

An orange circle in the top left corner.

Minimum Viable Skillsets – a space to structure your training needs

Kevin Ashley, DCC Director

On behalf of Angus Whyte, Dominique Green

Digital Curation Centre

+ T2.1 Partners UKIM, CSC, OPERAS, CNRS, GRNET, TU-Delft

● Minimum Viable Skillsets – what I will cover

1. Aims of the approach and its main use case
2. Key points of the concept
3. Which roles are covered
4. A closer look at one or two profiles
5. How the structure and content have evolved – including review

● MVS approach to profiling essential skills

- Profile EOSC actor roles, considering how they 'typically' are expected to contribute
- Based on review of relevant sources e.g. competence frameworks, policy statements
- Use case - inform training design
- Review the content based on feedback
- Adapt to organisational & domain contexts



7 Key Points on MVS

- **Scoped by Horizon Europe view of Open Science**
- **Diverse roles that contribute to Open Science mission**
- **Synthesis based on competences in published sources**
- **Guidance adaptable to domain or organisational context**
- **High-level framing of learning objectives & outcomes**
- **Part of FAIR-by-design methodology for learning material**
- **Materials *about* FAIR and Open, and FAIR and Open themselves**

● MVS – content and purpose

What is in the MVS?

- The MVS lists skills and competencies needed by someone in a particular open science role
- Also includes assumptions about the organisational context and mission
- Uses skills terms from existing taxonomies (include ESCO)

What is it for?

- Producing training materials
- Finding appropriate training
- Career development
- Writing job descriptions
- Building a team
-

● MVPProduct to Skillset

- 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.”

MVProduct to Skillset

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



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

Always a 'draft for discussion'

- Data Management Plan analogy
- Who needs what skills?
- What do they need to learn through training?
- What have we learned from training?



Digital Collections Curator

A Digital Collections Curator supports digitisation of collections and works with others to ensure the long-term preservation and reusability of digital collections. They advise and train researchers and other GLAM staff on policy, guidelines, data management plans, institutional infrastructure and data management tools related to digital collections. They provide support in planning and implementing the FAIR and decolonisation principles in data sharing practices.

Associated job titles: *Data Steward, Data Librarian, Research Data Management Specialist, Research Data Manager, Research Data Management Consultant, Reproducibility Librarian, Data Manager, Data Curator.*

Essential skills and competences

Each requires understanding of the context, the processes required to perform the main activities involved, and transversal competences ('soft skills') to engage with the various stakeholders.

- Knowledge of principles relating to FAIR data, Open Science, and Open Collections, the policy and legal contexts to these principles, and strategies for implementing them in diverse GLAM institutions and domains. This includes understanding of training requirements to build the essential skills for Open Collections practices, policies and procedures, including knowledge/awareness of relevant software development.
- Knowledge and understanding of practical steps to manage Collections as Data, to apply Open Science principles to data derived from digital collections. This includes abilities to establish and maintain good data management practices relevant to open digital collections, and to ensure data quality and long-term preservation by performing data transformation and migration, establishing processes for information security, risk management, version control, and documentation. It also includes the ability to promote the value of good data management among data producers and users, researchers, support services colleagues, and relevant committees.
- Ability to apply FAIR principles to collections, and to other digital objects they interoperate with, including software. This includes the capability to apply standards, ontologies, infrastructure and tools for (meta)data publishing and sharing, and for managing the associated workflows. It also includes the capability to provide open access to collections.
- Ability to establish governance processes to handle ethical and legal/regulatory aspects of managing digital open collections in the GLAM sector.

requires understanding of processes to handle intellectual property rights, with personal data, and ensure the responsible reuse of digital objects, going through the decolonisation of collections. It also requires familiarity with sustainable business modelling approaches relevant to the sector, defining appropriate levels of resource pooling and service coordination.

Transversal skills

- Ability to interact positively and productively with others, e.g. when addressing conflicts, moderating discussions, or collaborating in teams and networks. Includes abilities to effect agreements, reconcile, resolve problems, and develop improvement strategies with a patient, empathetic approach.
- Ability to exercise critical judgement, develop own assumptions, and establish a way of working based on critical thinking.
- Ability to develop innovative, novel solutions, with curiosity, openness, and a willingness to learn. This includes abilities to obtain and synthesize information, identify and explore trends, opportunities, threats (also based on intuition/creativity); and to identify alternative paths to turn ideas into action, selecting the most appropriate approach.
- Ability to plan activities and tasks, establish schedules and coordinate the activities of others and individuals to complete objectives on time and within budget.

Based on the above essential skills to competence definitions from relevant taxonomies, information and to aid discovery of this MVS. Sources: European Skills, Competences and Qualifications Framework (ESCF), ResearchComp, Terms4FAIRskills

science skills terms

Data and scientific integrity	Promote the participation of citizens in scientific and research activities
Primary expertise	Search in academic or vocational contexts
Digital literacy in research and innovation	Com skills
Digital skills	Life skills
Digital property rights	Self-management skills
Data	Social and communication skills
Open software	Thinking skills

Assumptions

Context: Digital Collection Curators serve research teams and institutions that are directly involved in the publication of collection objects and the dissemination of research results, such as:-

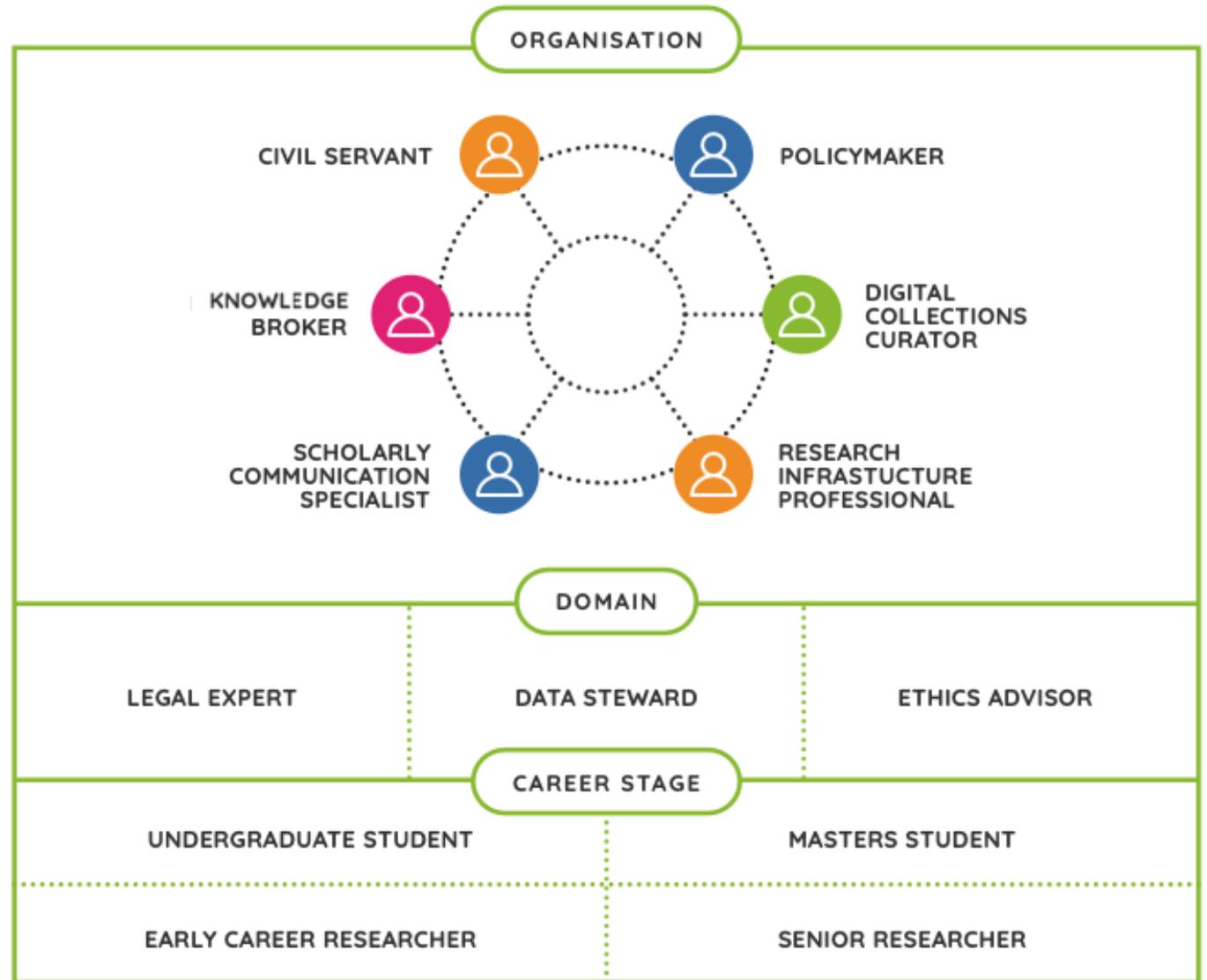
- Universities that conduct research
- Libraries and archives

● How the Profiles have Evolved

- Initial profiles developed in WP2 of Skills4EOSC – building on work going back to EOSCPilot
 - Examples of format and structure
- New profiles co-created with other parts of project - **Digital Collections Curator** and **Scholarly Communications Professional**
- Structure and content evolved through feedback:
 - Existing MVS format re-structured to put essential skills first
 - Edited to respond to feedback from use in training tasks, as well as edits for clarity and length
- Open Science Skills Terms include terms from ESCO ontology, aiming to match essential skills, and prompt trainers' thinking about learning outcomes

Open Science Roles Targeted

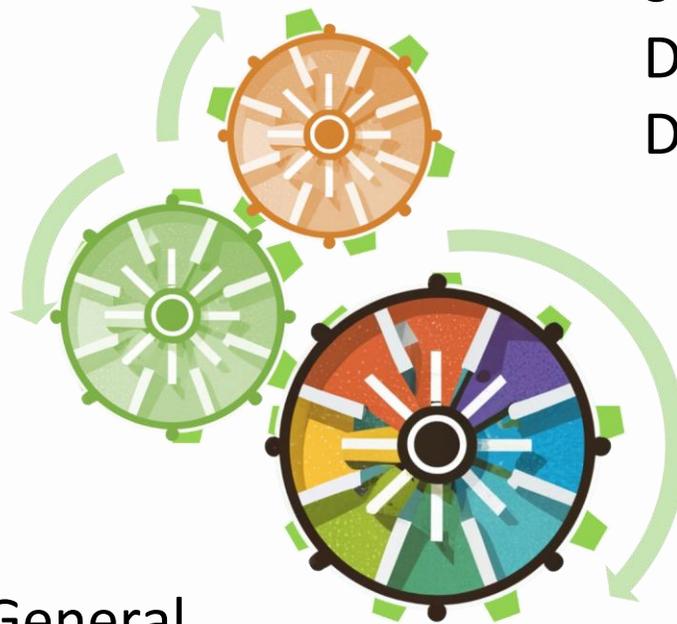
- Span different contexts
- Organisational
- Domain
- Career stage
- Others also relevant!



MVS Describe Diverse Roles

Available *

Data Steward
Legal Expert
Ethics Advisor
Knowledge Broker
Masters Student
Undergrad Student
Senior Researcher
Early Career Researcher
Policymaker – Research/ General
Research Infrastructure Professional



Progressing

Scholarly Communications Specialist
Data Librarian / Professional
Digital Collections Curator

Considering

Data Analyst
Data Scientist
Data Engineer
Research Manager
Research Software Engineer
Digital Preservation Specialist

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

● A closer look – the data steward MVS

Coordinator Data Steward

Coordinator Data Stewards act as a ‘centralised knowledge and communication hub’ for researchers. They advise and train on policy, guidelines, data management plans, institutional infrastructure and tools to implement FAIR and CARE principles across the organisation.

• **Associated function titles:** Data Steward, Data Librarian, Research Data Management Specialist, Research Data Manager, Research Data Management Consultant, Reproducibility Librarian.

Embedded Data Steward

Embedded Data Stewards serve research teams, faculties, departments, sections of organisations directly involved in producing research outputs, supporting them to plan and implement FAIR and CARE principles, meeting needs of researchers as they arise, and working with others to ensure outputs are preserved and reusable in the long term.

• **Associated function titles:** Data Steward, Data Manager, Data Curator, Research Data Manager

Example 1) Data Steward – mission & outcomes

Coordinator 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.

Embedded Data Steward

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 – activities

Main activities - Coordinator

- 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.

Main activities - Embedded

- 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 – essential skills

~ 12 High-level descriptive statements

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 – learning objectives & outcomes

- Based on high-level MVS
- More granular structure for materials e.g. on personal data and 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 <u>specific platform</u> matching compliance needs and the research context.	Based on the researcher’s workflow, <u>invite</u> 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.

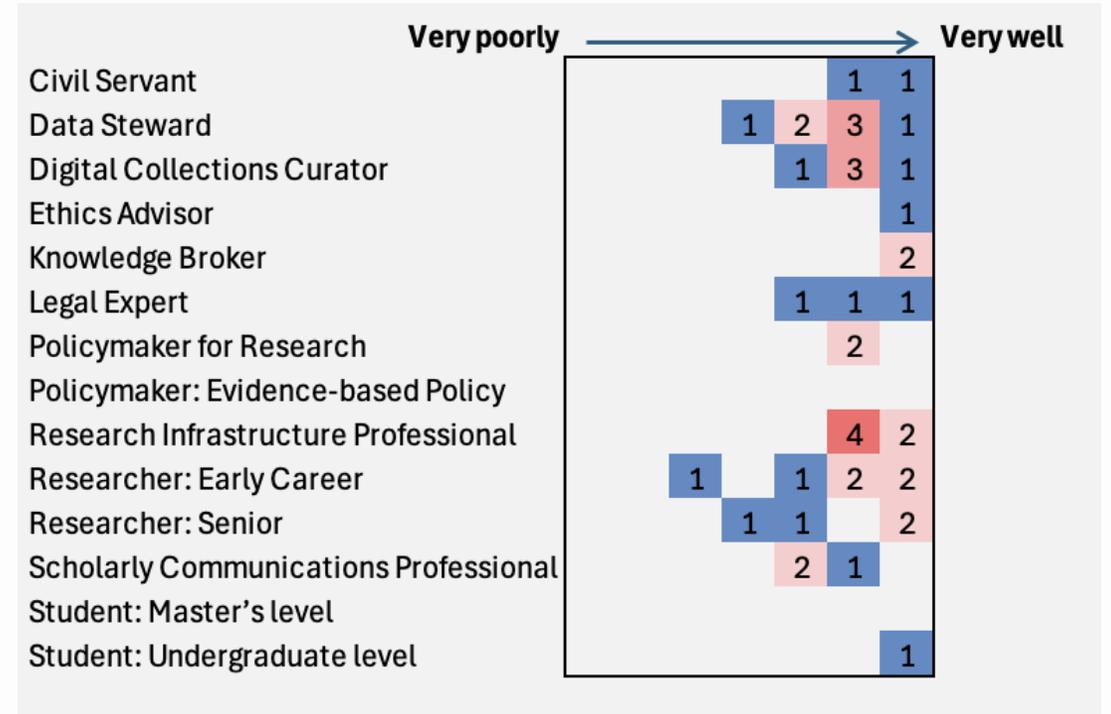
● Feedback from MVS Review survey

- We have used a survey to review the MVS – initially internally, then more openly
 - Still time to contribute! - <https://ec.europa.eu/eusurvey/runner/5e7bd336-ba07-217f-59cd-15751649eb03>
- Full analysis will be complete next month
- Responses to key questions-
 - **How well do the skills listed in the MVS match those you believe the role requires to practice Open Science?**
 - **How useful do you expect the MVS profile to be for identifying the training needs of your own organisation?**



How well do the skills listed in the MVS match skills you believe the role requires?

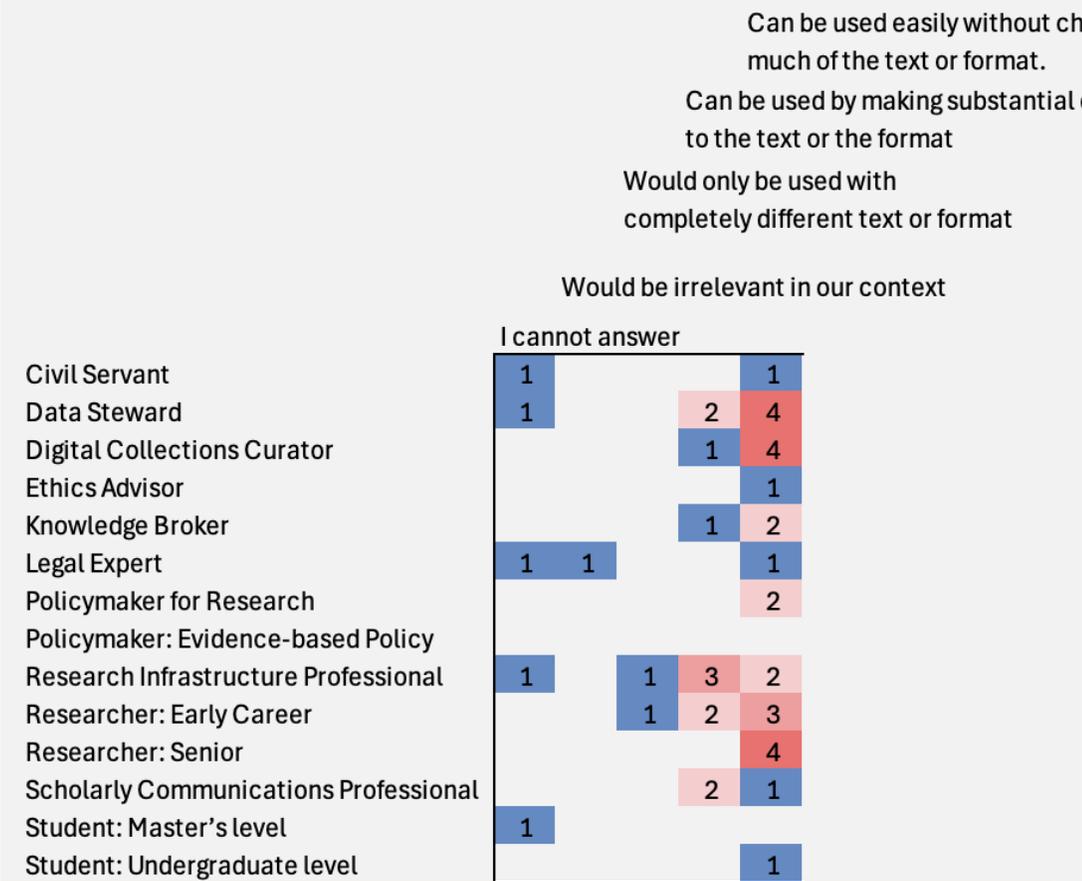
- Feedback most positive for Data Steward, Digital Collections Curator, RI Professional
- Least positive for Civil Servant, Legal Expert, Scholarly Communication Professional
- Non-existent for Policymakers Masters student





How useful would you expect the MVS profile to be for identifying the training needs of your own organisation??

- Feedback positive for Data Steward, Digital Collections Curator, RI Professional
- Plus both Researcher profiles
- Some profiles have little or no responses
- Keeping survey open for now



Survey Link:
<https://ec.europa.eu/eusurvey/runner/5e7bd336-ba07-217f-59cd-15751649eb03>

Skills4EOSC has received funding from the European Union's Horizon Europe Research and Innovation Programme under Grant Agreement No. 101058527 and from UK Research and Innovation (UKRI) under the UK Government's Horizon Europe funding guarantee, Grant No. 10040140

Questions, comments?

Thank you!



This presentation is released under a CC-BY 4.0 license

To cite this presentation, please copy and paste:

<[Surname](#), Name. (Date). Pres title, occasion of the presentation.

Link to presentation in Skills4EOSC community on Zenodo>

Supporting

The eosc logo, consisting of a stylized 'e' followed by the letters 'eosc'.

Co-funded by the European Union



UK Research and Innovation 20