# Skils 4 eosc

Skills for the European

Open Science

Commons

### Data Stewardship and Training Materials

Fostering Open Science: Skills, Profiles, and Learning Paths for a Collaborative Future 23.05.2025

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Supporting

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Co-funded by the European Union



**UK Research** and Innovation

# Agenda

- From Europe ...
  - Gaps in Open Science 1.
  - 2. Minimum Viable Skillsets (MVS) for Open Science Actors
  - 3. Data Steward Training Curriculum
- ... to Germany
  - 4. Certificate of Advanced Studies Forschungsdatenmanagement (CAS FDM)
  - 5. Data Stewardship goes Germany 2025













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### Motivation

The Skills4EOSC project aims to close the 3 gaps identified in the Strategic Research and Innovation Agenda (SRIA) of the European Open Science Cloud (EOSC):

- 1. Lack of Open Science and data expertise
- 2. Lack of a clear definition of data professional profiles and corresponding career paths
- 3. Fragmentation in training resources







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### Minimum Viable Product (MVP)

- MVP concept familiar from agile software design
- Emphasis on delivering 'essentials' to get feedback



"...that version of a new product that allows a team to collect the maximum amount of validated learning about customers with the least effort."

[Eric Ries, 2009, Minimum Viable Product: a guide]



[Whyte 2025], slide design adapted, heading changed, source added







# Minimum Viable Product Skillset (MVS)

- MVP applied to generic job profile, as input to training needs
- Emphasis on documenting 'essentials' to get feedback



"...that version of a new product training course that allows a team to collect the maximum amount of validated learning about customers target group needs with the least effort."



[Whyte 2025], slide design adapted, heading changed





# MVS approach to profiling essential skills

- Profile EOSC actor roles, considering how they 'typically' are expected to contribute
- Based on review relevant sources e.g.
  competence frameworks, policy statements





- Use case inform training design
- Review the content based on feedback
- Adapt to organisational & domain contexts





[Whyte 2025], slide design adapted

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Research

## MVS Profiles

- Mission: what this role does in relation to Open Science, both broadly defined and within the EOSC context.
- Outcomes: further statements describing results that should be achieved through practising OS.
- Activities: actions performed to accomplish the outcomes.
- Essential skills and competences: those required to perform the actions.





[D2.1 Catalogue of Open Science Career Profiles]







# Data Steward MVS

- 2 roles: Coordinator and Embedded (2 ends of a spectrum)
  - Essential skills and competencies and soft/transversal skills are the same
  - Main activities are partly different



ata Steward Data Steward MVS Digital Collections C thics Advisor owledge Broke egal Expert





### Booklet (PDF) on Zenodo



### Webpage on <u>GitHub</u>

capabilities and external services provided to the Research Performing Organisation, e.g. by Research Infrastructures, Service Providers (e.g scholarly communications), and Competence







### Skills4EOSC Training Curriculum for Data Stewards



### **Minimum Viable Skills**

Skills and competencies for Data Stewards



### **Target Audience**

### Entry level data

stewards (broad enough curriculum to covering a broad definition of data stewardship but not too advanced or specialised).



### Landscaping

Reviewed existing material and conducted gap analysis of existing curriculum e.g. RDNL, MANTRA,, CODATA-RDA etc.

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### **Consultations**



Continuous consultations with Data Stewards and experts from across Europe

### **Curriculum Draft**

Training curriculum with 8 sections is complete (first draft)

[Leersum 2025], updated heading









### Sections of Training Curriculum

	1	Training Skills	Train data stewards to develop, deliver and facil current gaps in researchers and or support staff Science, FAIR and other data management relate
	2	Research Data Management	Introduces individuals with the essential skills a for proficient data management throughout the r
	3	Research Software Management	Basics about research software and how to suppresearch software management.
	4	Policy and Governance	Equip learners with the knowledge and skills to t implement different policies, regulations and req and software management
	5	Usage Rights and Licenses	Learn about possible usage rights and licensing mitigate these within the research project
	6	Ethics	Equip the data steward with skills to identify ethin research projects and mitigate the risks within the practice.
	7	Personal Data and GDPR	Make the data steward capable of assisting rese compliant in relation to handling personal data
	8	Transversal/Soft skills	Develop management skills and soft skills that w mediation and support work.



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and knowledge required research lifecycle.

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[Leersum 2025], updated heading and data









# Example from Training Curriculum

### DataSteward Training Curriculum latest -Skiis4eosc

Curriculum

**DataSteward Training** Curriculum

Guide for Instructors: Skills4EOSC Data Steward Curriculum

1 Research Data Management

Introduction

Module 1: FAIR Data

Module 2: Data Documentation and Storage

Module 3: Data Organisation and File Formats

Module 4: Data Curation

Module 5: Data Preservation and Archiving

Module 6: Data Sharing and Publication

Module 7: Metadata

Module 8: Ontologies

Module 9: Data Management Plans

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2 Research Software Management

3 Policy and Governance

4 Usage Rights and Licenses >

5 Ethics

### Skills4EOSC Module 3: Data Organisation and File Formats

File Format

RDM

DataStewardship

A This page is currently under construction

Data Organisation

The training curriculum is currently undergoing final revisions and quality checks. All materials will be released shortly. Until the official release, please refrain from using, distributing, or implementing any part of these resources.

### Learning Objectives

- Learning Objective 1 (LO1): Describe the basic principles of file management.
- Learning Objective 2 (LO2): Set up a file structure for data files.
- Learning Objective 3 (LO3): Identify and distinguish between open and closed file formats.
- Learning Objective 4 (LO4): Explain the benefits and disadvantages of open and closed file formats.
- Learning Objective 5 (LO5): Explain the concept of obsolescence and identify factors that can contribute to obsolescence and how to mitigate them.

### Total Module Duration

The current draft version of the curriculum is already available on GitHub.

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### **Q** Search

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Learning Objectives

Learning Objective 1

**Total Module Duration** 

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Research Data Manag

- Learning Activities Materials to Prepare Instructor Notes Resources Learning Objective 2 Learning Activities Materials to Prepare Instructor Notes Resources Learning Objective 3 Learning Activities Materials to Prepare Instructor Notes Resources Learning Objective 4 Learning Activities Materials to Prepare Instructor Notes Resources Learning Objective 5









- RDM course developed by the federal state initiative bwFDM 10-month duration, 250 total hours of workload, approx. 8 hours per week, including 3 hours of interactive online sessions
- Conducted in German and primarily online
- Target groups: data stewards and RDM consultants and trainers
- No prior knowledge of RDM required









- Focus on RDM key areas and soft skills for RDM consulting and training
- Skills4EOSC training curriculum for data stewards as input
  - Composition of sections and modules
  - Definition of contents and learning objectives
  - Suggestion of learning activities and materials to external instructors







1	Basic Concepts	Basic Notions, Introduction to RDM and Course Overview	1	Training Skills
			2	Research Data Management
2	Data Organization	Data Structures, Knowledge Management: Ontologies and Semantic Web, Publishing and Reusing Research Data	З	Research Software Management
3	Law and Ethics	Legal Foundations, Data Law, Good Scientific Practice, Data Ethics, Sensitive Data and Industry Cooperations	4	Policy and Governance
4	Technical Infrastructure	Storage Systems and Backup Technologies, Long-Term Archiving, Repositories, Electronic Laboratory Notebooks, High Performance Computing	5	Usage Rights and Licenses
	Consulting, Training,	Communication Skills, Instructional Strategies, Data Management	6	Ethics
$\bigcirc$	Project Management	and Change Management	7	Personal Data and GDPR
6	Data Manipulation and Version Control	Data Manipulation with Python, Version Control and Collaborative Work with GitLab	8	Transversal/Soft skills







Certification options and requirements:

- Certificate of Advanced Studies (CAS) / Final project (50 hours) workload)
- Microcredentials for selected sections / Assessments for each module

Course starts in October 2025. Registration open until end of June 2025.

kontakt@bwfdm.de









# Data Stewardship goes Germany (DSqG)

- Data stewards community evolving in Germany since 2022
- Workshop series organized by the RDM group of the TU9 alliance
- Discussion and exchange on various topics related to data stewardship
  - RDM tools and practices
  - Training programs
  - Data steward roles
  - Community building









# Data Stewardship goes Germany (DSqG)

DSgG working groups:

- Vision and Strategy: Defining strategic pillars for a comprehensive, sustainable and collaborative community
- Challenges: Exploring of key issues and possible solutions
- Yellow Pages and Channels: Creating a comprehensive platform for the community

### DSgG mailing list:

https://www.listserv.dfn.de/sympa/info/datastewardsgermany





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### Data Stewardship goes Germany

Date: 30 September – 1 October 2025

- Location: Karlsruhe Institute of Technology (KIT), South Campus
- Organization: TU9 RDM, RDM@KIT, FIZ Karlsruhe
- Target audience: Data stewards, data managers, data curators, and other experts interested in RDM and RSE
- Session types: Plenary talks, poster session, small-group interactive discussion sessions













### Data Stewardship goes Germany

Theme: Data Stewardship in Day-to-Day Research Activities – Use Cases and Best Practices

- Achieving data interoperability
- Use of ELN, repositories and other tools in the area of RDM and RSE
- Collaboration with the NFDI to create synergies and provide tools
- Ensuring the reproducibility of research data and results ●

Abstract submission deadline: 23 May 2025













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Questions, comments?





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# Authorship

- Some slides have been reused from existing presentations. The slides are marked on the bottom right with a short citation and quick note, if changes to design or content have been made. These slides are exempt from the CC BY license.
  - Nida van Leersum, Saba Sharma. (2025, February). European Perspectives on Training Data Stewards.
  - Angus Whyte, et. al. (2023, June 30). D2.1 Catalogue of Open Science Career Profiles - Minimum Viable Skillsets (v1.2). Zenodo. https://doi.org/10.5281/zenodo.8101903
  - Angus Whyte, Dominique Green. (2025, April 29). Minimum Viable Skillsets - a space to structure your training needs.





