifeWatch
274	LNCMI-G
275	Low Voltage Agreement Group (LOVAG)
276	LTER-Europe
277	LUNAS
278	MAnagement of Security information and events in Service InFrastructures (MASSIF)

279	MARINET
280	Mediterranean Operational Network for the Global Ocean Observing System
281	MESOAQUA
282	MESOCOSM
283	Meson Physics in Low-Energy QCD (MesonNet)
284	Metabolomics Society
285	META-SHARE
286	Meters & More
287	Microbial Resources Research Infrastructure (MIRRI)
288	Millennium Seed Bank Partnership
289	MINAM
290	Musical Instrument Museums Online (MIMO)
291	MyOcean2
292	NANO2LIFE
293	NANOFUN-POLY
294	Nanofutures
295	National Biobank Network
296	National Civil Protection Department Network
297	National Genome Research Network (NGFN)
298	National Network for Electron Microscopy (RNME)
299	NDACC
300	Nearctis
301	Network for Digital Methods in the Arts and Humanities (NeDiMAH)
302	Network for Internationalising Advanced Science
303	Network of Aquaculture Centres in Central-Eastern Europe (NACEE)
304	Network of European CEntrifige for Research (NECER)
305	Network of Spanish Marine ICTS (Red de ICTS Marinas)
306	Network Satellite Navigation Berchtesgadener Land
307	Networking Lake Observatories in Europe (NETLAKE)
308	Neuroscience Society
309	Neutron scattering and Muon Spectroscopy Integrating Infrastructure Initiative
310	New operational steps towards an alliance of European research fleets (EUROFLEETS2)
311	NEXUS
312	Nordic Imaging Network
313	Nordic Microscopy Society (SCANDEM)
314	Nordic Nanolab Network
315	Nuclear Physics Network (NuPNET)

316	Ocean Facilities Exchange Group (OFEG)
317	One Geology
318	Open Access Infrastructure for Research in Europe (OpenAIRE)
319	Open Planets Foundation
320	OPTICON
321	Organisation of European Cancer Institutes (OECI)
322	Parelsnoer Institute
323	Partnership for European Environmental Research (PEER)
324	PATENT DfMM
325	PATrimoines matériels : Réseau d'Instrumentation Multisites Equipex (PATRIMEX)
326	PHOTONICS 21
327	Polar barcode of life
328	PRACE
329	PRIME (PoweRline Intelligent Metering Evolution) Alliance
330	PRIME-XS
331	Protein Production and Purification Platforms in Europe (P4EU)
332	Proteomics and Metabolomics Core Facility (PROMEC)
333	ProteoRed
334	Public Population Project in Genomics and Society (P^3G)
335	QB50
336	Rachel Carson Center
337	Rad4med
338	RadioNet
339	READE - Rede de Remediação e Reabilitação de Ambientes Degradados (Brasil-Portugal)
340	REBT International Excellence Research Network
341	RED LAB de la Comunidad de Madrid
342	Research Data Alliance
343	Research infrastructures for the control of insect vector-borne diseases
344	Resource Network Supporting Academic Chemical Biology Research
345	RITMARE
346	RS2E
347	SATA
348	SatNav Network
349	Scalable, Secure Storage of Biobank Data (BiobankCloud)
350	ScanDiaSyn
351	SciColl - Scientific Collections International
352	Science and Applications of ultrafast and ultraintense lasers (SAUUL)

353	Science and Innovation with Neutrons in Europe
354	Science Link
355	SCOLMA - Standard Conference on Library Materials on Africa
356	SeaDataNet
357	SecFuNet - Security for Future Networks
358	SEGRID - Security for smart Electricity GRIDs
359	Seismic Engineering Research Infrastructures for European Synergies (SERIES)
360	Seismology
361	SEMACA
362	Seprise
363	SINE2020
364	SKA - Square Kilometer Array
365	Society for Neuroscience
366	Society for the Preservation of Natural History Collections (SPNHC)
367	Society for Tropical Ecology
368	Society of Primatology
369	SofComp Consortium
370	SOLARNET
371	SOPHIA
372	SPIRIT
373	STAI
374	Standing Committee Research Data Infrastructure (FDI)
375	Stations at High Altitude for Research on the Environment (SHARE)
376	STN International
377	Strange Particles in Hadronic Environment Research in Europe (SPHERE)
378	SuperMAG
379	SWEPOS
380	Swiss Institute for Art Research (SIK-ISEA)
381	SYNTHESYS - Information Network of European Natural History Collections
382	TClouds - Trustworthy Clouds Privacy and Resilience for Internet-scale Critical Infrastructure
383	TDWG (Biodiversity Information Standards)
384	Teide and Roque de los Muchachos Observatories-Canary Islands
385	Telescopio Nazionale Galileo (TNG)
386	TI Food and Nutrition
387	TI Pharma
388	Ti-COAST
389	Towards a joint European research infrastructure network for coastal observatories (Jerico)

390	Towards an Alliance of European Research Fleets (EUROFLEETS)
391	Transnational Access to MAMI (MAMI)
392	TREES4FUTURE
393	UK Environmental Change Network (ECN)
394	Veterinary Biocontained facility Network for excellence in animal infectious disease research and experimentation
395	VIRCA Network
396	Virtual Atomic and Molecular Data Center (VAMDC)
397	VISIONAIR
398	VLBI2010 Global Observing System (VGOS)
399	VPH
400	WeNMR
401	Wigner Femtosecond Laser Laboratory
402	Workshop of Panelsurveys in Germany
403	World Data Centre for Microorganisms
404	World Data System (WDS)
405	World Federation for Culture Collections (WFCC)
406	World Organisation for Animal Health (OIE)
407	WorldWide LHC Computing Grid (wLCG)
408	WW-NMR
409	Zoonoses Anticipation and Preparedness Initiative
410	Other

6.8. Providers Areas of Activity Classification

Table 12: Classification of Providers based on their Areas of Activity

No.	(Provider) Areas of Activity
1	Basic research
2	Applied research
3	Technological development

6.9. Providers Societal Grand Challenges Classification

Table 13: Classification of Providers based on their Societal Grand Challenges

No.	(Provider) Societal Grand Challenges
1	Health, demographic change and wellbeing

2	Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the Bioeconomy
3	Secure, clean and efficient energy
4	Smart, green and integrated transport
5	Climate action, environment, resource efficiency and raw materials
6	Europe in a changing world – inclusive, innovative and reflective societies
7	Secure societies – protecting freedom and security of Europe and its citizens
8	Other

6.10. Services/Resources Scientific Domain Classification

Table 14: Classification of services and resources based on the Scientific Domain

No.	Scientific Domain	Description	No.	Scientific Subdomain
1	Natural Sciences	Any of the sciences (such as physics, chemistry, or biology) that deal with matter, energy, and their interrelations and transformations or with objectively measurable phenomena.	1	Mathematics
			2	Computer sciences
			3	Information sciences
			4	Earth sciences
			5	Biological sciences
			6	Physical sciences
			7	Chemical sciences
2	Engineering & Technology	The application of science and mathematics by which the properties of matter and the sources of energy in nature are made useful to people	1	Civil engineering
			2	Electrical, electronic and information engineering
			3	Mechanical engineering
			4	Aerospace engineering
			5	Chemical engineering
			6	Materials engineering
			7	Bioengineering and Biomedical engineering
			8	Environmental engineering
			9	Environmental biotechnology
			10	Industrial biotechnology
			11	Micro and Nanotechnology
3	Medical & Health Sciences	The science of dealing with the maintenance of health and the prevention and treatment of disease	1	Basic medicine
			2	Clinical medicine
			3	Health sciences
			4	Medical biotechnology

4	Agricultural Sciences	Sciences dealing with food and fibre production and processing. They include the technologies of soil cultivation, crop cultivation and harvesting, animal production, and the processing of plant and animal products for human consumption and use.	1	Agriculture, forestry, and fisheries
			2	Animal and dairy sciences
			3	Veterinary sciences
			4	Agricultural biotechnology
5	Social Sciences	A branch of science that deals with the institutions and functioning of human society and with the interpersonal relationships of individuals as members of society	1	Psychology
			2	Economics, finance and business
			3	Educational sciences
			4	Sociology
			5	Law
			6	Political sciences
			7	Social and economic geography
			8	Media and communications
6	Humanities	The branches of learning that investigate human constructs and concerns as opposed to natural processes (as in physics or chemistry) and social relations (as in anthropology or economics).	1	History and Archaeology
			2	Languages and literature
			3	Philosophy, ethics and religion
			4	Arts
7	Interdisciplinary	Involving two or more scientific disciplines	1	Interdisciplinary
8	Other		1	Other

6.11. Services/Resources Category Classification

Table 15: Classification of services and resources based on their Category

No.	Category	Description	No.	Subcategory
1	Instrument & Equipment	Access to instruments and equipment	1	Spectrometer
			2	Radiation
			3	Microscopy
			4	Laser
			5	Geophysical
			6	Chromatographer
			7	Cytometer
			8	Spectrophotometer

			10	Digitisation equipment
			11	Monument maintenance equipment
			12	TBC
			13	Other
2	Material Storage	Access to biological, chemical, historical, archaeological, cultural, etc. storage. Includes the acquisition, preparation and processing of samples and materials in view of their preservation.	1	Warehousing
			2	Fulfilment
			3	Assembly
			4	Sorting
			5	Re-working
			6	Packaging
			7	Quality inspecting
			8	Archiving
			9	Disposal
			10	Repository
			11	Preservation
			12	Other
3	Network	Ultra-fast connectivity and access to eInfrastructures' resources and services	1	Direct Connect
			2	Virtual Network
			3	Load Balancer
			4	VPN Gateway
			5	Exchange
			6	Content Delivery Network
			7	Traffic Manager
			8	Other
4	Compute	High-performance computing resources and scalable cloud compute capacity for demanding job processes	1	Virtual Machine Management
			2	Container Management
			3	Job Execution
			4	Workload Management
			5	Orchestration
			6	Serverless Applications Repository
			7	Other
5	Data Storage	Reliable, secure and scalable cloud storage for scientific data, apps and workloads	1	Data
			2	File
			3	Queue
			4	Disk
			5	Online

			6	Archive
			7	Backup
			8	Synchronised
			9	Replicated
			10	Recovery
			11	Digital preservation
			12	TBC
			13	Other
6	Data	Vast range of data, datasets etc. to facilitate research and scientific activities	1	Government and agency data
			2	Statistical data
			3	Scientific/Research data
			4	Online service data
			5	Clinical trial data
			6	Epidemiological data
			7	Data archives
			8	Other
7	Scholarly Communication	Research findings available to the wider academic community and beyond	1	Preparation
			2	Discovery
			3	Analysis
			4	Writing
			5	Publication
			6	Outreach
			7	Assessment
			8	Other
8	Software	Software, platforms and tools offered-as-a-service or deployed-on-demand	1	Software Repository
			2	Platform
			3	Software Package
			4	Libraries
			5	Other
9	Applications	End-user applications (apps) offered-as-a-service or deployed-on-demand	1	Communication
			2	Collaboration
			3	Productivity
			4	Business
			5	Education
			6	Social/Networking
			7	Utilities

			8	Applications Repository
			9	Other
10	Development Resources	Developer tools, development kits, libraries, APIs	1	Developer Tools
			2	Software Development Kits
			3	Software Libraries
			4	APIs Repository/Gateway
			5	Other
11	Samples	Collection, preparation and delivery of biological, chemical, environmental or other samples.	1	Biological samples
			2	Chemical compounds library
			3	Preparation
			4	Characterisation
			5	TBD
			6	Other
12	Data Management	Robust, feature-rich and user-friendly data management services	1	Mining
			2	Access
			3	Transfer
			4	Registration
			5	Persistent Identifier
			6	Interlinking
			7	Publishing
			8	Discovery
			9	Anonymization
			10	Preservation
			11	Brokering
			12	Annotation
			13	Validation
			14	Maintenance
			15	Embargo
			16	Digitisation
			17	TBC
			18	Other
13	Data Analysis	Processes for data with the goal of discovering useful information, informing conclusions, and supporting decision-making	1	Machine Learning
			2	Artificial Intelligence
			3	Forecast
			4	Visualization
			5	Data extrapolation

			6	Image/data analysis
			7	Workflows
			8	2D/3D Digitisation
			9	Other
14	Measurement & Materials Analysis	Processes and techniques for material analysis, characterisation and monitoring	1	Analysis
			2	Maintenance and Modification
			3	Production
			4	Testing and Validation
			6	Characterisation
			7	Validation
			8	Workflows
			9	TBC
			10	Other
15	Security & Identity	Protect [your] infrastructure and manage user identities and access against advanced threats across devices, data, apps, etc.	1	User authentication
			2	Identity and access management
			3	Threat protection
			4	Coordination
			5	Tools
			6	Certification authority
			7	Single Sign-On
			8	Firewall
			9	Group Management
			10	Other
16	Operations & Infrastructure Management Services	Services for monitoring, scaling, creating, tracking and automating operations on [your] infrastructures and services.	1	Accounting
			2	Helpdesk
			3	Monitoring
			4	Analysis
			5	Configuration
			6	Utilities
			7	Coordination
			8	Billing
			9	Order Management
			10	Transportation
			11	Other
17	Education & Training	Highly-specialized seminars and courses to help advance	1	Online Courses
			2	Open Registration Courses

		research knowledge and sharpen scientific skills	3	In-house Courses
			4	Training Tool
			5	Training Platform
			6	Other
18	Consultancy & Support	Dedicated support, expertise, consultancy for a wide range of scientific disciplines and research activities	1	Consulting
			2	Audit and Assessment
			3	Application Porting
			4	Application Scaling
			5	Application Optimisation
			6	Software Development
			7	Software Improvement
			8	Modelling and Simulation
			9	Prototype Development
			10	Testing
			11	Certification
			12	Calibration
			13	Benchmarking
			14	Technology Transfer
			15	Methodology Development
			16	Other
19	Aggregators & Integrators	Thematic, Regional and other Aggregators & Integrators	1	Services
			2	Services & Data
			3	Services & Applications
			4	Services & Software
			5	Applications & Data
			6	Software & Data
			7	Applications & Software
			8	Services & Applications & Data
			9	Services & Software & Data
			10	Services & Applications & Software
			11	Services & Applications & Software
			12	Services & Applications & Software & Data
			13	Other
20	Other		1	Other

6.12. Services/Resources Users/Customers Classification

Table 16: Classification of services and resources based on Users/Customers

No.	Target Users/Customers	Description
1	Researchers	Someone who conducts scientific research, i.e., an organized and systematic investigation by using scientific methods.
2	Research groups	A research group is a group of researchers working together on a particular issue or topic. Research groups may be composed of researchers all from the same subject/discipline or from different subjects/disciplines.
3	Research communities	Research communities provide an infrastructure through which scientists of discipline-specific scientific areas are able to advance their research goals, reaching out to other researchers.
4	Research projects	A privately or publicly funded project on a research topic.
5	Research networks	Research networks aim to stimulate interaction between researchers and promote information exchange.
6	Research managers	Someone in an organization whose job is to manage a research initiative aiming to the development of new scientific results, products or ideas.
7	Research organisations	A public or private legal entity (e.g. academia, business, industry, public services, etc.) representing the User.
8	Students	A person who is studying at a university or other place of higher education.
8	Innovators	The group or individual, which is the first to try new ideas, processes, goods and services. Innovators are followed by early adopters, early majority, late majority, and laggards, in that order.
9	Businesses	An organization or economic system where goods and services are exchanged for one another or for money. Businesses can be privately owned, not-for-profit or state-owned.
10	Service/Resource Providers	A service provider is an organisation that provides different kind of solutions and/or services/resources to end users and other organizations. This broad term incorporates all businesses and organisations that provide products and solutions through services that are offered for free, on-demand, on pay per use or on a hybrid delivery model.
11	Funders	Individual or organization financing a part or all of a project's cost as a grant, investment, or loan.
12	Policy Makers	Individuals (usually members of the board of directors) who have the authority to set the policy framework of an organization.
13	Research Infrastructure Managers	A RI Manager is a type of Project Coordinator who specializes in research infrastructures. They are responsible for things like managing researchers, making sure costs are on budget and serving as a liaison between research staff and project stakeholders.
14	Service/Resource Provider Managers	A service/resource provider manager is an individual within an organisation that is responsible for the quality of the services/resources provided and monitors the delivery of the service.
15	Service/Resource Managers	Service Managers are typically responsible for managing service level agreements with customers and external service providers.

16	Other	

6.13. Services/Resources Access Type Classification

Table 17: Classification of services and resources based on their Access Type

No.	Access Type	Description
1	Remote	Services and Resources are delivered remotely with the use of a physical infrastructure. The user is able to remotely work with the physical RI without the need of physical presence.
2	Physical	Services and resources require a physical presence of the user. The user can only access the RI if he is physically present in the specific location that the RI is offered.
3	Virtual	The service/resource is delivered through a virtual infrastructure that the use may access virtually through the web or an intranet.
4	Mail-in	Samples are sent in to for e.g. analysis and the results are returned to the user without the user actually accessing the RI
5	Other	

6.14. Services/Resources Access Mode Classification

Table 18: Classification of services and resources based on their Access Mode

No.	Access Mode	Description
1	Free	Users can freely access the service provided, registration may be needed.
2	Free conditionally	Users are granted access based on defined policies; such policies usually apply to resources being offered with “sponsored use” to meet some national or EU level objective; for instance, a country may offer resources with “sponsored use” to support national researchers involved in international collaborations.
3	Peer-reviewed	Users are selected based on scientific excellence evaluation, originality, quality and technical and ethical feasibility of an application evaluated through peer review conducted by internal or external experts of the activity to be supported by the service
4	Paid	Users need to pay a fee to access the service
5	Other	

6.15. Services/Resources Funding Classification

Table 19: Classification of services and resources based on their Funding

No.	Funded by	Description
1	Academy of Finland (AKA)	The Academy of Finland’s mission is to fund high-quality scientific research, provide expertise in science and science policy, and strengthen the position of science and research. We are an agency

		within the administrative branch of the Finnish Ministry of Education, Science and Culture.
2	Arts & Humanities Research Council (AHRC UK)	AHRC is part of UK Research and Innovation, a new body that works in partnership with universities, research organisations, businesses, charities, and government to create the best possible environment for research and innovation to flourish. Operating across the whole of the UK with a combined budget of more than £6 billion, UK Research and Innovation brings together the seven Research Councils, Innovate UK and a new organisation, Research England.
3	Australian Research Council (ARC)	The Australian Research Council (ARC) is a Commonwealth entity and advises the Australian Government on research matters, administers the National Competitive Grants Program, a significant component of Australia's investment in research and development, and has responsibility for Excellence in Research for Australia (ERA).
4	Austrian Research Promotion Agency (FFG)	Research, development and innovation are central drivers for economic, technological and social development. Businesses that undertake research grow faster, achieve higher export rates and create more employment than those who do not. The FFG applies a wide variety of measures to support structural change in Austria.
5	Austrian Science Fund (FWF)	The Austrian Science Fund (FWF) is Austria's central funding organization for basic research. The purpose of the FWF is to support the ongoing development of Austrian science and basic research at a high international level. In this way, the FWF makes a significant contribution to cultural development, to the advancement of our knowledge-based society, and thus to the creation of value and wealth in Austria.
6	Belmont Forum	Established in 2009, the Belmont Forum is a partnership of funding organizations, international science councils, and regional consortia committed to the advancement of interdisciplinary and transdisciplinary science. Forum operations are guided by the Belmont Challenge, a vision document that encourages:
7	Croatian Science Foundation (CSF)	Croatian Science Foundation was established by the Croatian Parliament in December 2001 under the name The National Foundation for Science, Higher Education and Technological Development of the Republic of Croatia. Its mission is to promote science, higher education and technological development in Croatia in order to ensure the development of economy and to support employment.
8	Danish Agency for Science and Higher Education	The agency is part of the Ministry of Higher Education and Science, and it was established 1 January 2017. The Danish Agency for Science and Higher Education has responsibility for all tasks that require particular expertise within the areas of research and education – across all institutions.
9	Deutsche Forschungsgemeinschaft (DFG)	The main task of the DFG is to select the best projects by researchers at universities and research institutions on a competitive basis and to finance these projects. Individuals or higher education institutions submit proposals in a particular field of curiosity-driven basic research that they themselves select. Interdisciplinary proposals are also considered.
10	DLR Project Management Agency	Competent management of policies, programmes and projects is needed to ensure that Germany can realise its full potential as a

		hub of innovative excellence – this is precisely our speciality as the DLR Project Management Agency. We provide an array of services to key decision-makers from the worlds of government, science, industry and education – from analysis and consultancy to the development and implementation of policies and measures on the regional, national, European and international level.
11	European Commission CEF Programme	Grants for project of common interest within the framework of the trans-European networks policy in the sectors of energy, transport and telecommunications to develop, build and upgrade infrastructure.
12	European Commission COSME Programme	Grants for projects, which aims to boost the competitiveness of enterprises and SMEs.
13	European Commission Creative Europe Programme	Grants for project, which aims to foster the safeguarding and promotion of European cultural and linguistic diversity and strengthen the competitiveness of the culture and creative sectors.
14	European Commission EUREKA Programme	European network developing cooperation between SMEs, research centres and universities for industrial innovation
15	European Commission Horizon 2020 Programme	Grants for projects of Research and Innovation to establish an economy based on knowledge and innovation.
16	European Commission LIFE Programme	Grants for project for the environment and climate action
17	European Commission (EC)	The European Commission is the EU's politically independent executive arm. It is alone responsible for drawing up proposals for new European legislation, and it implements the decisions of the European Parliament and the Council of the EU.
18	French National Research Agency	The French National Centre for Scientific Research is among the world's leading research institutions. Its scientists explore the living world, matter, the Universe, and the functioning of human societies in order to meet the major challenges of today and tomorrow. Internationally recognised for the excellence of its scientific research, the CNRS is a reference in the world of research and development, as well as for the general public.
19	Fundação para a Ciência e a Tecnologia, I.P. (FCT)	Fundação para a Ciência e a Tecnologia is the Portuguese public agency that supports science, technology and innovation, in all scientific domains, under responsibility of the Ministry for Science, Technology and Higher Education.
20	Innovation Fund Denmark	Innovation Fund Denmark invests every year in new knowledge based initiatives that create growth and jobs.
21	International Social Science Council of France	The International Social Science Council (ISSC) was established in 1952 as an independent non-government organisation. It is the primary body representing the social, economic and behavioural sciences at an international level. Its mission is to increase the production and use of social science knowledge to help solve global problems.
22	Ministry of Education, Science and Technological Development of Republic of Serbia (MESTD)	The Ministry of Education, Science and Technological Development is the central organization that promotes and finances research in Serbia.

23	Ministry of Science, Education and Sports of the Republic of Croatia (MSES)	The Ministry of Science, Education and Sports (MSES) is a pillar institution of the science system in Croatia. It bears responsibility for all the stages of education, research, sports and promotes research-based technology development and communication and information (IT) activities. Its main mission regarding scientific research is to create and implement national scientific research policy as a framework for overall development of science in Croatia.
24	National Health and Medical Research Council (NHMRC)	The National Health and Medical Research Council (NHMRC) is Australia's peak funding body for medical research.
25	National Institutes of Health (NIH)	The National Institutes of Health (NIH), a part of the U.S. Department of Health and Human Services, is the nation's medical research agency — making important discoveries that improve health and save lives.
26	National Science Foundation (NSF)	The National Science Foundation (NSF) is an independent federal agency created by Congress in 1950 "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense..."
27	Netherlands Organisation for Scientific Research (NWO)	NWO facilitates excellent, curiosity-driven disciplinary, interdisciplinary and multidisciplinary research. In this role, NWO focuses on all scientific disciplines and on the entire knowledge chain with an emphasis on fundamental research.
28	NSF Europe	With a regional office in Brussels, Belgium, NSF provides product certification and testing services across Europe for foodservice equipment, drinking water and plumbing systems and components, residential drinking water treatment units, bottled water and dietary supplements.
29	Research Council UK (RCUK)	Research Councils UK (2002 – 2018), sometimes known as RCUK, was a non-departmental public body which coordinated science policy in the United Kingdom. It was an umbrella organisation that coordinated the seven separate Research Councils that are responsible for funding and coordinating academic research for the arts, humanities, science and engineering. The strategic partnership of the UK's seven Research Councils, Research Councils UK has now transitioned into UK Research and Innovation (UKRI).
30	Science Foundation Ireland (SFI)	Science Foundation Ireland funds oriented basic and applied research in the areas of science, technology, engineering and mathematics.
31	Swiss National Science Foundation (SNSF)	Based on a government mandate, the Swiss National Science Foundation (SNSF) supports scientific research in all academic disciplines, from history to medicine and the engineering sciences. At the end of 2017, the SNSF was funding 5800 projects involving 16,000 researchers, which makes it the leading Swiss institution for promoting scientific research.
32	Tara Expeditions Foundation (TARA)	The Tara Ocean Foundation organizes voyages to study and understand the impact of climate change and the ecological crisis facing the world's oceans
33	TEKES Finland	Tekes promotes the development of industry and services by means of technology, innovations and growth funding. Tekes works with the top innovative companies and research units in Finland. Research, development and innovation funding is targeted to

		projects that create the greatest benefits for the economy and society in the long-term. Tekes does not derive financial profit from its activities, nor claim intellectual proprietary rights. Tekes is part of the Team Finland network.
34	The Danish Council for Independent Research	Independent Research Fund Denmark funds specific research activities based on researchers' own initiatives. Moreover, the Fund provides advice in all scientific areas for the Danish Minister for Higher Education and Science, the Danish Parliament and the Government.
35	The Economic and Social Research Council (ESRC UK)	ESRC is part of UK Research and Innovation (UKRI), a new organisation that brings together the UK's seven research councils, Innovate UK and Research England to maximise the contribution of each council and create the best environment for research and innovation to flourish. The vision is to ensure the UK maintains its world-leading position in research and innovation.
36	The Icelandic Centre for Research (Rannis)	Rannis administers the main public competitive funds in the fields of research, innovation, education and culture in Iceland. Rannis coordinates and promotes Icelandic participation in European cooperation programmes, such as Horizon 2020, Erasmus+ and Creative Europe, as well as other international programmes.
37	The Research Council of Norway	The Research Council works to promote research and innovation of high quality and relevance and to generate knowledge in priority areas to enable Norway to deal with key challenges to society and the business sector.
38	The Swedish Research Council	The Swedish Research Council is Sweden's largest governmental research funding body, and supports research of the highest quality within all scientific fields.
39	The Swedish Research Council Formas	Formas is a government research council for sustainable development. They fund research and innovation, develop strategies, perform analyses and conduct evaluations. Areas of activity include the environment, agricultural sciences and spatial planning
40	Türkiye Bilimsel ve Teknolojik Araştırma Kurumu (TUBITAK)	The Scientific and Technological Research Council of Turkey (Turkish: Türkiye Bilimsel ve Teknolojik Araştırma Kurumu, TÜBİTAK) is a national agency of Turkey whose stated goal is to develop "science, technology and innovation" (STI) policies, support and conduct research and development, and to "play a leading role in the creation of a science and technology culture" in the country.
41	UK Research and Innovation (UKRI)	UK Research and Innovation is a new body, which works in partnership with universities, research organisations, businesses, charities, and government to create the best possible environment for research and innovation to flourish. We aim to maximise the contribution of each of our component parts, working individually and collectively. We work with our many partners to benefit everyone through knowledge, talent and ideas.
42	VINNOVA	Vinnova strengthen Sweden as a country of research and innovation. Our work is based on the mission to open the way for innovation that makes a difference. Our vision is that Sweden is an innovative force in a sustainable world: a leading global player in research and innovation and a country that is attractive for investment and entrepreneurship.

43	Wellcome Trust (WT)	Wellcome exists to improve health by helping great ideas to thrive. Is supports researchers, takes on big health challenges, campaigns for better science, and helps everyone get involved with science and health research.
44	Other	

6.16. Services/Resources Phase Classification

Table 20: Classification of services and resources based on their Phase

No.	Phase	Description
1	Concept development	Concept screening, funding concept (TRL: 1)
2	Discovery	Assessing users' needs, exploring technological or policy constraints (TRL: 1,2)
3	Design	Design study, business case, cost breakdown (TRL: 2)
4	Preparation	Preparatory phase (TRL: 3)
5	Planned	A plan to develop the service is defined (TRL: 3, 4)
6	Alpha	Prototype/test service available for closed set of users; (TRL: 5, 6)
7	Beta	Service being developed while available for testing publicly (TRL: 7)
8	Implementation	Construction/set up and deployment (TRL: 5, 6, 7)
9	Production	Service available in the live environment meeting security/performance requirements; (TRL: 8, 9)
10	Operation	Service offered and upgraded (TRL: 8, 9)
11	In containment	The service is active, but generally not available to new customers
12	Retirement	The service is not anymore offered
13	Termination	Dissolution, dismantling
14	Other	

6.17. Services/Resources TRL Classification

Table 21: Classification of services and resources based on their TRL

No.	Technology Readiness Level	Description
1	TRL1	Scientific research has led to observation and reports of basic principles, which has evolved to applied research and development.
2	TRL2	Practical applications for the observed basic physical principles is found and reported.
3	TRL3	The most critical functions of the new technology is validated by using both analytical and experimental methods.
4	TRL4	The concept is tested to assure that the technical elements can be integrated together and achieve the desired performance, at a component and/or breadboard level.

5	TRL5	The components making up the concept is tested individually in realistic environment.
6	TRL6	A model or prototype of the concept, not individual components, is tested in a relevant environment.
7	TRL7	A prototype is tested in the environment in which the final product will operate, e.g. in the original NASA framework this meant to test the technology in space.
8	TRL8	The technology is built to the specifications of the final product and is tested in the operational environment alongside all systems it will interact with.
9	TRL9	At this level, the technology development has been completed and the technology is performing as intended in the real-world environment.

6.18. Services/Resources Order Type Classification

Table 22: Classification of services and resources based on their Order Type

No.	Order Type	Description
1	Request/Order required	Service/Resource requires an ordering procedure
2	Open access	No ordering procedure necessary to access the service/resource but requires user authentication
3	Fully open access	No ordering procedure necessary to access the service/resource and no user authentication required
4	Other	

6.19. Services/Resources Language Classification

Table 23: Classification of services and resources based on their Language

No.	Language
1	Abkhaz
2	Afar
3	Afrikaans
4	Akan
5	Albanian
6	Amharic
7	Arabic
8	Aragonese
9	Armenian
10	Assamese
11	Avaric

12	Avestan
13	Aymara
14	Azerbaijani
15	Bambara
16	Bashkir
17	Basque
18	Belarusian
19	Bengali
20	Bihari
21	Bislama
22	Bosnian
23	Breton
24	Bulgarian
25	Burmese
26	Catalan
27	Chamorro
28	Chechen
29	Chichewa
30	Chinese
31	Chuvash
32	Cornish
33	Corsican
34	Cree
35	Croatian
36	Czech
37	Danish
38	Divehi
39	Dutch
40	Dzongkha
41	English
42	Esperanto
43	Estonian
44	Ewe
45	Faroese
46	Fijian

47	Finnish
48	French
49	Fula
50	Gaelic
51	Galician
52	Ganda
53	Georgian
54	German
55	Greek
56	Guaraní
57	Gujarati
58	Haitian
59	Hausa
60	Hebrew
61	Herero
62	Hindi
63	Hiri Motu
64	Hungarian
65	Icelandic
66	Ido
67	Igbo
68	Indonesian
69	Interlingua
70	Interlingue
71	Inuktitut
72	Inupiaq
73	Irish
74	Italian
75	Japanese
76	Javanese
77	Kalaallisut
78	Kannada
79	Kanuri
80	Kashmiri
81	Kazakh

82	Khmer
83	Kikuyu
84	Kinyarwanda
85	Kirundi
86	Komi
87	Korean
88	Kurdish
89	Kwanyama
90	Kyrgyz
91	Lao
92	Latin
93	Latvian
94	Limburgish
95	Lingala
96	Lithuanian
97	Luba-Katanga
98	Luxembourgish
99	Macedonian
100	Malagasy
101	Malay
102	Malayalam
103	Maltese
104	Manx
105	Māori
106	Marathi
107	Marshallese
108	Mongolian
109	Nauru
110	Navajo
111	Ndonga
112	Nepali
113	Northern Ndebele
114	Northern Sami
115	Norwegian
116	Norwegian Bokmål

117	Norwegian Nynorsk
118	Nuosu
119	Occitan
120	Ojibwe
121	Old Church Slavonic
122	Oriya
123	Oromo
124	Ossetian
125	Pāli
126	Panjabi
127	Pashto
128	Persian
129	Polish
130	Portuguese
131	Quechua
132	Romanian
133	Romansh
134	Samoan
135	Sango
136	Sanskrit
137	Sardinian
138	Serbian
139	Shona
140	Sindhi
141	Sinhala
142	Slovak
143	Slovene
144	Somali
145	Southern Ndebele
146	Southern Sotho
147	Spanish
148	Sundanese
149	Swahili
150	Swati
151	Swedish

152	Tagalog
153	Tahitian
154	Tajik
155	Tamil
156	Tatar
157	Telugu
158	Thai
159	Tibetan Standard
160	Tigrinya
161	Tonga
162	Tsonga
163	Tswana
164	Turkish
165	Turkmen
166	Twi
167	Ukrainian
168	Urdu
169	Uyghur
170	Uzbek
171	Venda
172	Vietnamese
173	Volapük
174	Walloon
175	Welsh
176	Western Frisian
177	Wolof
178	Xhosa
179	Yiddish
180	Yoruba
181	Zhuang
182	Zulu
183	Other

6.20. Providers and Services/Resources Location Classification

Table 24: Classification of Providers and services and resources based on their Location

No.	Location	Description
1	WW	Worldwide
2	EU	Europe
3	PR	Puerto Rico
4	PS	Palestine
5	PT	Portugal
6	PW	Palau
7	PY	Paraguay
8	QA	Qatar
9	AD	Andorra
10	AE	United Arab Emirates
11	AF	Afghanistan
12	AG	Antigua and Barbuda
13	AI	Anguilla
14	AL	Albania
15	AM	Armenia
16	AO	Angola
17	AQ	Antarctica
18	AR	Argentina
19	AS	American Samoa
20	RE	Réunion
21	AT	Austria
22	AU	Australia
23	AW	Aruba
24	AX	Åland Islands
25	AZ	Azerbaijan
26	RO	Romania
27	BA	Bosnia and Herzegovina
28	BB	Barbados
29	RS	Serbia
30	BD	Bangladesh
31	RU	Russian Federation

32	BE	Belgium
33	BF	Burkina Faso
34	BG	Bulgaria
35	RW	Rwanda
36	BH	Bahrain
37	BI	Burundi
38	BJ	Benin
39	BL	Saint Barthélemy
40	BM	Bermuda
41	BN	Brunei Darussalam
42	BO	Bolivia
43	SA	Saudi Arabia
44	BQ	Bonaire
45	SB	Solomon Islands
46	BR	Brazil
47	SC	Seychelles
48	BS	Bahamas
49	SD	Sudan
50	BT	Bhutan
51	SE	Sweden
52	BV	Bouvet Island
53	SG	Singapore
54	SH	Saint Helena
55	BW	Botswana
56	SI	Slovenia
57	BY	Belarus
58	SJ	Svalbard and Jan Mayen
59	BZ	Belize
60	SK	Slovakia
61	SL	Sierra Leone
62	SM	San Marino
63	SN	Senegal
64	SO	Somalia
65	CA	Canada
66	SR	Suriname

67	CC	Cocos (Keeling) Islands
68	SS	South Sudan
69	ST	Sao Tome and Principe
70	CD	Congo
71	SV	El Salvador
72	CF	Central African Republic
73	CG	Congo
74	SX	Sint Maarten (Dutch part)
75	CH	Switzerland
76	SY	Syrian Arab Republic
77	CI	Côte d'Ivoire
78	SZ	Swaziland
79	CK	Cook Islands
80	CL	Chile
81	CM	Cameroon
82	CN	China
83	CO	Colombia
84	TC	Turks and Caicos Islands
85	CR	Costa Rica
86	TD	Chad
87	TF	French Southern Territories
88	CU	Cuba
89	CV	Cape Verde
90	TG	Togo
91	CW	Curaçao
92	TH	Thailand
93	CX	Christmas Island
94	CY	Cyprus
95	TJ	Tajikistan
96	TK	Tokelau
97	CZ	Czech Republic
98	TL	Timor-Leste
99	TM	Turkmenistan
100	TN	Tunisia
101	TO	Tonga

102	TR	Turkey
103	TT	Trinidad and Tobago
104	DE	Germany
105	TV	Tuvalu
106	TW	Taiwan
107	TZ	Tanzania
108	DJ	Djibouti
109	DK	Denmark
110	DM	Dominica
111	DO	Dominican Republic
112	UA	Ukraine
113	UG	Uganda
114	DZ	Algeria
115	UM	United States Minor Outlying Islands
116	EC	Ecuador
117	US	United States
118	EE	Estonia
119	EG	Egypt
120	EH	Western Sahara
121	UY	Uruguay
122	UZ	Uzbekistan
123	VA	Holy See (Vatican City State)
124	ER	Eritrea
125	VC	Saint Vincent and the Grenadines
126	ES	Spain
127	ET	Ethiopia
128	VE	Venezuela
129	EU	Europe
130	VG	Virgin Islands, British
131	VI	Virgin Islands, U.S.
132	VN	Viet Nam
133	VU	Vanuatu
134	FI	Finland
135	FJ	Fiji
136	FK	Falkland Islands (Malvinas)

137	FM	Micronesia
138	FO	Faroe Islands
139	FR	France
140	WF	Wallis and Futuna
141	GA	Gabon
142	GB	United Kingdom
143	WS	Samoa
144	GD	Grenada
145	GE	Georgia
146	GF	French Guiana
147	GG	Guernsey
148	WW	World
149	GH	Ghana
150	GI	Gibraltar
151	GL	Greenland
152	GM	Gambia
153	GN	Guinea
154	GP	Guadeloupe
155	GQ	Equatorial Guinea
156	GR	Greece
157	GS	South Georgia and the South Sandwich Islands
158	GT	Guatemala
159	GU	Guam
160	GW	Guinea-Bissau
161	GY	Guyana
162	HK	Hong Kong
163	HM	Heard Island and McDonald Islands
164	HN	Honduras
165	HR	Croatia
166	HT	Haiti
167	YE	Yemen
168	HU	Hungary
169	ID	Indonesia
170	YT	Mayotte
171	IE	Ireland

172	IL	Israel
173	IM	Isle of Man
174	IN	India
175	IO	British Indian Ocean Territory
176	ZA	South Africa
177	IQ	Iraq
178	IR	Iran
179	IS	Iceland
180	IT	Italy
181	ZM	Zambia
182	JE	Jersey
183	ZW	Zimbabwe
184	JM	Jamaica
185	JO	Jordan
186	JP	Japan
187	KE	Kenya
188	KG	Kyrgyzstan
189	KH	Cambodia
190	KI	Kiribati
191	KM	Comoros
192	KN	Saint Kitts and Nevis
193	KP	Democratic People's Republic of Korea
194	KR	Republic of Korea
195	KW	Kuwait
196	KY	Cayman Islands
197	KZ	Kazakhstan
198	LA	Lao People's Democratic Republic
199	LB	Lebanon
200	LC	Saint Lucia
201	LI	Liechtenstein
202	LK	Sri Lanka
203	LR	Liberia
204	LS	Lesotho
205	LT	Lithuania
206	LU	Luxembourg

207	LV	Latvia
208	LY	Libya
209	MA	Morocco
210	MC	Monaco
211	MD	Moldova
212	ME	Montenegro
213	MF	Saint Martin (French part)
214	MG	Madagascar
215	MH	Marshall Islands
216	MK	Former Yugoslav Republic of Macedonia
217	ML	Mali
218	MM	Myanmar
219	MN	Mongolia
220	MO	Macao
221	MP	Northern Mariana Islands
222	MQ	Martinique
223	MR	Mauritania
224	MS	Montserrat
225	MT	Malta
226	MU	Mauritius
227	MV	Maldives
228	MW	Malawi
229	MX	Mexico
230	MY	Malaysia
231	MZ	Mozambique
232	NA	Namibia
233	NC	New Caledonia
234	NE	Niger
235	NF	Norfolk Island
236	NG	Nigeria
237	NI	Nicaragua
238	NL	Netherlands
239	NO	Norway
240	NP	Nepal
241	NR	Nauru

242	NU	Niue
243	NZ	New Zealand
244	OM	Oman
245	PA	Panama
246	PE	Peru
247	PF	French Polynesia
248	PG	Papua New Guinea
249	PH	Philippines
250	PK	Pakistan
251	PL	Poland
252	PM	Saint Pierre and Miquelon
253	PN	Pitcairn
254	OTHER	Other