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Research Infrastructure Professional

MINIMUM VIABLE SKILLS PROFILE

- Skills for the European
- Open Science
- Commons

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Research Infrastructure Professional

Minimum Viable Skills Profile

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Disclaimer

This booklet is part of the **Skills4EOSC collection of Minimum Viable Skills Profiles (MVS)**, which outline key Open Science competencies for different professional roles. It presents a focused extract from the **Annex to Deliverable D2.6**, designed to support usability and communication. To explore the full list of profiles, visit the Skills4EOSC website (https://www.skills4eosc.eu/resources/publications/mvs) or consult the full Annex (https://zenodo.org/records/15761916).

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LIST OF ACRONYMS AND ABBREVIATIONS

CARE	Collective Benefit, Authority to Control, Responsibility, and Ethics	**MVS**	Minimum Viable Skillset
CSCCE	Centre for Scientific Collaboration and Community Engagement	**ORCC**	Open Research Competencies Coalition
DMP	Data Management Plan	**OS**	Open Science
ELSI	Ethical, Legal and Social Issues	**R&I**	Research and Innovation
EOSC	European Open Science Cloud	**RDA**	Research Data Alliance
ETHRD IG	Education and Training on Handling of Research Data Interest Group (RDA)	**RDM**	Research Data Management
ICT	Information and Communication Technology	**RI**	Research Infrastructure
IT	Information Technology	**RPO**	Research Performing Organisation
JRC	Joint Research Centre	**RSE**	Research Software Engineer
FAIR	Findable, Accessible, Interoperable, and Reusable	**T4fs**	Terms for FAIR skills

See also EOSC Glossary: EOSC Glossary Interest Group. (2020). EOSC Glossary (December 2020). Zenodo. https://doi.org/10.5281/zenodo.4472643.

1. Introduction

Open Science mission for this role

Research Infrastructures (RIs) support "research communities to conduct research and foster innovation" and constitute a major component in building an OS environment in so far as they aim at both "skilling researchers" and providing a wide range of "supporting staff". RIs pool together tools, **Standard Operating Procedures** (SOP) and good practices to monitor and make accessible the entire research process.

The Minimum Viable Skillset (MVS) for Research Infrastructure (RI) Professionals therefore considers the specificities of the functions represented in such organizations with regard to Open Science (OS). The functions can be diverse and correspond to many function titles, however, as these functions are in great part defined by the organization's role, the content, context, and prospect of the missions are common to all RI professionals. **The MVS for RI Professionals proposes therefore a generic description of the role, which can be applied with adjustments to various functions.** More detailed descriptions of specific functions can be found in other MVS, e.g. in the MVS for data stewards operating in RIs.

The OS missions of RI Professionals therefore entail: spreading a Responsible Research and Innovation (RRI) and OS culture; managing the RI; providing, handling and maintaining services, resources, and tools; harmonizing and improving a common EU OS space; supporting and monitoring FAIRification; providing training, sharing best practices, and building a research community.

RESEARCH INFRASTRUCTURES PROFESSIONAL

Research Infrastructure (RI) Professionals contribute to open science development by being "operators who have experience and insights into scientific or technical issues whilst also being a professional manager". RI professionals also play a specific role in coordinating and engaging the scientific community.

ASSOCIATED FUNCTION TITLES:	Infrastructure manager, Project manager, Service manager, Chief Technology Officer, Data manager, Data steward, Researcher.

ESSENTIAL SKILLS FOR THIS ROLE

- Expertise and competence in Responsible Research & Innovation, OS and research governance, based on knowledge of diverse EU research policies and systems.
- Technical knowledge and skills needed for service development and provision, including data use agreements, information security and risk management.
- Staff management and project management.
- Ability to plan and implement FAIR and open science principles and reproducible research by empowering people to implement transparent, accountable and sustainable processes that meet scientific communities' identified needs.
- Expertise in developing guidelines in multidisciplinary areas.
- Fostering a common vision among various stakeholders.
- Ability to understand ethical and legal implications of research, including:
  - ➥ Intellectual property rights and non-personal data management.
  - ➥ Knowledge of Ethical principles, frameworks and codes of conduct.
  - ➥ Legal issues related to personal data governance.
  - ➥ Responsible use of data-driven technologies.
  - ➥ Ability to create, plan, coordinate public events and information pathways.

SOFT / TRANSVERSAL SKILLS
Considered equally important by Skills4EOSC, these are not specific to the occupation or sector.

- Networking in inclusive/pluralist/participatory environments.
- Community engagement expertise.
- Team building and teamwork.
- Leadership and coordination.
- Sharing knowledge and processes.
- Pedagogical skills.
- Analytical and research skills
- Flexibility and adaptability
- Proactiveness and responsiveness

BACKGROUND ASSUMPTIONS	MAIN ACTIVITIES

SERVICE

- Provide knowledge-related facilities and resources such as collections, archives or scientific data infrastructures; computing systems, communication networks, and any other infrastructure.
- Provide technological alignment, standards implementation.
- Provide guidance about FAIR principles and FAIR implementation.
- Ensure technical policy consistency throughout projects and activities of the RI.

SUPPORT

- Coordinate and engage the research community's relevant stakeholders with a special attention to young generation.
- Set up and offer foundational and specialized digital skills training for scientific community, data professionals, ELSI experts, Data Protection Officers.
- Facilitate in-person and online training and development of communities of practice.
- Support the application of RRI principles through the anticipation of impact and the consideration of inclusiveness and transparency dimensions of research.
- Instruct researchers on open licensing and open software according to the legislation on the reuse of public funded research data.

COORDINATION

- Foster new partnerships and innovative services through internal and external collaboration.
- Share knowledge to address socio-economic challenges and take care of users' needs.
- Position the RI in the local, national and international environment; identify regional research priorities and set consistent strategies.
- Identify and negotiate with potential funders; identify new funding tools e.g. private-public partnerships, special projects, commercial funding, fee for service, consultancy.

CONTRIBUTES TO WHICH OPEN SCIENCE OUTCOMES?

The European Commission describes the main objectives of RIs and these represent OS outcomes provided by the RI professionals:

- OS practices are generalised, and fragmentation of the research ecosystem is reduced.
- Duplication of effort is avoided.
- Research outputs sharing is facilitated and supported.
- Open, usable and accessible research data and publications are produced.
- Innovation and research projects are boosted.
- Cross-disciplinarity and cooperation with industry is facilitated.

Further information

OPEN SCIENCE SKILLS TERMS

OS skills terms match the essential skills in this MVS to competence definitions from relevant taxonomies. The selected terms offer further information to help identify the learning objectives for skills development. Sources: European Skills, Competences and Occupations ontology (ESCO), ResearchComp, terms4FAIRskills, Center Scientific Collaboration and Community Engagement.

ESCO Research Skills: Communicate with a non-scientific audience; Conduct research across disciplines; Develop professional network with researchers and scientists; Draft scientific or academic papers and technical documentation; Increase the impact of science on policy and society; Interact professionally in research and professional environments; Manage findable accessible interoperable and reusable data; Manage intellectual property rights; Manage open publications; Manage personal professional development; Manage research data; Negotiate compromises; Operate open source software; Perform project management; Promote open innovation in research; Promote the transfer of knowledge.

ESCO Transversal Skills: Adapt to change; Address an audience; Advise others; Assume responsibility; Build networks; Demonstrate curiosity; Demonstrate intercultural competence; Manage financial and material resources; Manage time; Moderate a discussion; Motivate others; Organise information, objects and resources; Plan; Promote ideas, products, services; Resolve conflicts; Respect the diversity of cultural values and norms; Show commitment; Show confidence; Show initiative; Think analytically; Think holistically; Think innovatively; Think quickly; Use communication and collaboration software; Work in teams.

ResearchComp: Apply research ethics and integrity principles; Ensure well-being at work; Interact professionally; Manage intellectual property rights; Mobilise resources.

Terms4FAIRskills: Data access risk assessment and mitigation; Data costs management; Data governance; Data policy; Knowledge to contextualise fair principles to domain; Meeting/conference organisation; Research integrity, attribution, impact awareness; Selecting appropriate data handling methods; Strategic/long-term planning; Training in open and fair methods.

CSCCE: Advancement, growth and sustainability; Advocacy; Business modeling; Change management; Collaboration; Community governance; Knowledge brokering; Landscape analysis; Meeting facilitation; Moderation, mediation and intervention; Networking; Operational planning and implementation; Outreach; Proposal development; Strategy development.

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