

D6.1b

Registry of Connection, Integration, Validation and Auditing Processes

Version 1.0
October 2023

D6.1b / Registry of Connection, Integration, Validation and Auditing Processes

Lead by **EGI Foundation**

Update written by Montserrat González Ferreiro (EGI Foundation)

Reviewed by Ron Dekker (TGB), Robert van der Vooren (TGB) and Athanasia Spiliotopoulou (JNP)

Dissemination Level of the Document

Public

Abstract

This deliverable, of type Demonstrator, describes the status of onboarding and how providers request their onboarding as providers and the registration of their resources via the EOSC Providers Portal. Onboarding requests for providers and resources are reviewed and validated by the EOSC Portal Onboarding Team before they can be included in the EOSC Catalogue and made available to end users. Additionally, the EOSC Portal Onboarding Team audits existing records to ensure their validity.

The EOSC Portal Onboarding Team outlines instructions on how to onboard and validate, as well as audit providers and resources in procedures. They also created videos to visually guide providers through the onboarding procedures and links to them are included in this document.

A guide created by T6.1 and EPOT, as well as other collaborators on the EOSC Future project, facilitates the understanding of resource type differences. This guide is included as a second appendix.

Version History

Version	Date	Authors	Description
Vo.1	12/09/2023	M Gonzalez (EGI Foundation)	Sections 1 to 3 written
Vo.2	13/09/2023	M Gonzalez (EGI Foundation)	Sections 4 and 5 written
Vo.3	14/09/2023	C Condurache (EGI Foundation)	Section 3 reviewed and minor corrections included.
Vo.4	14/09/2023	M Gonzalez (EGI Foundation)	Appendixes 1 to 3 included
Vo.5	14/09/2023	Christos Arvanitidis (LIFEWATCH), Sally Chambers (DARIAH), Ron Dekker (TGB)	Review of Section 3
Vo.6	14/09/2023	M Gonzalez (EGI Foundation)	Appendixes redone. List of abbreviations and index included.
Vo.7	02/10/2023	M Gonzalez (EGI Foundation)	Reviewer comments incorporated
V1.0	05/10/2023	M Gonzalez (EGI Foundation), Athanasia Spiliotopoulou (JNP), Ron Dekker (TGB), Mike Chatzopoulos (ATHENA)	Final revised version submitted to EC

Copyright Notice



This work by Parties of the EOSC Future Consortium is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/). The EOSC Future project is co-funded by the European Union Horizon Programme call INFRAEOSC-03-2020, Grant Agreement number 101017536.

Table of Contents

Glossary	5
List of Abbreviations	6
1 Introduction	7
2 Onboarding overview and status	8
2.1 Onboarding in simple terms.....	8
2.2 The onboarding process in a nutshell	8
2.3 Types of resources that can now be onboarded to EOSC-Exchange	8
2.4 Current status of Onboarding	9
2.4.1 Statistics about onboarded resource providers	9
2.4.2 Statistics about onboarded resources	11
3 The EOSC Portal Onboarding Team.....	15
3.1 Operation of the EOSC Portal Onboarding Team.....	15
3.2 EPOT coordination	16
3.2.1 EPOT communications	16
3.2.2 EPOT coordination weekly meetings	16
3.2.3 Work distribution among EPOT contributors for onboarding and auditing	16
3.2.4 Collaboration with the EOSC Onboarding Strategy Group.....	17
3.3 Improvements to Onboarding within EOSC Future developed by the EPOT	17
3.4 EPOT onboarding and auditing procedures and scalability	17
4 Conclusions	18
5 References.....	19
6 Appendix A: Onboarding and auditing procedures.....	20
6.1 EPOT Procedure: Onboard a Provider.....	20
6.2 EPOT Procedure: Audit a Provider	22
6.3 EPOT Procedure: Onboard a service	24
6.4 EPOT Procedure: Audit a service	26
6.5 EPOT Procedure: Onboard an external catalogue	28
6.6 EPOT Procedure: Audit an external catalogue	30
6.7 EPOT Procedure: Onboard a data source and research products	33
6.8 EPOT Procedure: Audit a data source and research products.....	38
6.9 EPOT Procedure: Onboard a training resource	40
6.10 EPOT Procedure: Audit a training resource	42
6.11 EPOT Procedure: Onboard an interoperability guideline.....	44
6.12 EPOT Procedure: Audit an interoperability guideline	47
7 Appendix B: Definition of resource types and their onboarding.....	51
7.1 Document objectives	51
7.2 Document structure and relationship between resource types.....	51

7.3	Service resource type.....	51
7.3.1	EOSC onboarding requirements	51
7.3.2	Definition	51
7.3.3	Characteristics.....	52
7.3.4	Examples in the EOSC Marketplace	52
7.3.5	Related EOSC profiles	52
7.3.6	Onboarding instructions for Providers	52
7.3.7	Onboarding procedures for the EPOT	52
7.3.8	Publication time at the EOSC Catalogue and Marketplace.....	52
7.4	A specific service resource type: Data Source	52
7.4.1	EOSC onboarding requirements	52
7.4.2	Definition	52
7.4.3	Characteristics.....	53
7.4.4	Examples in the EOSC Marketplace	53
7.4.5	Related EOSC profiles	53
7.4.6	Onboarding instructions for Providers	53
7.4.7	Onboarding procedures for the EPOT	54
7.4.8	Publication time at the EOSC Catalogue and Marketplace.....	54
7.5	Research product resource type.....	54
7.5.1	EOSC onboarding requirements	54
7.5.2	Definition	54
7.5.3	Characteristics.....	54
7.5.4	Examples in the EOSC Marketplace	54
7.5.5	Related EOSC profiles	55
7.5.6	Onboarding instructions for Providers	55
7.5.7	Onboarding Procedures for the EPOT	55
7.5.8	Publication time at the EOSC Catalogue and Marketplace.....	55
7.6	Community service catalogue resource type.....	55
7.6.1	EOSC onboarding requirements	55
7.6.2	Definition	55
7.6.3	Characteristics.....	55
7.6.4	Examples in the EOSC Marketplace	56
7.6.5	Related profiles	56
7.6.6	Onboarding path for Providers	56
7.6.7	Onboarding procedures for the EPOT.....	56
7.7	Training resource type	56
7.7.1	EOSC onboarding requirements	56
7.7.2	Definition	56
7.7.3	Characteristics.....	56
7.7.4	Examples in the EOSC Marketplace	56

7.7.5	Related EOSC profiles	56
7.7.6	Onboarding path for Providers	56
7.7.7	Onboarding procedures for the EPOT	57
7.7.8	Publication time at the EOSC Catalogue and Marketplace.....	57
7.8	Interoperability guideline resource type.....	57
7.8.1	EOSC onboarding requirements	57
7.8.2	Definition	57
7.8.3	Examples in the EOSC Marketplace	58
7.8.4	Related EOSC profiles	58
7.8.5	Onboarding path for Providers	58
7.8.6	Onboarding procedures for the EPOT	58
7.8.7	Publication time at the EOSC Catalogue and Marketplace.....	58

Table of Figures

Figure 2.1:	Onboarding steps for Providers and Resources to be registered to the EOSC	8
Figure 2.2:	An accumulation of onboarded providers per month from Sept 2020 to Sept 2023	9
Figure 2.3:	Legal status of the onboarded providers per month from Sept 2020 to Sept 2023	9
Figure 2.4:	Network of the onboarded providers per month from Sept 2020 to Sept 2023.....	10
Figure 2.5:	ESFRI domain of the onboarded providers per month from Sept 2020 to Sept 2023	10
Figure 2.6:	Scientific domain of the onboarded resources per month from Sept 2020 to Sept 2023	11
Figure 2.7:	Scientific subdomain of the onboarded resources per month from Sept 2020 to Sept 2023.....	11
Figure 2.8:	Resource category of the onboarded resources per month from Sept 2020 to Sept 2023	12
Figure 2.9:	Target users of the onboarded resources per month from Sept 2020 to Sept 2023	12
Figure 2.10:	Access mode of the onboarded resources per month from Sept 2020 to Sept 2023	13
Figure 2.11:	Lifecycle stage of the onboarded resources per month from Sept 2020 to Sept 2023.....	13
Figure 2.12:	Funding programme of the onboarded resources per month from Sept 2020 to Sept 2023.....	14
Figure 3.1:	The relationship between the work at the EPOT and other tasks in the EOSC Future project.....	15
Figure 3.2:	EOSC Onboarding Confluence space.....	15
Figure 3.3:	Distribution of onboarding and auditing tasks to be developed by the EPOT and collaborators.	16
Figure 7.1:	Simplified relationship between the different EOSC-Exchange resource types.	51

Glossary

The EOSC Future project Glossary is incorporated by reference: <https://wiki.eoscfuture.eu/x/JQCK>

List of Abbreviations

Acronym	Definition
AAI	Authentication and Authorization Infrastructure
API	Application Programming Interface
COR	Catalogue Owner Representative
E-OSG	EOSC Onboarding Strategy Group
EIAC	EOSC Interoperability Area Chairs
EPOT	EOSC Portal Onboarding Team
ESFRI	European Strategy Forum on Research Infrastructures
PR	Provider Representative
SPM	Service Portfolio Management

1 Introduction

EOSC Future has conducted extensive work to expand the onboarding of providers and services described in D6.1a. This deliverable builds on what D6.1a introduced and exposes the outcomes of the work that the EPOT and other collaborators of EOSC Future have done to enable **onboarding resource types** like community **resource catalogues**, **data sources**, **research products**, **training resources**, and **interoperability guidelines**. Procedures are in Appendix A and a guideline in Appendix B.

Onboarding, or registering, resources to the EOSC Portal is an activity that started within EOSC-hub in 2020, by using the EOSC Portal as developed by the EOSC Enhance project. During this time, the EOSC Enhance, and EOSC-hub projects created the EOSC Portal Onboarding Process [1] which has undergone progressive versions and has driven the technical development of the EOSC Providers Portal [2].

EOSC Portal is used in two ways. Regarding resource providers, it is the tool that allows them to onboard their organisation as an EOSC provider as well as their resources. It also allows them to manage and update their onboarding details and gain rich insights into their resource offerings. Regarding the EOSC Portal Onboarding Team (EPOT), it is the tool they use for reviewing and validating onboarding requests, auditing existing entries, and accessing provider and resource statistics. Just for clarity, once the EPOT validates onboarding requests, the records of providers and resources in the EOSC Providers Portal are propagated and populate the EOSC Catalogue and Marketplace [3].

In parallel with the development of the EOSC Portal and the EOSC Portal Onboarding Process, the EPOT developed procedures that contain step-by-step instructions for reviewing and validating onboarding requests, and for auditing existing entries [4]. These procedures ensure that the EOSC-Exchange Inclusion Criteria [5] are followed, both during initial onboarding and afterwards. The EPOT team is coordinated by the EPOT coordinator, who organises a weekly rota to distribute onboarding and auditing work. There is a weekly meeting to ensure continuity of work among EPOT members and to discuss technical developments in the EOSC Portal to support the EPOT operation.

2 Onboarding overview and status

2.1 Onboarding in simple terms

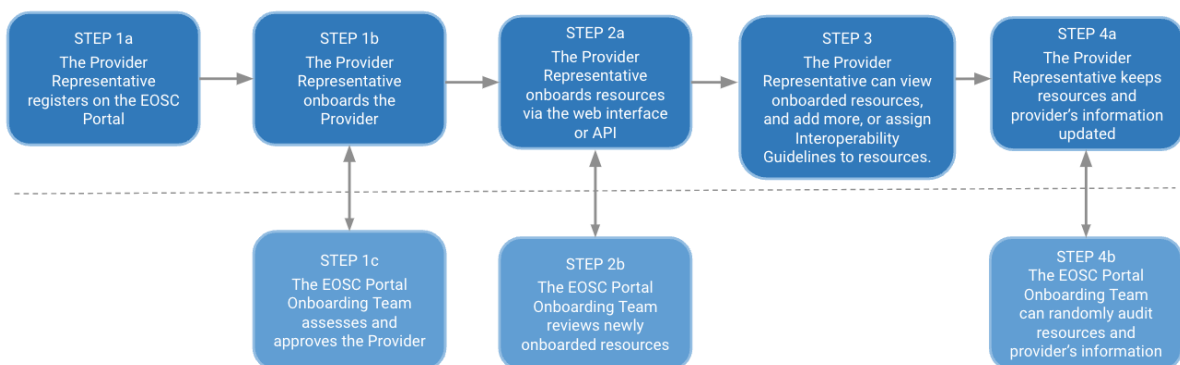
Onboarding means connecting or publishing providers and resources to the EOSC Catalogue and Marketplace. This is done through registration by the providers and validation by the EOSC EPOT in the EOSC Providers Portal. The onboarding of providers and services started towards the end of the EOSC-hub project when the EOSC Providers Portal was established and there was the possibility to add resources to the EOSC Catalogue and Marketplace.

2.2 The onboarding process in a nutshell

As a summary of the onboarding procedures, we can say that it starts when the Provider Representative submits the request to become an EOSC Resource Provider through the EOSC Providers Portal. The EOSC Portal Onboarding Team (EPOT) will review their request according to established operational procedures and validate it in accordance with the EOSC-Exchange Inclusion Criteria. After becoming an EOSC Provider, the Resource Provider can submit their Resources to be onboarded to the EOSC and offered via the EOSC Catalogue and Marketplace to end users. As part of the quality control in the information related to onboarded Providers and Resources, the EPOT conducts random auditing.

The EPOT created the EPOT Documentation for Providers v3 that can be seen at the [EOSC Providers Hub/How to become an EOSC Provider](#) [6]. It explains the detailed steps to be followed by Providers to onboard themselves as EOSC Resource Providers and their Resources to the EOSC that are represented in Figure 2.1.

Steps for the Provider Representative



Steps for the EOSC Portal Onboarding Team

Figure 2.1: Onboarding steps for Providers and Resources to be registered to the EOSC

2.3 Types of resources that can now be onboarded to EOSC-Exchange

All the resource types defined by the EOSC-Exchange Inclusion Criteria can be onboarded to EOSC-Exchange which means that there has been an expansion from only provider and services since a year ago. The resource types that can now be onboarded are services (being data sources a specific subtype of service), community catalogues, research products, training resources and interoperability guidelines. Further information about the Resource types that can be onboarded to the EOSC can be found at the SPM Guideline-02: EOSC-Exchange Definition of resource types (Appendix B).

2.4 Current status of Onboarding

By the end of the EOSC-hub project, 126 services from 82 providers had been onboarded [7]. As of the time of writing this deliverable by mid M30, there are the following onboarding requests: 493 resource providers that started their onboarding, 625 services, 4 resource catalogues, 62 data sources, 24 training resources, and 17 interoperability guidelines. As well, there were 4,647,520 research products in M24, and this number will be updated by OpenAIRE for the EOSC Future M30 report since they could not provide it for this deliverable.

2.4.1 Statistics about onboarded resource providers

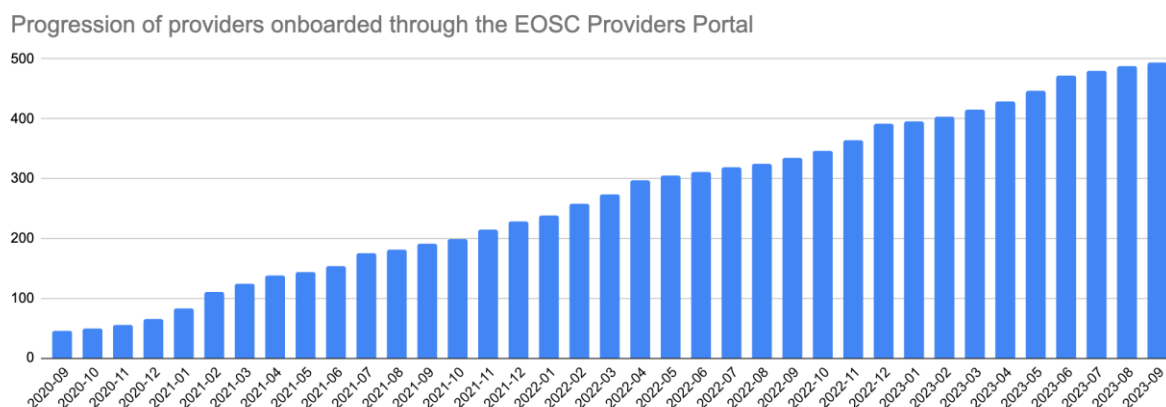


Figure 2.2: An accumulation of onboarded providers per month from Sept 2020 to Sept 2023

Legal status

(top 10)

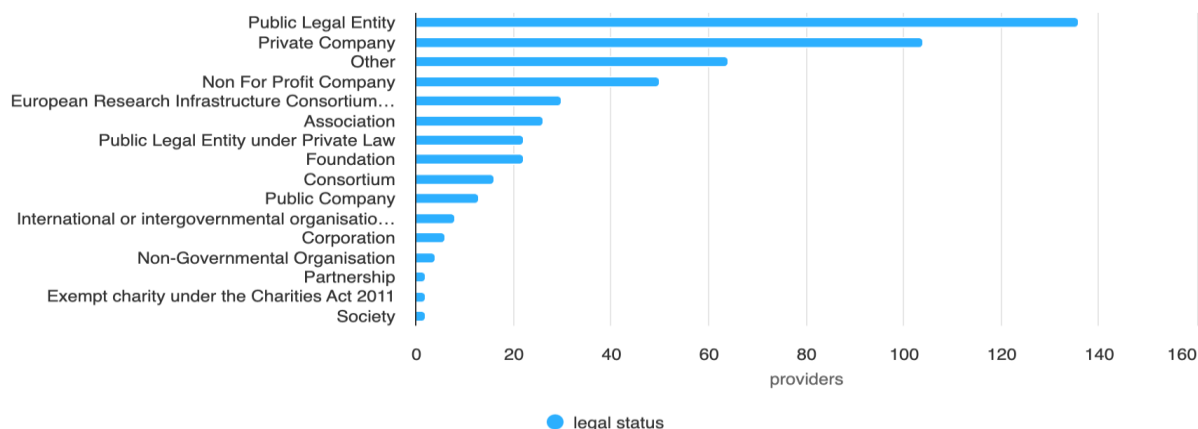


Figure 2.3: Legal status of the onboarded providers per month from Sept 2020 to Sept 2023

Network

(top 10)

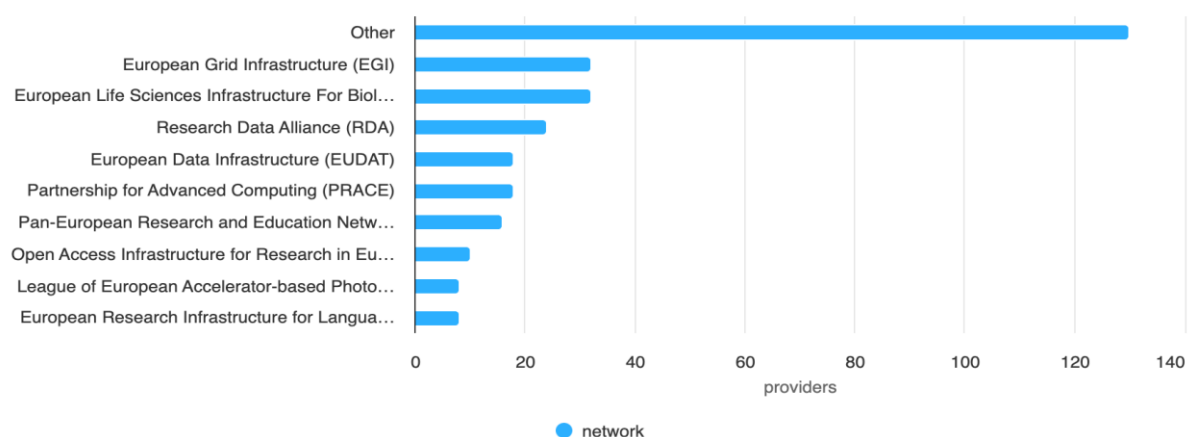


Figure 2.4: Network of the onboarded providers per month from Sept 2020 to Sept 2023

ESFRI domain

(top 10)

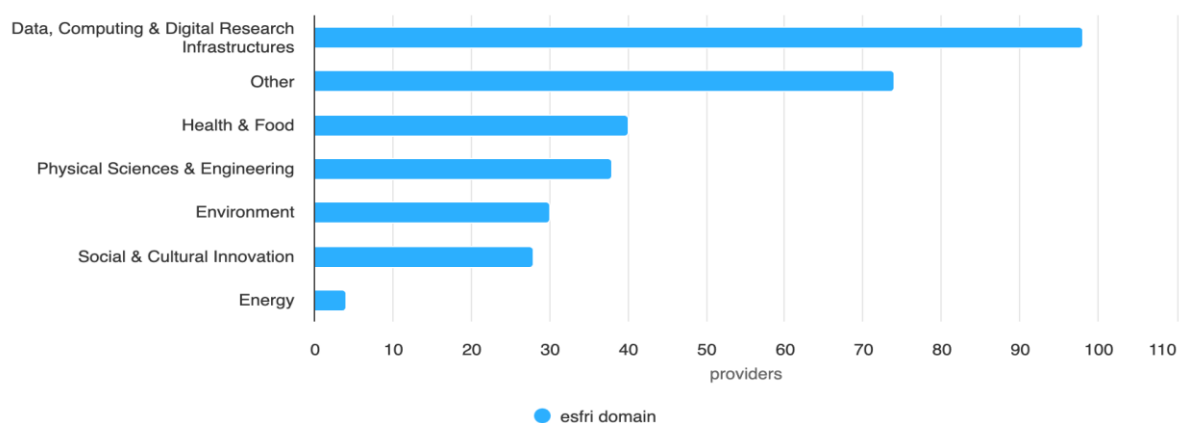


Figure 2.5: ESFRI domain of the onboarded providers per month from Sept 2020 to Sept 2023

2.4.2 Statistics about onboarded resources

Scientific domains

(top 10)

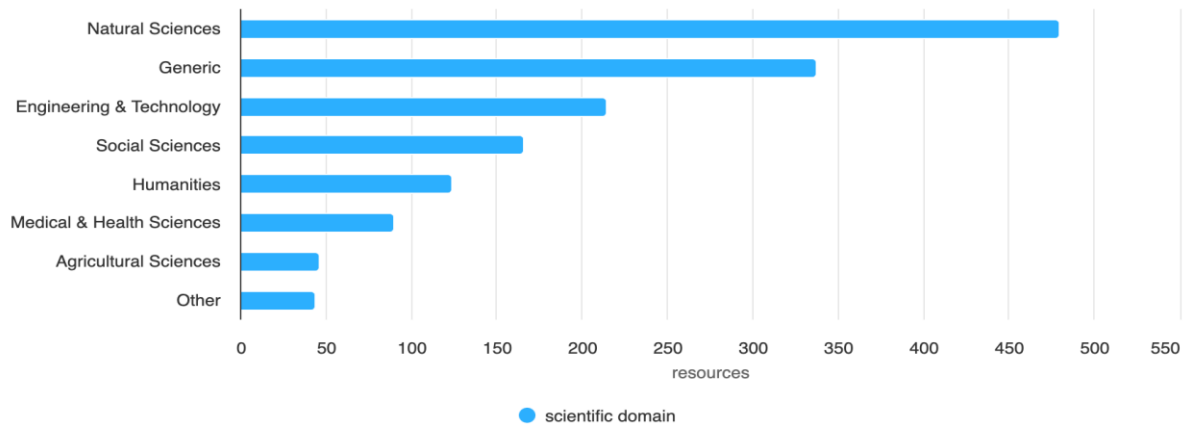


Figure 2.6: Scientific domain of the onboarded resources per month from Sept 2020 to Sept 2023

Scientific subdomains

(top 10)

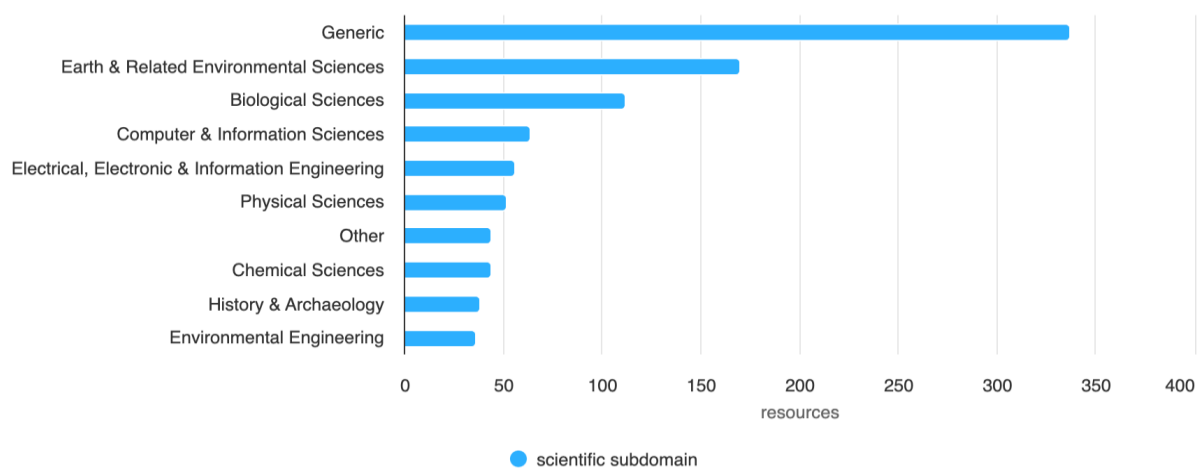


Figure 2.7: Scientific subdomain of the onboarded resources per month from Sept 2020 to Sept 2023

Categories

(top 10)

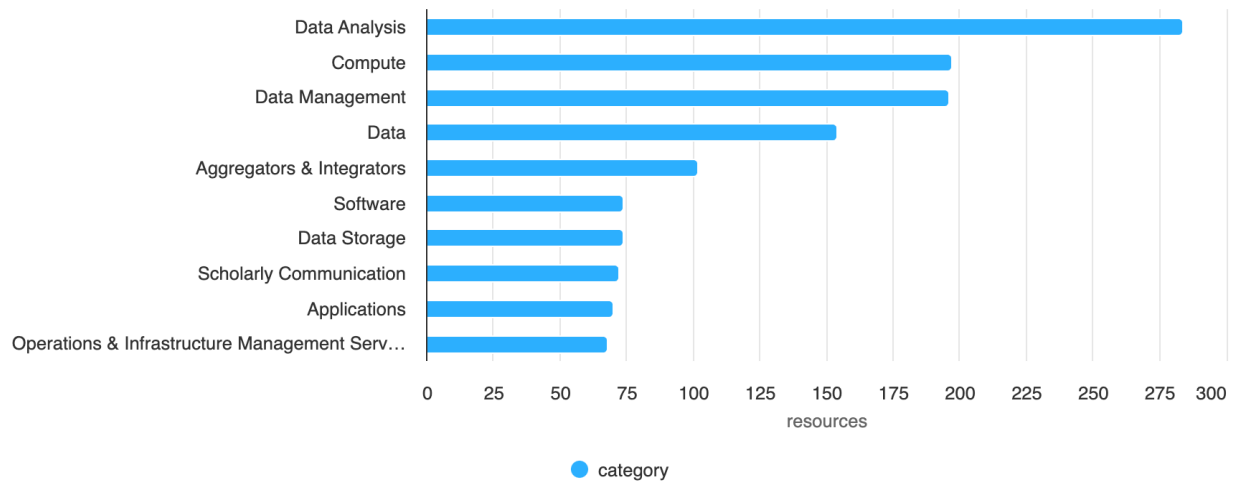


Figure 2.8: Resource category of the onboarded resources per month from Sept 2020 to Sept 2023

Target users

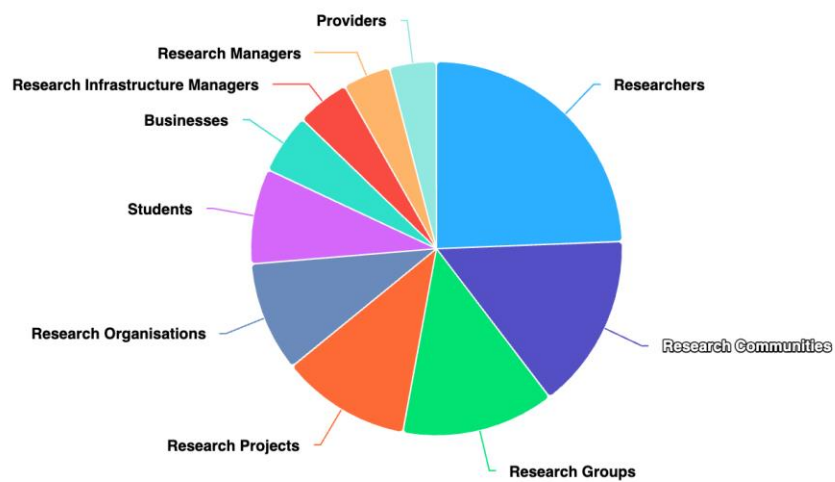


Figure 2.9: Target users of the onboarded resources per month from Sept 2020 to Sept 2023

Access modes

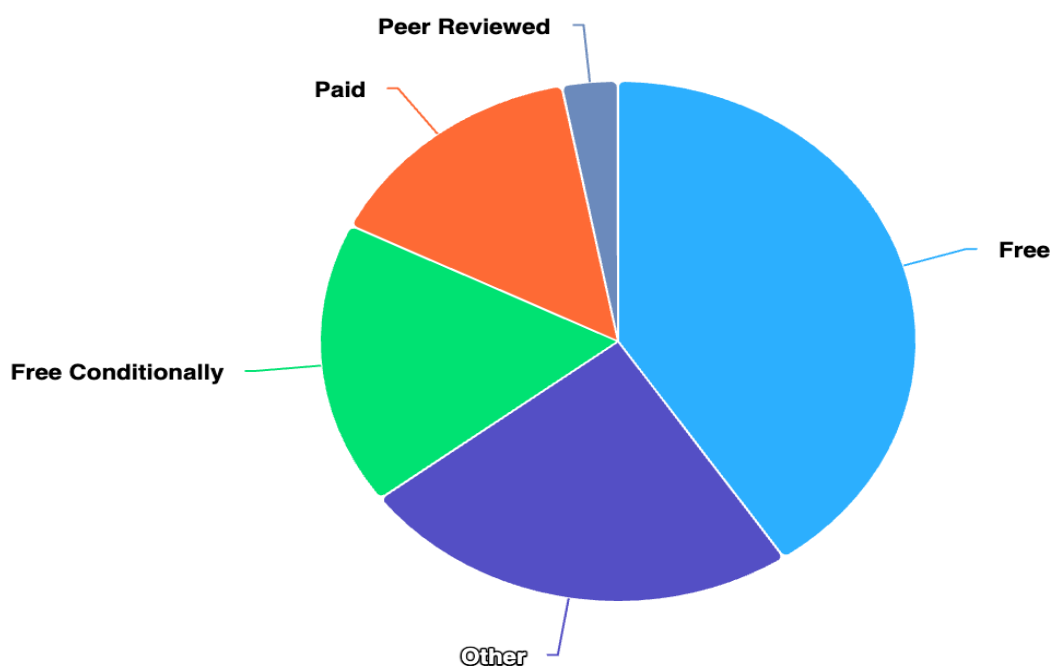


Figure 2.10: Access mode of the onboarded resources per month from Sept 2020 to Sept 2023

Lifecycle

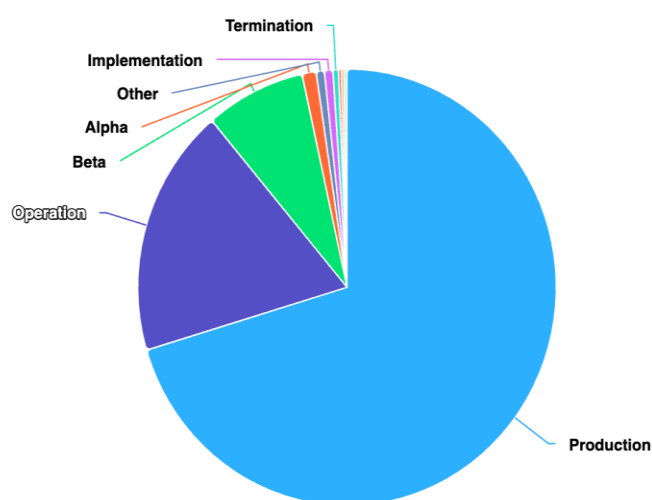


Figure 2.11: Lifecycle stage of the onboarded resources per month from Sept 2020 to Sept 2023

Funding programme

(top 10)

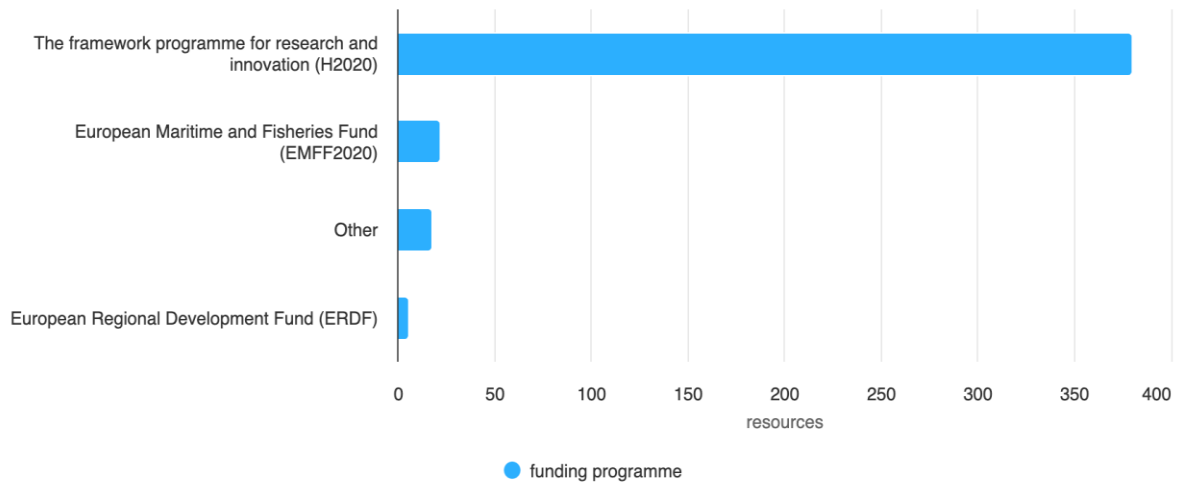


Figure 2.12: Funding programme of the onboarded resources per month from Sept 2020 to Sept 2023

3 The EOSC Portal Onboarding Team

3.1 Operation of the EOSC Portal Onboarding Team

The onboarding of providers and resources is developed by the EPOT. The EPOT is an operational group established within the EOSC-hub project which currently includes participants from the EOSC Future 'T6.1 Connecting Providers and Resources to the EOSC and Expanding Across Domains'. The T6.1 task is responsible for all operational aspects of onboarding, including maintaining and approving EOSC-exchange onboarding procedures.

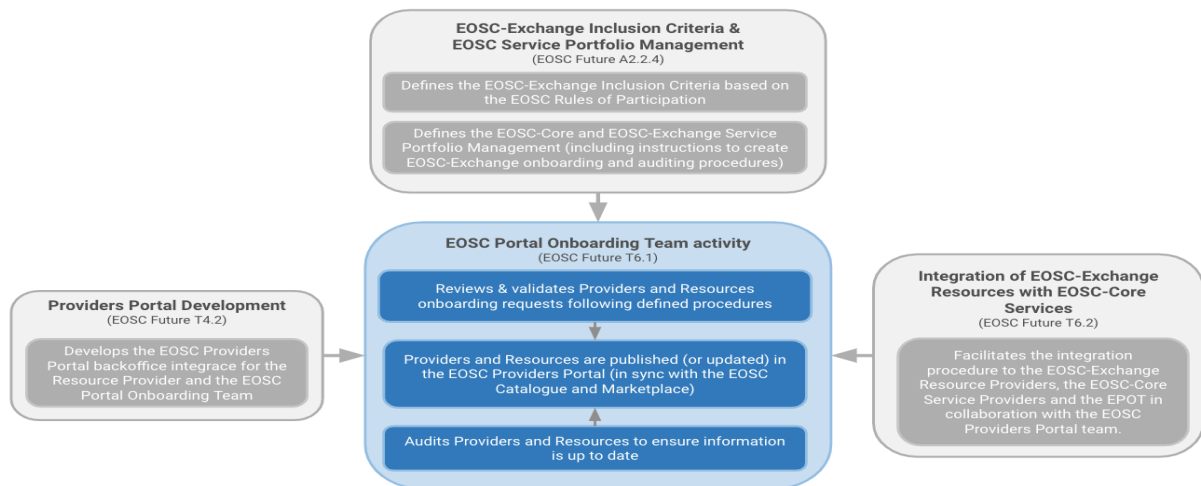


Figure 3.1: The relationship between the work at the EPOT and other tasks in the EOSC Future project

The EPOT gathers all its operational information in the EOSC Onboarding Confluence space [8] whose landing page is in Figure 3.2.

Welcome to the EOSC Onboarding space

Created by Unknown User (Jgrier), last modified by Montserrat Gonzalez Ferrero on Aug 17, 2023

EOSC Onboarding Confluence space

This space contains information to be used to manage and support onboarding to the European Open Science Cloud (EOSC) developed by the EOSC Portal Onboarding Team (EPOT).

@Catalin Condurache, the EPOT coordinator, and @Montserrat Gonzalez Ferrero, the EOSC Future T6.1 lead, are the main contacts for this space.

EOSC-Exchange Onboarding overview

How providers and resources can be onboarded to the EOSC-Exchange, and what kind of resources can be onboarded.

EOSC Onboarding Strategy Group

Provide feedback and support to the EPOT in creating operational procedures to onboard and audit providers and a variety of resources and interpreting the EOSC RoP (Rules of Participation).

EPOT Documentation for Providers

Information created by the EPOT to explain to the Providers what involves the onboarding process.

EPOT Operations overview

Coordination, tasks distribution, and how the EPOT relates to other EOSC-Future activities.

EPOT Members

List of EPOT members and contributors that have access to the EOSC Providers Portal view for the EPOT.

EPOT Meetings

EPOT weekly task review and coordination meetings as well as any other meeting dedicated to a specific topic.

EPOT Onboarding rota

Weekly plan to ensure Providers and Resources are onboarded and audited via the EOSC Providers Portal.

EPOT Procedures

Step-by-step instructions for onboarding and auditing or resources and other tasks

EPOT Guides

Onboarding video guides, use of the EOSC Provider Portal view for the EPOT, and Jira to track onboarding requests.

EPOT Communication

Slack channel, and mailing lists available to EPOT members, and templates to communicate with stakeholders.

EPOT Space Content

- EOSC-Exchange Onboarding overview
- EOSC Onboarding Strategy Group
- EPOT Documentation for Providers
- EPOT Operations overview
 - EPOT Members
 - EPOT Meetings
 - EPOT Onboarding rota
 - EPOT Procedures
 - EPOT Guides
 - EPOT Communication
 - Recent space activity
 - Space contributors

Figure 3.2: EOSC Onboarding Confluence space

3.2 EPOT coordination

The EPOT has a coordinator, currently Catalin Condurache (EGI Foundation), whose tasks are:

- Review and organise the tasks to be done by the EPOT and conduct the EPOT weekly meetings to solve any questions and distribute work among its members.
- Ensures that the EPOT rota is populated.
- Identify topics to be discussed or consulted with the EOSC Onboarding Strategy Group and attend the regular meetings.
- Ensure that the EPOT onboarding and auditing procedures and related information, such as guides, are created and up to date.
- Maintain the list of EPOT members and EPOT mailing lists up to date.

3.2.1 EPOT communications

All EPOT members are part of the **onboarding@eosc-portal.eu** mailing list, used for communications regarding the onboarding of a provider and its resources in the EOSC portal. They are also members of **onboarding-team@eosc-portal.eu** mailing list used for internal discussions within EPOT.

Each EPOT member has access to the management section of the Providers component of the EOSC Portal. Briefly the main actions an EPOT member can perform include:

- View the full list of providers and resources in the catalogue, and filter based on their status, name, and other attributes;
- View the list of resources offered by a provider;
- Approve/reject/edit an application made by an organisation to become an EOSC Provider;
- Approve/reject/edit an application made by an organisation to register the first resource in the EOSC Catalogue;
- Audit and if needed suspend the entries (providers and resources) previously approved in the EOSC Catalogue to ensure they are still compliant with the inclusion criteria.

3.2.2 EPOT coordination weekly meetings

In order to ensure alignment between operations and development, the EPOT and other participants such as the development teams for the EOSC Providers Portal and the Catalogue and Marketplace are invited to attend the weekly EPOT coordination meetings.

3.2.3 Work distribution among EPOT contributors for onboarding and auditing

The EPOT creates documentation as well as procedures to facilitate the onboarding and auditing of different resource types. A weekly rota is used to distribute EPOT work among their contributors based on their expertise and roles in the EOSC Future project, as shown in Figure 3.3.

EPOT tasks for different resource types

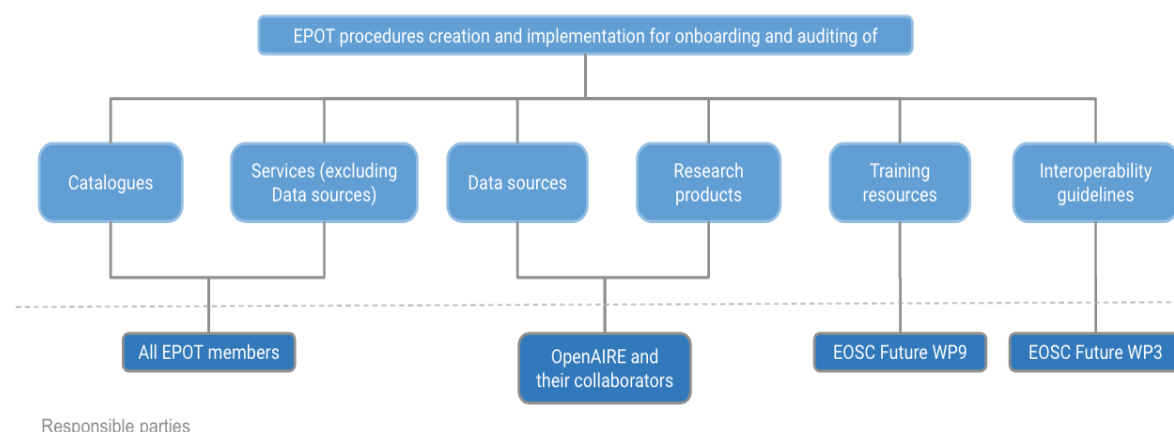


Figure 3.3: Distribution of onboarding and auditing tasks to be developed by the EPOT and collaborators.

3.2.4 Collaboration with the EOSC Onboarding Strategy Group

The T6.1 lead chairs the monthly E-OSG meetings attended by representatives of the INFRAEOSC-04-2018 (thematic projects), INFRAEOSC-05-2018-2019 (regional projects), INFRAEOSC-07-2020 (horizontal projects), members of the EOSC Portal Onboarding Team (EPOT) and providers willing to onboard resources to the EOSC Catalogue and Marketplace who are not part of the INFRAEOSC projects but are willing to share their experience. The E-OSG meetings are a perfect forum for the EPOT and the other stakeholders to discuss proposals for new procedures and features for the EOSC Providers Portal or the EOSC Catalogue and Marketplace, agree on actions to be developed, and gather feedback.

3.3 Improvements to Onboarding within EOSC Future developed by the EPOT

The onboarding of providers and resources has evolved hand in hand with the EOSC-Exchange inclusion criteria, which the onboarding and auditing procedures translate from the policy to the operational level, and triggered developments and updates of the EOSC Providers Portal.

The following represent the primary improvements that have occurred since the beginning of EOSC Future:

- Improvement of the EPOT workflow, according to the experience gained during the last part of the EOSC-hub project and the first period of EOSC Future. For example, several workflow statuses have been dropped because they proved to be unnecessary, while the validation and audit workflows have been made independent.
- Improvement of detailed differentiated procedures to onboard and audit all the resource types that can be onboarded.
- Automation of ticket creation in Jira. Thanks to new software developments done as part of EOSC Future, new Jira tickets are created automatically and populated with requester information added to the EOSC Portal. These tickets and their workflow are now easily tracked as part of a Jira 'Kanban' dashboard.
- The selection of records to audit was initially manual, and work has taken place to automate this, including some aspects of auditing such as automated checks. This work is now moving into production.
- The creation of documentation for Providers, for example the EOSC Providers Hub explaining step by step the onboarding process and the guideline that helps to distinguish between different resource types in Appendix B.

3.4 EPOT onboarding and auditing procedures and scalability

The EPOT procedures are discussed and approved by the EPOT after gathering feedback from relevant stakeholders like the EOSC Onboarding Strategy Group (E-OSG), the EOSC Future Technical Coordination Board (TCB), and the EOSC Future 'A2.2.4 Alignment of Core Capabilities and Inclusion Criteria' when necessary. The exhaustive content of the EPOT procedures is detailed in the Appendix A.

An example of onboarding and auditing procedures can be found in the following onboarding video guides, with the onboarding videos updated since D6.1b, to help to better understand the onboarding and auditing process.

- Onboarding of a Provider: <https://www.youtube.com/watch?v=wWGN7WzNuCQ>
- Validation/auditing of a Provider: <https://youtu.be/FW1ly-IE3Gs>
- Onboarding of a service: https://youtu.be/nsWPW7Qjc_s
- Validation/auditing of a Resource: <https://youtu.be/nHULTPs5SI8>

The EPOT procedures have been further simplified, but they remain mainly manual, which is a significant barrier to scalability. As a member of the EPOT, Ilja Livenson implemented an automated audit procedure for providers and services, which has now been extended to audit the community resource catalogues. This initial effort on automated auditing may set the stage for a more scalable approach to onboarding and auditing in general.

4 Conclusions

This demonstrator deliverable showed how the onboarding process has been simplified and clarified creating documentation for providers and other relevant parties and publishing it for public access in the EOSC Providers Hub.

In addition, we provided an update on the onboarding status and statistics that clearly depict the diversity of providers and resources part of the EOSC Catalogue and Marketplace. By the end of the EOSC-hub project, 126 services from 82 providers had been onboarded [7]. As of the time of writing this deliverable by mid M30, there are the following onboarding requests: 493 resource providers that started their onboarding, 625 services, 4 resource catalogues, 62 data sources, 24 training resources, and 17 interoperability guidelines. In addition, there were 4,647,520 research products in M24, and this number will be updated by OpenAIRE for the EOSC Future M30 report. There has been a fourfold increase in the number of resource providers and a fivefold increase in the number of services.

At the end of EOSC-hub [7] the dominant scientific domain of the onboarded services was Engineering and Technology (42%) followed by Natural Sciences (33.3%), Social Sciences (8.6%), Agricultural Sciences (6.2%), and Medical and Health (4.9%), Humanities (4.9%). By mid M30 of the EOSC Future project, the distribution among the onboarded resources (including services, data sources, research products, community catalogues, trainings and interoperability guidelines) is more diverse: Natural Sciences (32%), Generic (22.5%), Engineering and technology (14.3%), Social sciences (11%), Humanities (8.2%), Medical and Health Sciences (6%), Agricultural Sciences (3%), and other scientific domains (2.3%).

The deliverable also describes the evolution and maturation of EPOT operations over time, as well as the procedures for onboarding and auditing described in Appendix A. In addition to providers and resources, the EOSC Providers Portal now allows providers to onboard data sources (a specific service type), community catalogues, research products, training resources, and interoperability guidelines. Appendix B describes the differences between these resource types and their onboarding details.

5 References

- [1] EOSC Portal Onboarding Process
<https://wiki.eoscfuture.eu/display/PUBLIC/EOSC+Portal+Onboarding+Process>
- [2] EOSC Providers Portal
<https://providers.eosc-portal.eu/home>
- [3] EOSC Catalogue and Marketplace
<https://marketplace.eosc-portal.eu/>
- [4] EOSC Portal Onboarding Team procedures (Not publicly accessible)
<https://wiki.eoscfuture.eu/display/EOSCOB/EPOT+Procedures>
- [5] EOSC-Exchange Inclusion Criteria
<https://wiki.eoscfuture.eu/display/PUBLIC/EOSC+Exchange+inclusion+criteria>
- [6] EOSC Providers Hub instructions on how to onboard providers and resources
<https://eosc-portal.eu/eosc-providers-hub/how-become-eosc-provider/instructions-onboard-providers-and-resources-eosc>
- [7] EOSC-hub D3.5 Communication & Stakeholder Engagement: Final Report
<https://zenodo.org/record/5031339>
- [8] EOSC Onboarding Confluence space (Not publicly accessible)
<https://wiki.eoscfuture.eu/display/EOSCOB/Welcome+to+the+EOSC+Onboarding+space>

6 Appendix A: Onboarding and auditing procedures

Further details are available in the operational EPOT procedures' documentation [4] which is regularly updated to reflect improvements to the EOSC Portal and to the operations. A snapshot of this documentation which reflects the current operational practices, is included in this appendix. Please note that this is extracted from the private part of the EOSC Future wiki and contains links which are also not necessarily open to the public.

6.1 EPOT Procedure: Onboard a Provider

Stage	Provider action	EPOT action	Detail
0	The Provider Representative (PR) visits the Portal		A Provider Representative (PR) [1] visits the "For Providers" Section of the EOSC Portal [2] and clicks on "Become a provider! Apply now" [3] to start the process of applying to become a Provider [1] Assumed to be authorised to act on behalf of the Provider at this stage. [2] https://providers.eosc-portal.eu/becomeAProvider [3] https://providers.eosc-portal.eu/provider/add
1	The PR registers with the Portal using an existing identity from a supported Social or Academic AAI mechanism		The PR uses the Authentication and Authorization Infrastructure (AAI) mechanisms supported by the Portal [4] to register with the Portal. In case any difficulties arise during the Authentication, the Representative may communicate issues [5] and depending on the issue the AAI Team may organise a 1-to-1 call to offer guidance. [4] Currently supported AAI mechanisms: eduTeams, EGI CheckIn, OpenAIRE, EUDAT B2ACCESS, Aria, Dariah, IGTF, OpenMINTED, ORCID, Social and AAI mechanisms of many Academic and Research Institutions worldwide. If a Representative of a Provider cannot authenticate via one of the provided Academic AAI proxies, the representative can authenticate via a Google social identity account. [5] onboarding@eosc-portal.eu
2	The authenticated PR logs into the Portal		The authenticated PR logs in via the AAI of the Portal. Once logged in, the menu allows access to the "Add New Provider" functionality.
3	The PR asserts he/she is an Authorised Representative of a Provider		By clicking on "Add New Provider" the PR is asked a) to agree to the EOSC Portal Privacy Policy [6] and b) to assert the Authorisation of Representation of the Provider Organisation. Once a) and b) are accepted and the latter asserted, the PR can apply to onboard the Provider. [6] The EOSC Portal Privacy Policy applies to the collection of the data, public vs. internal, etc.

4	The authenticated and authorised PR applies to onboard the Provider		<p>Upon successful completion of step 3, the PR may apply for the onboarding of the Provider by completing the Provider Profile.</p> <p>Automated mechanisms are used to the greatest extent possible to ensure that all required information is included and that the information is of the correct type, size, etc.</p> <p>In case any difficulties arise during the application, the PR may communicate issues [7] and depending on the issue the EOSC Portal Onboarding Team (EPOT) may organise a 1-to-1 call to offer guidance.</p> <p>Upon successful submission: a) the PR and the onboarding team are notified and b) an onboarding ticket is created.</p> <p>The onboarding team reviews the ticket from the Provider and updates it with any additional information deemed necessary. [7] onboarding@eosc-portal.eu</p>
5	The EPOT reviews the newly onboarded Provider. Correct and suitable records are approved.		<p>Triggers</p> <ul style="list-style-type: none"> • The EPOT member checks the Kanban board for a new ticket that has automatically been created in the EPOT JIRA project • New email to the onboarding@eosc-portal.eu that provide notifications on new provider registrations • New Resource with the state Provider Submitted Application in the Provider Portal. <p>Actions</p> <ul style="list-style-type: none"> • Action 1 - The EPOT member assesses the provider record <ul style="list-style-type: none"> ■ The EPOT member goes through the provider portal entry ■ The EPOT member applies the inclusion criteria at https://www.eosc-portal.eu/providers-documentation/eosc-provider-portal-inclusion-criteria in particular: <ul style="list-style-type: none"> • Confirm that the submission is from a legal entity or lists a hosting legal entity • Check the suitability of the provider to submit a valid resource - if not, consider rejection or requesting clarification (e.g. if the provider is a web store it is unlikely they will have a valid resource) • Check that the links provided do point to the required content • Check that all fields are correctly filled in • Action 2 - If the record is correct, move the ticket to status "Record Approved" and approve in the provider portal <ul style="list-style-type: none"> ○ A notification is sent to the PR email contact ○ A notification is sent to onboarding@eosc-portal.eu • Action 3 - If the record is not appropriate and the EPOT member decides it cannot be made so, move to status "Rejected" <ul style="list-style-type: none"> ○ Reject application in the provider portal ○ Send an email to the PR email contact (with cc: onboarding@eosc-portal.eu) explaining why you are rejecting the provider ○ <To Add: TEXT FOR REJECTION> ○ Add note on reasons for rejection to Jira ticket comments • Action 4 - If the record is not correct but the EPOT member judges it can be corrected, move to status "Application Requires Review" <ul style="list-style-type: none"> ○ Contact the provider for clarification by sending an email to the provider email contact ○ CC onboarding@eosc-portal.eu (if possible reply-to set to the same address else request they CC the list) ○ Request changes to the provider records in the provider portal ○ Add a comment to the Jira ticket consisting of the reason the application change was requested • Action 5 - Follow up

			<ul style="list-style-type: none"> ○ Monitor the progress of the ticket by email or through automatic notifications from the portal when the provider entry is updated. ○ Respond to enquiries and updates from the provider ○ For any change in status or new communication, add details to Jira ticket as a comment ○ If the EPOT member has tickets assigned to them that they cannot follow up (due to e.g. a holiday), use the weekly onboarding meeting or onboarding-team@eosc-portal.eu email address to find another EPOT team member who is able to take on the tickets, and when they agree, assign them to them.
--	--	--	--

6.2 EPOT Procedure: Audit a Provider

Triggers

- A provider record has not been updated for some time and is automatically flagged as such.
- A provider record is flagged as needed review via the Marketplace.
- A record is randomly selected by a member of the EPOT team.

Step-by-step instructions

Step	EPOT action	Detail
1	Selection of a record of a Provider	A record is selected using one of the above triggers
2	EPOT audits of the record	<ul style="list-style-type: none"> ● Action 1 - If not automatically created, the EPOT member on duty creates a Jira ticket Create a ticket (or access the automatically created ticket) via onboarding queue at https://jira.eoscfuture.eu/secure/RapidBoard.jspa?rapidView=2 <ul style="list-style-type: none"> ■ The ticket should be in the state Record Requires Review ■ Summary: should be <record abbreviation> Provider Audit e.g. "ACME Provider Audit" ■ An automatically created Provider audit ticket includes in its <i>Description</i> field the results of automatic validation. These will give a good indication of what has to be checked and addressed during the audit. ● Action 2 - Examine the ticket using the inclusion criteria at https://www.eosc-portal.eu/providers-documentation/eosc-provider-portal-inclusion-criteria, noting in particular any new rules introduced since the ticket was originally approved ● Action 3 - If the ticket was flagged by a user, pay attention to the aspect they flagged ● Action 4 - If all is correct Move the ticket to status "Record Approved" Click the 'Audit' option for the record in the Provider Portal, optionally add a comment, then 'Validate'

		<ul style="list-style-type: none"> ● Action 5 - If the record is not correct but the EPOT member judges it can be corrected Contact the Provider contact for clarification by sending an email to the Provider email contact CC onboarding@eosc-portal.eu (if possible reply-to set to the same address else request they CC the list) Request changes to the Provider record in the Provider Portal Add a comment to the ticket consisting of the reason the record change was requested If due to slow communications with Provider representative or because the required change(s) are expected to take an extended period of time to be implemented, the EPOT member can move the ticket to status "Record suspended" <ul style="list-style-type: none"> ■ Make the record inactive in the Provider Portal ■ The Provider email contact is informed about this decision ■ Add note on reasons for suspension to ticket comments ■ Once requested changes are in place, move the ticket back to status "Record Requires Review" and review the entire record ■ Activate the record in the Provider Portal ● Action 6 - If the record is not appropriate and you judge it cannot be made so, move to status "Record rejected" in the Kanban board Make the record inactive in the Provider Portal Send an email to the Provider email contact CC onboarding@eosc-portal.eu and request provider also CCs that address on replies Explain why you are rejecting the service <To Add: TEXT FOR REJECTION> Add note on reasons for rejection to ticket comments ● Action 7 - Follow up <ul style="list-style-type: none"> ■ Respond to enquiries or complaints from the provider ■ For any change in status or new communication, add details to Jira ticket as a comment ■ If the EPOT member has tickets assigned to them that they cannot follow up (due to e.g. a holiday), use the weekly onboarding meeting or onboarding-team@eosc-portal.eu email address to find another EPOT team member that can take on the tickets, and when they agree, assign them to them.
--	--	---

6.3 EPOT Procedure: Onboard a service

Step	Provider action	EPOT action	Detail
1	The Provider Representative (PR) selects the method to onboard the Resource		<p>The PR logs on to the Portal and may proceed with the onboarding of Resources.</p> <p>The PR is offered two options to onboard Resources: a) via a web interface for each Resource individually or b) via the Portal Application Programming Interface (API).</p> <p>If the web interface is selected then Step 1a follows, otherwise Step 1b.</p> <p>Note: The first resource of the Provider must be entered using the web interface, see Step 1a.</p>
1a	The PR applies to onboard a Resource via the web interface		<p>The PR may apply for the onboarding of a Resource by completing the Resource Profile.</p> <p>Automated mechanisms are used to the greatest extent possible to ensure that all required information is included and that the information is of the correct type, size, etc.</p> <p>In case any difficulties arise during the application, the PR may communicate issues [1] and depend on the issue the EPOT will support them. Otherwise, if the form is completed and passes all automatic checks, it can be submitted.</p> <p>When the form is submitted the PR is queried if additional Resources will be onboarded. If yes, then Step 1a is repeated otherwise the process moves to Step 2.</p> <p>[1] onboarding@eosc-portal.eu</p>
1b	The PR applies to onboard a Resource via the API		<p>The PR may apply for the onboarding of Resources by using the Portal Open API.</p> <p>In brief, the Provider needs to use the AAI of the Portal to retrieve a new API token. Then, the Provider prepares the Resource description, according to the Resource Profile by calling the API's POST/Resource/validate method. Upon successful validation, the Provider calls the POST/Resource method to add the new Resources in the catalogue. Upon success, the Provider receives a new set of Resource IDs and the new Resources are onboarded in the Portal. A detailed description of the Portal Open API [2] is available.</p> <p>In case any difficulties arise during the employment of the API, the PR may communicate issues [3] to the EPOT, who will support them.</p> <p>[2] https://providers.eosc-portal.eu/openapi</p> <p>[3] onboarding@eosc-portal.eu</p>
2		The EPOT reviews the newly onboarded Resources	<p>The first newly onboarded Resource by each provider is reviewed by the onboarding team. Subsequent resources are currently automatically published.</p> <p>The onboarding team examines the quality of the metadata if they follow the general recommendations and guidance of the Resource Profile, spelling, accuracy, composition and URLs.</p> <p>If the Resource description does not comply with the inclusion criteria of the Portal and the rules and criteria based on the current RoP and the typology of the Resource Profile, the PR may be asked to take an action (e.g. amend the description and resubmit, etc.) or join an information/training session. In this, often 1-to-1 call, the PR will have the chance to ask questions and get personalised consultation on the best way to onboard the Resources.</p> <p>To facilitate the amendment, the onboarding team provides recommendations taking into account potential Provider's peculiarities, reviews the Provider's website, its catalogue and provided URLs and proposes alternatives for the description of the Resource's metadata and provides best practice examples from other Providers.</p>

			<p>The Resource may also be rejected if the Provider fails to update the Resource accordingly. The Provider receives a notification of the definitive Resource Onboarding rejection and possibly Provider suspension.</p> <p>Otherwise, the PR is notified of the approval and the Provider, as well as the Resource, is published at the Portal. The onboarding team may also perform small corrections on the Resource descriptions and ask for the consent of the Provider before publishing.</p> <p>Triggers</p> <p>One of the following:</p> <ul style="list-style-type: none"> • The EPOT member checks the Kanban board for a new ticket that has automatically been created in the EPOT JIRA project • New email to the onboarding@eosc-portal.eu that provides notifications on new resource registrations • New resource with the state Pending First Resource Approval in the Provider Portal. <p>Actions</p> <ul style="list-style-type: none"> • Action 1 - The EPOT member assesses the resource record <ul style="list-style-type: none"> ○ The EPOT member goes through the provider portal entry ○ The EPOT member applies the inclusion criteria at https://www.eosc-portal.eu/providers-documentation/eosc-provider-portal-inclusion-criteria in particular: <ul style="list-style-type: none"> ■ Assess whether the submission meets the inclusion criteria (e.g. is for a real service - not a piece of software, or feature of another service, suitable for EOSC etc.) <ul style="list-style-type: none"> • The EOSC Exchange Inclusion Criteria contains examples of how to assess if a resource to be onboarded is targeted to EOSC and EOSC communities, or built on or that leverage EOSC capabilities to serve some other community. • Try and find alternative ways (evidence) to assess the compliance with this criterion. For example, look at the Attribution section if there is a mention of at least one EOSC-related project this is clear evidence of the compliance with this specific inclusion criterion. • Look for support among EPOT members or alternatively discuss special/complex cases in the EPOT meetings. • Also ask provider for such evidence ■ Check that the links provided do point to the required content ■ Check that all fields are correctly filled in • Action 2 - If all is correct, move the ticket to status "Record Approved" and approve in the provider portal. <ul style="list-style-type: none"> ○ The PR will automatically be notified of the approval. ○ A notification is sent to onboarding@eosc-portal.eu ○ The Service just approved will become visible in the Marketplace within 48 hours. • Action 3 - If the record is not appropriate and the EPOT member judges it cannot be made so, move to status "Rejected" <ul style="list-style-type: none"> ○ Reject application in the provider portal ○ Send an email to the PR (and resource if different) email contact (with cc: onboarding@eosc-portal.eu) explaining why the submission is rejected ○ <To Add: TEXT FOR REJECTION>
--	--	--	---

			<ul style="list-style-type: none"> ○ Add note on reasons for rejection to Jira ticket comments ● Action 4 - If the record is not correct but the EPOT member judges it can be corrected, move to status "Application Requires Review" <ul style="list-style-type: none"> ○ Contact the resource contact for clarification by sending an email to the resource email contact ○ CC onboarding@eosc-portal.eu (if possible reply-to set to the same address else request they CC the list) ○ Request changes to the resource records in the provider portal ○ Add a comment to the ticket with the reason the application change was requested ● Action 5 - Follow up <ul style="list-style-type: none"> ○ Monitor the progress of the ticket by email or through automatic notifications from the portal when the Resource entry is updated. ○ Respond to enquiries and updates from the provider ○ For any change in status or new communication, add details to Jira ticket as a comment ○ Depending on the circumstances, move the ticket to 'Record Approved' or 'Rejected' status and proceed as appropriate. ○ If the EPOT member has tickets assigned to them that they cannot follow up (due to e.g. a holiday), use the weekly onboarding meeting or onboarding-team@eosc-portal.eu email address to find another EPOT team member that can take on the tickets, and when they agree, assign them to them.
--	--	--	--

6.4 EPOT Procedure: Audit a service

Triggers

- A service has been onboarded and automatically approved as it was not the first resource from that provider.
- A service record has not been updated for some time and is automatically flagged as such.
- A service record is flagged as needed review via the Marketplace.
- A record is randomly selected by a member of the EPOT team.

Step-by-step instructions

Step	EPOT action	Detail
1	Selection of a Service record	Selection of a Service record
2	EPOT audits of the record	<ul style="list-style-type: none"> ● Action 1 - If not automatically created, the EPOT member on duty creates a Jira ticket Create a ticket (or access the automatically created ticket) via onboarding queue at https://jira.eoscfuture.eu/secure/RapidBoard.jspa?rapidView=2 <ul style="list-style-type: none"> ■ The ticket should be in the state Record Requires Review ■ Summary: Should be <record abbreviation> Resource Audit e.g. "ACME Resource Audit"

		<ul style="list-style-type: none"> <ul style="list-style-type: none"> ■ An automatically created Resource audit ticket includes in its Description field the results of automatic validation. These will give a good indication of what has to be checked and addressed during the audit. ● Action 2 - Examine the ticket using the inclusion criteria at https://eosc-portal.eu/eosc-providers-hub/how-become-eosc-provider/how-become-eosc-provider-a-general-overview#Inclusion_criteria_for_EOSC_Providers_and_different_kinds_of_EOSC_Resources, noting in particular any new rules introduced since the ticket was originally approved <ul style="list-style-type: none"> Assess whether the record meets the inclusion criteria (e.g. is for a real service - not a piece of software, or feature of another service, suitable for EOSC etc.) <ul style="list-style-type: none"> ■ The EOSC Exchange Inclusion Criteria contains examples of how to assess if a resource to be onboarded is targeted to EOSC and EOSC communities, or built on or that leverage EOSC capabilities to serve some other community. ■ Try and find alternative ways (evidence) to assess the compliance with this criterion. For example, look at the Attribution section if there is a mention of at least one EOSC-related project this is a clear evidence of the compliance with this specific inclusion criterion. ■ Look for support among EPOT members or alternatively discuss special/complex cases in the EPOT meetings. ■ Also ask provider for such evidence ● Action 3 - If the ticket was flagged by a user, pay attention to the aspect they flagged ● Action 4 - If all is correct <ul style="list-style-type: none"> Move the ticket to status "Record Approved" Click the 'Audit' option for the record in the Provider Portal, optionally add a comment, then 'Validate' ● Action 5 - If the record is not correct but the EPOT member judges it can be corrected <ul style="list-style-type: none"> Contact the Resource contact for clarification by sending an email to the Resource email contact CC onboarding@eosc-portal.eu (if possible reply-to set to the same address else request they CC the list) Request changes to the Resource records in the provider portal Add a comment to the ticket consisting of the reason the record change was requested If due to slow communications with Provider representative or because the required change(s) are expected to take an extended period of time to be implemented, the EPOT member can move the ticket to status "Record suspended" <ul style="list-style-type: none"> ■ Make the record inactive in the Provider Portal ■ The Resource email contact is informed about this decision ■ Add note on reasons for suspension to ticket comments ■ Once requested changes are in place, move the ticket back to status "Record Requires Review" and review the entire record ■ Activate the record in the Provider Portal ● Action 6 - If the record is not appropriate and you judge it cannot be made so, move to status "Record rejected" in the Kanban board <ul style="list-style-type: none"> Make the record inactive in the Provider Portal Send an email to the resource email contact CC onboarding@eosc-portal.eu and request provider also CCs that address on replies Explain why you are rejecting the service <To Add: TEXT FOR REJECTION> Add note on reasons for rejection to ticket comments ● Action 7 - Follow up <ul style="list-style-type: none"> ■ Respond to enquiries or complaints from the provider
--	--	--

		<ul style="list-style-type: none"> ■ For any change in status or new communication, add details to Jira ticket as a comment ■ If the EPOT member has tickets assigned to them that they cannot follow up (due to e.g. a holiday), use the weekly onboarding meeting or onboarding-team@eosc-portal.eu email address to find another EPOT team member that can take on the tickets, and when they agree, assign them to them.
--	--	--

6.5 EPOT Procedure: Onboard an external catalogue

Triggers

- An External Catalogue Owner agreed to the EOSC Catalogue Onboarding Agreement and wants to onboard a Catalogue into the [EOSC Providers Portal](#).
- The EPOT member checks the Kanban board for a new ticket that has automatically been created in the EPOT JIRA project
- The EPOT sees a new Catalogue with the state 'Pending' in the Provider Portal.

Steps to onboard a Catalogue

Step	Provider action	EPOT / EOSC Portal Team	Detail
1	The Catalogue Owner Representative (COR) onboards the Catalogue into the EOSC Portal		The COR logs on to the Portal and may proceed with the onboarding of a Catalogue via the web interface.
2	The COR asserts he/she is an Authorised Representative of a Catalogue Owner		By clicking on "Add a Catalogue" the COR is asked: a) to agree to the EOSC Portal Privacy Policy [1] b) to assert to be an authorised representative of the Catalogue and c) to assert he/she has read and agrees with the EOSC Catalogue Onboarding Agreement Once a) is accepted and b) and c) asserted, the COR can apply to onboard the Catalogue [1] The EOSC Portal Privacy Policy applies to the collection of the data, public vs. internal, etc.
3	The COR proceeds to fill in the Catalogue profile		The COR completes the Catalogue Profile (currently v.4.00 EOSC-Multi Provider Catalogue) Automated mechanisms are used to the greatest extent possible to ensure that all required information is included and that the information is of the correct type, size, etc. those checks are the same checks that apply when entering values regarding URLs, images used as logos, contact emails, etc. More specifically, for the Catalogue onboarding case: <ul style="list-style-type: none"> • Catalogue website URL should be a valid and existing URL and relating to the catalogue itself • Logo URL should be a valid and existing direct URL, without using redirects • Legal Entity - the Catalogue Owner should be a Legal Entity or should refer to a Hosting Legal Entity chosen from the HLE controlled vocabulary • Contact and Admin email fields should be properly formatted email values • Phones should comply to Phone formatting rules/length • Mandatory fields should be all filled

			<ul style="list-style-type: none"> Text fields should be filled with values with proper length, as indicated per case. <p>In case any difficulties arise during the application, the COR may communicate issues to the EPOT via email onboarding@eosc-portal.eu.</p> <p>If the form is completed and passes all automatic checks, it can be submitted.</p>
4		The EPOT reviews the newly onboarded Catalogue	<ul style="list-style-type: none"> Action 1 <ul style="list-style-type: none"> The EPOT goes through the Catalogue entry in the Provider Portal and <ul style="list-style-type: none"> Checks that the links provided do point to the required content Checks that all fields are correctly filled in If needed, further communications may take place with COR to sort out the issues <ul style="list-style-type: none"> cc: onboarding@eosc-portal.eu (if possible reply-to set to the same address else request they CC the list) Request clarifications about the information in the Catalogue record and ask for fixing the issues Add a comment to the ticket with the reason the application change was requested Action 2 (Follow-up) <ul style="list-style-type: none"> The EPOT: <ul style="list-style-type: none"> Monitors the progress of the ticket by email or through automatic notifications from the portal when the Catalogue record is updated. Responds to inquiries and updates from the Catalogue Owner. For any change in status or new communication, adds details to the Jira ticket as a comment. If there is no answer by the Catalogue Owner after a week, the EPOT sends a reminder. Reminders can be repeated if necessary. Action 3.a - If all is correct, the EPOT moves the Jira ticket to status "Catalogue record Approved" and approves the record in the provider portal. <ul style="list-style-type: none"> The COR will automatically be notified of the approval. A notification is sent to onboarding@eosc-portal.eu Action 3.b - If the information provided is not appropriate and the EPOT judges it cannot be made so <ul style="list-style-type: none"> the Jira ticket is moved to status "Rejected" the application is rejected in the provider portal the EPOT sends an email to the Catalogue Owner email contact (with cc: onboarding@eosc-portal.eu) explaining why the submission is rejected <To Add: TEXT FOR REJECTION> the EPOT adds a note on reasons for rejection to Jira ticket comments

			<ul style="list-style-type: none"> Action 3.c - In the case of unresponsive COR after six weeks, the EPOT sends a message to COR indicating that the request will be rejected and the steps are the same as in step 3.b <p>If the EPOT members have tickets assigned to them that they cannot follow up (due to e.g. a holiday), use the weekly onboarding meeting or onboarding-team@eosc-portal.eu email address to find another EPOT team member that can take on the tickets, and when they agree, assign them to them</p>
5		As soon as the Catalogue record has been approved, the COR can start pushing records into the EOSC catalogue	<p>The records imported from an external catalogue are subject to a set of automatic checks to assess whether they contain all the mandatory information as it is done for records directly onboarded into the EOSC Portal. No additional validation is done at this stage. The Catalogue record and its associated entries may be subject to audit as any other entries in the EOSC catalogue.</p>

6.6 EPOT Procedure: Audit an external catalogue

Triggers

- A Catalogue record is randomly selected by a member of the EPOT team.

Steps to audit a Catalogue

Step	EPOT action	Detail
1	The EPOT selects a Catalogue record to be audited (i.e. the catalogue record created by the Catalogue Owner Representative)	A catalogue record is selected manually by a member of the EPOT team.
2	The EPOT audits the catalogue record	<ul style="list-style-type: none"> Action 1: The EPOT member with the help of technical team runs a validation script, which creates a ticket in the Jira system at https://jira.eoscfuture.eu/secure/RapidBoard.jspa?rapidView=2. <ul style="list-style-type: none"> Summary of the ticket should be <record abbreviation> Catalogue Record Audit e.g. "ACME Catalogue Record Audit" The ticket should be in the state 'Record Requires Review' The ticket contains results of the automated checks for all elements from the catalogue, i.e. providers, resources, training materials, etc as an attachment. Action 2: The EPOT member on duty examines the catalogue record using the inclusion criteria at https://eosc-portal.eu/eosc-providers-hub/how-become-eosc-provider/how-become-eosc-provider-a-general-overview#Inclusion_criteria_for_EOSC_Providers_and_different_kinds_of_EOSC_Resources Action 3: EPOT records the result of this validation in the attached file.

3	EPOT audits a sample of records imported from the external Catalogue	<ul style="list-style-type: none"> • The EPOT selects 3 RPs entries and 1 Resource entry per each RP to be audited (priority should be given to records that have been highlighted as problematic by the automated checks) • The EPOT performs the standard audit (see audit procedures EPOT Procedure-02: Audit a Provider, EPOT Procedure-04: Audit a Service, also EPOT Procedure-10: Audit data source and research products, EPOT Procedure-13: Audit a Learning Resource and EPOT Procedure-15: Audit an Interoperability Guideline) to identify possible additional issues. • The findings of the above checks are recorded in the attached file
4	EPOT notifies the COR about audit findings	<ul style="list-style-type: none"> • If there are any issues with the findings (and only then) the EPOT gets in touch by email with the COR to notify about the results of the audit and comment on the issues found on Catalogue entry, the RPs and Resources associated. • If there are no issues, EPOT marks this information in the ticket, moves the corresponding ticket to "Approved" state and sets the catalogue entry as "successfully audited". • The EPOT proposes COR (see email template below) to set up a phone/zoom call to: <ul style="list-style-type: none"> ○ provide additional information if needed; ○ agree on a deadline to fix the issues. • If COR agrees to have a call, a time is selected and a meeting is held. • If COR suggests to resolve the issues independently, a deadline is agreed with EPOT over email. • The EPOT records this information in the ticket. <p>--- Email template to COR---</p> <p>Dear <COR name>, I am writing to you because you appear as the <Catalogue_Name> catalogue owner representative. As part of the EOSC onboarding operations, we randomly audit records to improve the quality of data and discoverability of Providers and their Resources. We have just audited the <Catalogue_Name> catalogue entry in the EOSC Portal and some of its associated Resource Providers and Resources. You can find the result of the audit and the issues we spotted in the document attached. The findings should be self-explanatory on how to fix the issues, however if you would like to have a conf call to go over the issues to clarify them, please propose the time slots that suit you during the next two weeks. Please check the information of all the entries in the catalogue, because they may have the same issues. Otherwise we ask you to provide us with a deadline when the highlighted issues will be fixed. We would much appreciate if you could reply within 5 working days. Thank you, <EPOT_Member_Name> on behalf of the EOSC Portal Onboarding Team =====</p> <ul style="list-style-type: none"> • If COR does not reply to the initial contact, another attempt is made with another deadline of 5 working days. If still no reply, and no escalation is possible, EPOT proposes to suspend the external catalogue in the next EPOT meeting. A notification is sent to COR when the catalogue has been suspended. <p>--- Catalogue suspension notification to COR ---</p> <p>Dear <COR name>, Following a couple of unanswered attempts to contact you (as the <Catalogue_Name> catalogue owner representative) by email (on <date_1> and <date_2>) regarding issues found following audit of <Catalogue_Name> catalogue, we decided to suspend with immediate effect the <Catalogue_Name> catalogue in the EOSC Portal and Marketplace. The catalogue and its associated providers and resources can be reactivated once the reported issues have been fixed.</p>

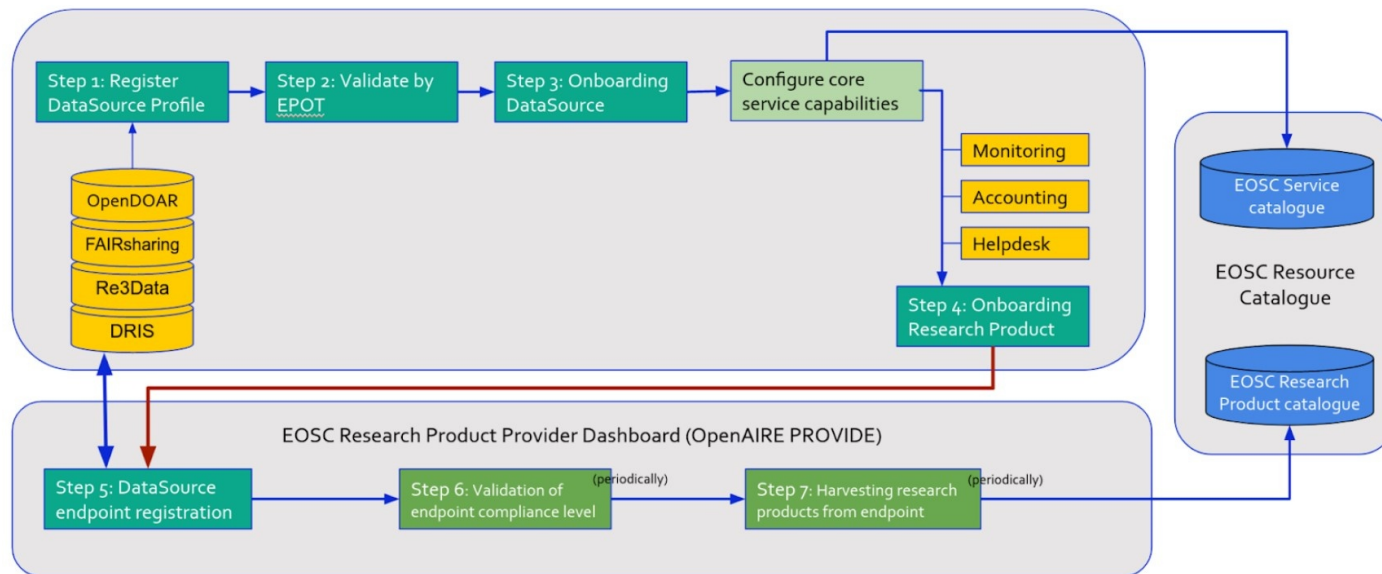
		Thank you, <EPOT_Member_Name> on behalf of the EOSC Portal Onboarding Team =====
5	EPOT has a call with COR about audit findings	If EPOT and COR have agreed for a conf call, the call is held with an EPOT member supporting COR in understanding the issues. The outcome of the call should include a deadline by which the issues will be resolved OR an update on the resolution will be provided by COR. The Jira ticket will be updated with these details.
6	EPOT monitors the status of the Audit by the COR	As soon as COR notifies that the issues concerning specific RPs and Resources have been fixed and the updated entries have been pushed to the EOSC Catalogue, the EPOT validates the updates by: If automated checks include issues, automated checks are rerun by EPOT scripts. Failed manual checks are validated by EPOT manually. If all is OK, EPOT sets such the Catalogue entry as "Successfully Audited". If validation fails, EPOT notifies COR and sets a new deadline within 5 working days. Jira ticket is updated accordingly and if necessary moved to 'Approved' state.
7	EPOT monitors the status of audit at the external catalogue	If the COR is not meeting the agreed deadline to fix all the issues of entries previously notified, the EPOT sets up a new call to discuss the countermeasures to be taken, including the possibility to suspend specific entries or the entire catalogue. If the COR is not responsive at all and no escalation is possible, EPOT proposes to suspend the external catalogue in the next EPOT meeting.

6.7 EPOT Procedure: Onboard a data source and research products

Trigger

- A Provider wants to onboard a Data Source into the EOSC Resource Catalogue (via the EOSC Service Catalogue)
- A Provider also opts to onboard the Data Source's Research Products into the EOSC Resource Catalogue (via the EOSC Research Product Catalogue, aka EOSC Knowledge Graph)

Step-by-step workflow



Step-by-step instructions

Step	Provider actions	EPOT actions	Details
Step 1. Provider Representative (PR) selects the option of onboarding a data source, an extension of service.	The PR logs on to the Portal and may proceed with the onboarding of Data Source		The PR onboards the Data Source profile (extension of Service profile) via a web interface as described in Step 1a-Step1c
Step 1a.	Search and select a data source profile from a pool of known data source registries: re3data.org , OpenDOAR , FAIRSharing.org , DRIS		
Step 1b.	Data source Profile found from Registries: Provider Representatives are to insert all the service profile generic info to complete the data source profile		
Step 1c.	data source Profile not found at Registries Provider Representatives have to complete all parts of the data source profile.		

Step 2.		<p>The EPOT proceeds with the data source onboarding by reviewing the newly onboarded data source.</p>	<p>The first newly onboarded Resource by each provider is reviewed by the onboarding team. Subsequent resources are currently automatically published.</p> <p>The onboarding team examines the quality of the metadata if they follow the general recommendations and guidance of the Resource Profile, spelling, accuracy, composition and URLs.</p> <p>If the Resource description does not comply with the inclusion criteria of the Portal and the rules and criteria based on the current RoP and the typology of the Resource Profile, the PR may be asked to take an action (e.g. amend the description and resubmit, etc.) or join an information/training session. In this, often 1-to-1 call, the PR will have the chance to ask questions and get personalised consultation on the best way to onboard the Resources.</p> <p>To facilitate the amendment, the onboarding team provides recommendations taking into account potential Provider's peculiarities, reviews the Provider's website, its catalogue and provided URLs and proposes alternatives for the description of the Resource's metadata and provides best practice examples from other Providers.</p> <p>The Resource may also be rejected if the Provider fails to update the Resource accordingly. The Provider receives a notification of the definitive Resource Onboarding rejection and possibly Provider suspension.</p> <p>Otherwise, the PR is notified of the approval and the Provider, as well as the Resource, is published at the Portal. The onboarding team may also perform small corrections on the Resource descriptions and ask for the consent of the Provider before publishing.</p> <p>Triggers</p> <p>One of the following:</p> <ul style="list-style-type: none"> ● The EPOT member checks the Kanban board for a new ticket that has automatically been created in the EPOT JIRA project ● New email to the onboarding@eosc-portal.eu that provides notifications on new resource registrations ● New resource with the state Pending First Resource Approval in the Provider Portal. <p>Actions</p> <p>Action 1 - The EPOT member assesses the resource record</p> <ul style="list-style-type: none"> ○ The EPOT member goes through the provider portal entry <p>The EPOT member applies the inclusion criteria at https://www.eosc-portal.eu/providers-documentation/eosc-provider-portal-inclusion-criteria in particular:</p> <ul style="list-style-type: none"> ■ Assess whether the submission meets the inclusion criteria (e.g. is for a real service - not a piece of software, or feature of another service, suitable for EOSC etc.) ■ Check that the links provided do point to the required content ■ Check that all fields are correctly filled in <p>Action 2 - If all is correct, move the ticket to status "Record Approved" and approve in the provider portal.</p> <ul style="list-style-type: none"> ○ The PR will automatically be notified of the approval. ○ A notification is sent to onboarding@eosc-portal.eu
---------	--	--	---

			<p>Action 3 - If the record is not appropriate and the EPOT member judges it cannot be made so, move to status "Rejected"</p> <ul style="list-style-type: none"> ○ Reject application in the provider portal ○ Send an email to the PR (and resource if different) email contact (with cc: onboarding@eosc-portal.eu) explaining why the submission is rejected ○ <To Add: TEXT FOR REJECTION> ○ Add note on reasons for rejection to Jira ticket comments <p>Action 4 - If the record is not correct but the EPOT member judges it can be corrected, move to status "Application Requires Review"</p> <ul style="list-style-type: none"> ○ Contact the resource contact for clarification by sending an email to the resource email contact ○ CC onboarding@eosc-portal.eu (if possible reply-to set to the same address else request they CC the list) ○ Request changes to the resource records in the provider portal ○ Add a comment to the ticket with the reason the application change was requested <p>Action 5 - Follow up</p> <ul style="list-style-type: none"> ○ Monitor the progress of the ticket by email or through automatic notifications from the portal when the Resource entry is updated. ○ Respond to enquiries and updates from the provider ○ For any change in status or new communication, add details to Jira ticket as a comment ○ Depending on the circumstances, move the ticket to 'Record Approved' or 'Rejected' status and proceed as appropriate. <ul style="list-style-type: none"> ■ If the EPOT member has tickets assigned to them that they cannot follow up (due to e.g. a holiday), use the weekly onboarding meeting or onboarding-team@eosc-portal.eu email address to find another EPOT team member that can take on the tickets, and when they agree, assign them to them. ○ (Should be aligned with Step 2 of "Onboarding of Service") <p>Additionally to the onboarding of service, the section "data source content" has mandatory fields.</p>
Step 2a.		Additional validation on data source sections.	* Content section (mandatory)

Step 3.		Check if the data source already exists, and is harvested by OpenAIRE.	If there is no other record keeping solution available, then fill the gSheet at https://docs.google.com/spreadsheets/d/1RK9JRfg72lh2UcVong7y9hSOoqlRRC9ahoFxbigRyUU/edit#
Step 4.		If not harvested and is compliant with the EOSC Guidelines for Research Products, inform the PR about the possibility of onboarding Research Products, and forward the PR to the OpenAIRE PROVIDE service	PROVIDE OpenAIRE Dashboard: https://provide.openaire.eu with a short note to provide-admin@openaire.eu
Step 5.	The PR registers their data source to OpenAIRE PROVIDE to complete the configuration of APIs and enable onboarding of the research products metadata.		OpenAIRE PROVIDE is a service that offers all capabilities required to enable automated harvesting of research product metadata records from Data Source OAI-PMH APIs. The PR must: <ul style="list-style-type: none"> ● Log in to the service ● Select the data source from the list of sources and "claim" it under the PR's control ● Provide the OAI-PMH protocol information (if missing) required by OpenAIRE PROVIDE to harvest the records ● Validate the records against one of the eligible metadata formats included in the EOSC Research Product profiles ● When validation is successful the PR is ready-to-go (Step 6.)
Step 6.		EPOT checks if the registered data source effectively exposes research product profiles compliant with one of the eligible metadata formats included in the EOSC Research Product profiles	

Step 7.		EPOT configures (frequency and harmonisation rules) a dedicated metadata harvesting workflow that harvests research products profiles from the data source APIs	This workflow regularly harvests the data source according to a predefined schedule.
---------	--	---	--

6.8 EPOT Procedure: Audit a data source and research products

Trigger

- A Data Source has been onboarded and automatically approved as it was not the first resource from that provider.
- A Data Source record has not been updated for some time and is automatically flagged as such.
- A Data Source record is flagged as needed review via the Marketplace.
- A record is randomly selected by a member of the EPOT team.

Step-by-step instructions

Step	EPOT action	Detail
1	Selection of a data-source record	A record is selected using one of the above triggers
2	EPOT audits of the record	<ul style="list-style-type: none"> ● Action 1 - If not automatically created, the EPOT member on duty creates a Jira ticket Create a ticket (or access the automatically created ticket) via onboarding queue at https://jira.eoscfuture.eu/secure/RapidBoard.jspa?rapidView=2 <ul style="list-style-type: none"> ■ The ticket should be in the state Record Requires Review ■ Summary: Should be <record abbreviation> data-source Audit e.g. "ZENODO data-source Audit" ■ An automatically created data-source audit ticket includes in its <i>Description</i> field the results of automatic validation. These will give a good indication of what has to be checked and addressed during the audit. ● Action 2 - Examine the ticket using the inclusion criteria at https://eosc-portal.eu/eosc-providers-hub/how-become-eosc-provider/how-become-eosc-provider-a-general-overview#Inclusion_criteria_for_EOSC_Providers_and_different_kinds_of_EOSC_Resources, noting in particular any new rules introduced since the ticket was originally approved ● Action 3 - If the ticket was flagged by a user, pay attention to the aspect they flagged

		<ul style="list-style-type: none"> ● Action 4 - If all fields correct goto Action 7 ● Action 5 - If the record is not correct but the EPOT member judges it can be corrected Contact the data-source contact for clarification by sending an email to the Resource email contact CC onboarding@eosc-portal.eu (if possible reply-to set to the same address else request they CC the list) Request changes to the data-source records in the provider portal Add a comment to the ticket consisting of the reason the record change was requested If due to slow communications with Provider representative or because the required change(s) are expected to take an extended period of time to be implemented, the EPOT member can move the ticket to status "Record suspended" <ul style="list-style-type: none"> ■ Make the record inactive in the Provider Portal ■ The Resource email contact is informed about this decision ■ Add note on reasons for suspension to ticket comments ■ Once requested changes are in place, move the ticket back to status "Record Requires Review" and review the entire record ■ Activate the record in the Provider Portal ● Action 6 - If the record is not appropriate and you judge it cannot be made so, move to status "Record rejected" in the Kanban board Make the record inactive in the Provider Portal Send an email to the resource email contact CC onboarding@eosc-portal.eu and request provider also CCs that address on replies Explain why you are rejecting the service <To Add: TEXT FOR REJECTION> Add note on reasons for rejection to ticket comments ● Action 7 - Data-Source check on OpenAIRE PROVIDE , only to proceed if comes from Action 4 baseURL endpoint check collection history check <ul style="list-style-type: none"> ■ if failure, contact data-source contact for clarification ■ CC onboarding@eosc-portal.eu (if possible reply-to set to the same address else request they CC the list) ■ if due to slow reaction proceed similar as in Action 5 re-validating of metadata records to check if Guidelines compliant <ul style="list-style-type: none"> ■ if not compliant anymore, contact data-source contact ■ CC onboarding@eosc-portal.eu (if possible reply-to set to the same address else request they CC the list) ■ if due to slow reaction proceed similar as in Action 5 validate if the continuous collection process is setup ● Action 8 - If all checks valid Move the ticket to status "Record Approved" Click the 'Audit' option for the record in the Provider Portal, optionally add a comment, then 'Validate' ● Action 9 - Follow up <ul style="list-style-type: none"> ■ Respond to enquiries or complaints from the provider
--	--	--

		<ul style="list-style-type: none"> ■ For any change in status or new communication, add details to Jira ticket as a comment ■ If the EPOT member has tickets assigned to them that they cannot follow up (due to e.g. a holiday), use the weekly onboarding meeting or onboarding-team@eosc-portal.eu email address to find another EPOT team member that can take on the tickets, and when they agree, assign them to them.
--	--	--

6.9 EPOT Procedure: Onboard a training resource

Step	Provider action	EPOT action	Detail
1	The Provider Representative (PR) selects the method to onboard the Training Resource		<p>The PR logs on to the Portal and may proceed with the onboarding of Resources.</p> <p>The PR is offered two options to onboard Resources: a) via a web interface for each Resource individually or b) via the Portal Application Programming Interface (API).</p> <p>If the web interface is selected then Step 1a follows, otherwise Step 1b.</p> <p>Note: The first resource of the Provider must be entered using the web interface, see Step 1a.</p>
1 a	The PR applies to onboard a Resource via the web interface		<p>The PR may apply for the onboarding of a Resource by completing the Resource Profile.</p> <p>Automated mechanisms are used to the fullest extent possible to ensure that all required information is included and that the information is of the correct type, size, etc.</p> <p>In case any difficulties arise during the application, the PR may communicate issues [1] and depending on the issue, the EPOT will support them.</p> <p>Otherwise, if the form is completed and passes all automatic checks, it can be submitted.</p> <p>When the form is submitted, the PR is queried if additional Resources will be onboarded. If yes, then Step 1a is repeated, otherwise the process moves to Step 2.</p> <p>[1] onboarding@eosc-portal.eu</p>
1 b	The PR applies to onboard a Resource via the API		<p>The PR may apply for the onboarding of Resources by using the Portal Open API.</p> <p>In brief, the Provider needs to use the AAI of the Portal to retrieve a new API token. Then, the Provider prepares the Resource description, according to the Resource Profile by calling the API's POST/Resource/validate method. Upon successful validation, the Provider calls the POST/Resource method to add the new Resources in the catalogue. Upon success, the Provider receives a new set of Resource IDs and the new Resources are onboarded in the Portal. A detailed description of the Portal Open API [2] is available.</p> <p>In case any difficulties arise during the employment of the API, the PR may communicate issues [3] to the EPOT, who will support them.</p> <p>[2] https://providers.eosc-portal.eu/openapi</p> <p>[3] onboarding@eosc-portal.eu</p>

2		<p>The EPOT reviews the newly onboarded Resources</p>	<p>The first newly onboarded Resource by each provider is reviewed by the onboarding team. Subsequent resources are currently automatically published.</p> <p>The onboarding team examines the quality of the metadata, specifically if they follow the general recommendations and guidance of the Resource Profile, spelling, accuracy, composition and URLs.</p> <p>If the Resource description does not comply with the inclusion criteria of the Portal and the rules and criteria based on the current Rules of Participation (RoP) and the typology of the Resource Profile, the PR will be asked to take an action (e.g. amend the description and resubmit, etc.), with the possible option to join an information/training session. In this typically 1-to-1 call, the PR will have the chance to ask questions and get a personalised consultation on the best way to onboard the Resources.</p> <p>To facilitate the amendment, the EPOT provides recommendations, taking into account potential Provider's nuances, and reviews the Provider's website, their catalogue and provided URLs, and proposes alternatives for the description of the Resource's metadata and provides best practice examples from other Providers.</p> <p>If the Provider fails to update the Resource accordingly, the Resource may be rejected. In this case, the Provider is sent a notification of the definitive Resource Onboarding rejection and possibly a Provider suspension.</p> <p>Otherwise, the PR is notified of the approval and the Provider, as well as the Resource, are published on the Portal. The EPOT may also perform small corrections on the Resource descriptions and ask for the consent of the Provider before publishing.</p> <p>This will trigger one of the following:</p> <ul style="list-style-type: none"> • The EPOT checks the Kanban board for a new ticket that has automatically been created in the EPOT Jira project. • New email to onboarding@eosc-portal.eu that provides notifications on new Resource registrations. • New Resource with the state Pending First Resource Approval in the Provider Portal. <p>Actions</p> <ul style="list-style-type: none"> • Action 1 - The EPOT assesses the resource record and: <ul style="list-style-type: none"> ○ The EPOT goes through the provider portal entry; ○ The EPOT applies the inclusion criteria at https://www.eosc-portal.eu/providers-documentation/eosc-provider-portal-inclusion-criteria, and in particular: <ul style="list-style-type: none"> ■ Assess whether the submission meets the inclusion criteria (e.g. is for a real service - not a piece of software, or feature of another service, suitable for EOSC, etc.) ■ Check that the links provided do point to the required content; ■ Check that all fields are correctly filled in. • Action 2 - If all is correct, move the ticket to status "Record Approved" and approve in the provider portal. <ul style="list-style-type: none"> ○ The PR will automatically be notified of the approval. ○ A notification is sent to onboarding@eosc-portal.eu • Action 3 - If the record is not appropriate and the EPOT judges it cannot be made so, move to status "Rejected" <ul style="list-style-type: none"> ○ Reject application in the provider portal; ○ Send an email to the PR email contact (and resource if different), with cc: onboarding@eosc-portal.eu, explaining why the submission is rejected; ○ <To Add: TEXT FOR REJECTION>; ○ Add note on reasons for rejection to Jira ticket comments. • Action 4 - If the record is not correct but the EPOT judges it can be corrected, move to status "Application Requires Review" <ul style="list-style-type: none"> ○ Contact the Resource provider for clarification by sending an email;
---	--	---	---

			<ul style="list-style-type: none"> ○ Cc onboarding@eosc-portal.eu (if possible reply-to set to the same address or else request they cc the list); ○ Request changes to the resource records in the provider portal; ○ Add a comment to the ticket with the reason the application change was requested. ● Action 5 - Follow up <ul style="list-style-type: none"> ○ Monitor the progress of the ticket by email or through automatic notifications from the portal when the Resource entry is updated; ○ Respond to enquiries and updates from the provider; ○ For any change in status or new communication, add details to a Jira ticket as a comment; ○ Depending on the circumstances, move the ticket to 'Record Approved' or 'Rejected' status and proceed as appropriate; ○ If an EPOT member has tickets assigned to them that they cannot follow up (due to e.g. a holiday), use the weekly onboarding meeting or onboarding-team@eosc-portal.eu email address to find another EPOT team member that can take on the tickets, and when they agree, assign them accordingly.
--	--	--	---

6.10 EPOT Procedure: Audit a training resource

Triggers

- A training resource has been onboarded and automatically approved as it was not the first resource from that provider.
- A service record has not been updated for some time and is automatically flagged as such.
- A training resource is flagged as needed review via the Marketplace.
- A training resource is randomly selected by a member of the EPOT team.

The training resource quality assurance process is a community effort and it includes the review process and periodic automated and manual audit/checks of the content and metadata by the curation team. The continued control of existing resources revolves around ensuring that the content is still valid and up to date, as well as encouraging the enrichment of resources by adding properties that are recommended. Regular checks are performed to ensure the above. The curation team checks the following:

- The metadata is correct and complete.
- Links are valid and accessible.
- Quality of media objects is good.
- Licences are appropriate.
- Formats are interoperable.

Training resource providers are encouraged to inform the curation team about any relevant changes that need to be made to the resource, corrections, new versions, etc., so that records can be updated. Furthermore, any user can use the feedback form to report an issue (e.g. a broken link, missing content or metadata, etc.) or suggest corrections and updates to records, as well as new content for inclusion.

Both during the selection process and subsequent checks, the curation team may require resource providers to add or correct the metadata. If a resource is not well maintained but may still be useful, an appropriate label will be used to suggest that maintenance is discontinued.

Criteria for deselection of content:

- Content is no longer available.
- Content is no longer current or relevant, e.g it may have been superseded by a new version.

- A resource location is no longer reliable or stable, e.g. frequently unavailable.
- Content is found to be in violation of copyright, other licence terms, or legal requirements.

Decisions to withdraw or remove content are made by the curation team. If the author/owner of a resource wishes to withdraw/remove a resource due to other reasons not listed above, they should contact the curation team through the Helpdesk.

Step-by-step instructions

This procedure describes how to audit a learning resource in the EOSC Providers Portal. Additionally, it contains descriptions of auditing levels of assurance, examples, and templates to help facilitate communication with providers.

Step	EPOT action	Detail
1	Selection of a training resource record	A record is selected using one of the above triggers
2	EPOT audits of the record	<ul style="list-style-type: none"> • Action 1 - Dealing with Jira tickets, the EPOT member on duty: <ul style="list-style-type: none"> ○ Creates a ticket (or accesses the automatically created ticket) via onboarding queue at https://jira.eoscfuture.eu/secure/RapidBoard.jspa?rapidView=2 <ul style="list-style-type: none"> ■ The ticket should be in the state Record Requires Review ■ Summary: Should be <record abbreviation> learning resource Audit e.g. "OpenAIRE Learning Resource Audit" ■ An automatically created learning resource audit ticket includes in its <i>Description</i> field the results of automatic validation. These will give a good indication of what has to be checked and addressed during the audit. • Action 2 - Examine the ticket using the inclusion criteria at https://www.eosc-portal.eu/providers-documentation/eosc-provider-portal-inclusion-criteria, noting in particular any new rules introduced since the ticket was originally approved. • Action 3 - If the ticket was flagged by a user, pay attention to the aspect they flagged. • Action 4 - If all is correct, move the ticket to status "Record Approved". • Action 5 - If the record is not correct but the EPOT judges it can be corrected. <ul style="list-style-type: none"> ○ Contact the Resource contact for clarification by sending an email to the Resource email contact. ○ Include in cc onboarding@eosc-portal.eu (if possible reply-to set to the same address or else request they cc the list). ○ Request changes to the Resource records in the provider portal. ○ Add a comment to the ticket consisting of the reason the record change was requested. ○ If communication with the Provider Representative is slow or because the required change(s) are expected to take an extended period of time to be implemented, the EPOT can move the ticket to status "Record suspended". <ul style="list-style-type: none"> ■ Make the record inactive in the Provider Portal ■ The Resource email contact is informed about this decision ■ Add note on reasons for suspension to ticket comments ■ Once requested changes are in place, move the ticket back to status "Record Requires Review" and review the entire record ■ Activate the record in the Provider Portal • Action 6 - If the record is not appropriate and the EPOT judges it cannot be made so, move to status "Record rejected" in the Kanban board <ul style="list-style-type: none"> ○ Make the record inactive in the Provider Portal

		<ul style="list-style-type: none"> ○ Send an email to the resource email contact ○ Include in cc onboarding@eosc-portal.eu and request provider also cc that address on replies ○ Explain why you are rejecting the service ○ <To Add: TEXT FOR REJECTION> ○ Add note on reasons for rejection to ticket comments ● Action 7 - Follow up <ul style="list-style-type: none"> ○ Respond to enquiries or complaints from the provider ○ For any change in status or new communication, add details to Jira ticket as a comment ○ If an EPOT member has tickets assigned to them that they cannot follow up (due to e.g. a holiday), use the weekly onboarding meeting or onboarding-team@eosc-portal.eu email address to find another EPOT team member that can take on the tickets, and when they agree, assign them accordingly.
--	--	--

6.11 EPOT Procedure: Onboard an interoperability guideline

Trigger

- The EAC Chair (member of EPOT) checks the EPOT's EOSCOB [Kanban board](#) or is notified by email of a new ticket that has automatically been created in the EPOT JIRA project at the point that a Provider submits a new Guideline Profile to be onboarded.
- The EAC Chair (member of EPOT) finds a new email in the onboarding@eosc-portal.eu inbox that provides notifications on new resource registrations
- The EAC Chair (member of EPOT) finds a new Interoperability Guideline with the state **Pending/Inactive** in the Provider Portal.
- Identified during regular (weekly) manual keyword searches and filters based on the 'Interoperability Guideline Catalog' dropdown filter in the Catalogue or during audit procedures.

Step-by-step instructions

Step	Provider actions	Action
o	Identify candidate guideline	The Provider establishes that it has identified a candidate Interoperability Guideline for inclusion in the EOSC Interoperability Framework. The guideline must meet the Inclusion Criteria for EOSC Interoperability Guidelines .

1	The Provider Representative (PR) selects the method to onboard the Guideline	<p>The PR logs on to the Portal and proceeds with onboarding the Guideline. Note: if the Provider has not already been registered at the EOSC Portal, then the PR must follow the Onboard a Provider procedure.</p> <p>The PR is then offered two options to onboard the Guideline: a) via a web interface for each Guideline individually or b) via the Portal Application Programming Interface (API). If the web interface is selected then Step 1a follows, otherwise Step 1b. Note: The first Guideline of the Provider must be entered using the web interface, see Step 1a.</p>
1a	The PR applies to onboard a Guideline via the web interface	<p>The PR applies for the onboarding of an Interoperability Guideline by completing the Interoperability Guideline Profile. Automated content validation is used to the greatest extent possible to ensure that all required information is included and that the information is of the correct type, size, etc. In case any difficulties arise during the application, the PR may communicate issues [1] and, depending on the nature of the issue, the EPOT will provide support. If the form is completed and passes all automatic validation, the Provider can submit it. This form shall be parsed by:</p> <ul style="list-style-type: none"> • The Provider Dashboard in order to present an editable record of the Guideline's related metadata to Provider Admins, and • The EOSC Resource Catalogue in order to present a read-only view of the Guideline's related metadata to Researchers and to other Providers that may wish to utilise the Guideline. <p>When the form is submitted the PR is prompted to confirm whether additional Guidelines will be onboarded. If yes, then Step 1a is repeated otherwise the process moves to Step 2. [1] onboarding@eosc-portal.eu</p>
1b	The PR applies to onboard a Guideline via the API	<p>The PR may apply for the onboarding of Interoperability Guidelines by using the Portal Open API. In brief, the Provider needs to follow the process to retrieve a new API token. Then, the Provider prepares the Guideline Profile by mapping the attributes to its own systems, according to the Interoperability Guideline Profile [3] and by calling the API's POST/Resource/validate method. Upon successful validation, the Provider calls the POST/Resource method to add the new Guidelines into the catalogue. Upon success, the Provider receives a new set of Resource IDs and the new Resources are onboarded to the Portal. A detailed description of the Portal Open API [2] is available. In case any difficulties arise during the employment of the API, the Provider may communicate issues [4] to the EPOT, who will support them. [2] https://providers.eosc-portal.eu/openapi [3] description of the Guideline according to the EOSC Interoperability Guideline data model. [4] onboarding@eosc-portal.eu</p>

2		<p>All Interoperability Guidelines submitted are to be triaged by the EOSC Portal Onboarding Team (EPOT) to the EOSC Interoperability Area Chairs (EIAC) in Jira.</p> <p>Triggers (One of the following):</p> <ul style="list-style-type: none"> ● The EIAC Chair (member of EPOT) checks the EPOT's EOSCOB Kanban board or is notified by email of a new ticket that has automatically been created in the EPOT JIRA project at the point that a Provider submits a new Guideline Profile to be onboarded. ● The EIAC Chair (member of EPOT) finds a new email in the onboarding@eosc-portal.eu inbox that provides notifications on new resource registrations ● The EIAC Chair (member of EPOT) finds a new Interoperability Guideline with the state Pending/Inactive in the Provider Portal. ● Identified during regular (weekly) manual keyword searches and filters based on the 'Interoperability Guideline Catalog' dropdown filter in the Catalogue or during audit procedures.
3		<p>The EIAC onboarding representative examines the quality of the Guideline documentation and related Interoperability Guideline Profile referring to the Interoperability Guidelines Inclusion Criteria and the general recommendations and guidance that relates to the Interoperability Guideline Profile. This may include spelling, accuracy, composition and URLs, but the EIAC will not perform interoperability tests as a matter of routine.</p> <p>If the Guideline description does not comply with the inclusion criteria and the classification of the Interoperability Guideline's Profile, the PR may be asked to take an action (e.g. amend the description and to resubmit, etc.) or to join an information/training session. In this, often 1-to-1 call, the PR will have the chance to ask questions and get personalised consultation on the best way to onboard the Guidelines.</p> <p>To facilitate any required amendment, the EIAC provides recommendations taking into account potential Provider's specific contexts as understood by the team.</p> <p>In the case where a PR has submitted a thematic or horizontal EOSC-Exchange Interoperability Guideline for inclusion in the EOSC-IF Registry, the EIAC may request further information relating to evidence of prior validation and testing having been successful, and/or evidence of demonstrable impact, uptake and maturity of the Guideline.</p> <p>The Guideline may be rejected by the EIAC if:</p> <ul style="list-style-type: none"> ● the Guideline documentation or its Profile is not appropriate for the EOSC, ● the Provider fails to respond to or act upon the request to amend the Guideline's Profile or documentation, which may also ultimately result in the Provider's suspension. <p>Otherwise, the EIAC notifies the PR of the approval of the Guideline's inclusion in the EOSC-IF Registry and the Guideline is published at the Portal. If the Provider description was also submitted alongside the Guideline proposal, the Provider description will be reviewed by the EPOT separately to the EIAC and publication of the first Guideline is dependent on the Provider Profile having been approved first. The EPOT or EIAC may also perform small corrections on the Guideline's Profile but will ask for the consent of the PR before publishing.</p> <p>Actions</p> <ul style="list-style-type: none"> ● Action 1 - The EIAC representative assesses the Guideline Profile <ul style="list-style-type: none"> ○ The EIAC representative performs its review (as described above). ○ The EIAC representative member applies the inclusion criteria at https://www.eosc-portal.eu/providers-documentation/eosc-provider-portal-inclusion-criteria in particular:

		<ul style="list-style-type: none"> ■ Assess whether the submission meets the inclusion criteria ■ Check that the links provided point to the required content ■ Check that all fields are correctly filled in <ul style="list-style-type: none"> ● Action 2 - If all is correct, the EIAC representative will consult with the EOSC Interoperability Area Chairs group and the EOSC Interoperability Advisory Board (EIAB) to determine whether the Guideline can be accepted. This is an offline process carried out without the assistance of EPOT, Jira or the Provider Portal. ● Action 3 - If EIAC/EIAB approve the Guideline, the EIAC representative will move the Jira ticket to status "Record Approved" and click 'Approve' in the Provider Portal. <ul style="list-style-type: none"> ○ The PR will automatically be notified of the approval. ○ A notification is sent to onboarding@eosc-portal.eu ● Action 4 - If the Guideline/Profile is not appropriate and/or the EIAC/EIAB judges it cannot be made so, the EIAC representative will click "Rejected" in the Provider Portal and record it as such in Jira. <ul style="list-style-type: none"> ○ Reject application in the provider portal ○ Send an email to the PR (and resource if different) email contact (with cc: onboarding@eosc-portal.eu) explaining why the submission is rejected ○ <To Add: TEXT FOR REJECTION> ○ Add note on reasons for rejection to Jira ticket comments ● Action 5 - If the metadata is not correct but the EIAC representative judges it can be corrected, move to Jira status "Application Requires Review" <ul style="list-style-type: none"> ○ Request that the PR makes the required adjustments in the Provider Portal by sending an email to the resource email contact ○ CC onboarding@eosc-portal.eu ○ Add a comment to the Jira ticket with the reason the application change was requested ● Action 6 - Follow up <ul style="list-style-type: none"> ○ Monitor the progress of the ticket by referring to replies to email or through automatic notifications from the portal when the Guideline Profile is updated. ○ Respond to enquiries and updates from the PR. ○ For any change in status or new communication, add details to Jira ticket as a comment ○ Depending on the circumstances, move the ticket to 'Record Approved' or 'Rejected' status and proceed as appropriate. ○ If the EIAC representative has tickets assigned to them that they cannot follow up (due to e.g. a holiday), they must update the EPOT at the weekly onboarding meeting or onboarding-team@eosc-portal.eu email address to find another EIAC team member that can take on the activities, and when they agree, assign the tickets to them.
--	--	---

6.12 EPOT Procedure: Audit an interoperability guideline

Trigger

- An Interoperability Guideline has been onboarded and automatically approved as it was not the first resource from that provider.
- An Interoperability Guideline record has not been updated for some time and is automatically flagged as such.
- An Interoperability Guideline record is flagged as needed review via the Marketplace.

- A record is randomly selected by a member of the EPOT team.

Step-by-step instructions

Step	Provider actions	EPOT actions
1	Selection of an Interoperability Guideline record	A record is selected using one of the above triggers and a ticket is created in the EOSC Future Jira (EPOT workflow)
2	EPOT audits of the record	<p>Action 1 - If not automatically created, the EPOT member on duty or EIAC Representative creates a Jira ticket</p> <ul style="list-style-type: none"> ● Create a ticket (or access the automatically created ticket) via onboarding queue at https://jira.eoscfuture.eu/secure/RapidBoard.jspa?rapidView=2 <ul style="list-style-type: none"> ○ The ticket should be in the state Record Requires Review ○ Summary: Should be <record abbreviation> Interoperability Guideline Audit e.g. "XXX Interoperability Guideline Audit" ○ An automatically created Interoperability Guideline audit ticket includes in its Description field the results of automatic validation. These will give a good indication of what has to be checked and addressed during the audit.
		Action 2 - Examine the ticket using the Interoperability Guidelines inclusion criteria at https://www.eosc-portal.eu/providers-documentation/eosc-provider-portal-inclusion-criteria , noting in particular any new rules introduced since the ticket was originally approved
		Action 3 - If the ticket was reported by a user, pay close attention to the aspect they reported
		Action 4 - If all is correct, move the ticket to status "Record Approved"

		<p>Action 5 - If the record is not correct but the EPOT member or EIAC Representative judges it can be corrected</p> <ul style="list-style-type: none"> ● Contact the Provider contact for clarification by sending an email to the Provider email contact and the admins ● CC onboarding@eosc-portal.eu (if possible reply-to set to the same address else request they CC the list) ● Request changes to the Guideline record/s in the provider portal ● Add a comment to the ticket consisting of the reason the record change was requested ● If due to slow communications with Provider representative or because the required change(s) are expected to take an extended period of time to be implemented, the EPOT member or EIAC Representative can move the ticket to status "Record suspended" <ul style="list-style-type: none"> ○ Make the record inactive in the Provider Portal ○ Update the Lifecycle attribute of the Record to Inactive (or a more appropriate status can be selected as deemed appropriate) in the Provider Portal ○ The Provider email contact is informed about this decision ○ Add note on reasons for suspension to ticket comments
		<p>Action 6 - If the record is not appropriate and you judge it cannot be made so, move to status "Record rejected" in the Kanban board</p> <ul style="list-style-type: none"> ● Make the record inactive in the Provider Portal ● Send an email to the Provider email contact ● CC onboarding@eosc-portal.eu and request provider also CCs that address on replies ● Explain why you are rejecting the Guideline. ● <To Add: TEXT FOR REJECTION> ● Add note on reasons for rejection to ticket comments

		<p>Action 7 - Follow up</p> <ul style="list-style-type: none"> ● After suspension, if the Provider Representative notifies EOSC that the requested changes are in place, move the ticket back to status "Record Requires Review" and review the entire record ● Update the Lifecycle attribute of the Record as appropriate. ● Respond to enquiries or complaints from the provider ● For any change in status or new communication, add details to Jira ticket as a comment. ● If the EPOT member has tickets assigned to them that they cannot follow up (due to e.g. a holiday), use the weekly onboarding meeting or onboarding-team@eoscfuture.eu email address to find another EPOT team member that can take on the tickets, and when they agree, assign them to them.
--	--	--

7 Appendix B: Definition of resource types and their onboarding

7.1 Document objectives

EOSC-Exchange resource types are defined in this guideline with the following objectives:

- Contain the EOSC definitions of the different resource types that can be onboarded to EOSC-Exchange.
- Help providers select the right resource type to onboard and outline what the onboarding process will entail.
- Help the EOSC Portal Onboarding Team (EPOT) in identifying and onboarding different resource types.

7.2 Document structure and relationship between resource types

The document is divided into sections dedicated to the different resource types that contain the following information:

- EOSC Onboarding requirements: it explains the specific parts of the [EOSC-Exchange inclusion criteria](#) that need to be met to onboard a specific resource type to EOSC.
- Definition: describes what each resource type is.
- Characteristics: clarifies characteristics of specific resource types and what should be considered to avoid confusion.
- Examples: provides examples of resources that are part of the [EOSC Marketplace](#).
- Related profiles: EOSC profiles are a set of linked metadata models to describe service providers, and resources of various types. These models or templates need to be filled-in to onboard providers and resources to EOSC.
- Onboarding instructions for Providers: Outlines the onboarding procedure that the Provider must follow.
- Onboarding procedures for the EPOT: lists the onboarding instructions to be followed by the EPOT.

This is the relationship between resource types:

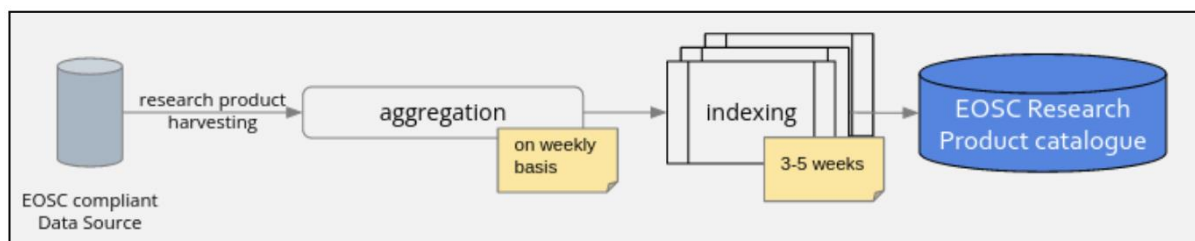


Figure 7.1: Simplified relationship between the different EOSC-Exchange resource types.

7.3 Service resource type

7.3.1 EOSC onboarding requirements

A service must meet the [EOSC-Exchange inclusion criteria](#) common to onboard all resource types and the additional criteria to onboard a service.

7.3.2 Definition

A service provides value to customers bringing about results that they want to achieve. In the context of EOSC, we mainly refer to operating instances of digital services or other services provided by staff of one organisation that are ready to be accessed or ordered by users.

Digital services feature a digital interface that accepts inputs (such as source information, parameter settings, etc.) and displays digital outputs (such as files and/or text, numbers, or images).

As part of human services, users interact with human service providers who can provide results in digital form (files, reports, etc.) or help them perform a task, increase their knowledge, or both.

7.3.3 Characteristics

A service needs to deliver value that brings relatively discrete benefits to a user (i.e., something you would take 'on its own') rather than something that requires you to use some larger service first. Hence, providers cannot onboard elements of a platform, just the platform itself.

To avoid Research products (a Research product is another resource type defined in section 4) masquerading as services, it should also include some form of operational activity (not, e.g., a 'service' that simply shows a pdf).

Service maturity is also necessary, and a minimum maturity of Technology Readiness Level 7 according to the [EC H2020 definitions of TRL](#). TRLs below this are not sufficiently mature for wide use. In order to support additional integration with other services, like the service being onboarded being able to be ordered using the EOSC ordering service, a TRL of 8 is required.

7.3.4 Examples in the EOSC Marketplace

- [EGI Cloud Compute](#): Allows running virtual machines on-demand with complete control over computing resources.
- [Europeana APIs](#): Large-Scale Data Discovery, Acquisition and Management of Digital Cultural Heritage in Research.
- [INDIGO Identity and Access Management \(IAM\)](#): Identity and Access Management Service.
- [NOMAD repository](#): The world's largest collection of computational materials science data.
- [B2ACCESS](#): B2ACCESS is a federated cross-infrastructure authorisation and authentication proxy for user identification and community-defined access control enforcement.

7.3.5 Related EOSC profiles

[EOSC Provider profile](#) and [EOSC Resource profile](#).

7.3.6 Onboarding instructions for Providers

Providers must first register themselves as EOSC Providers before onboarding any type of resource. The EOSC Providers Hub contains the detailed [Instructions to onboard Providers and Resources to EOSC](#).

7.3.7 Onboarding procedures for the EPOT

[EPOT Procedure-01: Onboarding a Provider](#) and [EPOT Procedure-03: Onboard a Service](#).

7.3.8 Publication time at the EOSC Catalogue and Marketplace

Approved services, data sources, training, and Interoperability Guidelines are automatically pulled from the [EOSC Providers Portal](#) to the [EOSC Catalogue and Marketplace](#) once a day at 6 am CET/CEST.

7.4 A specific service resource type: Data Source

7.4.1 EOSC onboarding requirements

A service must meet the [EOSC-Exchange inclusion criteria](#) common to onboard all resource types and the additional criteria to onboard a service that is a Data Source.

7.4.2 Definition

A *Data Source* is a specific EOSC Service (services are defined in section 3) that exposes (meta)data about different types of Research products (a Research product is another resource type defined in section 7.5) and may contain and offers access to their part of exposed records (e.g. data files, or scientific database entries).

EOSC considers different Data Sources: repositories, scientific databases, journal and publisher archives, research information systems (CRIS), and aggregators of Data Sources (acting as proxies to the EOSC for the Data Sources they aggregate).

7.4.3 Characteristics

A Data Source must follow the FAIR principles (Findable, Accessible, Interoperable, and Reusable) for (meta)data.

A *Data Source* which is compliant with the [EOSC Research Product Profile](#) can offer their Research products in the [EOSC Marketplace](#). These Research products are harvested by OpenAIRE and managed via the [OpenAIRE PROVIDE dashboard](#). After the Data Source is harvested, its Research products will be included in the EOSC Research Products catalogue and made discoverable through the EOSC Marketplace.

A *Data Source* not compliant with the [EOSC Research Product Profile](#) can only be visible as a *Data Source* with the additional aspects.

7.4.4 Examples in the EOSC Marketplace

The Research products of the different Data Sources can be found in the EOSC Marketplace by searching for the name of the Data Source in <https://search.marketplace.eosc-portal.eu/>. E.g. Search 'ZENODO' in <https://search.marketplace.eosc-portal.eu/>

- Aggregator of Data Sources:
[B2FIND](#) or [BASE](#), both are metadata indexing services and provide a discovery portal which allows researchers to find collections within an international and inter-disciplinary scope.
- Journal and publisher archive:
[Canadian Journal of Bioethics](#): peer-reviewed, bilingual (French and English), international, open access academic journal that publishes theoretical, conceptual and empirical research in bioethics.
- Repository:
 1. [CERN Open Data Portal](#): Access point to a growing range of data produced through the research performed at CERN.
 2. [ISIDORE](#): international search engine and a discovery platform for open science allowing the access to digital materials from social sciences and humanities (SSH).

7.4.5 Related EOSC profiles

[EOSC Provider profile](#), [EOSC Resource Profile](#), and [EOSC Data Source Profile](#).

7.4.6 Onboarding instructions for Providers

Providers must first register themselves as EOSC Providers before onboarding any type of their resource.

The EOSC Providers Hub contains the detailed [Instructions to onboard Providers and Data sources to EOSC](#). There are three scenarios for onboarding Data Sources:

- Scenario A:
The Data Source is *not compliant* with the [EOSC Research Product Profile](#), so only the basic information regarding the Data Source is available at the EOSC marketplace.
- Scenario B:
The Data Source is *compliant* with the [EOSC Research Product Profile](#) and is already being harvested by OpenAIRE.
When the Provider submits an application to onboard a Data Source and this is approved by the EOSC Portal Onboarding Team (EPOT), after a certain amount of processing time, the Research product of the Data Source will become discoverable in the EOSC Marketplace without any further intervention of the provider. After successful completion of registration, it takes about one month until the Research products are made available in the EOSC marketplace for the first time. Afterwards, the Research products are regularly harvested and added to the EOSC research catalogue.
- Scenario C:
The Data Source is *compliant* with the [EOSC Research Product Profile](#) and currently not harvested by OpenAIRE.
When the Data Source is not already harvested by OpenAIRE, after sending the onboarding request to EOSC and having it approved, the Provider will need to register their Data Source via the [OpenAIRE PROVIDE dashboard](#) to complete the configuration of the APIs and enable the onboarding

of the Research products metadata. After this, their Research products will be included in the EOSC Research Products Catalogue and made available in the EOSC Marketplace in about one month.

In both scenarios B and C consider section 5 regarding Research Product resources.

7.4.7 Onboarding procedures for the EPOT

[EPOT Procedure-01: Onboarding a Provider](#) and [EPOT Procedure-09: Onboard Data Source and Research Products](#).

Regarding the scenarios B and C to onboard Data Sources defined above, the steps in the [EPOT Procedure-09: Onboard Data Source and Research Products](#) to follow in scenario B would be 1 to 4, and in scenario C would be 1 to 7.

7.4.8 Publication time at the EOSC Catalogue and Marketplace

Approved services, data sources, training, and Interoperability Guidelines are automatically pulled from the [EOSC Providers Portal](#) to the [EOSC Catalogue and Marketplace](#) once a day at 6 am CET/CEST.

7.5 Research product resource type

7.5.1 EOSC onboarding requirements

A Research product must meet the [EOSC-Exchange inclusion criteria](#) common to onboard all resource types and the additional criteria to onboard a Research product.

The metadata profile must comply with the [EOSC Research Products Profile](#).

7.5.2 Definition

A Research product is a publication, data, software, or other forms of digital research outcome or asset useful for research whose metadata and payload (or other structured or unstructured digital forms, such as databases) are preserved and made accessible or discoverable via an EOSC Data Source (a Data Source is another resource type defined in section 4).

7.5.3 Characteristics

A Research product (research data, literature, software, or others) must be discoverable and accessible in a FAIR way. A Research product is described by a metadata profile providing bibliographic, attribution, provenance, and disciplinary information about the product, together with semantic links to other entities, with the aim of making research outcomes more findable, trackable, assessable, and (re)usable.

7.5.4 Examples in the EOSC Marketplace

A Research product can be a scientific article, a doctoral thesis, a project report deposited in an institutional, thematic, national repository or research information system, a dataset of scientific facts or a research software.

- A Publication
[The researcher at the Open Science era](#): Open Science and FAIR data are the new norms in Horizon Europe and all proposals should demonstrate sufficient measures for promoting these principles. The webinar will provide basic knowledge that a researcher should be equipped with in these domains, along with a presentation of the NI4OS-Europe project and how it supports researchers to achieve openness in their science.
- A Dataset
[Survey on lattice data analysis, presentation, and curation practices](#): This repository contains the results of a survey on software workflows and open science in lattice field theory.
- A Software
[Annotation Sniffer](#): A tool to Extract Code Annotations Metrics.

7.5.5 Related EOSC profiles

[EOSC Provider profile](#) , [EOSC Resource Profile](#) , [EOSC Data Source Profile](#) , and [EOSC Research Product profile](#).

7.5.6 Onboarding instructions for Providers

Providers must first register themselves as EOSC Providers before onboarding any type of resource. The EOSC Providers Hub contains the detailed [Instructions to onboard Providers and Services to EOSC](#). Research products can be onboarded into EOSC-Exchange only if they are hosted in an EOSC Data Source, which is a specific type of service that is onboarded as described in section 4 of this guideline. The metadata of a Research product is harvested by a EOSC Core Service and must follow the [EOSC Research Product Profile](#).

There are two scenarios for the first time integration of Research Products from the EOSC Data Source endpoint:

- Scenario 1: OpenAIRE is *already harvesting* metadata of Research products from the Data Source. The *Research products* in the *EOSC Data Source* are already discoverable in OpenAIRE. The *Research products* will become automatically discoverable in EOSC through the *EOSC Marketplace* in about one month.
- Scenario 2: OpenAIRE is *not harvesting* metadata of Research products from the Data Source.

7.5.7 Onboarding Procedures for the EPOT

The onboarding procedure requires that the Data Source provider is registered in [OpenAIRE PROVIDE](#) to have their Research products harvested and also be compliant with the [EOSC Research Product Profile](#) by the OpenAIRE Aggregation system. A month after being onboarded and harvested, the Research products will become discoverable in the EOSC Research Product Catalogue through the EOSC Marketplace.

Once the Research products have been integrated for the first time (i.e. once the Research products have been added to the EOSC Research Products Catalogue and made available in the EOSC Marketplace), the harvesting process will take place weekly (Fig. 7.1).

7.5.8 Publication time at the EOSC Catalogue and Marketplace

Approved research products are manually pulled from the data source by OpenAIRE to the [EOSC Catalogue and Marketplace](#) once a month.

7.6 Community service catalogue resource type

7.6.1 EOSC onboarding requirements

A community service catalogue must meet the [EOSC-Exchange inclusion criteria](#) common to onboard all resource types and the additional criteria to onboard a community resource catalogue.

7.6.2 Definition

A community service catalogue provides access to operational instances of services and other assets. It also manages the profiles (metadata descriptions) of several resources that can be onboarded into the EOSC-Exchange through direct interoperation via the EOSC [Portal](#).

7.6.3 Characteristics

A community catalogue provides access to live services and assets and does not simply list information about services and assets. Those catalogues that only list information about services and assets, and whose content cannot be transferred into the EOSC Portal Catalogue, are considered directories of information, and they should be onboarded as a service following the procedures mentioned in section 3.

7.6.4 Examples in the EOSC Marketplace

- EOSC-Nordic Catalogue: contains the services made available by the EOSC-Nordic project partners. These services are visible through a search of 'EOSC-Nordic' in <https://search.marketplace.eosc-portal.eu/>
- NI4OS Catalogue: contains the services made available by the EOSC-Nordic project partners. These services are visible through a search of 'NI4OS' in <https://search.marketplace.eosc-portal.eu/>

7.6.5 Related profiles

[EOSC Provider profile](#) and [EOSC Multi-Provider Catalogue profile](#).

7.6.6 Onboarding path for Providers

Providers must first register themselves as EOSC Providers before onboarding any type of resource. The EOSC Providers Hub contains the detailed [Instructions to onboard Providers and Resources to EOSC](#).

7.6.7 Onboarding procedures for the EPOT

In order to onboard any type of resource, you must first onboard a resource provider following the [EPOT Procedure-01: Onboarding a Provider](#). Community catalogues are onboarded following the [EPOT Procedure-07: Onboard an External Catalogue](#).

7.7 Training resource type

7.7.1 EOSC onboarding requirements

A training resource must meet the [EOSC-Exchange inclusion criteria](#) common to onboard all resource types and the additional criteria to onboard a training resource.

7.7.2 Definition

By training resource, we mean a persistent resource that has one or more physical or digital representations and that explicitly involves, specifies, or entails a learning activity or learning experience. A learning activity or experience is one that has characteristics that may improve or measure a person's knowledge, skills, or abilities.

7.7.3 Characteristics

A training resource could be an activity plan, assessment, assessment item, course/lesson plan, educator curriculum guide, online course, physical learning resource, recorded lesson/course/webinar, supporting document, textbook, unit plan, or other resource. Since a training resource is persistent, it cannot be an event (though it can be a record of an event). A training resource may reference other supporting materials, creative works, tools, etc. that do not themselves meet the definition of a training resource.

7.7.4 Examples in the EOSC Marketplace

- [Addressing Legal & Ethical Issues: train-the-trainer course on addressing legal and ethical issues relating to European Open Science Cloud \(EOSC\)](#).
- [Managing Singularity, Docker and udocker containers, Kubernetes clusters in the EGI Cloud: webinar introducing the different runtimes available for executing containers in the EGI infrastructure and showing how to manage Kubernetes clusters](#).

7.7.5 Related EOSC profiles

[EOSC Provider profile](#) and [EOSC Training Resource profile](#).

7.7.6 Onboarding path for Providers

Providers must first register themselves as EOSC Providers before onboarding any type of resource. The EOSC Providers Hub contains the detailed [Instructions to onboard Providers and Resources to EOSC](#).

7.7.7 Onboarding procedures for the EPOT

In order to onboard any type of resource, you must first onboard a resource provider following the [EPOT Procedure-01: Onboarding a Provider](#). Community catalogues are onboarded following the [EPOT Procedure-12: Onboard a Training Resource](#).

7.7.8 Publication time at the EOSC Catalogue and Marketplace

Approved services, data sources, training, and Interoperability Guidelines are automatically pulled from the [EOSC Providers Portal](#) to the [EOSC Catalogue and Marketplace](#) once a day at 6 am CET/CEST.

7.8 Interoperability guideline resource type

7.8.1 EOSC onboarding requirements

An interoperability guideline must meet the [EOSC-Exchange inclusion criteria](#) common to onboard all resource types and the additional criteria to onboard an interoperability guideline.

7.8.2 Definition

Interoperability guidelines encompass policies, frameworks, implementation instructions, integration of configuration instructions for APIs and protocols, metadata schemas, and file formats, among others.

There are different kinds of interoperability guidelines:

- EOSC-Core Interoperability Guideline

It describes specifications for the purposes of interoperating resources with EOSC-Core services. EOSC-Core guidelines provide context and description in order to provide technical instructions to scientific resource providers that would like to integrate their services and/or resources with (or be interoperable with) one or more EOSC-Core services. These guidelines were created by operators of EOSC-Core Services to provide guidance to scientific service and resource providers who wish to benefit from the functionalities that the EOSC-Core Services offer.

- Thematic or community specific EOSC-Exchange Interoperability Guideline

It refers to where thematic or community services and resources interoperate with each other, usually at a domain level such as cluster-specific. These guidelines were created by experts in the scientific community to provide guidance to their communities and highlight the importance of their interoperability efforts at the European-wide EOSC level. They are further intended to increase awareness of the existing thematic and community accomplishments and facilitate/increase interoperability relating to specific domains.

- Horizontal EOSC-Exchange Interoperability Guideline

It refers to where services and resources interoperate with each other across communities and infrastructures. These are important at the EOSC Exchange level to help EOSC facilitate cross-linking of services and resources while remaining domain-agnostic. These are of wider applicability than the thematic/horizontal guidelines and have a much broader scope. These guidelines were created by experts in the scientific community to provide guidance to their own community and highlight their importance at the European-wide EOSC level. However, this, too, makes them more difficult to develop and requires cross-cluster engagement and representation to ensure they are well-rounded and widely applicable to a diverse range of intended guideline users.

7.8.3 Examples in the EOSC Marketplace

- (Horizontal EOSC Exchange Interoperability Guidelines) [Guidelines for expressing affiliation information \(AARC-Go25\)](#): Define how affiliation information should be expressed when transported across AARC BPA-compliant AAls.
- (EOSC-Core Interoperability Guidelines) [EOSC Helpdesk: Architecture and Interoperability Guidelines](#): Addressed to technical experts of resource providers that would like their services and/or resources to be interoperable or integrate with EOSC Core Services.

7.8.4 Related EOSC profiles

[EOSC Provider profile](#) and [EOSC Interoperability Guideline Profile](#).

7.8.5 Onboarding path for Providers

Providers must first register themselves as EOSC Providers before onboarding any type of resource. The EOSC Providers Hub contains the detailed [Instructions to onboard Providers and Resources to EOSC](#). Further information can be found at the [Guidance note: Onboarding an Interoperability Guideline to EOSC](#).

7.8.6 Onboarding procedures for the EPOT

In order to onboard any type of resource, you must first onboard a resource provider following the [EPOT Procedure-01: Onboarding a Provider](#). Interoperability Guidelines are onboarded following the [EPOT Procedure-14: Onboard an Interoperability Guideline](#).

7.8.7 Publication time at the EOSC Catalogue and Marketplace

Approved services, data sources, training, and Interoperability Guidelines are automatically pulled from the [EOSC Providers Portal](#) to the [EOSC Catalogue and Marketplace](#) once a day at 6 am CET/CEST.