Skills for the European
Open Science
Commons

Supporting

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Creare un ecosistema per la Scienza aperta

11 Giugno 2024, Università di Ferrara

Abbracciare il futuro, fare scienza aperta oggi

Sara Di Giorgio, GARR

Abbiamo bisogno di nuove competenze per praticare la Scienza Aperta

Foto di Cookie the Pom su Unsplash

Quali sono le sfide da affrontare

- Definizione chiara delle **abilità e competenze necessarie** per praticare la Scienza Aperta
- Formare **nuovi profili professionali** e definire percorsi di carriera idonei
- **Potenziare le competenze** del personale esistente
- Fornire un supporto adeguato e favorire meccanismi di apprendimento continuo

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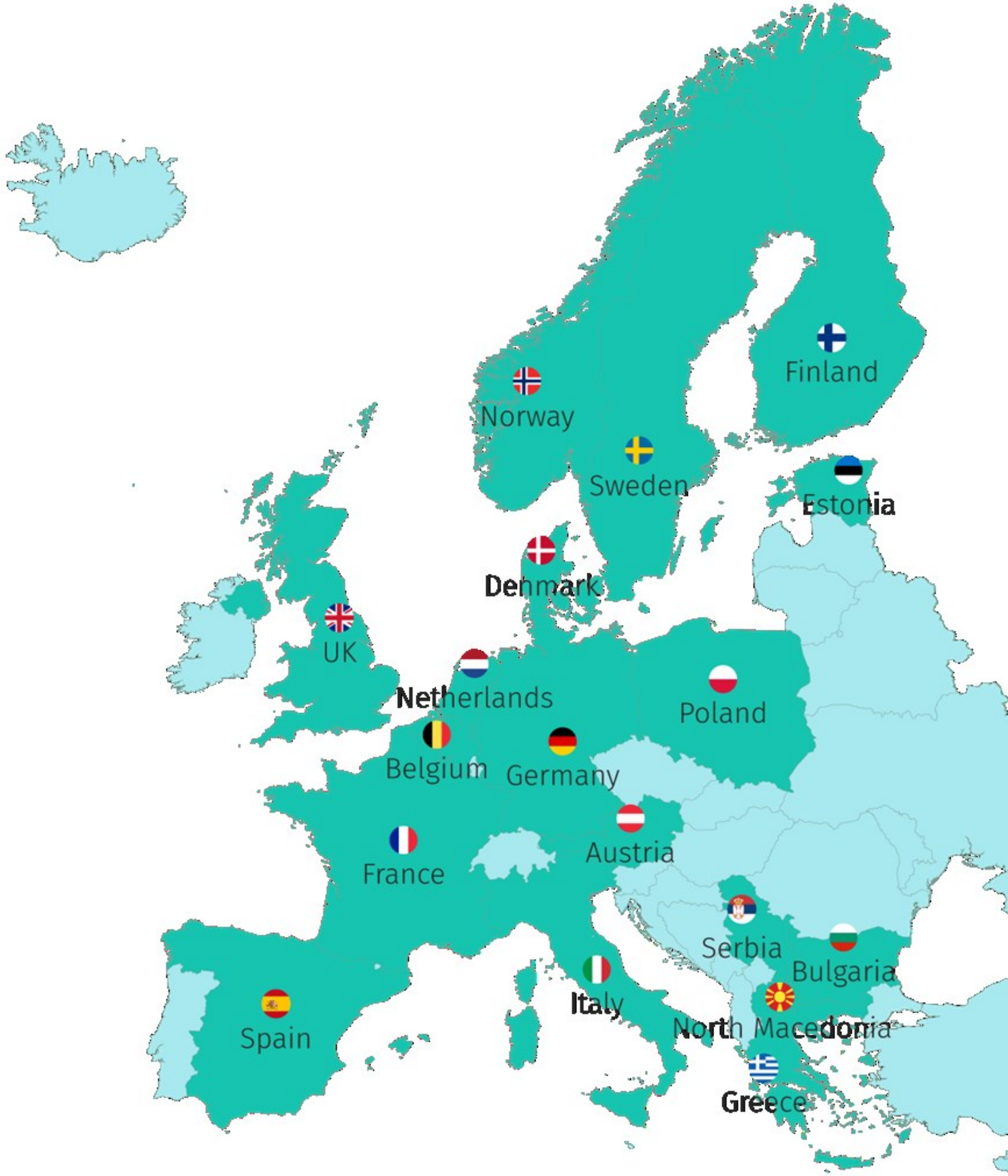
Ideato e coordinato dal GARR

- 46 **Partner**, 18 **paesi**
- “**Key doers**” nell’ambito Open Science nel rispettivo Paese/Regione/Disciplina
- 2 Infrastrutture di Ricerca ESFRI
- 7 milioni €
- Settembre 2022 - Settembre 2025


Finland
Norway
Sweden
Estonia
Denmark
UK
Netherlands
Poland
Belgium
Germany
France
Austria
Serbia
Bulgaria
Spain
Italy
North Macedonia
Greece

Agenda Strategica di Ricerca e Innovazione EOSC

Priorità della SRIA

Priorità 1: Sviluppare la prossima **generazione di professionisti in Scienza Aperta** e dati

Priorità 2: Colmare il divario educativo: coordinare e **allineare i curricula** per studenti e ricercatori

Priorità 3: Creare **Centri affidabili** e duraturi per il reperimento di materiali didattici e strumenti correlati

Priorità 4: Influenzare **la politica nazionale** sulla Scienza Aperta per le competenze supportando i leader strategici

Contributo di Skills4EOSC

Creazione del Network di **Competence Centres** Skills4EOSC

Definizione del set minimo di competenze necessarie **Minimum Viable Skillset** per diverse figure/ruoli

Formazione di formatori e metodologia FAIR by design per materiali didattici

Supporto ai **Network Professionali** or lifelong learning

Science for Policy: supporto a funzionari, honest broker e policy maker

Skills4EOSC Competence Centre Network

Skills4EOSC ha l’obiettivo di creare u **Rete di Coordinamento dei Centri di Competenza** per la Scienza Aperta, F EOSC in Europa.

La **rete di Skills4EOSC** si baserà su un meccanismo leggero per allineare e coordinare i nodi della rete.

I **nodi** sono i Centri di Competenza di Skills4EOSC; per l’Italia il nodo è il **cen di competenza di ICDI.**

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Competence Center Node
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Competence Center Network

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Il Centro di Competenza Skills4EOSC

Fornisce **un punto di riferimento** in un determinato Paese, Regione o Ambito Tematico per lo sviluppo di competenze chiave per praticare la Scienza Aperta e conoscenza di standard, applicazioni e strumenti e migliori pratiche per creare, gestire, riutilizzare, condividere e analizzare i dati FAIR, così come altri oggetti digitali della ricerca.

Competenze

Network di persone e enti

Servizi

Risorse

Tool

Definizione delle competenze

✓

Skills4EOSC definisce un set minimo di competenze per ciascun ruolo: **Minimum Viable Skillset**

Design di percorsi di apprendimento e materiali per il training

✓

Attraverso la metodologia **FAIR by design**, verranno sviluppati materiali didattici per i programmi di formazione degli formatori rivolti a vari obiettivi.

Training dei Trainer

2024

Verranno formati dei **Master Trainer** che formeranno esperti per moltiplicare le competenze specifiche

.

Corsi pilota

2024

Una volta che i **Master Trainer** acquisiscono competenze necessarie, organizzeranno corsi pilota per formare ruoli target (ricercatori, curatori, eccetera).

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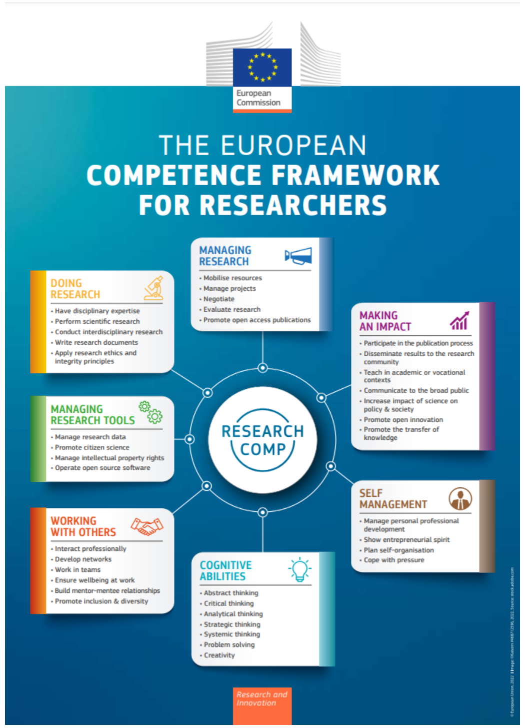
Minimum Viable Skillset - MVS

I profili del **Minimum Viable Skillset**:


European Commission

THE EUROPEAN **COMPETENCE FRAMEWORK FOR RESEARCHERS**

RESEARCH COMP

DOING RESEARCH
- Have disciplinary expertise
- Perform scientific research
- Conduct interdisciplinary research
- Write research documents
- Apply research ethics and integrity principles

MANAGING RESEARCH
- Mobilise resources
- Manage projects
- Negotiate
- Evaluate research
- Promote open access publications

MAKING AN IMPACT
- Participate in the publication process
- Disseminate results to the research community
- Teach in academic or vocational contexts
- Communicate to the broad public
- Increase impact of science on policy & society
- Promote open innovation
- Promote the transfer of knowledge

MANAGING RESEARCH TOOLS
- Manage research data
- Promote citizen science
- Manage intellectual property rights
- Operate open source software

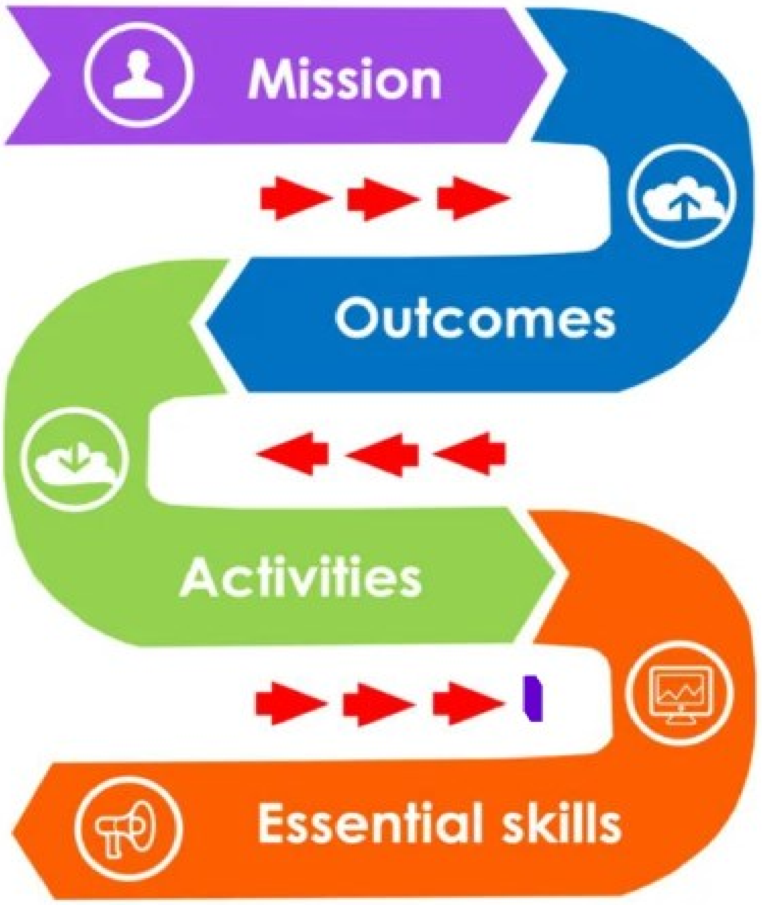
SELF MANAGEMENT
- Manage personal professional development
- Show entrepreneurial spirit
- Plan self-organisation
- Cope with pressure

WORKING WITH OTHERS
- Interact professionally
- Develop networks
- Work in teams
- Ensure wellbeing at work
- Build mentor-mentee relationships
- Promote inclusion & diversity

COGNITIVE ABILITIES
- Abstract thinking
- Critical thinking
- Analytical thinking
- Strategic thinking
- Systemic thinking
- Problem solving
- Creativity

Research and Innovation

- Identificano le **competenze necessarie** per diversi profili considerando la missione OS e i risultati da raggiungere
- Affrontano la necessità di sintetizzare gli **elementi essenziali dell'OS**
- Forniscono indicazioni di alto livello per **curricula** e formazione
- Sono adattabili a contesti/**domini**
- Sono allineati al **Quadro Europeo**



Skills 4 eosc

Whyte, A., et al. (2023). D2.1 Catalogue of Open Science Career Profiles - Minimum Viable Skillsets (v1.2). Zenodo. https://doi.org/10.5281/zenodo.8101903

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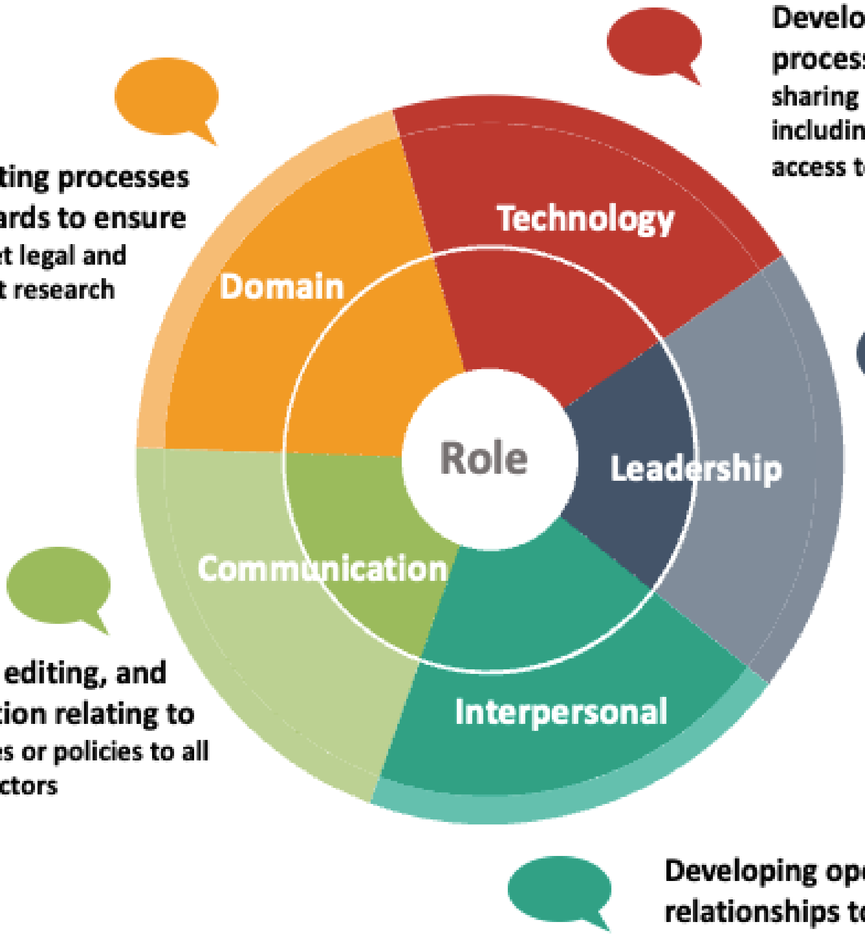
Dimensioni per attuare la "visione" della scienza aperta



Developing and implementing processes to support systematic sharing of knowledge and tools, including measures to ensure open access to all digital research outputs

Planning and implementing processes based on domain standards to ensure that research practices meet legal and ethical obligations, and that research outputs are reproducible.

Development, advocacy, and evaluation of open science practices in collaborative R&I projects, programmes, or services

Planning, creating, editing, and delivering information relating to Open Science practices or policies to all relevant knowledge actors

Developing open cooperative working relationships to involve all relevant knowledge actors in the co-creation of R&I agendas and contents

MVS Relativi a diverse figure/ruoli

In via di elaborazione

Specialista in Comunicazione
tecario/Esperto dei Dati
ore di Collezioni Digitali

Disponibili *

Data Steward
Esperto Legale
Consulente Etico
Mediatore della cor a
Studente magistral
Studente triennale
Ricercatore senior
Ricercatore in inizio
Policy maker
Professionista infrastrutture di ricerca

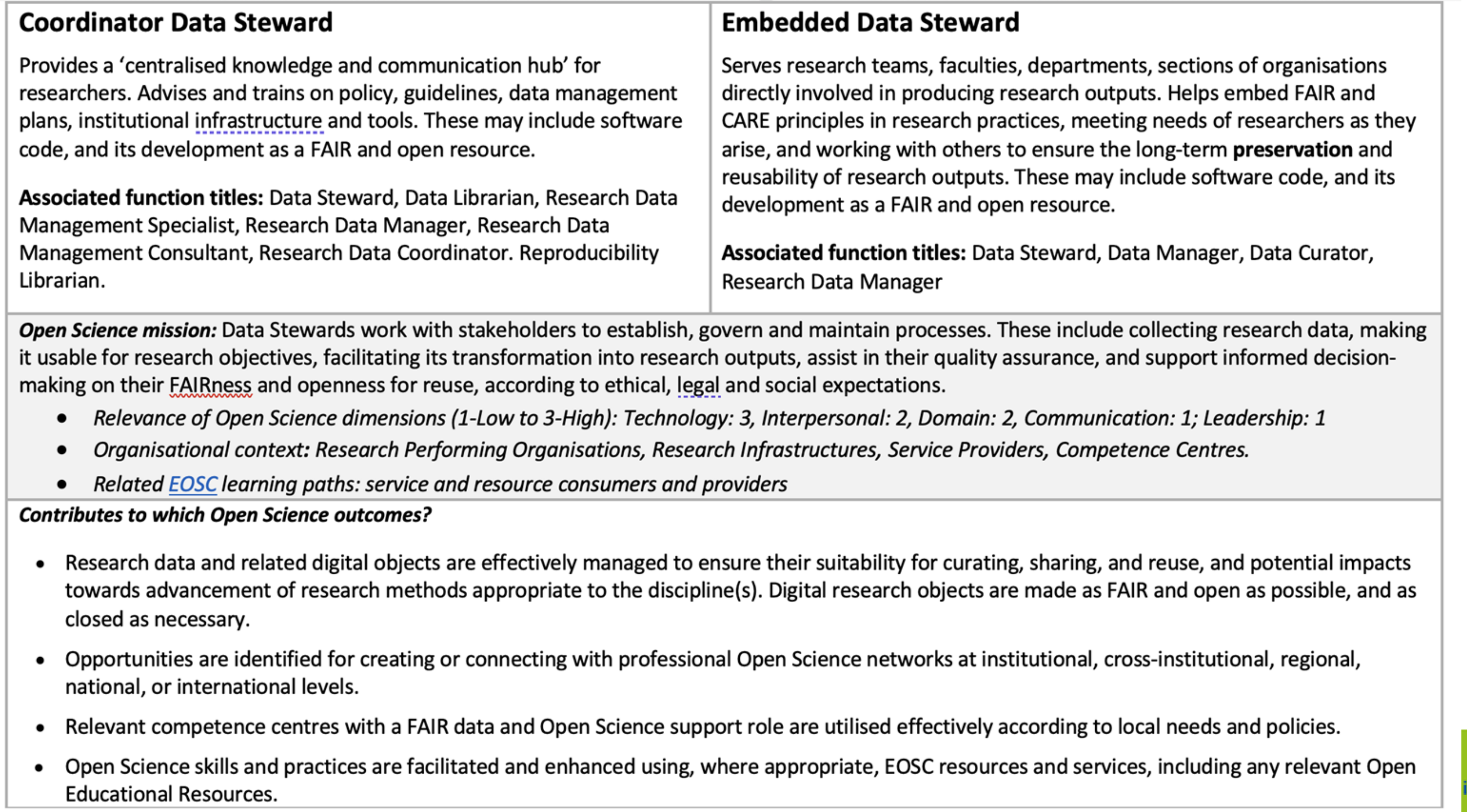
In considerazione

nalista dei dati
ngegnere dei dati
esponsabile della ricerca
ngegnere Software per la Ricerca
pecialista in conservazione digitale

* Currently published MVS are here: https://zenodo.org/records/8101903

Main ref: report Digital skills for FAIR and Open Science

Esempio: **Data Steward** – missione e risultati



Coordinator Data Steward	Embedded Data Steward
Provides a ‘centralised knowledge and communication hub’ for researchers. Advises and trains on policy, guidelines, data management plans, institutional infrastructure and tools. These may include software code, and its development as a FAIR and open resource. **Associated function titles:** Data Steward, Data Librarian, Research Data Management Specialist, Research Data Manager, Research Data Management Consultant, Research Data Coordinator. Reproducibility Librarian.	Serves research teams, faculties, departments, sections of organisations directly involved in producing research outputs. Helps embed FAIR and CARE principles in research practices, meeting needs of researchers as they arise, and working with others to ensure the long-term **preservation** and reusability of research outputs. These may include software code, and its development as a FAIR and open resource. **Associated function titles:** Data Steward, Data Manager, Data Curator, Research Data Manager

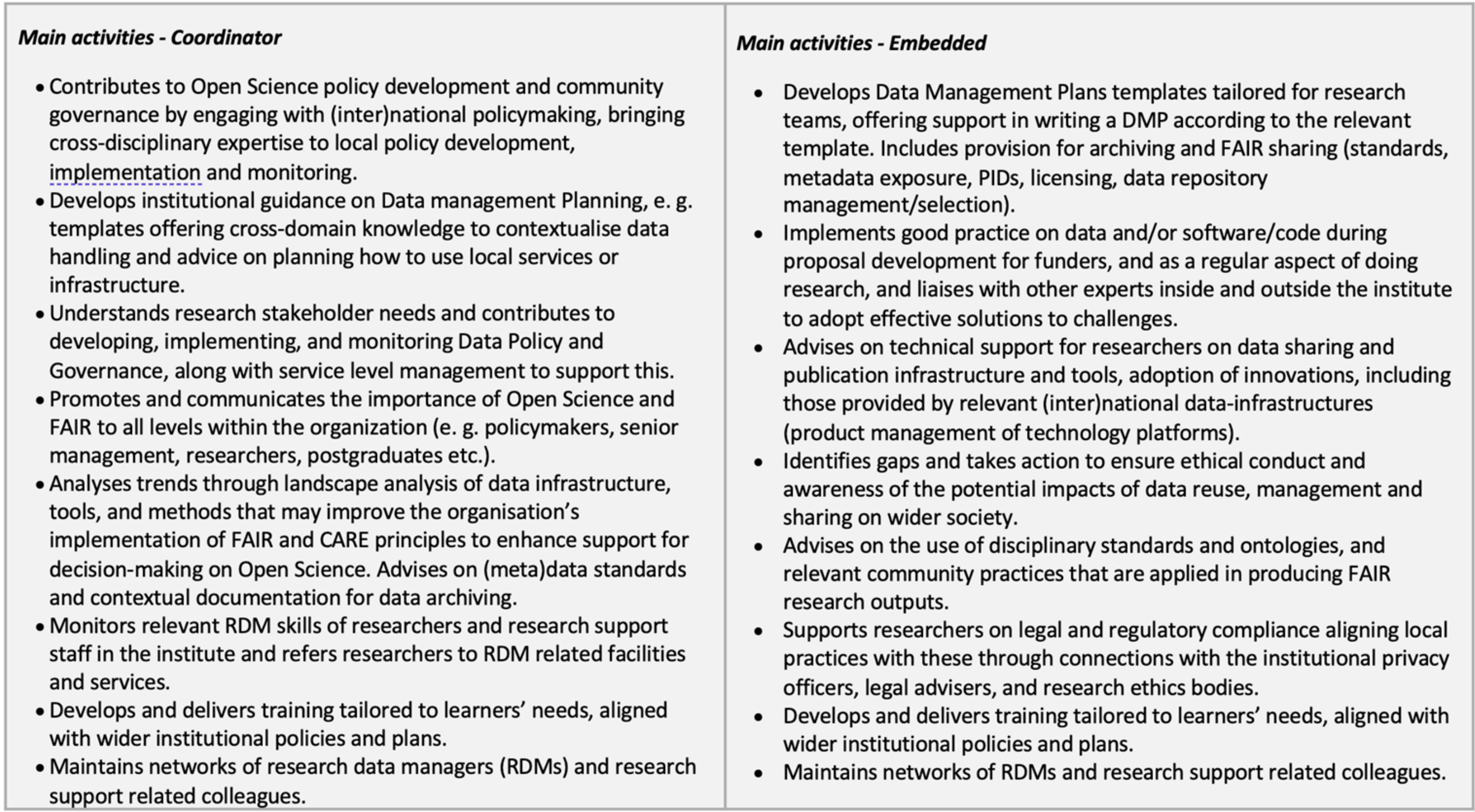
Open Science mission: Data Stewards work with stakeholders to establish, govern and maintain processes. These include collecting research data, making it usable for research objectives, facilitating its transformation into research outputs, assist in their quality assurance, and support informed decision-making on their FAIRness and openness for reuse, according to ethical, legal and social expectations.

- *Relevance of Open Science dimensions (1-Low to 3-High): Technology: 3, Interpersonal: 2, Domain: 2, Communication: 1; Leadership: 1*
- *Organisational context: Research Performing Organisations, Research Infrastructures, Service Providers, Competence Centres.*
- *Related EOSC learning paths: service and resource consumers and providers*

Contributes to which Open Science outcomes?

- Research data and related digital objects are effectively managed to ensure their suitability for curating, sharing, and reuse, and potential impacts towards advancement of research methods appropriate to the discipline(s). Digital research objects are made as FAIR and open as possible, and as closed as necessary.
- Opportunities are identified for creating or connecting with professional Open Science networks at institutional, cross-institutional, regional, national, or international levels.
- Relevant competence centres with a FAIR data and Open Science support role are utilised effectively according to local needs and policies.
- Open Science skills and practices are facilitated and enhanced using, where appropriate, EOSC resources and services, including any relevant Open Educational Resources.

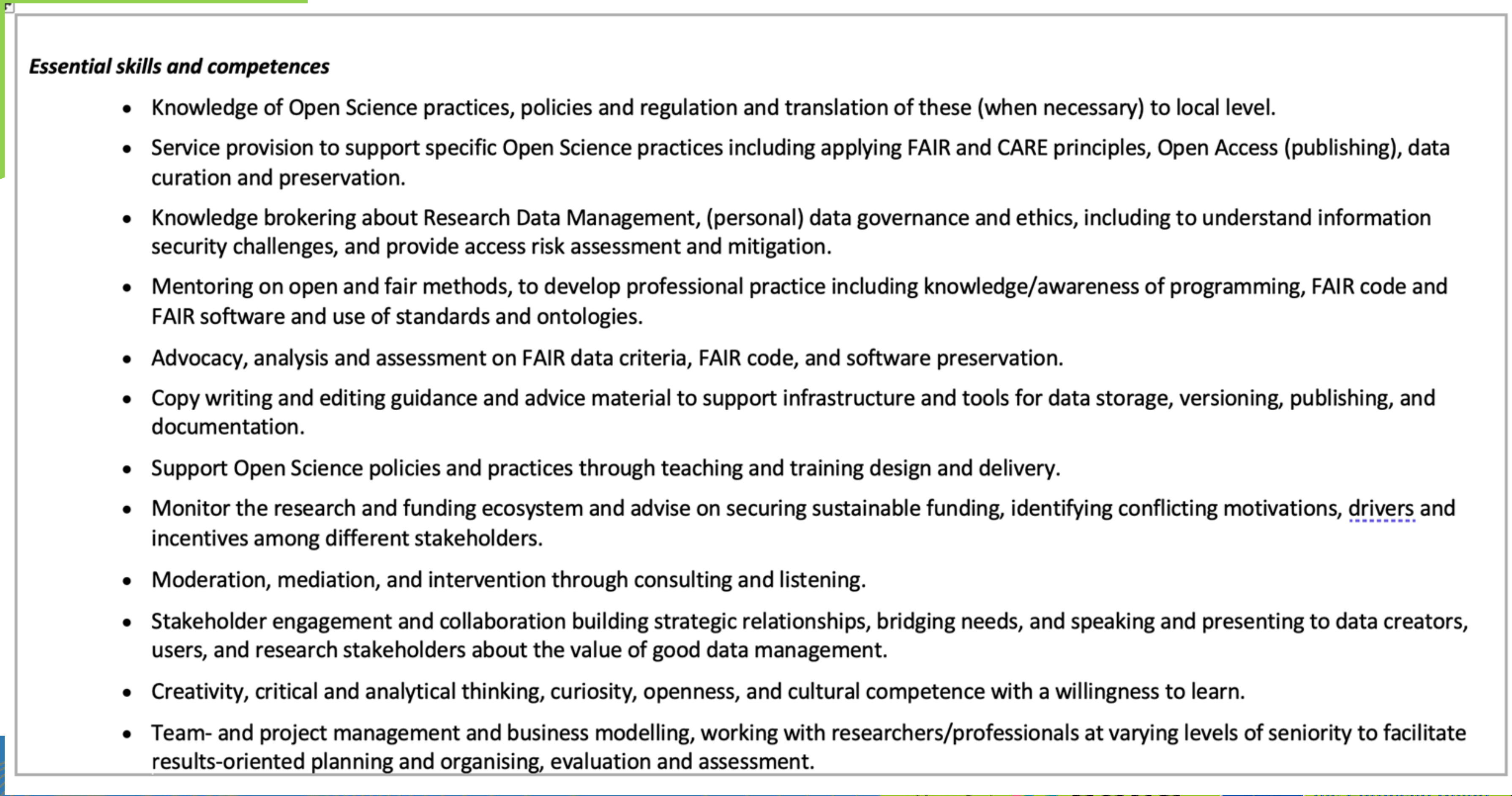
Data Steward – attività



Main activities - Coordinator	*Main activities - Embedded*
• Contributes to Open Science policy development and community governance by engaging with (inter)national policymaking, bringing cross-disciplinary expertise to local policy development, implementation and monitoring. • Develops institutional guidance on Data management Planning, e. g. templates offering cross-domain knowledge to contextualise data handling and advice on planning how to use local services or infrastructure. • Understands research stakeholder needs and contributes to developing, implementing, and monitoring Data Policy and Governance, along with service level management to support this. • Promotes and communicates the importance of Open Science and FAIR to all levels within the organization (e. g. policymakers, senior management, researchers, postgraduates etc.). • Analyses trends through landscape analysis of data infrastructure, tools, and methods that may improve the organisation's implementation of FAIR and CARE principles to enhance support for decision-making on Open Science. Advises on (meta)data standards and contextual documentation for data archiving. • Monitors relevant RDM skills of researchers and research support staff in the institute and refers researchers to RDM related facilities and services. • Develops and delivers training tailored to learners' needs, aligned with wider institutional policies and plans. • Maintains networks of research data managers (RDMs) and research support related colleagues.	• Develops Data Management Plans templates tailored for research teams, offering support in writing a DMP according to the relevant template. Includes provision for archiving and FAIR sharing (standards, metadata exposure, PIDs, licensing, data repository management/selection). • Implements good practice on data and/or software/code during proposal development for funders, and as a regular aspect of doing research, and liaises with other experts inside and outside the institute to adopt effective solutions to challenges. • Advises on technical support for researchers on data sharing and publication infrastructure and tools, adoption of innovations, including those provided by relevant (inter)national data-infrastructures (product management of technology platforms). • Identifies gaps and takes action to ensure ethical conduct and awareness of the potential impacts of data reuse, management and sharing on wider society. • Advises on the use of disciplinary standards and ontologies, and relevant community practices that are applied in producing FAIR research outputs. • Supports researchers on legal and regulatory compliance aligning local practices with these through connections with the institutional privacy officers, legal advisers, and research ethics bodies. • Develops and delivers training tailored to learners' needs, aligned with wider institutional policies and plans. • Maintains networks of RDMs and research support related colleagues.

Data Steward – competenze essenziali

~ 12 Descrizioni generali

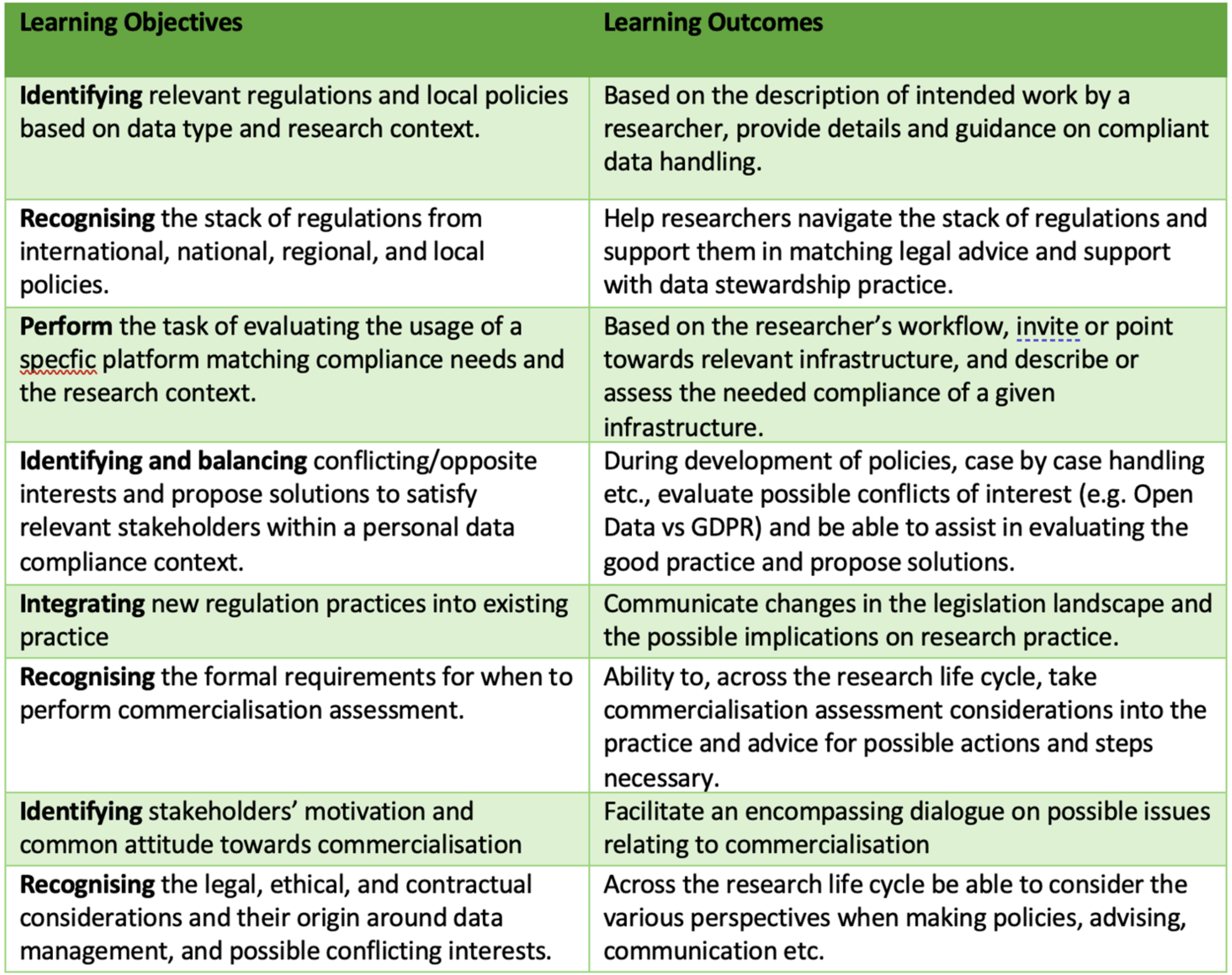


Essential skills and competences

- Knowledge of Open Science practices, policies and regulation and translation of these (when necessary) to local level.
- Service provision to support specific Open Science practices including applying FAIR and CARE principles, Open Access (publishing), data curation and preservation.
- Knowledge brokering about Research Data Management, (personal) data governance and ethics, including to understand information security challenges, and provide access risk assessment and mitigation.
- Mentoring on open and fair methods, to develop professional practice including knowledge/awareness of programming, FAIR code and FAIR software and use of standards and ontologies.
- Advocacy, analysis and assessment on FAIR data criteria, FAIR code, and software preservation.
- Copy writing and editing guidance and advice material to support infrastructure and tools for data storage, versioning, publishing, and documentation.
- Support Open Science policies and practices through teaching and training design and delivery.
- Monitor the research and funding ecosystem and advise on securing sustainable funding, identifying conflicting motivations, drivers and incentives among different stakeholders.
- Moderation, mediation, and intervention through consulting and listening.
- Stakeholder engagement and collaboration building strategic relationships, bridging needs, and speaking and presenting to data creators, users, and research stakeholders about the value of good data management.
- Creativity, critical and analytical thinking, curiosity, openness, and cultural competence with a willingness to learn.
- Team- and project management and business modelling, working with researchers/professionals at varying levels of seniority to facilitate results-oriented planning and organising, evaluation and assessment.

Data Steward – obiettivi e risultati della formazione

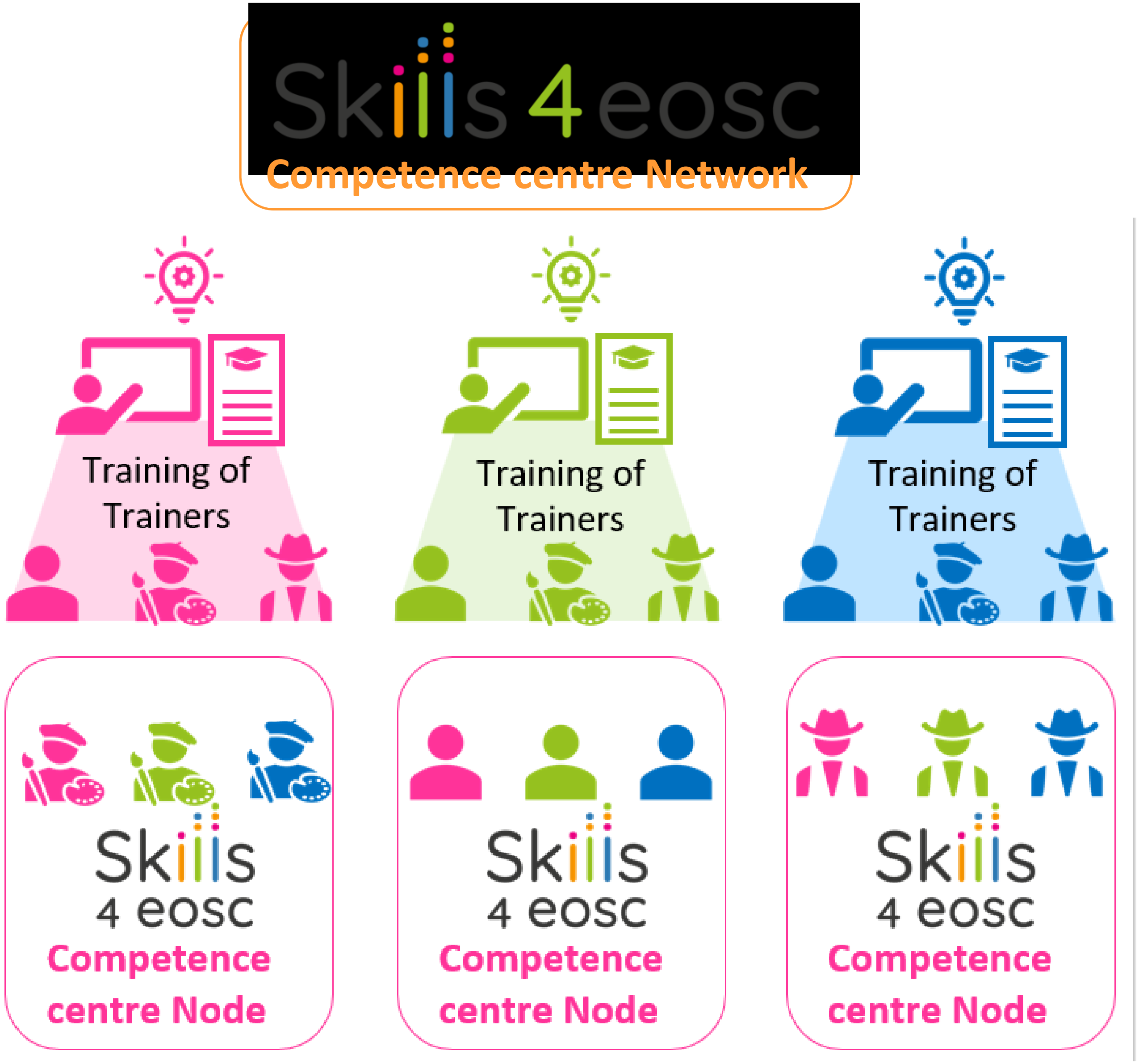
- Basati sui MVS
- Struttura modulare e granulare, come ad esempio sui dati personali e GDPR
- Draft work-in-progress



Learning Objectives	Learning Outcomes
Identifying relevant regulations and local policies based on data type and research context.	Based on the description of intended work by a researcher, provide details and guidance on compliant data handling.
Recognising the stack of regulations from international, national, regional, and local policies.	Help researchers navigate the stack of regulations and support them in matching legal advice and support with data stewardship practice.
Perform the task of evaluating the usage of a specfic platform matching compliance needs and the research context.	Based on the researcher's workflow, invite or point towards relevant infrastructure, and describe or assess the needed compliance of a given infrastructure.
Identifying and balancing conflicting/opposite interests and propose solutions to satisfy relevant stakeholders within a personal data compliance context.	During development of policies, case by case handling etc., evaluate possible conflicts of interest (e.g. Open Data vs GDPR) and be able to assist in evaluating the good practice and propose solutions.
Integrating new regulation practices into existing practice	Communicate changes in the legislation landscape and the possible implications on research practice.
Recognising the formal requirements for when to perform commercialisation assessment.	Ability to, across the research life cycle, take commercialisation assessment considerations into the practice and advice for possible actions and steps necessary.
Identifying stakeholders' motivation and common attitude towards commercialisation	Facilitate an encompassing dialogue on possible issues relating to commercialisation
Recognising the legal, ethical, and contractual considerations and their origin around data management, and possible conflicting interests.	Across the research life cycle be able to consider the various perspectives when making policies, advising, communication etc.

Dagli MVS alle risorse per il training

I materiali didattici e i corsi sono basati sui **specifico MVS e** la metodologia FAIR by design. S4E forma i '**Master Trainers**' selezionati da ciascun Centro di Competenza Skills4EOSC. Questi a loro volta formerranno le comunità locali.



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Training of Trainers

Training of Trainers

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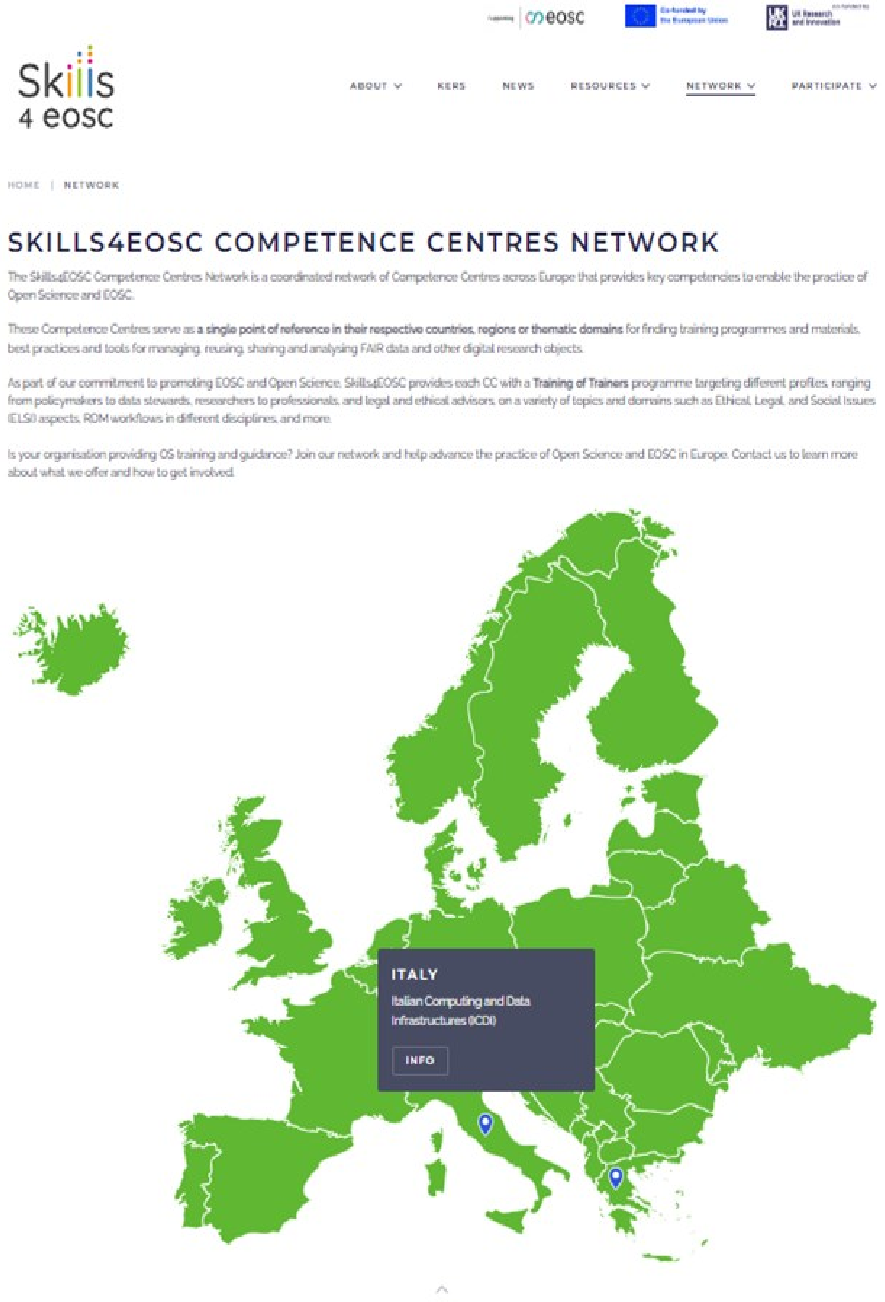
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Italian Computing and Data Infrastructures (ICDI)
INFO

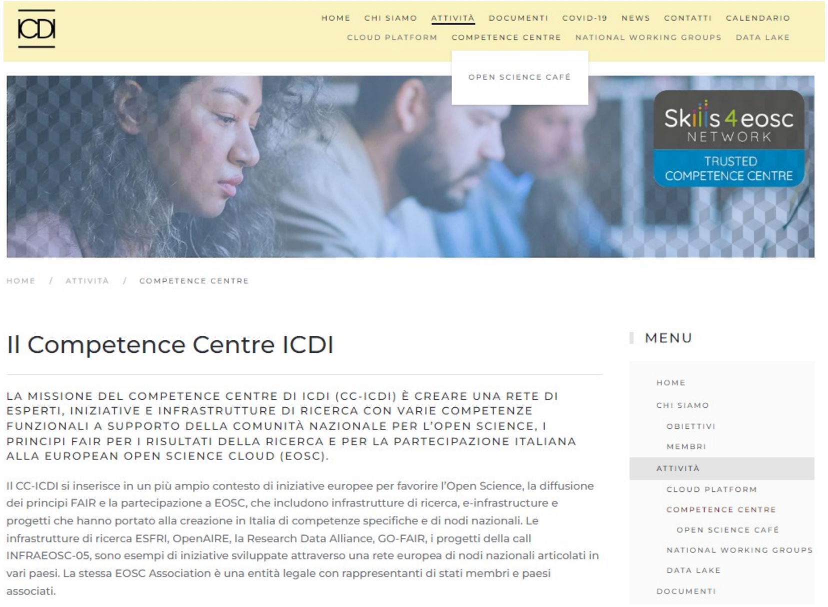
SKILLS4EOSC COMPETENCE CENTRES NETWORK

The Skills4EOSC Competence Centres Network is a coordinated network of Competence Centres across Europe that provides key competencies to enable the practice of Open Science and EOSC.

These Competence Centres serve as **a single point of reference in their respective countries, regions or thematic domains** for finding training programmes and materials, best practices and tools for managing, reusing, sharing and analysing FAIR data and other digital research objects.

As part of our commitment to promoting EOSC and Open Science, Skills4EOSC provides each CC with a **Training of Trainers** programme targeting different profiles, ranging from policymakers to data stewards, researchers to professionals, and legal and ethical advisors, on a variety of topics and domains such as Ethical, Legal, and Social Issues (ELSI) aspects, RDM workflows in different disciplines, and more.

Is your organisation providing OS training and guidance? Join our network and help advance the practice of Open Science and EOSC in Europe. Contact us to learn more about what we offer and how to get involved.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COMPETENCE CENTRE
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NATIONAL WORKING GROUPS
DATA LAKE
DOCUMENTI

Il Competence Centre ICDI

LA MISSIONE DEL COMPETENCE CENTRE DI ICDI (CC-ICDI) È CREARE UNA RETE DI ESPERTI, INIZIATIVE E INFRASTRUTTURE DI RICERCA CON VARIE COMPETENZE FUNZIONALI A SUPPORTO DELLA COMUNITÀ NAZIONALE PER L'OPEN SCIENCE, I PRINCIPI FAIR PER I RISULTATI DELLA RICERCA E PER LA PARTECIPAZIONE ITALIANA ALLA EUROPEAN OPEN SCIENCE CLOUD (EOSC).

Il CC-ICDI si inserisce in un più ampio contesto di iniziative europee per favorire l'Open Science, la diffusione dei principi FAIR e la partecipazione a EOSC, che includono infrastrutture di ricerca, e-infrastructure e progetti che hanno portato alla creazione in Italia di competenze specifiche e di nodi nazionali. Le infrastrutture di ricerca ESFRI, OpenAIRE, la Research Data Alliance, GO-FAIR, i progetti della call INFRAEOSC-05, sono esempi di iniziative sviluppate attraverso una rete europea di nodi nazionali articolati in vari paesi. La stessa EOSC Association è una entità legale con rappresentanti di stati membri e paesi associati.

Il Centro di Competenza ICDI nella rete di Skills4EOSC

Lancio pubblico del Skills4EOSC Competence Centre Network

25 Giugno, 2024
09:30-12:30
online streaming

Workshop in presenza del Skills4EOSC Competence Centre Network

21 October 2024
Berlino, in occasione dell’EOSC Simposio all’ H4
Hotel Alexanderplatz

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EOSC Symposium 2024

21-23 October / Berlin, Germany

Unconference Session

OSCARS, EOSC Focus, EOSC-EuroScienceGateway, and EOSC Winter School OA5 group

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Grazie!
Domande?

Per consultare I MVS: https://zenodo.org/records/8101903

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