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D7.1 Report on CCs landscape and user support activities

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Deliverable Abstract

This document serves as a confirmation of the accomplishment of the first deliverable of WP7 of the Skills4EOSC Project - the results from landscaping of existing European Competence Centres, analysis results and user support activities.

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TERMINOLOGY

https://eosc-portal.European/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 **competences** 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 competences, 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 competence centre 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 centres.
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	CCs that function as central hubs providing essential information about EOSC activities and/or CCs that have been created during the EOSC Hub project that aimed to create a European Open Science Cloud (EOSC) to support research and innovation in Europe.(R5)

1 Executive summary

1.1 Introduction

Skills4EOSC aims to establish a Network of Competence Centres in Europe (CCNet) that will be key for long-term sustainability of the project outputs. Each Competence Centre Node (CC) serves as a focal point in a specific area, providing key competences for Open Science, including FAIR data management. They promote collaboration, excellence, and knowledge transfer. The primary focus of Skills4EOSC CC Nodes is to organize and transfer knowledge in the context of Open Science, FAIR research output management, and the European Open Science Cloud (EOSC).

The Training of Trainer (ToT) strategy will be implemented to equip each Skills4EOSC CC node with necessary competences. During each ToT session, a Master Trainer will be identified from the CC Node, who will participate in the training program. This approach aims to disseminate expertise and knowledge, empowering each node to be a valuable point of reference in promoting Open Science practices and managing FAIR data and other digital research objects.

WP7 of the Skills4EOSC Project, with the objective of fostering collaboration among the Nodes of the Skills4EOSC Competence Centres and other existing competence centres and user support networks in Open Science practices, initiated its activities with Landscaping: Scoping and Gap Analysis (Task7.1). This document serves as a confirmation of the accomplishment of the first deliverable of WP7, reporting the preliminary landscaping of existing European Competence Centres (CCs) and the creation of the first release of the Registry containing selected CCs[1], which serve as the node of the Skills4EOSC Competence Centres Network.

The purpose of this deliverable is to identify and catalogue existing CCs and user support networks that comply with the Open Science framework and

[1] https://www.skills4eosc.eu/network/competence-centres

FAIR principles. The information gathered through this Catalogue will be instrumental for the subsequent tasks of the Project. The Skills4EOSC Competence Centre Node will analyse the collected data to build a robust and dynamic network that operates at national/regional or thematic levels.

The definition of a Competence Centre (CC) can vary depending on the context and interpretation. For landscaping 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 European CCs, readers can refer to Section 2.2 Methodology. We stored our preliminary results in a structured spreadsheet to identify the relevant information we wanted 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 HPC and/or AI

and want to identify which centres, either structured as CCs or as support centres, 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 centres 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, will involve further analysis and refinement of our Registry, taking into account feedback and input from stakeholders.

2 Overview of European CCs

2.1 Introduction

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 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.

In recent times, several Competence Centres have emerged across Europe, each catering to different domains and disciplines. Prominent examples include ENRIO (European Network of Research Integrity Offices)[2], the Competence Centre for Semiconductors[3], and the European High-Performance Computing (HPC) Competence Centre [4]. These Competence Centres serve as focal points for collaboration, expertise exchange, and the adoption of best practices in their respective fields.

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 reusable 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).

The diagram in Figure 1 represents an original Competence Centre Concept Model consisting of five key concepts interconnected by the respective binary relationships. The model illustrates how these concepts interact and support each other, reflecting the comprehensive approach of the competence centre and its role in providing specialized services and knowledge to individuals and organisations.

[2] http://www.enrio.European/

[3] https://digital-strategy.ec.Europeanropa.European/en/library/workshop-competence-centres-semiconductors

[4] https://www.Europeanrocc-access.European/

Overall, the diagram provides a visual representation of the relationships between competences, individuals, organizations, services, operational tools, and resources within the competence centre.

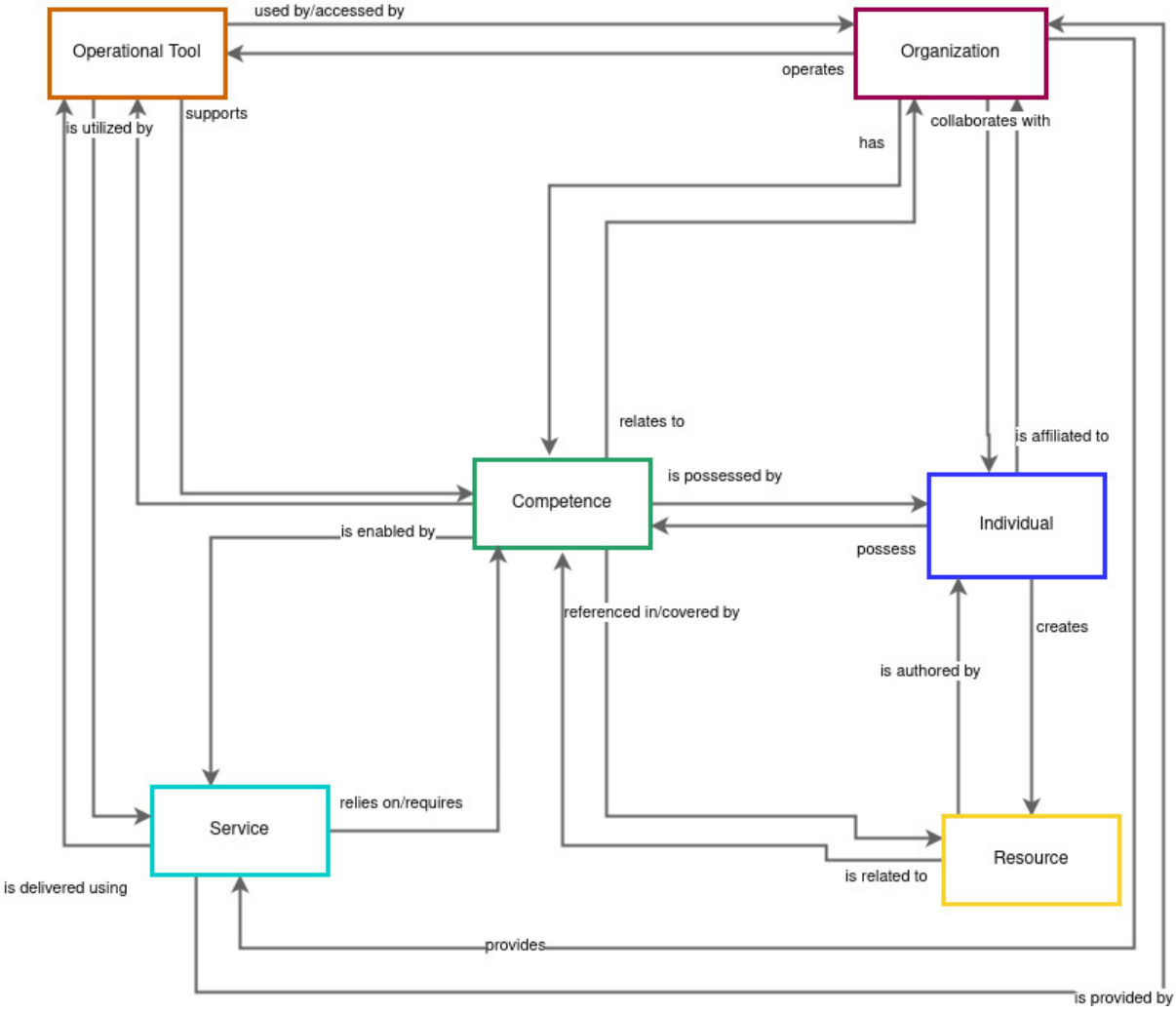

Fig. 1 - Competence Centre concept model

2.2 Methodology

To identify existing CCs for the landscaping activity of Skills4EOSC project, we 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 (R2), which provided valuable information on existing CCs focused on data stewardship and management.

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.

However, it's important to note that while this approach contributes to reproducibility, we acknowledge the presence of uncertainties inherent in search processes, and these uncertainties are taken into consideration when interpreting and drawing conclusions from our results.

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 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.

2.3 Landscaping scope and timeline

Landscaping the results of existing Competence Centres involved 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 competences.

For instance, "Initiative 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

We use the same formatting (i.e., controlled vocabularies) for the other relevant columns. The spreadsheet is available as a supplementary material to this report (R6).

Additionally, focusing on AI (Artificial Intelligence) and HPC (High-Performance Computing) in our landscaping allows us to delve deeply into two of the most transformative and rapidly evolving domains in the field of technology and science. AI is revolutionizing how we process and analyse data, enabling automation and prediction, while HPC provides the computational power needed to handle complex simulations and calculations.

By narrowing down our search to AI and HPC, we gain the opportunity to explore the specialized expertise and resources offered by different in CCs these areas. These centres play a pivotal role in advancing research, innovation, and practical applications in AI and HPC. Identifying CCs with user support activities, so-called user support centres ensures that we are capturing the most valuable insights and services available to researchers and practitioners working in these cutting-edge fields.

After completing the data collection process for European CCs, we proceeded with a comprehensive analysis of the collected data. Our aim is to provide valuable metrics on the identified competences and role profiles for each CC, categorized by countries.

Going forward in our endeavour is to select one CC per country to represent and be part of the Skills4EOSC Network. The selection process involves a collaborative agreement with the project partner representing each respective country, ensuring a fair representation.

For those countries where a CC has not been established, we are committed to providing full support through the project partner representing the country. Together, we will assist in setting up a CC, fostering the growth and development of competences in the EOSC domain.

As we consolidate the list of CCs for each country, we will extend invitations to all relevant stakeholders to review the identified information. This collaborative effort aims to correct and refine the data, with a specific focus on competences and role profiles covered by each CC. Through this detailed review, we aim to create a comprehensive overview of the competences available in each country, as well as identifying any knowledge and skills gaps that may exist. These activities along with their respective timeframes, have been indicated in the timeline depicted in Figure 2.

Fig. 2 - Task 7.1 Timeline

As a summary, these results serve as a background information for other tasks and activities in the Skills4EOSC project. Moreover, they will guide the development of the Skills4EOSC competence centre network and related registry.

3 Analysis Results

In this section, we present three metrics that provide valuable insights into the distribution and expertise of CCs across European countries. These metrics shed light on the landscape of FAIR and open science practices in the region.

We organized an internal "Workshop on Competence Centres" on July 5th, 2023 with the aim to initiate collaboration between national, regional, or thematic CCs in consortium countries and Skills4EOSC, for the integration of project outcomes. We introduced twelve questions across three different sections (Annex 1). Forty-five participants from organizations like RPOs, Universities, University Libraries, RIs and HPC centres attended the workshop and answered the questions.

The feedback collected from the sessions on Services offered, Organizational Models and Challenges underscores crucial aspects of CCs.

Stakeholders' diverse needs, particularly those of researchers, are central to CCs' focus. The prominence of FAIR principles, Open Science, RDM, and Open Source Software highlights key competence areas.

Users and providers are in a good alignment, users seeking comprehensive training resources and practical assistance, while providers prioritizing education and support, reflecting a commitment to enhancing data management and research practices.

The envisioned CC organizational models encompass government-funded, collaborative network-based, and thematic structures. Collaboration and knowledge-sharing through coordination forums are emphasized for effective CC interaction.

The Skills4EOSC Coordination Network is perceived as playing an international coordination role, developing resources, and supporting sustainability, quality assurance, and new CCs.

The importance of diverse funding sources, multilingual communication, and strategic enrolment strategies are highlighted. Overall, these insights

underline CCs' integral role in advancing Open Science and RDM practices through stakeholder engagement, collaboration, and targeted support.

3.1 Findings

Three metrics we identified are:

- Number of CCs per country
- Number of CCs with the expertise on “Knowledge Management” and “Knowledge of OS practices” per country and
- Number of CCs with respective role profiles per country

Figure 3 shows the number of CCs in the corresponding country as identified in the landscaping activity. The bar chart visually displays the distribution of CCs across Europe, making it easy to compare the number of CCs in each country.

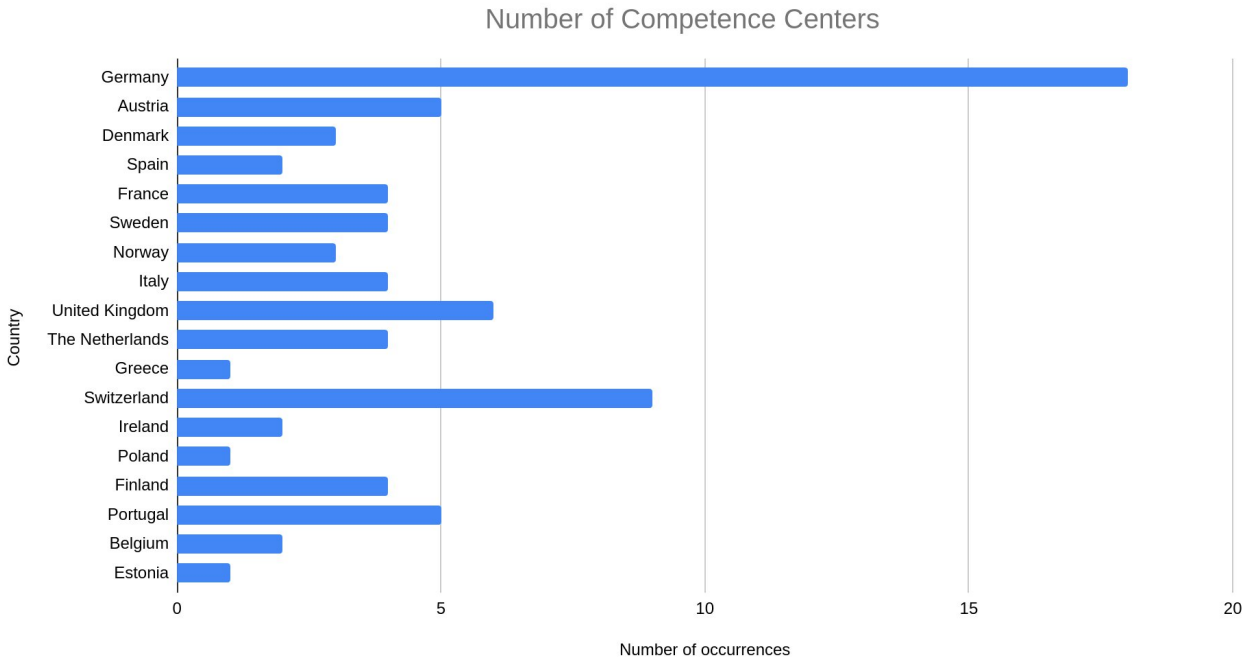

Fig. 3 - Number of Competence Centres per country

Some CCs entries that have been established as International CCs have more than one country assigned to them as shown in the graph of Figure 4.

Fig. 4 - Number of International Competence Centres

Using the Landscaping results, in Figure 5 we compare Knowledge management and Knowledge of OS practices across Europe :

- Knowledge Management: The count of competence centres in each country that have expertise in or a focus on "Knowledge Management."
- Knowledge of OS Practices: The count of competence centres in each country that have expertise in or knowledge of "Open Source (OS) Practices."

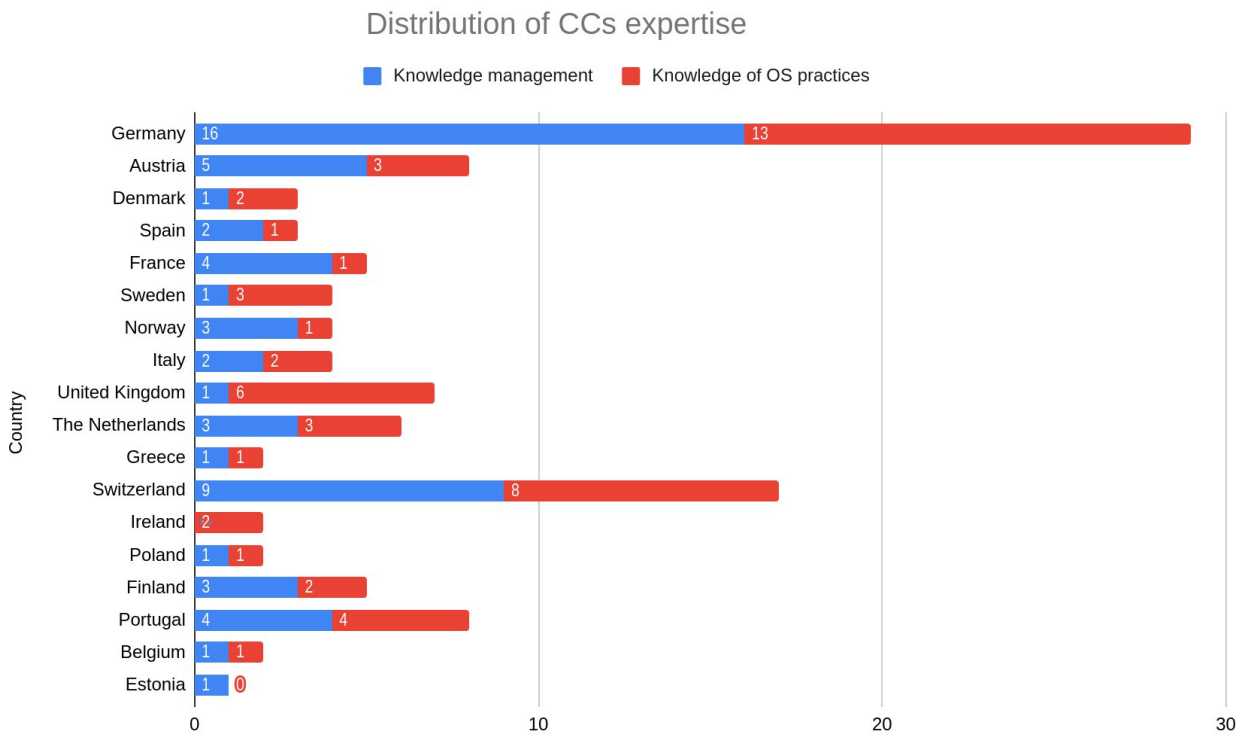

Fig. 5 - Number of Competence Centres with the expertise on "Knowledge Management" and "Knowledge of OS practices" per country

- As can be seen in Figure 5, Germany stands out with the highest count of 16 out of 13 CCs dedicated to knowledge management and OS practices.
- Austria, Portugal and Switzerland report above average numbers of CCs.
- The remaining countries (Belgium, Denmark, Estonia, Finland, France etc.) report below average numbers of CCs with these expertise.

This metric allows us to observe which countries excel in these specific areas of FAIR principles and Open Science.

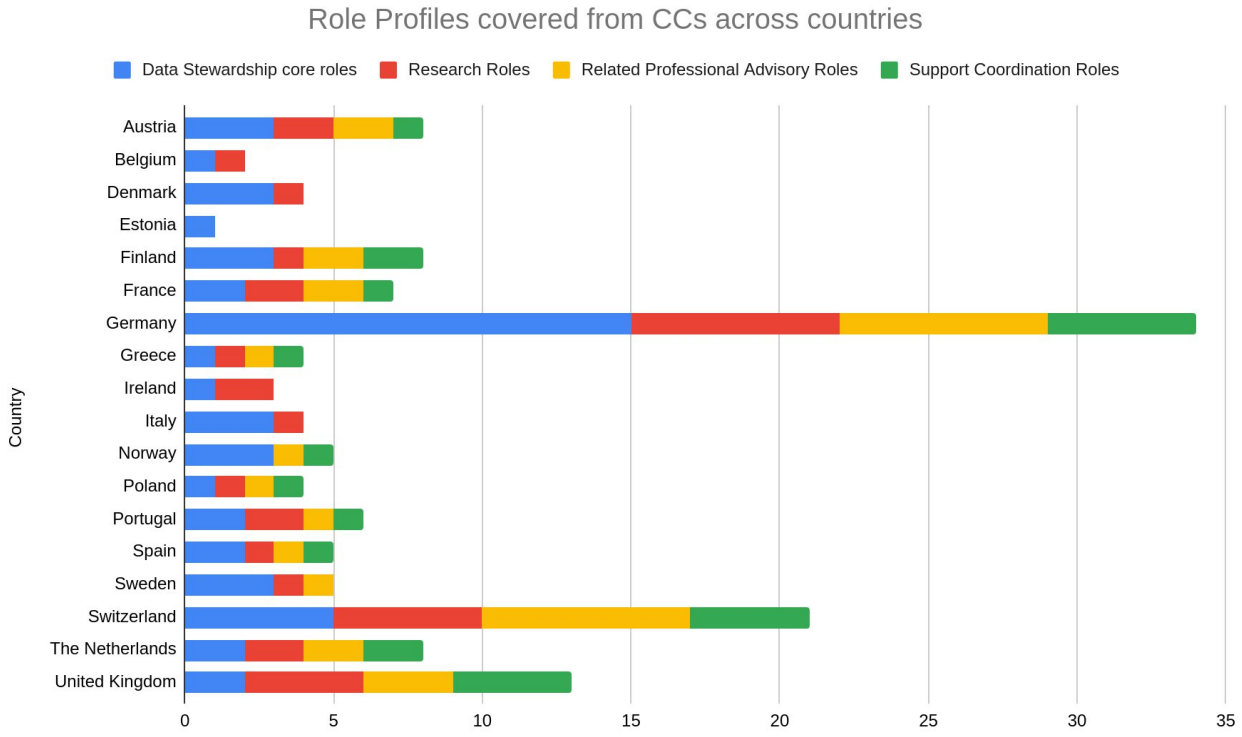

Fig. 6 - Number of Competence Centres with respective role profiles per country

The third metric, "Number of Competence Centres with respective role profiles per country" (as seen in Figure 6), delves into the diverse roles played by CCs across Europe. It provides insights into the range of expertise and specializations that CCs offer, contributing to FAIR and Open Science practices.

- Germany, Switzerland and United Kingdom demonstrate expertise across all four roles: Data Stewardship Core roles, Research roles, Related Professional Advisory roles and Support Coordination roles with the high values observed in each category. In the document "Skills4EOSC Draft Open Science Career Profiles - Minimum Viable Skillsets" (R7) there are more details given about the roles identified and respective skillsets.

Other relevant information (not shown here in order not to overload the report) we managed to provide from the collection of records we analysed, such as the majority of initiative types these CCs have been established, the

most common target users they have in focus; the most important services/resources as service offer they are offering to their users etc.

4 User Support Network

A User Support Centre (USC) is a group of individuals that provide direct support and technical and non-technical assistance to users of a particular service or resource.

In addition to individual USC entities, the establishment of a broader User Support Network (USN) further enhances the support ecosystem. More details on how this network will be created and aligned with the different nodes of Skills4EOSC CCs Network, will be described in Task 7.4. Up to now we managed to identify user support centres specialized in AI and HPC during this landscaping activity.

4.1 Findings

Figure 7 shows the number of USCs in the corresponding country as identified in the Landscaping activity. The bar chart visually displays the distribution of USCs across Europe, making it easy to compare the number of USCs in each country.

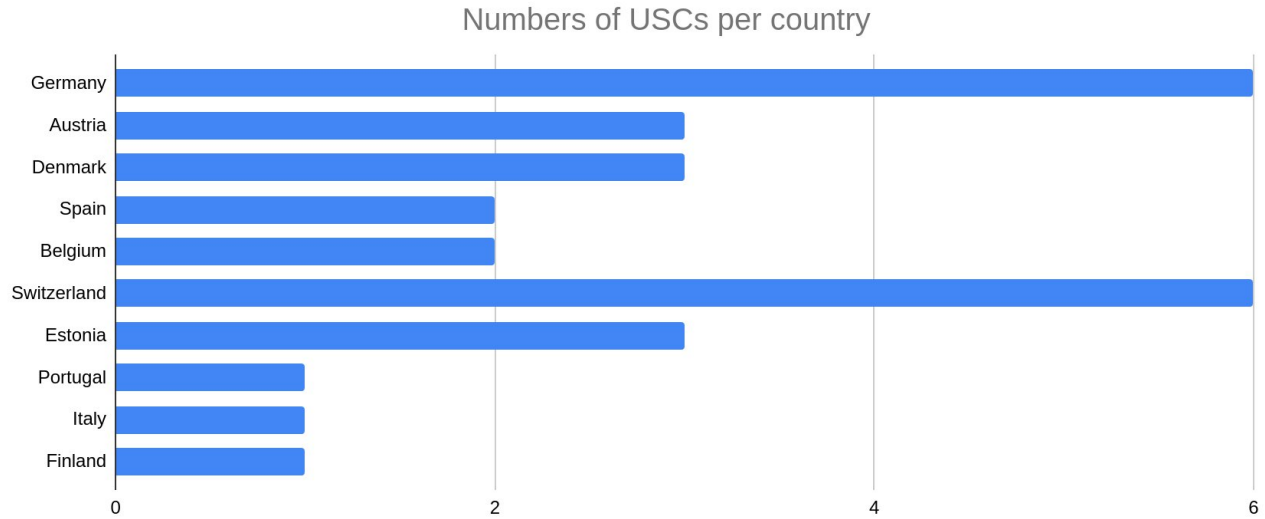

Fig. 7 - Number of User Support Centres per country

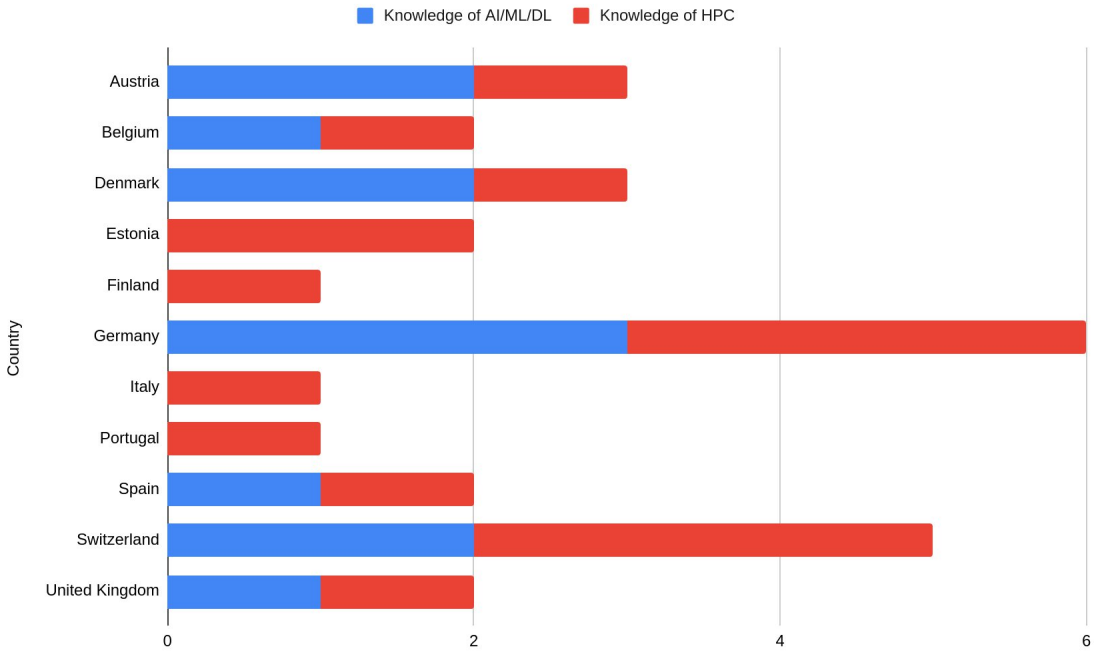

Fig. 8 - Distribution of User Support Centres with the expertise on "AI" and "HPC" across countries

in Figure 8 we list the USCs with expertise in AI or HPC computing:

- Knowledge of AI: The count of USCs in each country that have expertise in or a focus on Knowledge of AI (with sub fields in Machine Learning (ML), Natural Language Processing (NLP), Computer vision, Deep Learning (DL)
- Knowledge of HPC: The count of USCs in each country that have expertise in or a focus on Knowledge of HPC (e.g., architecture, Parallel Programming, Performance Optimization, scientific computing etc.)

5 First Release of CCs Registry

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

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

5.1 Purpose and objectives of the CCs Registry

The Skills4EOSC CCs Registry serves as a platform for connecting and coordinating FAIR and Open Science CCs across project partners in Europe and promoting the adoption of FAIR and Open Science practices. The purpose and objectives of this registry is to facilitate the discovery and identification of FAIR and Open Science CCs belonging to the Skills4EOSC network. It will also foster the collaboration with other initiatives in the EOSC and FAIR 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.

These gaps as defined in the Description of Action (DoA) will be reported and communicated internally during the next organized workshop.

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

In addition, the Skills4EOSC CCs Registry provides the basis to establish a pan-European User Support Network. We will be able to identify those CCs that provide support for specific resources or services via helpdesk to end users such as researchers and data professionals (see Section 4: User Support Network).

5.2 Key elements and functionalities of the CCs Registry

The Skills4EOSC CC Registry as a resource contains a wealth of information about key competences for practising FAIR and Open Science in a specific Country/Region/Theme.

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

Key elements/features of each entry in the registry are:

- Name of CC Entry-Country code
- Link and contacts
- Establishment year, i.e., year the CC was founded
- History (+chairperson, +Coordinator)
- Skills4EOSC CC Entry since
- 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.

In our next registry release (February 2024), 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/competence-centres/)

The Registry currently consists of two entries: Italian Computing and Data Infrastructure (ICDI) from Italy and Open Science Cloud Competence Centre from Greece.

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

5.3 User interface, accessibility and timeline

The Skills4EOSC CC Registry, for which the first release is depicted in Figure 9, 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, competences offered, services provided, and more.

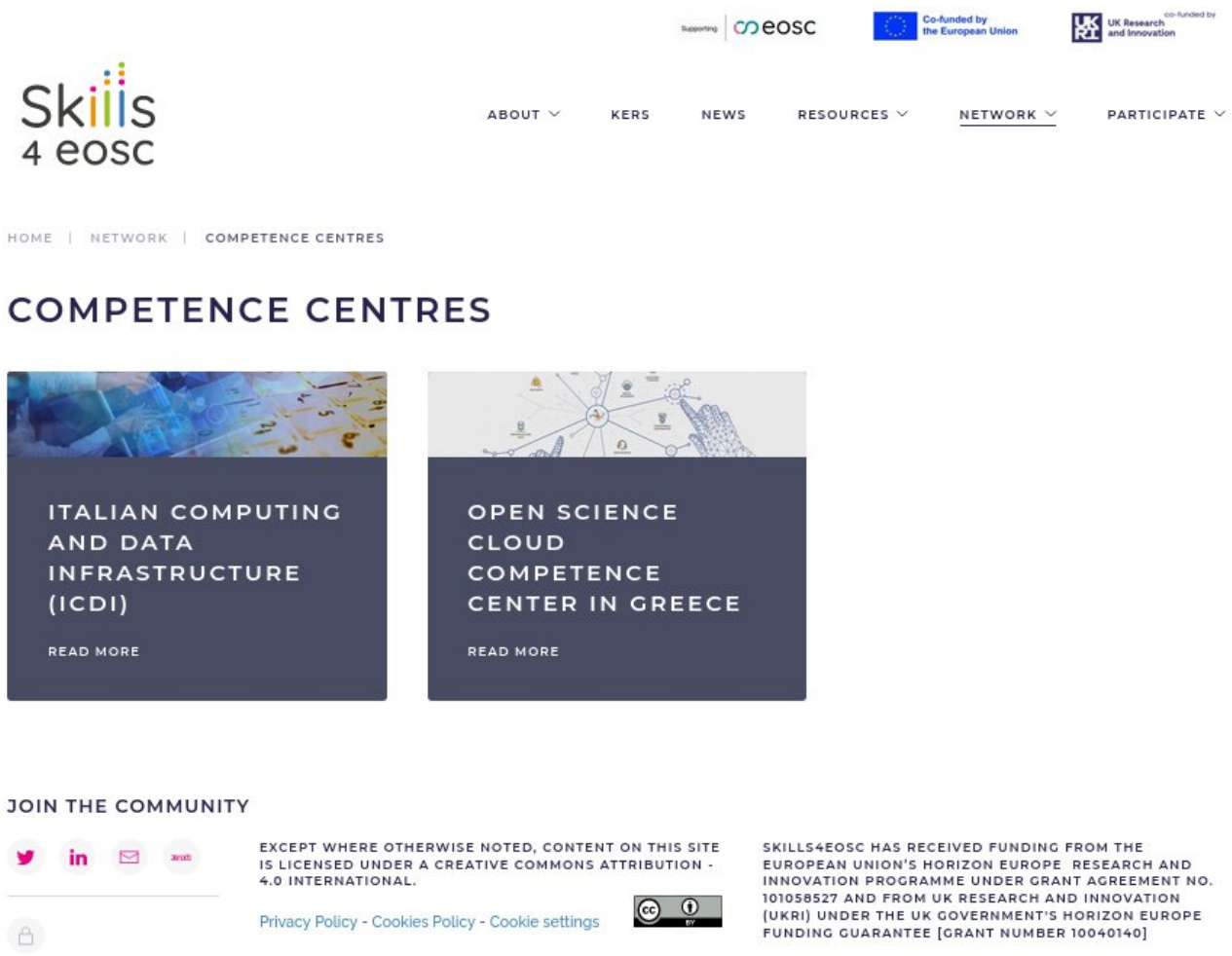

Fig. 9 - Registry in the Skills4EOSC website

We strive to make the registry accessible to everyone, regardless of their level of expertise or technical proficiency. The registry is available online[5] and will offer user support to help you navigate the registry and find the information you need.

The registry will regularly be updated during the Project period to ensure that the information it contains is accurate and up-to-date. The first release consists of only two entries. New entries will be added during the lifetime of the project.

[5] https://www.skills4eosc.eu/network/competence-centres/

6 Conclusions

In conclusion, Deliverable 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 FAIR and Open Science.

In the next stages of the Project, the Competence Centre Nodes will select existing competence centres and user support networks to create a broad community for disseminating project results. This aims to establish a strong network of professionals and organizations to develop and harmonize the skills necessary to make Open Science the norm in research and turn EOSC into a thriving reality.

7 References

No	*Description/Link*
R1	BUSS, Mareike, Athanasaki, Evangelia, Bernier, Mathilde, Drachen, Thea Marie, Fogtmann-Schulz, Alexandra, Hadrossek, Christine, Horton, Laurence, Janik, Joanna, Moldrup-Dalum, Per, Pasquale, Valentina, Schöller, Emily Thorsson, Sharma, Curtis, Torres Ramos, Gabriela, Ulfsparre, Sanna Isabel, & Vlachos, Evgenios. (2023). Reference data and documentation for Skills4EOSC Deliverable D6.1 Mapping of existing professional networks (v.1.0.) [Data set]. Zenodo. https://doi.org/10.5281/zenodo.7591902
R2	Herterich, Patricia, Davidson, Joy, Whyte, Angus, Molloy, Laura, Matthews, Brian, & Kayumbi Kabeya, Gabin. (2019). D6.1 Overview of needs for competence centres (1.0). FAIRsFAIR. https://doi.org/10.5281/zenodo.5361524
R3	European Commission, Directorate-General for Research and Innovation, Opinion paper on EOSC FAIR data literacy, Publications Office of the European Union, 2022, https://data.Europeanropa.European/doi/10.2777/716842
R4	https://www.esfri.European/project-landmarks-news
R5	https://www.eosc-hub.European/about-us
R6	Spreadsheet: https://docs.google.com/spreadsheets/d/1hsqBNsjy_1K7aynO5jVFNarA1J7sxivAZdmI5xMVyyU/edit#gid=0
R7	Skills4EOSC Draft Open Science Career Profiles - Minimum Viable Skillsets https://doi.org/10.5281/zenodo.7686262

Appendix 1: First Internal Workshop on Competence Centres

1. Introduction

In this appendix we describe the first Internal Workshop entitled "Workshop on Competence Centres" organized on July 5th, 2023, from 9:30 to 12:30 with the aim to initiate collaboration between national, regional, or thematic CCs in consortium countries and Skills4EOSC, for the integration of project outcomes. Goals included:

- Understanding diverse CC types per country.
- Addressing challenges in forming Skills4EOSC nodes at various levels.
- Brainstorming solutions for competence centre challenges.
- Assessing Skills4EOSC CC's alignment with expectations, including services.
- Sharing successful practices from Skills4EOSC CCs
- Outlining CC engagement activities.

2. Feedback collected

Questions are designed and classified in three different sections: Services offered, Organisational Models, and Challenges.

First we report the number of participants per country.

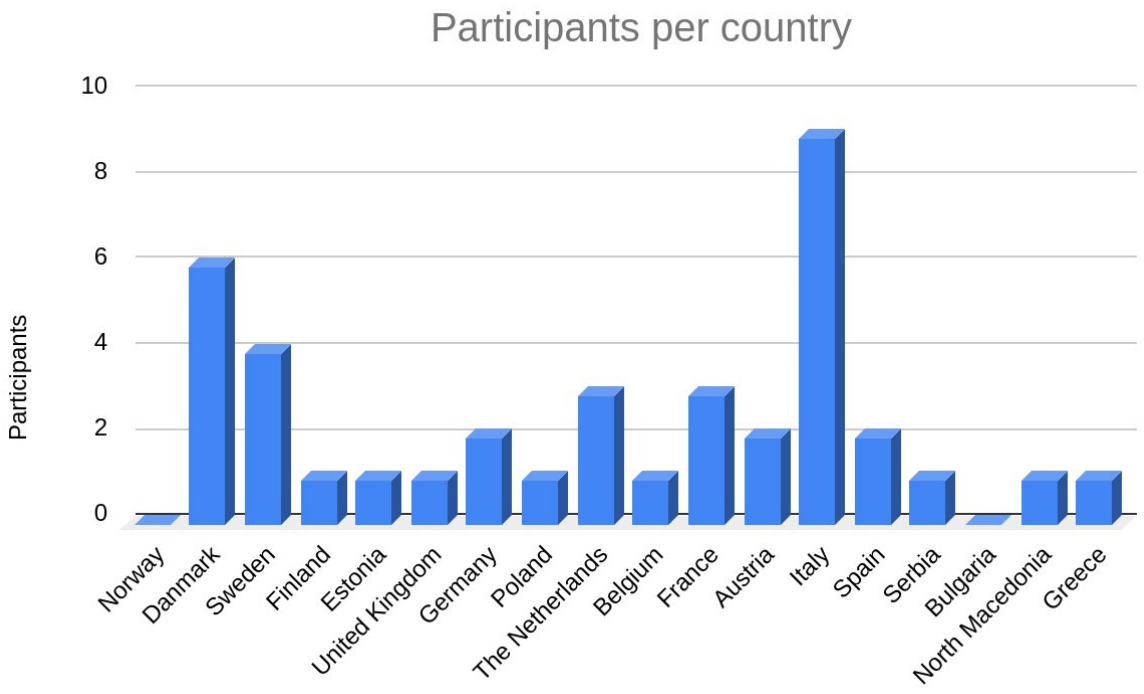

Fig. 10 - Number of participants per country

Figure 10 provides an overview of the number of participants (Total: 45) from different countries, allowing for comparisons and insights into the distribution of participation.

Italy, Denmark, Sweden, The Netherlands, France, and Spain have relatively higher participation with 3 to 9 participants each.

Norway, Finland, Estonia, United Kingdom, Poland, Belgium, Austria, Serbia, North Macedonia, and Greece have lower participation, with 1 or 2 participants each. There were two participants that did not select their country of origin.

The attendance of participants per country is also influenced by the number of partner countries involved in the project.

Section 1: Services offered

This session aimed to gather insights to shape the scope of Competence Centres (CCs) in relation to the Services dimension. This refers to the range

of activities and resources that CC personnel must establish or include in their service portfolio to meet stakeholder needs. To address this, we formulated a set of guiding questions that directed our discussion:

Q1: In your opinion which stakeholders should the Competence Centre target?

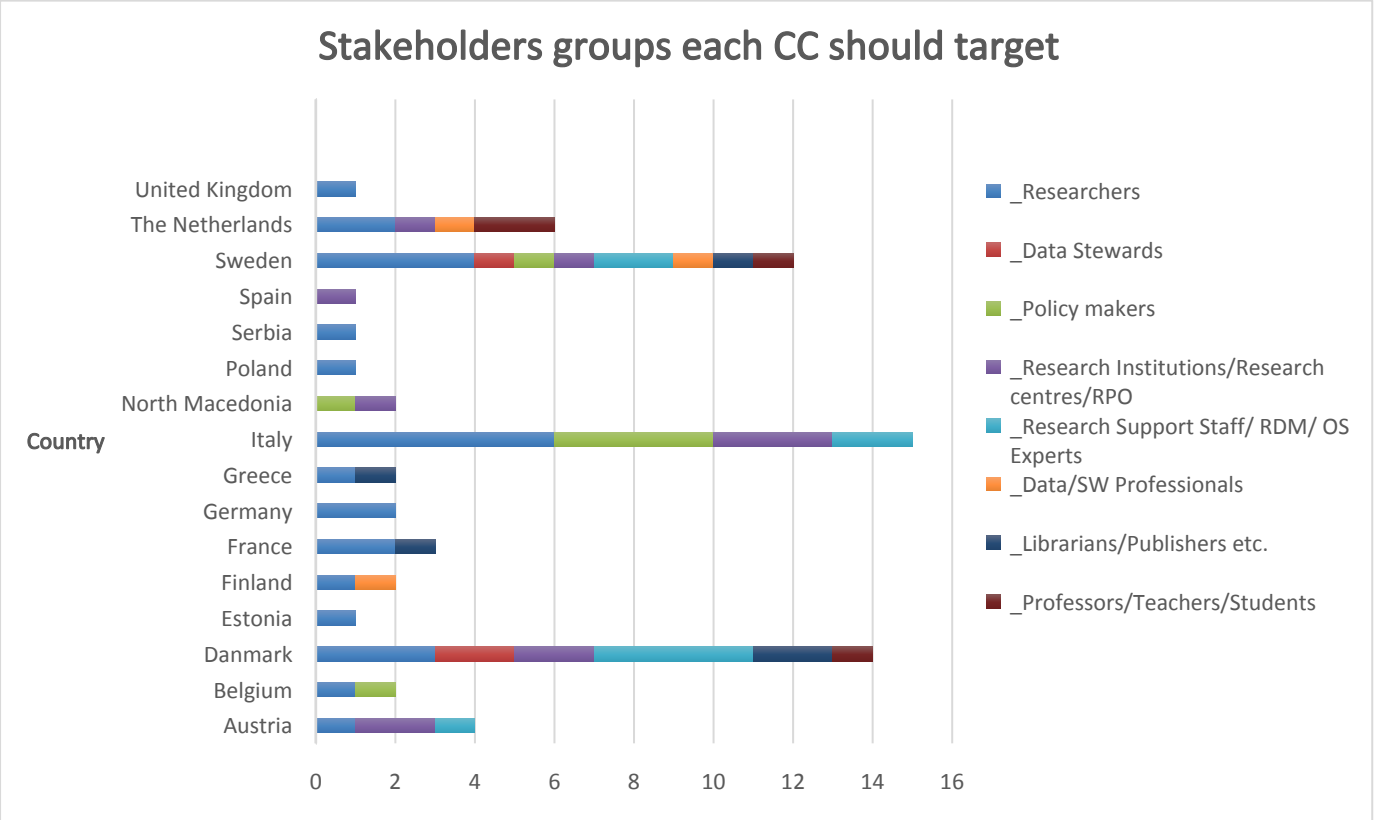

Fig. 11 - Stakeholders groups each CC should target, per country

Figure 11 shows the count of respondents from different countries who suggested specific stakeholder groups that a CC should target. Some key observations include:

- Almost all of the countries emphasized researchers as a target audience.

- Italy, Denmark and Sweden had a high range of suggested stakeholders, including researchers, data stewards, policy makers, research support staff, and more.
- Whereas the remaining countries highlighted a narrow spectrum of stakeholders.

Q2: Which field of competence should the CC focus on (e.g., data management, open access, open source software)?

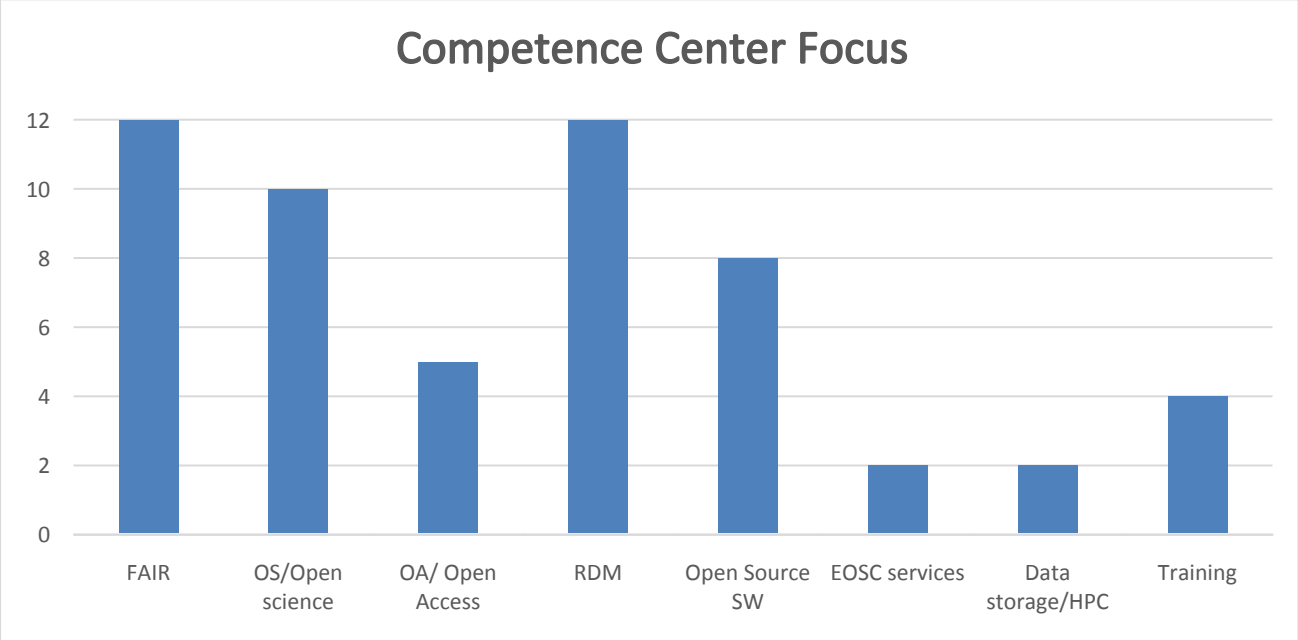

Fig. 12 - Fields/Themes selected by participants as CC focus

These results indicate a strong emphasis on FAIR principles (occurrence 12x), OS/Open Science (10x), RDM (12x), and Open Source Software (8x) among the Competence Centres. While EOSC services, Data Storage/HPC, and Training are also mentioned, they appear to have slightly lower priority in comparison to the other areas.

Q3: As a user, which services and/or resources would you like to find in the CC?

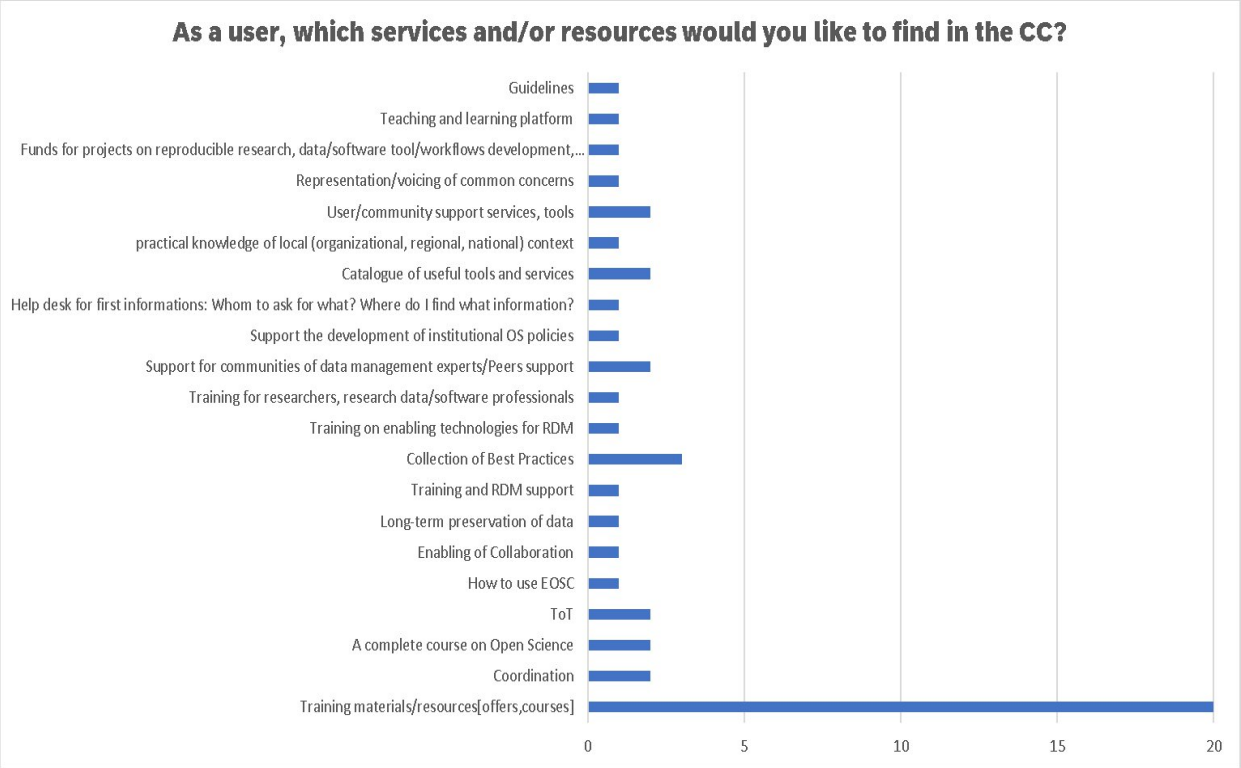

Fig. 13 - Services and/or resources accessible in a CC for the end user

As we see in Figure 13, most of all the respondents expressed a high interest in comprehensive training materials and courses (20x occurred), emphasizing the need for education. They also mentioned the importance of collaboration, Open Science courses, and learning how to use the EOSC. Practical support, including data preservation, research data management (RDM), and peer/community assistance, was emphasized. Respondents sought guidance on best practices, tools, and local contexts, and desired assistance in policy development and funding opportunities. Overall, the insights point to have training materials/resources as main user need and other set of services as seen from the graph.

Q4: As a service provider, which services and/or resources would you like to offer through the CC?

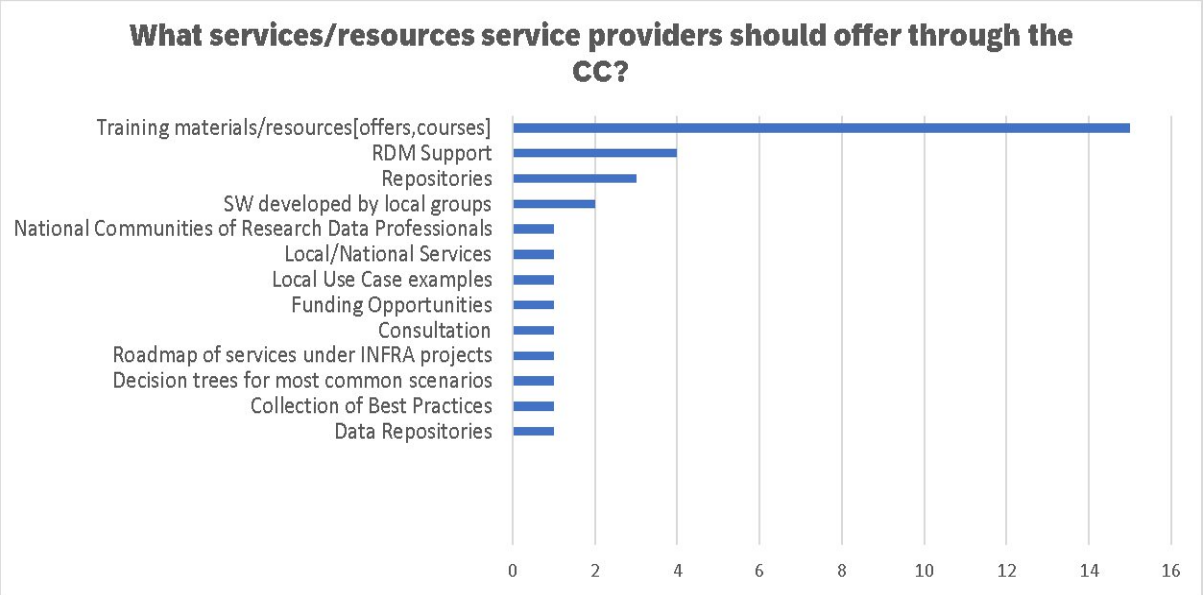

Fig. 14 - Services and/or resources a CC should offer

Notably (as seen in Figure 14), training materials/ resources are a top priority (15x occurred) for service providers (matching with the users' needs), followed by Research Data Management (RDM) support (4x occurred) and repository services (3x occurred). The providers also expressed interest in sharing locally developed software and various other services such as consultations, funding opportunities, and use case examples. This reflects a commitment to enhancing data management and research practices.

Section 2: Organisational Models

This section aims to delve into the perceptions and suggestions regarding the organizational models and governance of Competence Centres (CCs) at the national and regional levels.

Q1: How do you see the CC to be organised and governed at national/regional level?

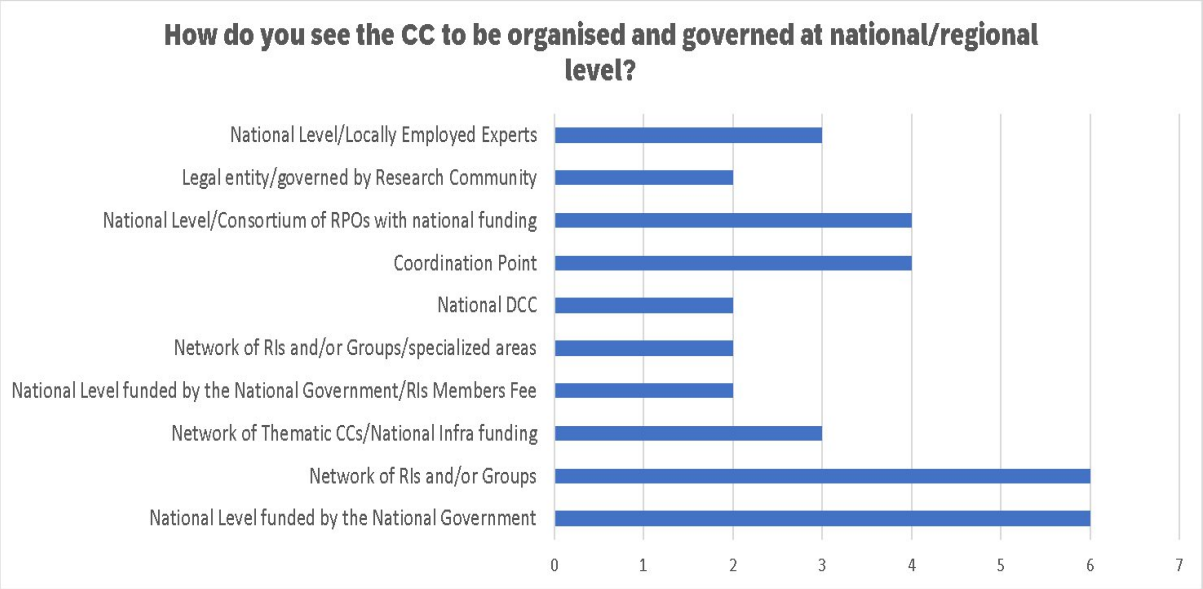

Fig. 15 - Different organizational and governance models for CC

As seen in Figure 15, respondents envision diverse organizational and governance models for the CC at the national/regional level. Their preferences include government-funded national models, collaborative networks of Research Infrastructures (RIs) and groups, and specialized thematic CC networks. Some also suggest membership fees and involvement of locally employed experts. This indicates a multifaceted approach to CC organization and governance.

Q2: How do you think the CC should interact with other local initiatives, CCs or organisations?

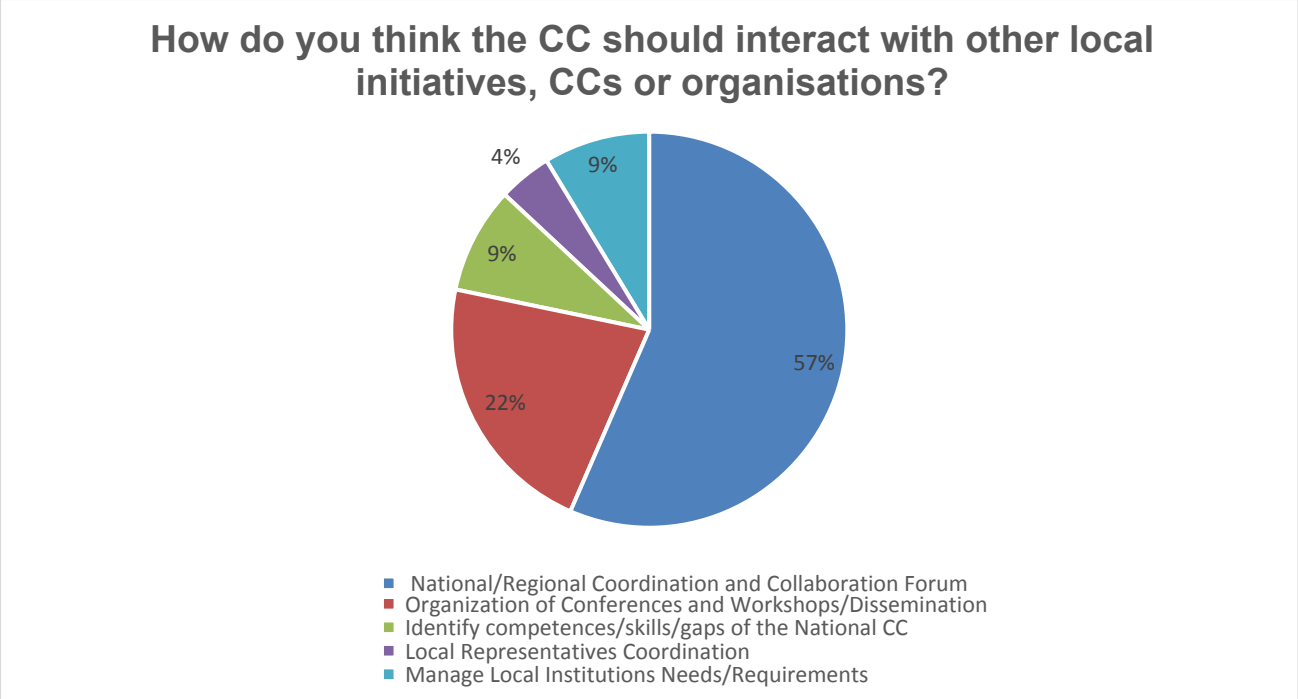

Fig. 16 - Interactions possibilities of a CC with other local initiatives

As seen in Figure 16 respondents envision the CC organization and governance at the national/regional level with an emphasis on collaborative coordination. A significant focus is on establishing forums for coordination and collaboration (13x occurred), complemented by the organization of dissemination activities like conferences and workshops (5x occurred). There's also a recognition of the importance of identifying competences and gaps within the CC, as well as managing local needs. The insights highlight a holistic approach, combining active coordination, knowledge-sharing, skill assessment, and local engagement to enhance the CC's effectiveness.

Q3: What do you think should be the scope and role of the Skills4EOSC Coordination Network?

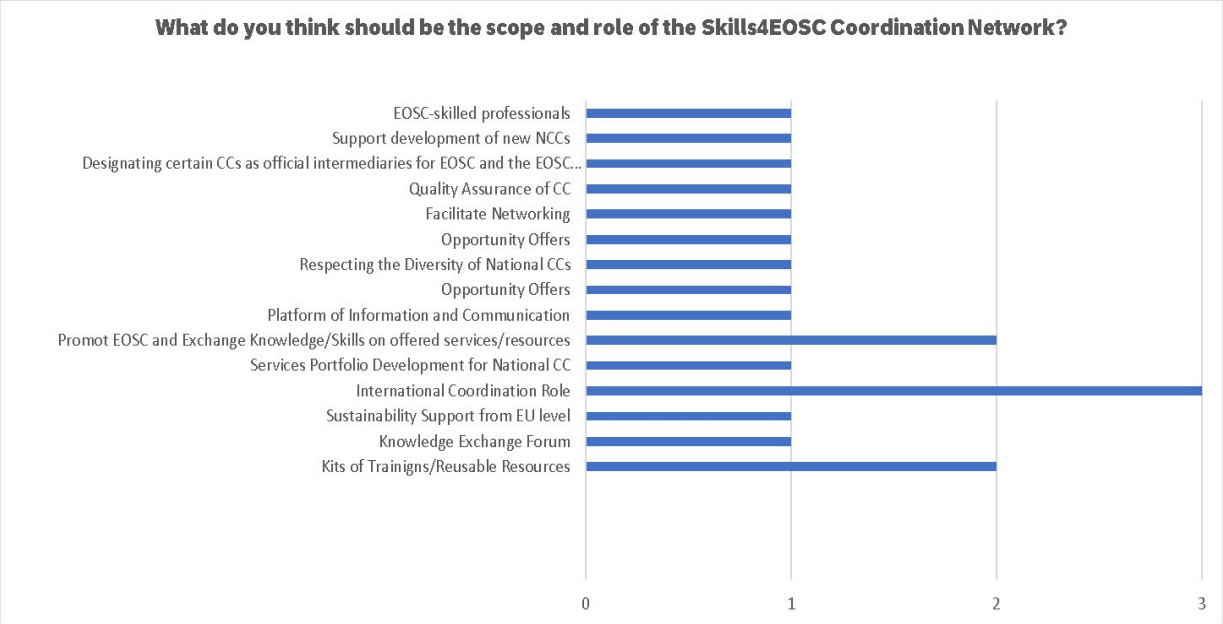

Fig. 17 - Scope and Role of Skills4EOSC Coordination Network

In Figure 17 respondents outline the envisioned scope and role of the Skills4EOSC Coordination Network, emphasizing its international coordination role (3x occurred) and the development of training resources and service portfolios for national CCs. The network is seen as a platform for knowledge exchange, promotion of EOSC, and facilitating networking. Additionally, there's a focus on sustainability support, quality assurance, and supporting the development of new CCs. The insights underline a comprehensive approach to enhancing coordination, knowledge-sharing, and support within the EOSC ecosystem.

Q4: How do you think the CC should interact with the European Skills4EOSC Network?

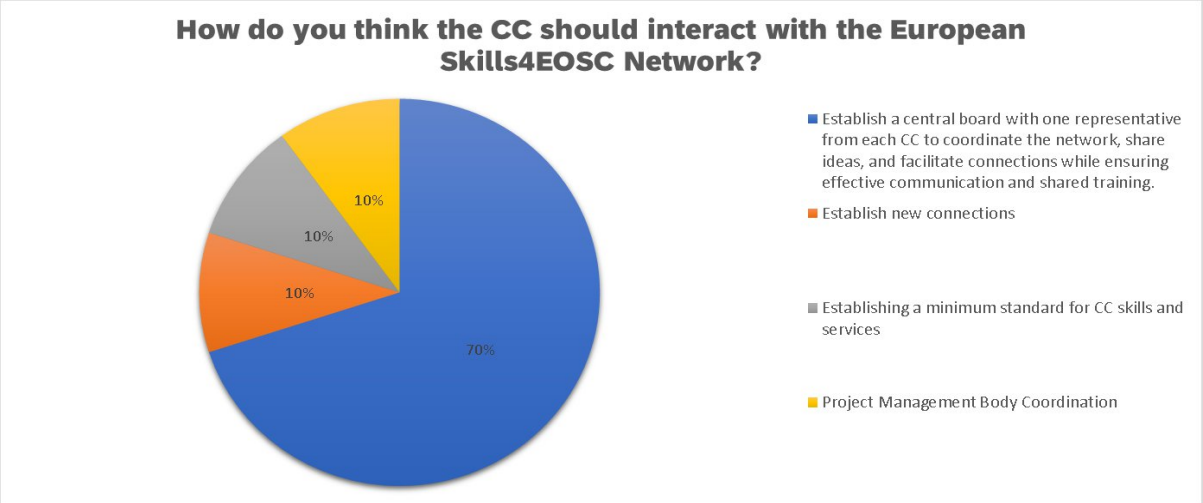

Fig. 18 - Interaction's between CC and Skills4EOSC Coordination Network

In Figure 18, respondents propose ways for CCs to engage effectively with the European Skills4EOSC Network. The central theme includes establishing a representative board for coordination and communication (7x occurred). Other suggestions involve building new connections, setting minimum standards for skills and services, and coordinating through a project management body. These ideas underscore a collaborative approach to strengthen the network's coordination, communication, and standards.

Section 3: Challenges

This section aims to delve into crucial challenges and considerations related to CCs and their operations.

Q1: What will be the working language?

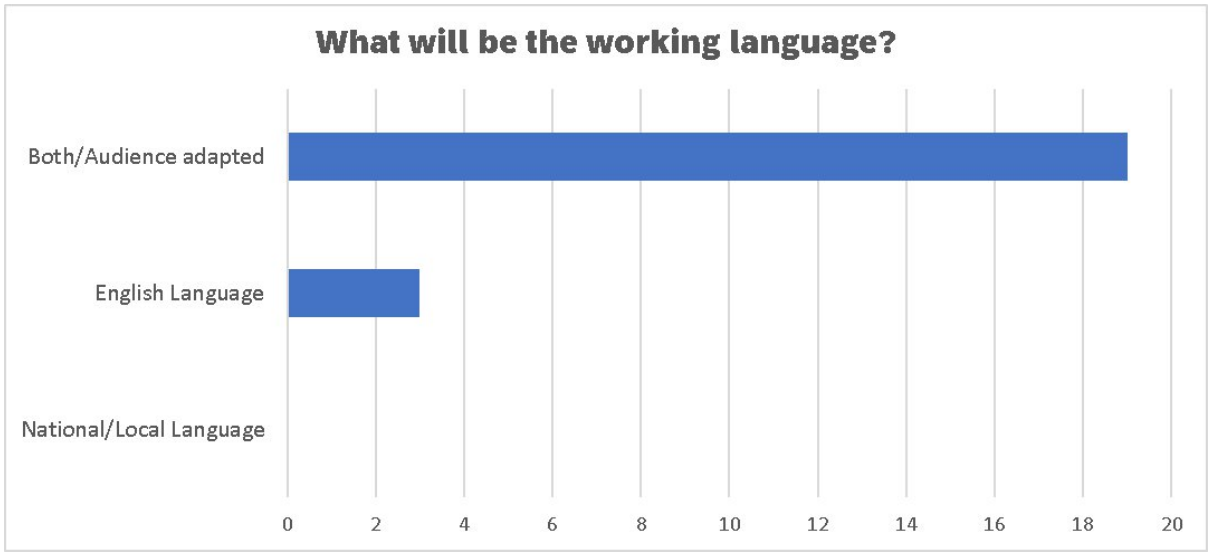

Fig. 19 - Working language preferences

As seen in Figure 19 respondents indicate a strong preference (19x occurred) for using both English and the local language or adapting it to the audience's needs as the working language for the competence, highlighting a commitment to effective communication and accessibility.

Q2: How do we enrol already existing CCs?

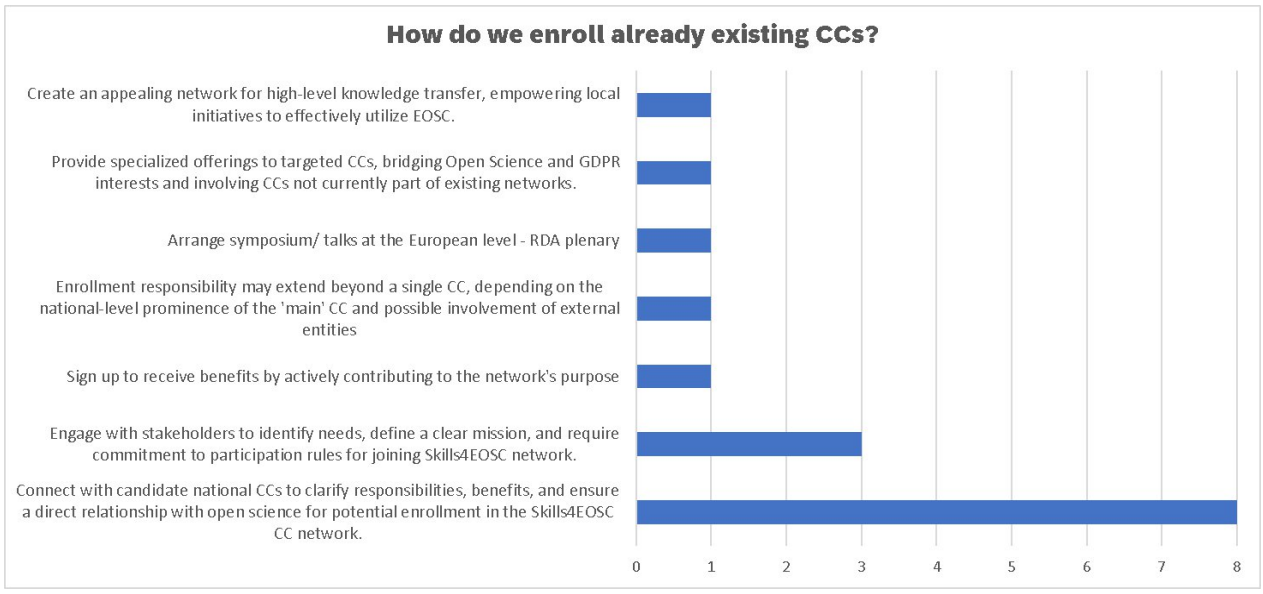

Fig. 20 - Preferred method to enrol already existing CCs

As seen in Figure 20, respondents present a multifaceted approach to enrolling existing CCs into the Skills4EOSC network. They emphasize the importance of direct engagement by connecting with potential national CCs to outline responsibilities, benefits, and establish a direct open science relationship (8x occurred). Additionally, stakeholders' involvement is highlighted for identifying needs, setting a clear mission, and defining participation rules to facilitate CC inclusion (3x occurred). Other strategies include promoting active contribution for benefits, considering enrolment responsibility dynamics based on national prominence (1x occurred), organizing symposiums or talks for attraction (1x occurred), providing specialized offerings to target CCs and bridge Open Science and GDPR interests (1x occurred), and creating an appealing network for high-level knowledge transfer (1x occurred).

Q3: How can the CC be sustained/funded at national/regional level?

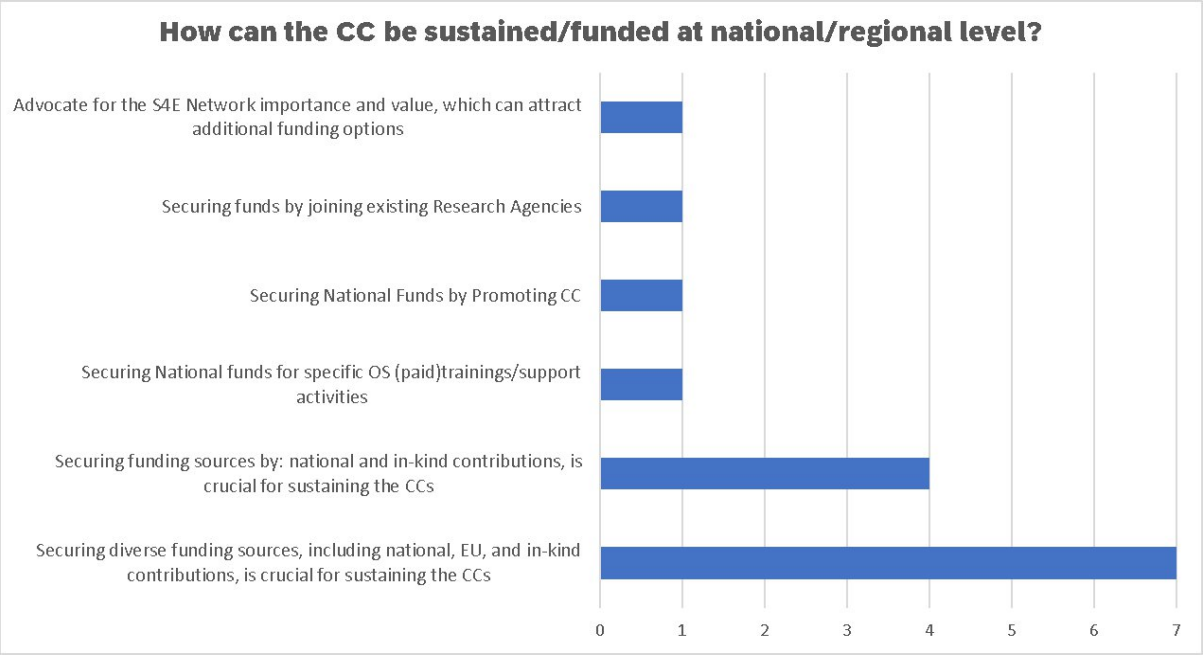

Fig. 21 - Preferred support/funding sources

Figure 21 stresses the importance of diverse funding sources, including national, European, and in-kind contributions (7x occurred), for sustaining

CCs at the national/regional level. A combination of national and in-kind contributions is highlighted (4x occurred), while specific national funding for open science training/support (1x occurred) and active promotion of CCs for national funds (1 mention) are also suggested. Joining existing research agencies is proposed as a funding avenue (1x occurred), and advocacy for the Skills4EOSC Network's importance is seen as attracting additional funding options (1x occurred).

Q4: How could the CC assist your organisation in implementing Open Science and FAIR RDM practices? (indicate the type of organisation you represent):

Participant Organization mostly from: RPO, University, University Library, RI and HPC centre

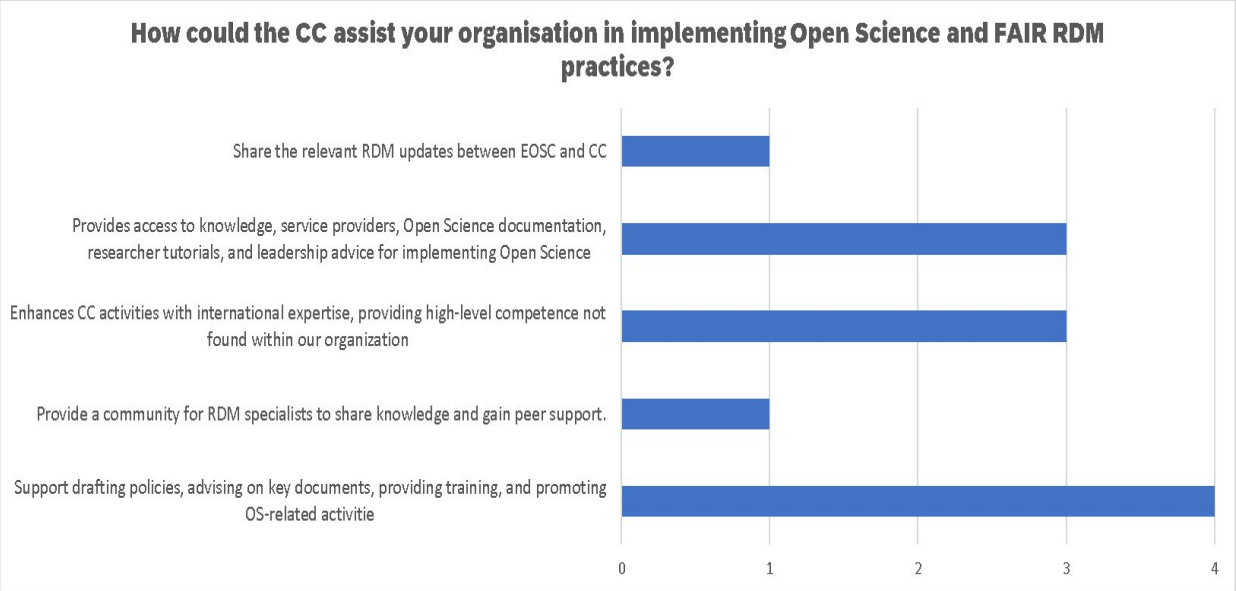

Fig. 22 - Suggested ways in which CCs could assist the participating organisations

Figure 22 expresses that CCs could significantly aid their organizations in implementing Open Science and FAIR Research Data Management (RDM) practices. This includes supporting policy drafting, advising on key documents, providing training, and promoting Open Science activities (4x

occurred). CCs are seen as offering a community for RDM specialists to share knowledge and gain peer support (1x occurred), enhancing their activities with international expertise that their organizations lack (3x occurred), and providing access to resources, service providers, documentation, tutorials, and leadership advice for Open Science implementation (3x occurred). Moreover, there's recognition of the CC's role in sharing relevant RDM updates between EOSC and CCs (1x occurred). These insights underscore the integral role CCs can play in enabling effective Open Science and RDM adoption.