

# EOSC Skills and Training

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Rapporteur: Iryna Kuchma (EIFL)

ARDC's Australian eResearch and Data Skills Summit  
2020, 26 - 30 Oct 2020



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# Data driven, data intensive science and EOSC

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**Digital skills:** A range of abilities to use digital devices, communication applications, and networks to access and manage information. In the context of science, these skills **include an understanding of data, software and tools.**

**EOSC:** A strong digital research data ecosystem with data and software at its core. Skills and training to

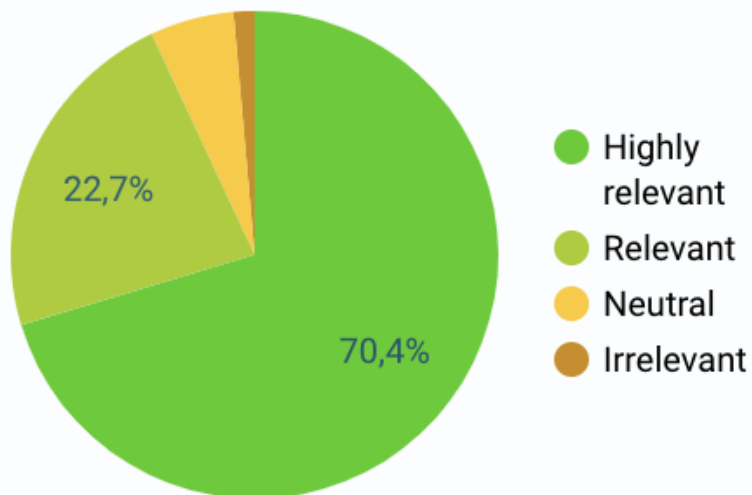
- mainstream **open science** practices
- allow all types of users to use and uptake services within the EOSC ecosystem **efficiently** and **securely**
- help **develop leaders** to interact with relevant communities (e.g., AI/HPC) and anticipate emerging models for open/data intensive science

Facilitation, coordination, alignment

# Skills and training a key factor for success of EOSC

September 2020 SRIA (Strategic Research & Innovation Agenda) consultation feedback

## AA11 - Skills and Training



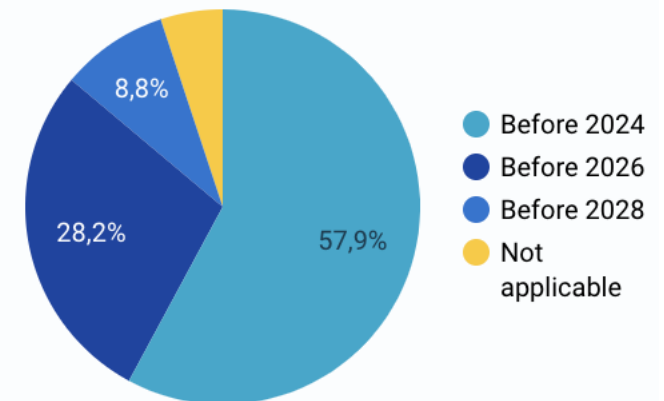
## P17: Develop Open Science training and professionalise associated roles.

### Relevance

	P17 - How re...	Record Count
1.	Highly relevant	140
2.	Relevant	55
3.	Neutral	12
4.	Irrelevant	7
5.	Highly irrelevant	2

1 - 5 / 5 < >

### Urgency



# The EOSC Skills & Training WG

**42 members** from MS/AC, EC and EOSC training related projects with different type of expertise

Started in **Jan 2020** – *the youngest sibling in the EOSC family*

**WG Objective:** Provide a framework for a sustainable training infrastructure for EOSC

SKILLS



Competences



Organisational culture change and service development

TRAINING



Capabilities



Key components for training infrastructure

# Principles and vision driving our work

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Promote transparency and **recognition** of skills and qualifications.

Foster an equitable and balanced **digital research labour market**.

Strengthen **cross-sector** mobility & employability (research-industry-public sector).

Invest in people to create an ecosystem that **promotes learning, experimenting and growth**. Facilitate and cultivate a digital and open science culture.

Build **resilience** into digital skills and training to deal with the "shock" of a new technology or unexpected incidents (e.g. COVID-19) coming to the fore.

Embed the **human factor in the design** of future digital skills systems from the onset to follow the **evolution** of new technologies and sharing models.

# 4 task forces

01



EOSC minimal  
**skillset**

Identify and  
prioritise OS and  
digital skills **for**  
**EOSC**

02



Options for  
organisational  
models for  
**competence**  
**centers**  
(blueprints)

03



EOSC in **national**  
**strategies** for  
digital skills

04



Specifications for  
**training**  
**catalogue(s)**

Ongoing work. Consolidated reports expected Nov - Dec 2020

# Minimal EOSC Skill Set

Michelle Barker, Karla Anaya-Carlsson, Ignacio Blanquer, Carlos Casorran, Ieva Cesevičiūtė, Judit Fazekas-Paragh, Vinciane Gaillard (chair), Iryna Kuchma, Dunja Legat, Natalia Manola, Vera Matser, Caterina Petrillo, Jaume Piera, Ana Portugal Melo, Elin Stangeland, Erzsébet Tóth-Czifra, Sadia Vancauwenbergh



# What skills are essential

## T.1 DigComp competence areas and competences

EU Dig

COMPETENCE AREAS	COMPETENCES
1. Information and data literacy	1.1 Browsing, searching and filtering data, information and digital content 1.2 Evaluating data, information and digital content





# Identifying the target users & related skills

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1. Diagram to improve the visibility of the “EOSC user ecosystem”, with specific training needs
2. Mapping of the existing skills and competences frameworks
3. Identification and prioritization of open science and digital skill sets for EOSC for researchers, service providers and policy makers

# Identifying the target users & related skills

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OS and RDM practices

Interoperability with EOSC

Alignment with OS and data policies

Transversal skills

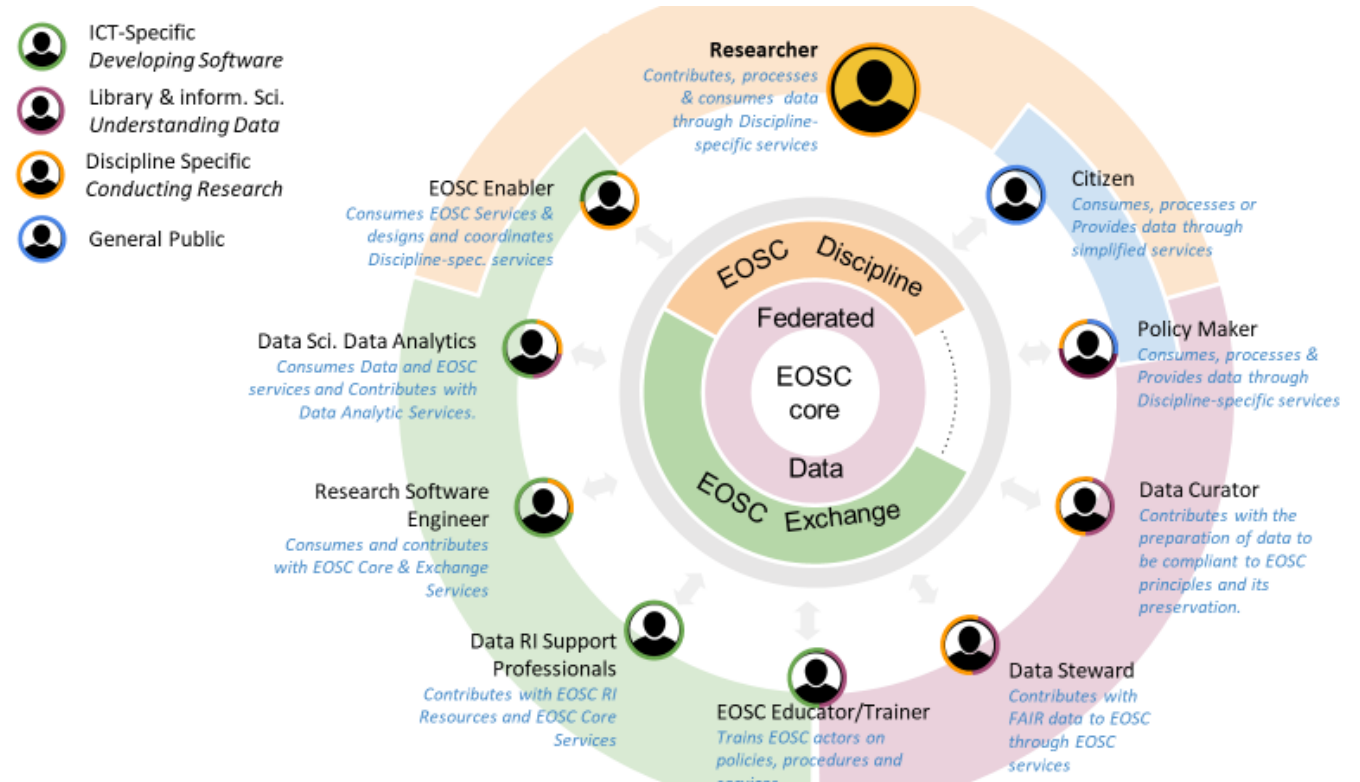
# A canvas focusing on the EOSC ecosystem

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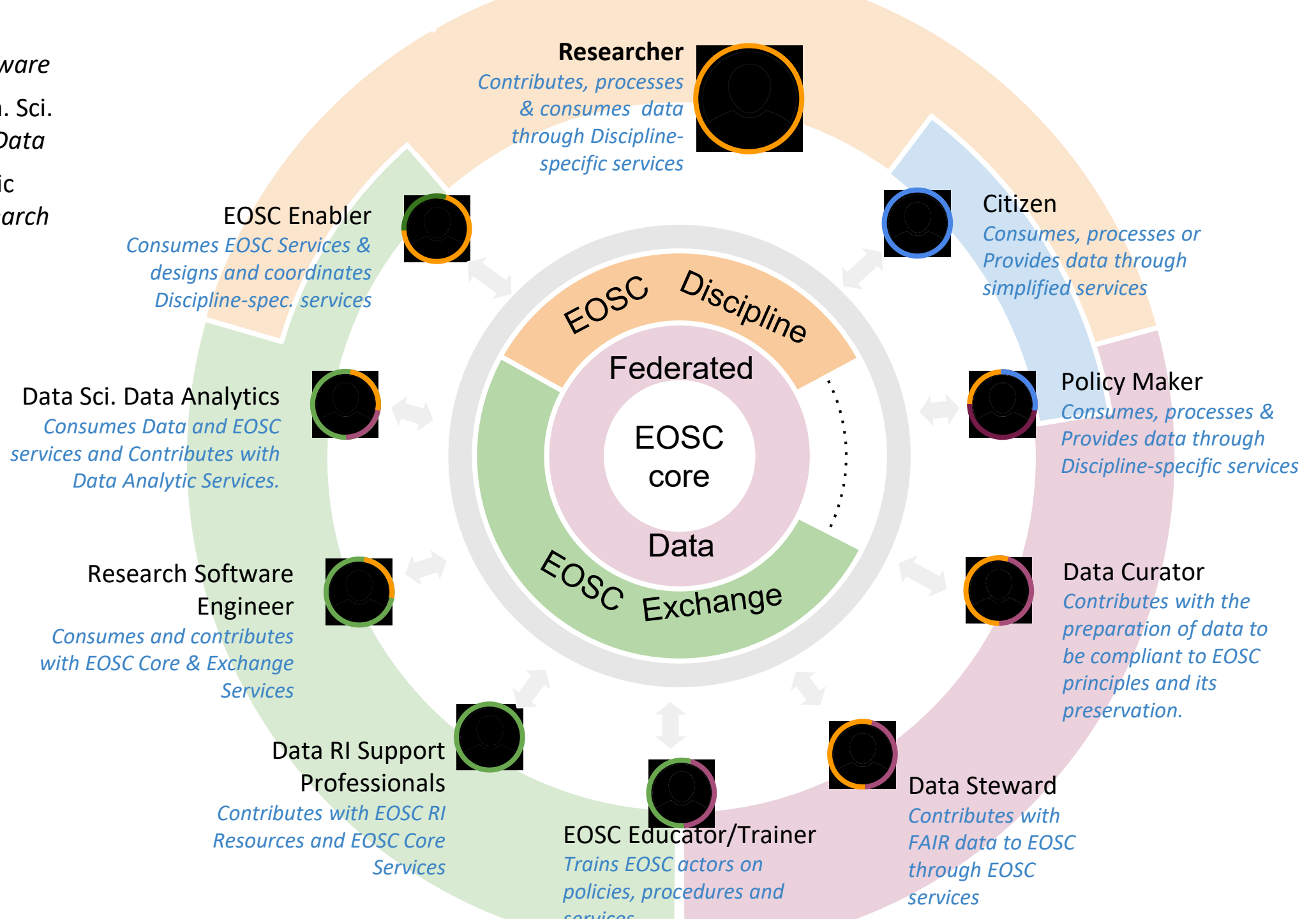
1. Readable and adjustable to local context
2. Missing specific roles can easily find their place
3. The whole EOSC Landscape

# A canvas focusing on the EOSC ecosystem

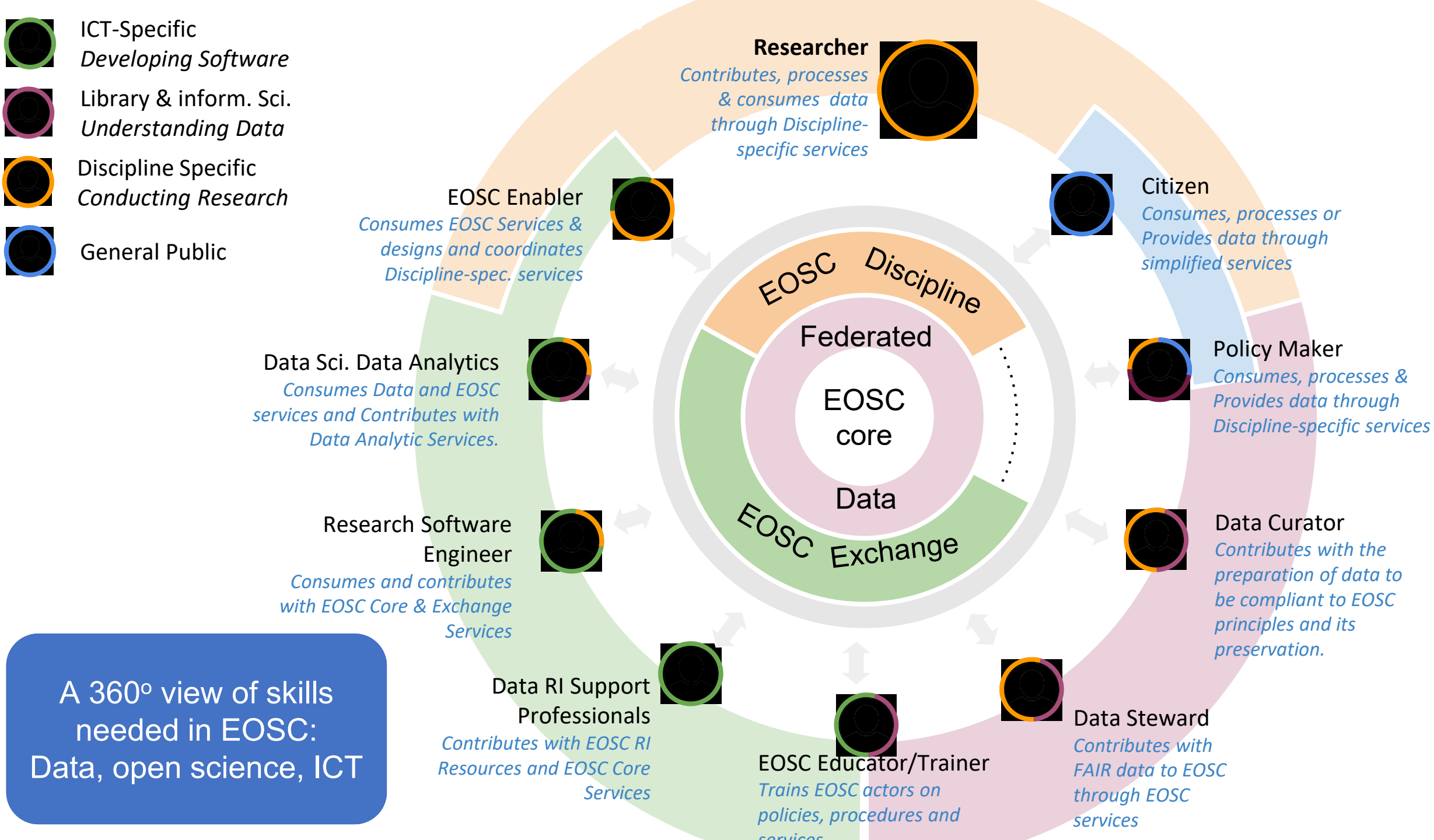
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-  ICT-Specific  
*Developing Software*
-  Library & inform. Sci.  
*Understanding Data*
-  Discipline Specific  
*Conducting Research*
-  General Public



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A 360° view of skills needed in EOSC:  
Data, open science, ICT

## Example 1: Data Steward

Alignment with OS and data policies

- **An expert on the preparation and treatment of data including data selection, storage, preservation, annotation provenance and other metadata maintenance, and dissemination.**
- Example: Validates, recodes, trims or any other action on each source Dataset of genomic samples related to the Flu to guarantee that they can be properly used and integrated according to domain-specific standard formats.
- EOSC Skills required: Deep understanding of FAIR principles and ability to use EOSC core and exchange services for data publication and preservation; Ability to validate the fulfilment of Open Science principles in EOSC core and exchange services related to data.

## Example 2: Researcher

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- The researcher is the main target of EOSC and uses it to obtain, process, produce, deposit and share research data, using mainly the services provided by the EOSC.
- Example: Requests through a portal to run a phylogenetic study on the samples in the different genetic variants of the flu available in an EOSC repository, visualizes it in a phylogenetic tree and pastes the image on an article she is writing, referencing the data sources and processing pipelines.
- EOSC Skills required: General knowledge on the EOSC (including FAIR principles), ability to use EOSC discipline-specific services.



## Example 3: Policy maker

Alignment with OS and data policies

- **Policy makers gather information through consultation and research and reduce and extract from the information, a policy, set of policies or a strategic framework which serve to promote what is the preferred course of action and could include financial support to research.**
- Example: The governing board of a Public Health Directorate provides information from clinical practice and gets the incidence trends of a specific disease to implement their healthcare plans.
- EOSC Skills required: Reasonable knowledge on the EOSC, with special focus on open science, privacy and security and FAIR principles, ability to use EOSC discipline-specific and generic services.

# Forthcoming report

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Introduction

Diagram + roles

Mapping of competences/skills

Roles in the context of organizations

EOSC support for these roles

# Competence centers: options for organizational models and coordination

Michelle Barker, Carlos Casorran, Suzanne Dumouchel, Judit Fazekas-Paragh, Jacco Konijn, Iryna Kuchma (chair), Emma Lazzeri, Dunja Legat, Giuseppe La Rocca, Fotis Psomopoulos, Susan Trinitz, Celia van Gelder, Rene van Horik, Angus Whyte



# Competence centers

Ongoing interviews

**Scope:** Organizational models for **the training and skills elements** of competence centers

Competence centerss → **emphasis on plural**

- Digital skills covering all aspects: data, ICT, open science
- Not a centralized (one) body - coordination, **federation of competence centers**, EOSC compatibility
- Existing organizational models, what works & what doesn't
- 4 levels: Research and e-Infrastructures (thematic), professional associations, national & institutional (horizontal)

# Competence centers (2)

Ongoing interviews

“A shared hub of expertise offering leadership in adopting FAIR and open science principles and implementing the corresponding practices, coordination and services to connect relevant people, develop their skills and offer guidance, tools, learning resources and curricula” (reusing FAIRsFAIR [D6.1 spreadsheet](#), [Link to D6.1 report](#))

**Positioning/priorities**

**Skills and competencies focus**

**Governance, business models and sustainability**

**Coordination and alignment with other initiatives**

# EOSC skills & training in national strategies

Iris Alfredsson, Michele Barker, Carlos Casorran, Helen Clare, Miroslav Dobrucky, Natalia Manola (chair), Eleni Petra, Jerzy Proficz, Elin Stangeland, Anne Sunikka, Michael Svendsen, Sadia Vancauwenbergh, Celia van Gelder



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# EOSC skills and training in the wider context

European Skills Agenda - Digital Education  
Action Plan (2021-2027)

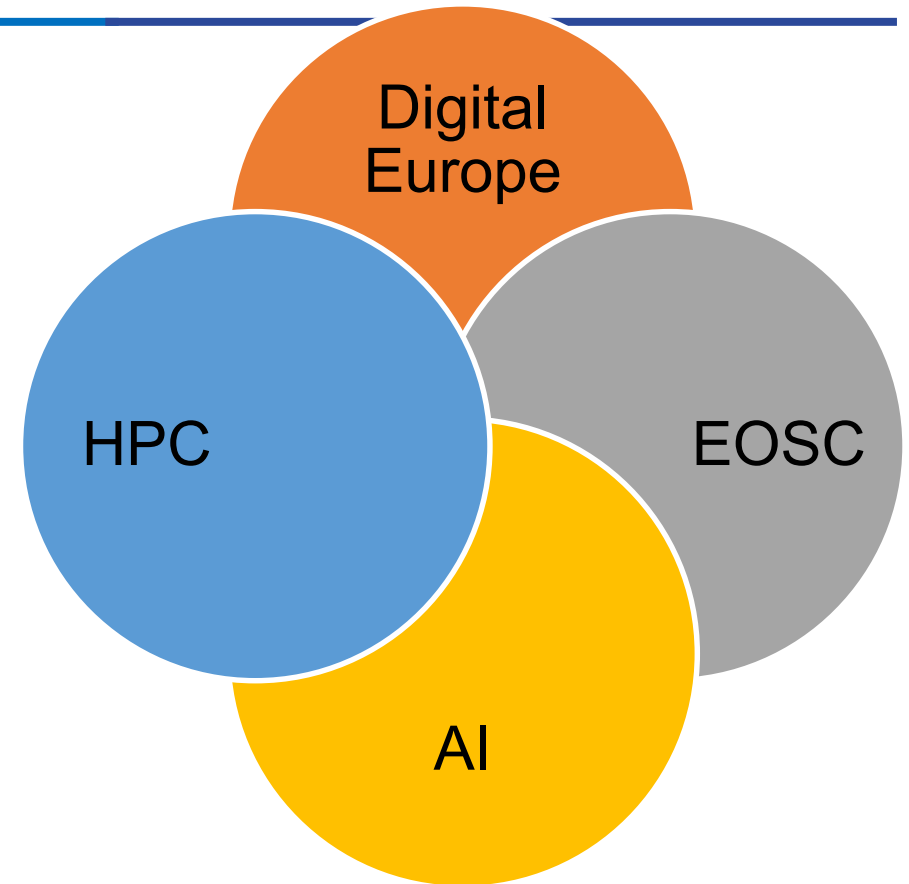
Digital Skills and Jobs Coalition

Digital Europe programme (600 mi Euros)

H2020-JTI-EuroHPC-2020-03: Training and  
Education on High Performance Computing

A European Strategy for data: EU Data  
Spaces

Erasmus+ (ending)



# Study on National Strategy for Digital Skills

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- Provide an overview for national Digital Skills initiatives in Europe
- Identify gaps and overlaps of existing national initiatives on Digital Skills compared to the envisioned EOSC Skills and Training goals and priorities proposed in the EOSC SRIA
- Analyse and provide insights on how to best position EOSC Skills and Training in Digital Skills national strategies and agendas
- Develop recommendations for policy makers with the purpose of providing well-rounded, all-inclusive (research-government-industry-public) options to include in national strategies for Digital Skills and up-skilling

Inclusion &  
sustainability



# Interviews in 9 countries

## Criteria & scoring

- Digital economy & society
- Digital competitiveness
- Impact of ICT
- Future readiness
- Geographical spread

Interviewing participants in EOSC, National coalitions, ministries, ...



ongoing

## 1

### Governance fragmentation & diverse priorities in digital skills upgrade

- Many efforts and initiatives in progress. **No single approach.**
- **Focus in different target groups** per country. Mainly address public services users, schools, teachers, labour force and business digital transformation.

## 2

### Absence of an integrated framework for the establishment of the competent national policy

- **Identification of most suitable approach** for digital skills upgrade to target is difficult.
- Influenced by the fact that the administration composition and the competent authorities in each country differ.

## 3

### Absence of a stand-alone national strategy for digital skills in almost all countries assessed

- Digital skills ecosystems are complex. In many cases, the **priorities of different actors of the ecosystem lay in silos in relation to open science and open data**

## 4

### Diversification in the participation of stakeholders per country

- **No single pattern related to the stakeholder's synthesis** participating in the ecosystem identified.
- **National Coalitions gather a variety of stakeholders and represent the point of reference for the coordination of all disparate policies and initiatives.** They seem to represent the driver for the next step for the majority of initiatives being integrated in a single strategy.

5

## A lot of training under progress

**Many training programmes** for several target groups, both in the public and private sector.  
**Universities** offer a variety of post-graduate studies in data/bid data and statistics.  
**National Information Societies and Digital Academies** also play an important role in training

6

## A single certification framework acknowledged

In a formally established or less formally working framework, **DigComp is endorsed**, in almost all countries assessed.

7

## No combined action for digital skills and education and digital skills for open science/open access

Digital Skills as well as Digital Literacy are more focused in education, labour market and general public, whereas **data skills are most referred in open science**

There are **disparate initiatives on digital skills upgrade required for scientists**

So far, **it seems to be a rather fuzzy objectives 'setting** on what is actually needed to be targeted.

8

## Open Science Strategies are mostly focusing on research and infrastructure

Skills required at **multiple levels**: individual scientists, research teams, institutional services, research infrastructures etc.

**Libraries & repositories play a crucial role** for implementing training programmes for researchers, and for upgrading the necessary infrastructure and access to open data.

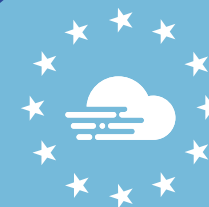
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## FAIR Data Action Plan alignment

Several scientific areas **focus on FAIR data rather than OPEN**, in alignment with the directions of the FAIR Data Action Plan.

# Training catalogues Task Force

Michelle Barker, Ignacio Blanquer, Carlos Casorran, Helen Clare, Suzanne Dumouchel, Sonja Filiposka, Jacco Konijn, Iryna Kuchma, Emma Lazzeri (chair), Natalia Manola, Giuseppe La Rocca, Eleni Petra, Jaume Piera, Fotis Psomopoulos, Erzsébet Tóth-Czifra, Angus Whyte, Celia van Gelder



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# Specifications for training catalogue(s)

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**Map** existing catalogues and standards (metadata, interoperability) - landscaping analysis

**Synergies & exchange with other initiatives:** RDA ETHRD-IG, INFRAEOSC-05 Task Force on Training and Skills building a common catalogue for training resources, cluster projects building specific Training Catalogues, EOSC-Enhance and EOSC-Hub currently managing EOSC Portal, OpenAIRE, Community of Practice of training Coordinators, etc.

# Specifications for training catalogue(s) (2)

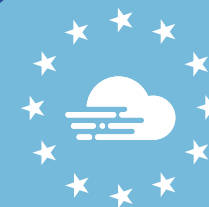
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**Scope** (based on use cases for each of the roles defined in the TF1), **vision, motivations and ambition** of the foreseen EOSC Training Catalogue of catalogues, **users, interoperations between the catalogues, quality aspect** (metadata, ensuring quality of materials, etc.), **metadata, current landscape, recommendations for the next steps.**

**Thank you!**  
**Questions?**

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