# Skills 4 EOSC

# European CCs landscape and first release of CCs Registry created

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| **Abstract** |
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| **This document serves as a confirmation of the accomplishment of the first milestone of WP7 of the Skills4EOSC Project - the preliminary landscaping of existing European Competence Centres and a first release of the Registry containing selected Competence Centres.** |

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## TERMINOLOGY

**https://eosc-portal.eu/glossary**

| Terminology/Acronym | Definition |
|---|---|
| **Competence Centre/CC** | CCs are organizations/units/initiatives or any entities or reference points that provide specialized expertise and knowledge in a specific field or technology. |
| **Skills4EOSC Competence Centre/Skills4EOSC CC** | Skills4EOSC CC represent **a single point of reference** in a specific Country/Region/Theme to find key **competencies** to enable the practice of **Open Science** with adequate knowledge of standards, applications and tools and best practices for delivering, managing, re-using, sharing and analysing **FAIR** data, as well as other digital research objects. |
| **Skills4EOSC Competence Centre Registry/Skills4EOSC CC Reg** | Skills4EOSC CC Registry is an organized collection of entries that serves as a comprehensive resource for finding the necessary competencies, standards, tools, and best practices for practising Open Science in a specific Country/Region/Theme |
| **Professional Network Centre** | Groups of individuals who are connected through shared professional interests, goals, and values related to OS principles and practices (e.g., Data Stewards, Librarians, Research Infrastructure professionals/experts) |
| **User Support Centre** | Groups of individuals that provide direct support and (technical) assistance to users of a particular service or resource. For instance, assistance to researchers using Open Science tools or resources, such as data repositories or open access journals. |
| **Grass roots initiative** | This type of initiative is usually started by a group of individuals who share a common interest in a specific field. They come together to create a |

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| | competence center to foster collaboration and knowledge sharing among their peers. |
| **Collaborative project(s)** | This type of initiative involves collaboration between different organizations, such as universities, research institutions, and industry partners. The aim is to bring together complementary skills and expertise to create a competence centre that addresses a specific research area or industry need. |
| **Single (or group of) research-led institutions** | This type of initiative is led by one or more research institutions that have a significant body of expertise in a particular field. |
| **National level (libraries, archives, data centres)** | National-level initiatives involve the collaboration of various institutions and organizations at a national level, such as libraries, archives, and data centers. |
| **Commercial service provider** | A commercial service provider is a private company that provides specialized services to businesses, organizations, or individuals. |
| **International bodies and professional associations** | This type of initiative is often led by international bodies or professional associations that represent a specific industry or field. |
| **ESFRI landmark/project** | The European Strategy Forum on Research Infrastructures (ESFRI) is an organization that supports the development of research infrastructures across Europe. (R4) |
| **EOSC Hub Competence Centre** | The EOSC Hub was a project that aimed to create a European Open Science Cloud (EOSC) to support research and innovation in Europe.(R5) |

# Contents

# Introduction

This document serves as a confirmation of the accomplishment of the first milestone of WP7 of the Skills4EOSC Project. The milestone reports the preliminary landscaping of existing European Competence Centres (CCs) and the creation of the first release of the Registry containing selected CCs. The Skills4EOSC project is an important initiative aimed at developing the skills and competences required for Open Science (OS) in the European research community.

The purpose of this milestone is to identify and catalogue existing CCs that comply with the Open Science framework and FAIR principles.

The definition of a Competence Centre (CC) can vary depending on the context and interpretation. For the purpose of this activity, we considered any European organization structure/ unit/ initiative and other types of entities or point of references that provides specialized expertise and knowledge in a specific field or technology to be a CC. However, to narrow down our selection, we set specific requirements for the CCs we included in our collection results. These requirements include: compliance with the Open Science framework and/or FAIR principles in their research lifecycle, focus on at least one particular domain of expertise, provision of training and education to one or more specific target groups, have the authority for their domain of responsibility, and a dedicated team of highly skilled experts.

By focusing on CCs that meet these requirements, we aimed to identify and catalogue the most relevant and effective CCs for promoting Open Science and FAIR principles in research across Europe.

For more detailed information on the approach we followed to identify existing EU CCs, readers can refer to section 2.1 Methodology. We stored our preliminary results in a structured spreadsheet to identify the relevant information we want to capture from each CC. In summary, we employed three streams of data collection: 1) we looked into T6.1 "Data Professional Networks", as reported in the previous deliverable D6.1 "Mapping of existing

professional networks" (R1 of WP6; 2) we checked the results from the FAIRsFAIR project on Landscaping Data Stewardship Centres, which provided valuable information on existing CCs focused on data stewardship and management (R2); 3) to ensure the inclusiveness of our results, we conducted targeted searches via Google search using relevant keywords in the language of each specific country. This stream of data collection is ongoing in a spreadsheet, and we are constantly updating it as new information becomes available. In addition, we aim at gathering information on Competence Centres (CCs) that specialize in AI and want to identify which centrers, either structured as CCs or as support centrers, provide user support activities to assist their target users with the resources or services they provide. This information is paramount to appropriately structure the creation of a network of support centrers which is the goal of T7.4 activity.

After we have completed the comprehensive collection of landscaping activities, we will contact the identified Competence Centres to participate in the Skills4EOSC trainer training program and become part of the project's community.

Our registry will include the Nodes of the Skills4EOSC Competence Centre Network, which serve as a valuable resource for researchers and other stakeholders looking for specialized expertise and knowledge in their field or technology, and for those seeking to improve their skills and competences in Open Science.

The next stage of our project, as it will be outlined in deliverable D7.1, will involve further analysis and refinement of our registry, taking into account feedback and input from stakeholders.

# Overview of European CCs

European Competence Centres (CCs) are specialized initiatives, organizations or units that provide expertise and knowledge in a specific field or technology. They focus on at least one particular domain of expertise, provide training and/or education to specific target groups, have authority for their domain of responsibility, and have a dedicated team of highly skilled experts.

CCs have become increasingly important in the context of the European Open Science Cloud (EOSC), which aims to provide a federated environment for data sharing and reuse across borders and scientific disciplines. CCs can contribute to EOSC by providing specialized services and knowledge to the research community and are key element identified by various actors and recommendations such as the recent Opinion paper on EOSC FAIR data literacy by the EOSC Steering Board (R3)

## 1.1 Methodology

To identify existing CCs for the landscaping activity of Skills4EOSC project, our team employed three approaches. Firstly, we investigated the collection of existing CCs based on the results of T6.1 "Data Professional Networks" as reported in the previous deliverable D6.1 of WP6 [R1]. From this report, we identified entries that might represent potential CCs and investigated them further to determine if they met our selection criteria.

Secondly, we checked the results from the FAIRsFAIR project on Landscaping Data Stewardship Centres, which provided valuable information on existing CCs focused on data stewardship and management.

To ensure that our registry captured key characteristics of each CC, we compiled a spreadsheet with important criteria for each entry. We narrowed down our selection to CCs that have already implemented, or are willing to

implement, the Open Science framework and/or FAIR principles in their research lifecycle; focus on at least one particular domain of expertise; provide training to a specific target group; have authority for their domain of responsibility; and have a dedicated team of highly skilled experts.

Finally, to ensure the inclusiveness of our results, we conducted targeted searches via Google search using relevant keywords in the language of each specific country. This stream of data collection is ongoing, and we continue to update our registry as new information becomes available.

## 1.2 Landscaping results

Preliminary landscaping the results of existing Competence Centres involves a systematic review and analysis of the initiatives that have been established in various countries and regions to promote open science, knowledge management, data stewardship, and related competencies.

The results we have conducted so far include around 100 entries on existing European CCs. We have collected information on the CC Name (eng), Original CC Name, CC Type, Initiative Type, Country, Partners, Competence(s), Role Profiles, Target Users, Services, Subject/Disciplines, Funding opportunities etc. To facilitate the analysis and gain insights into the different CCs we propose to format many of the attributes with some predefined options (using data validation option in Google Sheet) to be selected to properly record a specific CC.

For instance, "CC Type" column is formatted as a drop-down list (macro-based script) where the user can enter *multiple selections* to identify the different initiative types of the established CC (as categorized from FAIRsFAIR project in D6.1 Overview of needs for competence centres (R2)):

- Grass roots initiative [i_1]
- Collaborative project(s) [i_2]
- Single (or group of) research-led institutions [i_3]
- National level (libraries, archives, data centres) [i_4]

- Commercial service provider [i_5]
- International bodies and professional associations [i_6]
- ESFRI landmark/project [i_7]
- EOSC Hub Competence Centre [i_8]
- Other

The same formatting (e.g., controlled vocabularies) we use for the other relevant columns, for more details reader can look into the google spreadsheet.

The application of AI in open science practices is a natural fit. By adhering to the FAIR data principles, both human- and machine-driven activities can benefit from the transparency, accessibility, and reproducibility goals of open science. For instance, AI can help automate scientific processes, such as experiment design and analysis, making it faster and more efficient for researchers to conduct experiments and collect data. Moreover, making AI models and data more accessible and reusable through adherence to FAIR data principles is a crucial step towards promoting open science and advancing scientific research in the field of AI.

This not only helps accelerate the development of AI, but it also provides researchers and developers with the necessary resources to create more efficient and accurate models, which can lead to new discoveries and innovations in the field of AI.

Therefore, we gathered information on CCs that specialize in AI and identified which ones have established user support centres to assist their target users with the resources or services they provide.

Once we will finalize the collection process (i.e still ongoing the third stream on the desk research output), we will analyse the data collected and results will be published in Deliverable 7.1 to serve as a background information for other tasks and activities in the Skills4EOSC project. The results will also guide the developement of the Skills4EOSC competence centre network and related registry.

# First Release of CCs Registry

The *Skills4EOSC CC Registry* is an organized collection of entries that serves as a comprehensive resource for finding the necessary competencies, standards, tools, and best practices for practising Open Science in a specific Country/Region/Theme. These entries, known as Skills4EOSC CC, are a valuable point of reference for delivering, managing, re-using, sharing, and analysing FAIR data and other digital research objects and constitute the nodes of the Skills4EOSC CC network.

The registry will be updated regularly to ensure that it remains up-to-date with the latest developments in the field.

## 1.3 Purpose and objectives of the CCs Registry

The Skills4EOSC CCs Registry serves as a platform for connecting and supporting Open Science CCs across project partners in Europe and promoting the adoption of Open Science practices.

The purpose and objectives of this registry is to facilitate the discovery and identification of Open Science CCs belonging to the Skills4EOSC network. It will also foster the collaboration with other initiatives in the EOSC and Open Science context.

Furthermore, based on the registry content (new nodes are expected to be added during the lifetime of the project) we will be able to identify areas where there are **gaps** in *competences, role profiles, and user support activities needed for open and data-intensive science*. For example, the registry may identify a need for training in data management and analysis, or for the development of new tools and workflows to support the integration of data and the use of AI solutions for providing FAIR data.

The gaps will be reported in the D7.1, due end of August 2023.

By reporting on these gaps, the Registry will be able to provide valuable insights and recommendations to policy-makers, research funders, and other stakeholders on how to support the development of the competencies, role

profiles, and user support activities needed for open and data-intensive science.

## 1.4 Key elements and functionalities of the CCs Registry

This registry as a resource contains a wealth of information about key competencies for practising Open Science in a specific Country/Region/Theme.

Key elements/features (collapsed-mode) of each entry in the registry are:

- Name of CC Entry-Country code
- Link and contacts
- Establishment year, i.e., [yyyy] the CC was founded
- History (+chairperson, +Coordinator) [string]
- Skills4EOSC CC Entry since , i.e., [yyyy] format
- Organization/unit structure, e.g., legal entity
- **Competences** , e.g., Knowledge OS practices, Knowledge management etc.
- **Individuals and Institutions/Organizations**, e.g., People with specific role profiles affiliated to Institutions
- **Services offered**, e.g., Advisory: Consulting,  Data repository, Training and Education
- Resources, e.g., Training materials, publications, etc.
- **Operational Tools**, e.g., research and development facilities, communication tool, data management and analysis tool etc.
- Is part of EOSC ecosystem? E.g. As a member, observers, or mandated organization.
- Any user support offer? i.e, if the CC provides user support for a specific resource or service it offers. All those CCs that are marked yes will be considered an input for T7.4 in order to set up and coordinate the user support network activities.

We identified as composite key features the bullet items formatted with a bold face style such as: Competences, Individuals and Institutions/Organizations, Services offered and Operational tools. In our

next registry release, we will define these sub-key features in further detail, providing even more comprehensive information.

The registry is hosted on the Skills4EOSC project website ( https://www.skills4eosc.eu/network )

An example of an entry is shown in this webpage: https://www.skills4eosc.eu/network/competence-centres/italian-computing-and-data-infrastructure-icdi.

## 1.5 User interface, accessibility and timeline



*Figure 1. Registry laon the Skills4EOSC website*

User Interface: the Skills4EOSC CC Registry, for which first release is depicted in figure 1, is designed to be easy to use and navigate, with a user-friendly interface that allows you to quickly find the information you need. The registry is organized by Country and includes a range of key features for each entry, such as the establishment year, competencies offered, services provided, and more.

Accessibility: We strive to make the registry accessible to everyone, regardless of their level of expertise or technical proficiency. The registry is available online and can be accessed from any device with an internet connection. Additionally, we offer user support to help you navigate the registry and find the information you need.

Timeline: The registry is regularly updated to ensure that the information it contains is accurate and up-to-date. The first release consists of only one entry, ICDI as a CC defined. New entries will be added during the lifetime of the project (as shown in Figure 2).
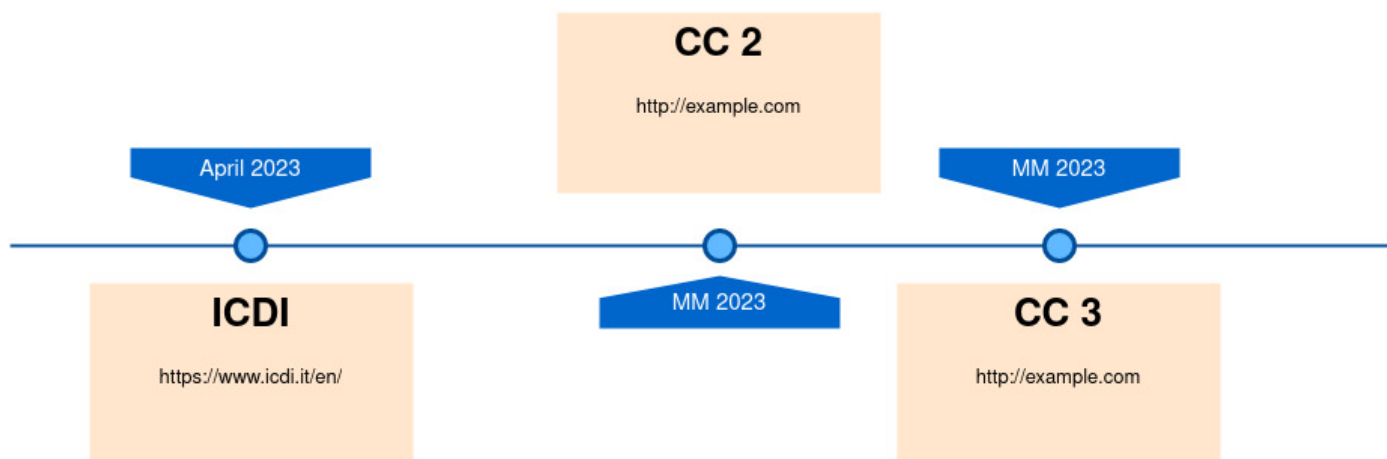


*Figure 2. Registry Entries Timeline*

# Conclusion

In conclusion, Milestone 7.1 of the Skills4EOSC Project has been successfully accomplished with the creation of the first release of the Registry of the nodes in the Skills4EOSC Competence Centres Network. By setting specific requirements, the project aimed to identify and catalogue the most relevant and effective CCs for promoting Open Science and FAIR principles in research across Europe.

The registry will serve as a valuable resource for researchers and other stakeholders looking for specialized expertise and knowledge in their field or technology, and for those seeking to improve their skills and competences in Open Science. The next stage of the project will involve further analysis and refinement of the registry, taking into account feedback and input from stakeholders. Overall, this task is an important step towards developing the skills and competences required for Open Science in the European research community.

# References

| No | Description/Link |
|----|------------------|
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| **R4** | https://www.esfri.eu/project-landmarks-news |
| **R5** | https://www.eosc-hub.eu/about-us |