

Towards Open Research Data: Improving Career Paths for Research Data Management and Research Software Engineering in the ETH Domain

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Final report of the ETH Domain ORD Programme Measure 5 project: Career Paths for Open Research Data Professionals (Version 1.0)

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This report presents the final outcomes of the 'Career Paths for Open Research Data Professionals' project, funded under Measure 5 of the ETH Domain Open Research Data (ORD) Programme (2020-2026).

This report was produced with AI assistance for data analysis and editing.

How to Read this Report (Executive Summary)

The central finding of this report is that a fundamental shift is needed in how Research Data Management (RDM) and Research Software Engineering (RSE) specialists are recognised and employed across the ETH Domain. Rather than being primarily viewed as technical support staff, as has often been the case to date, these specialists should increasingly be recognized and employed as research partners in research projects, groups, and initiatives.

The project was led by the Human Resources departments of the Domain accompanied by a Sounding Group of RDM/RSE specialists from the six ETH institutions. HR now invites the ORD Steering Committee to endorse [the proposed Action Plan](#) outlined at the end of the report as the basis for requesting coordinated implementation across the six ETH Domain institutions. The report further recommends that the ETH Board provide the strategic direction and resources necessary to enable timely implementation of the proposed measures and support the long-term professionalisation of RDM and RSE specialists in the ETH Domain.

Readers interested in the background to the project, how this report came about, and why it was funded by the Open Research Data (ORD) Programme of the ETH Domain should refer to [Chapter 1](#). This chapter places the project in the broader context of the digitalisation of research and the ETH Domain institutions' internationally recognised excellence in data-driven research, supported by advanced infrastructures and strong capabilities across a wide range of disciplines. It also explains how the increasing volume, complexity, and strategic importance of research data and software present significant challenges. Ensuring that research data and code are managed effectively, remain usable over time, and comply with evolving requirements related to Open Science, FAIR (Findable, Accessible, Interoperable, Reusable) principles, ethics, and transparency has become critical to maintaining scientific quality and competitiveness. The promotion of effective RDM and RSE is therefore a key strategic priority of the ETH Domain, reflected in the [ORD Position](#) adopted by the ETH Board in 2020 and the subsequent [ETH Domain ORD Programme](#) supporting its implementation. Within this framework, this report contributes to [Measure 5](#) of the ORD Programme, which focuses on developing sustainable career opportunities for RDM/RSE professionals.

To provide an evidence-based understanding of the current situation, the project analyses how RDM and RSE roles are defined and implemented across the six institutions of the ETH Domain. It examines employment conditions, career trajectories, and institutional drivers shaping recruitment and workforce development. Readers seeking a more detailed understanding of the methodology used for the analysis—including the survey data, institutional documentation, relevant publications, and interviews with RSE and RDM leaders on which it draws—should refer to the methodology section in [Chapter 2](#). Readers interested in how the project proceeded and the evidence on which the analysis should read [Chapter 3](#) to get an insight in the survey results and to [Chapter 4](#) to read about what

employers and line managers see as the key issues when employing researchers and/or RDM/RSE specialists.

The findings confirm a widely recognised but insufficiently documented situation: RDM/RSE responsibilities are often embedded in heterogeneous roles, lack formal structures, and depend on short-term or project-based arrangements, raising concerns about sustainability and efficiency. This is particularly evident in [Figure 2](#) which shows that RDM and RSE work is carried out across a wide range of roles, with strong representation from doctoral students, technical staff, senior scientists, and postdoctoral researchers.

Another key finding of the report is presented in Chapter 5 . Based on various local, national, and international initiatives and literature on ORD and RDM/RSE professionalisation, a framework for a professionalised RDM/RSE ecosystem is developed. This chapter is a key chapter because it serves as a reference for the development of the recommendations that follow.

Readers interested in understanding how the recommendations were developed should refer to [Chapter 6](#). Building on the evidence gathered, the report develops recommendations at both strategic and operational levels to support policy development, strengthen employment frameworks, and ensure the long-term sustainability of RDM and RSE expertise within the ETH Domain.

The key challenges identified are:

- Unclear job descriptions and roles
- Hybrid nature of roles not reflected in employment frameworks
- Lack of structured training
- Absence of mentorship and career development pathways
- Lack of visibility and recognition
- Short-term contracts and funding instability
- Fragmented support structures
- No clear strategy, ownership, or governance at Domain and institutional level
- Little investment in long-term infrastructure and maintenance

Based on these findings, [Chapter 6](#) develops the following recommendations:

- Clarify and standardise RDM and RSE roles.
- Establish structured training programmes.
- Strengthen mentorship and career development.

- Improve visibility and recognition of RDM and RSE work.
- Develop sustainable employment and funding models.
- Improve coordination of RDM and RSE services.
- Strengthen governance and strategic coordination across the ETH Domain.
- Invest in sustainable RDM and RSE infrastructure and long-term services.

Chapter 6 concludes with an overview [table](#) that summaries the perspectives of the Heads of HR in the ETH Domain and identifies the areas of responsibility addressed by their recommendations. Importantly, responsibility for their implementation does not lie with HR alone. At a strategic level, the ETH Board, ETH Domain management, the management of the six ETH Domain institutions, the RDM/RSE networks established as part of the ORD Programme, and support functions in the libraries, Academic IT Services, and technology and infrastructure platforms all have a role to play.

Readers who are primarily interested in what should happen next, rather than in how the recommendations were developed, can go directly to [Chapter 7](#) where the Action Plan for the implementation of the recommendations is developed. The proposal is to implement the recommendations across three areas: Governance; Career Framework; and Training, Mentoring & Services. It sets out a two-year timeframe for implementation and specifies the deliverables and stakeholders in each individual work package. The report goes a step further by presenting career profiles from the ORD Programme-funded [Data Stewardship](#) and [RSE](#) projects, which can provide guidance for further discussions during the implementation phase.

Finally, readers interested in gaining a deeper understanding of the terminology used in this report and of recruitment practices within the ETH Domain and internationally, can refer to the Info Boxes highlighted in blue throughout the report. In particular, [Info Box 3](#) provides information on the recruitment and hiring process; [Info Box 4](#) explains the job function grid that applies across the ETH Domain; and [Info Box 6](#) explains the use of swissICT job profiles to align the recruitment of IT and digital specialists with labour-market conditions.

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1. Introduction

1.1 RDM and RSE: Importance and Current Situation

RDM and RSE have become central components of modern research. As scientific work becomes increasingly data- and software-intensive, effective management of research data and code is essential for ensuring the robustness, reproducibility, and long-term value of research outputs.

Info Box 1: Key Concepts

Research Data Management (RDM) and Research Software Engineering (RSE) represent specialised expertise that supports modern research by ensuring that digital research assets are well managed, documented, sustainable and reusable. Open Research Data (ORD) serves as a guiding requirement for these activities, promoting openness, transparency, adherence to the FAIR principles (Findable, Accessible, Interoperable, and Reusable), and the responsible long-term stewardship of research outputs to support scientific integrity and excellence. Throughout this report, the term research data is used as a collective term encompassing all digital research objects, including research data, software and code, metadata, documentation, digital images, laboratory notes and other digital research assets, unless otherwise specified.

The ETH Domain is particularly affected by this transformation. Its research is highly data-driven, often relying on complex experimental and computational methods that generate large volumes of heterogeneous data. At the same time, research is increasingly collaborative, interdisciplinary, and international, further increasing the demands on data management, sharing, and standardisation (see Info Boxes 1 and 2).

While these developments create significant opportunities for scientific advancement, they also introduce substantial challenges. Research data and software are not Open and FAIR (Findable, Accessible, Interoperable, Reusable) by default and require considerable effort and expertise to make them so. Researchers must navigate fragmented data environments, diverse tools and infrastructures, and complex institutional, legal, and ethical requirements. At the same time, the growing reliance on data-intensive methods such as machine learning further increases the importance of high-quality, well-managed data as a foundation for scientific excellence.

In response, the ETH Domain has positioned ORD driven RDM and RSE as strategic priorities by its adoption of its [ORD Position](#) in 2020, and the subsequent establishment of an ORD Programme (which will close at the end of 2026). The program comprises [five measures](#) aimed at advancing the implementation of Open Science and FAIR data practices across institutions.

A key dimension of this transformation is the professionalisation of RDM and RSE specialists, with a particular focus how ORD policies and human resources practices affect employment conditions. Measure 5 of the ORD Programme addresses the need to strengthen the ETH Domain's capacity to attract, develop, and retain qualified RDM and RSE specialists. The importance of Measure 5 is rooted in the growing recognition that effective RDM and RSE require specialised expertise. They cannot be sustainably delivered solely by technical staff working across different locations with ad hoc job profiles, nor by researchers undertaking RDM and/or RSE as a secondary responsibility alongside their primary scientific work, without this role being formally defined and appropriately recognised in career development and progression.

At present, however, the organisation of RDM and RSE work within the ETH Domain remains fragmented. While central services provide important support and dedicated roles are emerging, a substantial share of RDM and RSE tasks are carried out informally by researchers, doctoral students, and technical staff. Roles are often not clearly defined, career pathways are limited, and funding is frequently project-based, raising challenges for recruitment, professional development, and long-term sustainability.

These challenges are widely recognised across the ETH Domain. However, a systematic and evidence-based understanding of the landscape has been lacking.

Info Box 2: Terminology used in this report

Term	Meaning
Research Data Management (RDM)	Specialised work related to the organisation, documentation, storage, sharing, and preservation of research data or digital assets.
Research Software Engineering (RSE)	Expertise and work related to developing, maintaining, and supporting research software and computational tools that enable high-quality and reproducible research.
Open Research Data (ORD)	A requirement guiding RDM and RSE in making research data openly available for reuse whenever possible, following legal, ethical, and disciplinary requirements, in accordance with the guiding principle: "as open as possible, as restricted as necessary".
Data Steward (DS)	A professional who supports researchers in managing, documenting, sharing, and preserving digital research assets in accordance with FAIR and institutional requirements.
Open Science	An approach to research that promotes openness, transparency, collaboration, and the sharing of research outputs, including data, software, publications, and methods.
FAIR Principles	Principles that ensure research data are Findable, Accessible, Interoperable, and Reusable .

1.2 Aims of the Project

This project, led by the Human Resources department of the ETH Board in collaboration with the HR leaders of ETH Zurich, EPFL and the four Research Institutes (PSI, Empa, WSL and Eawag), addresses this gap. It provides a comprehensive analysis of RDM and RSE roles across the ETH Domain, examining role definitions, employment conditions, and career trajectories, and exploring how institutional needs influence hiring practices.

The **project** aims to

- identify and describe the roles of RDM and RSE research support in the institutions of the ETH Domain and present sample job descriptions
- estimate the FTE distribution of RDM and RSE work across institutions
- analyse RDM and RSE specialist's employment conditions
- Examine individual careers with special attention to the acquisition of RDM and RSE skills through education and through formal and informal training
- analyse needs for RDM and RSE support
- identify the drivers for recruitment, continuity and changes of employment.

The recommendations will be

- based on the project's analysis of a community survey and interviews.
- benchmarked against RDM and RSE profiles and terms of employment developed by other research institutions or national programs.
- validated by an expert sounding group, composed of RDM and RSE specialists, which advised throughout the projects (initial planning, progress monitoring, and validation of the final report).

To achieve these goals, the project collected original survey data, institutional documentation, and interviews with principal investigators and project leaders. Building on prior work conducted in the field, including the [Position Paper on the Professionalisation of Research Data Management \(RDM\) Specialists at ETH Zurich \(ETH Zurich, 2026\)](#)¹, RSE Survey², and the [SwissDS-ENV report](#)³, it aims to provide a clear assessment of the current situation and to identify opportunities for improvement.

To illustrate the roles that RDM and RSE specialists may play across the ETH Domain institutions, we have also incorporated the role definitions and competency frameworks

¹ Barillari, C., Dederke, J., Griffin, J., et al. (2026). *Position Paper on the Professionalisation of Research Data Management (RDM) Specialists at ETH Zurich*. ETH Zurich. DOI: 10.3929/ethz-c-000795827.

² Add reference

³ Claivaz, J.-B. et al. (2023) *Definition and Profile of Data Professions (v.2)*. Lausanne: Swiss Data Stewardship Environment (SwissDS-ENV), University of Lausanne. Available at: [SwissDS-ENV Action 1 Report](#) (Accessed: 22 June 2026).

developed by the RSE and Data Steward Network (DSN) communities (both funded through the ORD Programme) into our analysis. These have been integrated into the project's framework, and the leads of both initiatives have contributed to the validation of the report.

Finally, it is proposed that the professionalisation of RDM and RSE specialists within the ETH Domain be set out in concrete terms in the form of recommendations and an action plan for both strategic leadership and operational units, with the goal of strengthening the institutional framework for RDM/RSE, improving recruitment and career development, and ensuring that the ETH Domain can continue to lead in excellent data-driven, transparent, and high-quality research.

2. Methods

This report is based on complementary data and information collection approaches designed to provide both a broad overview and in-depth insights into the RDM and RSE landscape within the ETH Domain:

- a) an online survey targeting individuals engaged in RDM or RSE related activities
- b) semi-structured interviews with senior stakeholders from the six Domain institutions, involved in recruiting and managing RDM or RSE specialists

The survey provides a descriptive overview of current practices, roles, and conditions, while the interviews offer qualitative insights into institutional perspectives, challenges, and future needs.

This report additionally draws on the findings of several key initiatives within the ORD Programme of the ETH Domain, individual institutions, and international actors to inform its recommendations.

2.1 The Online Survey

The survey structure and questionnaire were developed by the project team in close collaboration with HR leadership and the scientific advisory group (see Appendix A). The survey adopted a broad definition of RDM and RSE work, allowing respondents to self-identify as contributing to such activities, whether as a primary or secondary component of their role.

The survey was implemented using [SelectSurvey](#) and distributed across the ETH Domain to capture the diversity of the RDM and RSE ecosystem. One challenge was that we do not have a clear understanding of who is doing this work, or a single channel to reach them. As such, the survey addressed everyone in the ETH Domain who self identifies as having roles and activities related to research data management (i.e., Researchers, Research Software Engineers, Data Stewards/Analysts/Curators, Technical/Admin staff, Project Data Managers etc). We aimed for a broad dissemination, facilitated through established professional networks and institutional channels, including the Data

Stewardship Network (DSN), Research Software Engineer (RSE) networks, FAIR Board members, the AG Open Science network, and open science representatives of ETH Domain institutions. The survey was also promoted via ETH internal news and distributed through mailing lists addressed to all researchers at ETH Zurich and EPFL. Reminder messages were sent to encourage participation.

Responses were collected between 29 October and 8 December 2025, resulting in 375 complete responses.

Survey data were analysed using AI powered descriptive statistics, including summarizing responses, quantifying questionnaire results, and identifying patterns. All outputs were reviewed and verified by the authors. While the survey provides valuable insights into the current landscape, participation was voluntary and may overrepresent individuals interested in RDM or engaged in RDM AND RSE communities.

2.2 The Semi Structured Interviews

Building on the project objectives and initial survey findings, a semi-structured interview guide was developed in collaboration with the advisory group (see Appendix B). Whilst the survey addressed those who do RDM or RSE work in the ETH Domain, the interviews addressed those who hire and manage these people. Interviews were designed to explore recruitment practices, training approaches, and institutional needs, while allowing flexibility for participants to reflect on strengths, challenges, and opportunities in the current system.

Interviewees were selected based on predetermined criteria (Appendix C). A total of 19 expert interviews were conducted, including six academic leads of ORD projects funded under Measure 1 of the ORD Program and 13 leaders from central services (e.g. libraries, scientific IT) and technology or infrastructure platforms.

Interviews were conducted by two interviewers, each of whom took detailed notes to inform this report. Interviews were analysed using a thematic approach, identifying recurring patterns, key challenges, and strategic priorities related to RDM AND RSE roles and career development across the ETH Domain.

As with the survey, the interview sample reflects key stakeholder perspectives but is not intended to be exhaustive. Rather, it provides informed insights into institutional practices and strategic considerations.

3. Survey Results: Understanding the Current Research Data Management and Research Software Engineering Ecosystem

3.1 Survey Overview

To better understand the profiles, roles, and career perspectives of professionals involved in RDM or RSE within the ETH Domain, we conducted an online survey. The survey explicitly referred to both RDM and RSE in all questions as RSE specialists often do not

identify themselves with the term RDM alone. The survey included questions covering demographic characteristics, professional background, current job roles and activities, engagement with Open Science practices, and perceptions of career opportunities and institutional support (Appendix A).

In this analysis we present key findings of the survey. Our work provides a selective presentation focusing on key indicators of career pathways; the complete survey data can be obtained⁴.

3.2 Respondent Demographics: Who is doing RDM Work and Where?

Responses were collected from 375 individuals across the institutions of the ETH Domain (Fig. 1), providing broad coverage of the two schools and the four research institutes. The respondent population was predominantly male (72%), with 24% identifying as female and 4% as non-binary or preferring not to disclose their gender. Respondents reported high levels of educational attainment, with the majority holding advanced degrees: 60% hold a Doctorate and 34% a Master's degree. This reflects the highly specialized nature of work related to RDM and RSE.

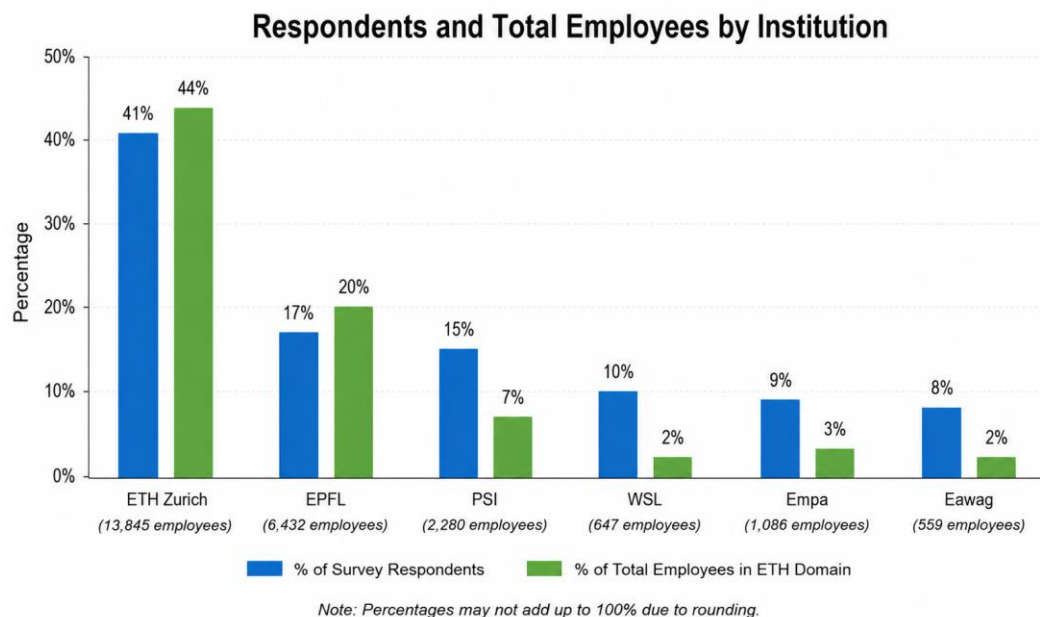


Figure 1. Percentage of survey respondents (blue) compared with the percentage of total employees (green) at each ETH Domain institution

⁴ Data obtained during the project can be made available upon request. Please contact John Griffin at John.griffin@sl.ethz.ch.

Participants also reported diverse disciplinary backgrounds, focused primarily on disciplines present in the ETH Domain. Nearly half (48%) previously specialized in natural or environmental sciences, followed by 15% in technical sciences and 13% in computer science. The remaining respondents were distributed across a wide range of disciplines, including law, economics, social sciences, literature, and the humanities, indicating that RDM and RSE activities span multiple research domains.

In terms of employment conditions, the majority of respondents (86%) reported working at greater than 80% full-time equivalent (FTE). However, only 48% hold permanent contracts, reflecting the prevalence of fixed-term positions within ETH Domain and the academic environment.

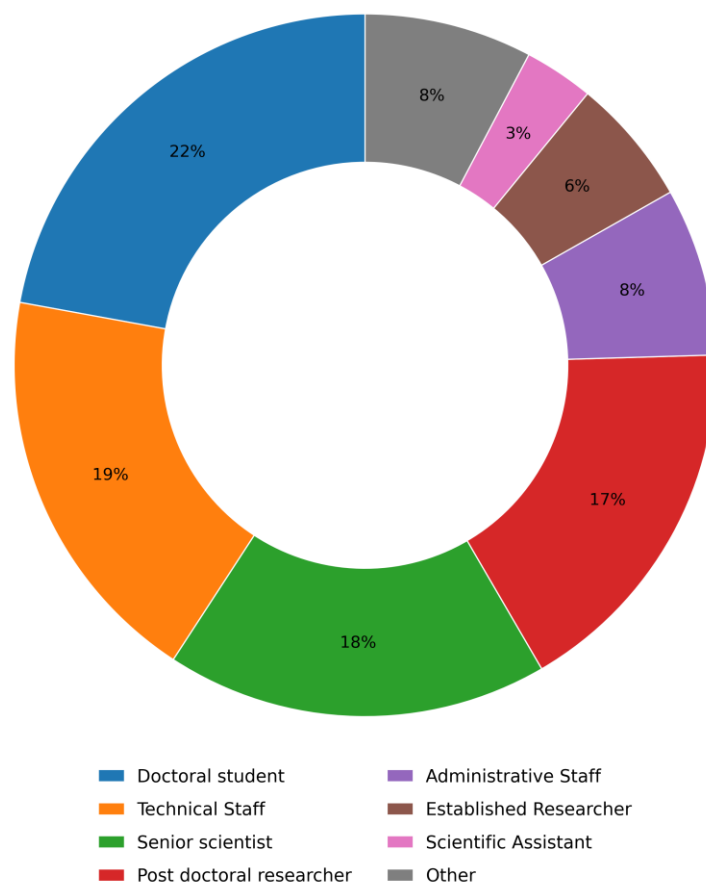


Figure 2. Distribution of respondents by personnel category. The results show that RDM and RSE work is carried out across a wide range of roles, with strong representation from doctoral students.

Respondents also represent a wide range of personnel categories. Approximately 72% identify as researchers (including professors, postdoctoral researchers, and doctoral students), while 27% identify as technical or administrative staff (Fig. 2). The majority

(73%) are embedded within research groups, with smaller proportions working at the departmental level (5%) or within central services (19%), such as libraries, scientific IT units, or research platforms.

Overall, these findings indicate that RDM and RSE work within the ETH Domain is carried out by a diverse and highly educated population, spanning institutions, disciplines, and organisational contexts. Importantly, the results suggest that a substantial proportion of this work is performed by researchers themselves, rather than by dedicated RDM or RSE staff.

3.3 Two Communities Contributing to RDM/RSE in the ETH Domain

Although RDM and RSE are often discussed as a single domain, the survey findings suggest that work in these areas is undertaken by two distinct but interconnected communities within the ETH Domain. The first comprises researchers, including professors, doctoral students, postdoctoral researchers, and established researchers, who perform RDM and RSE activities alongside their main scientific responsibilities. The second consists of dedicated RDM and RSE professionals, including technical, administrative and IT support staff, research software engineers, and individuals working in service-oriented or infrastructure roles whose primary responsibilities relate to data stewardship, software development, or research support.

Based on respondents' professional profiles and working context, approximately 55% of respondents (n = 205) were classified as researchers, while 45% (n = 167) were classified as dedicated RDM or RSE professionals.

This distinction between researchers and specialists is important because aggregated survey results may conceal important differences in experiences and needs. For example, respondents often described different immediate challenges, such as researchers more frequently referring to competing priorities and limited time, and specialists more frequently highlighting questions of professional identity and career structures. However, despite these important differences, the degree of similarity between the two groups regarding broader structural concerns is striking. Researchers and dedicated RDM and RSE professionals reported remarkably similar perceptions regarding limited recognition of their work, uncertain career progression opportunities, insufficient mentorship, and reliance on informal learning pathways. While the underlying reasons may differ, both groups identified many of the same structural barriers.

The following sections therefore highlight where the perspectives of researchers and dedicated specialists diverge and where they reveal common challenges across the broader RDM/RSE ecosystem.

3.4 A Snapshot of RDM/RSE Work in the ETH Domain

The proportion of working time devoted to RDM and RSE tasks varied considerably and differed clearly between the two respondent groups (Fig. 3). For this analysis, respondents were classified independently of reported workload, using professional self-identification

and personnel category. Researchers included respondents identifying as researchers or holding academic personnel categories, while RDM/RSE professionals included those identifying with specialist profiles such as research software engineer, data steward, data manager, data analyst, infrastructure manager or digital curator.

Among researchers, RDM/RSE activities generally formed one component of a broader scientific role and were undertaken alongside research, publication, supervision and teaching. More than half of researchers (55%) reported spending 20% or less of their working time on these activities, including 30% who spent no more than 10%. Only 12% reported dedicating more than 60% of their workload to RDM/RSE tasks. Based on the midpoints of the response categories, researchers devoted an estimated average of approximately 28% of their working time to this work.

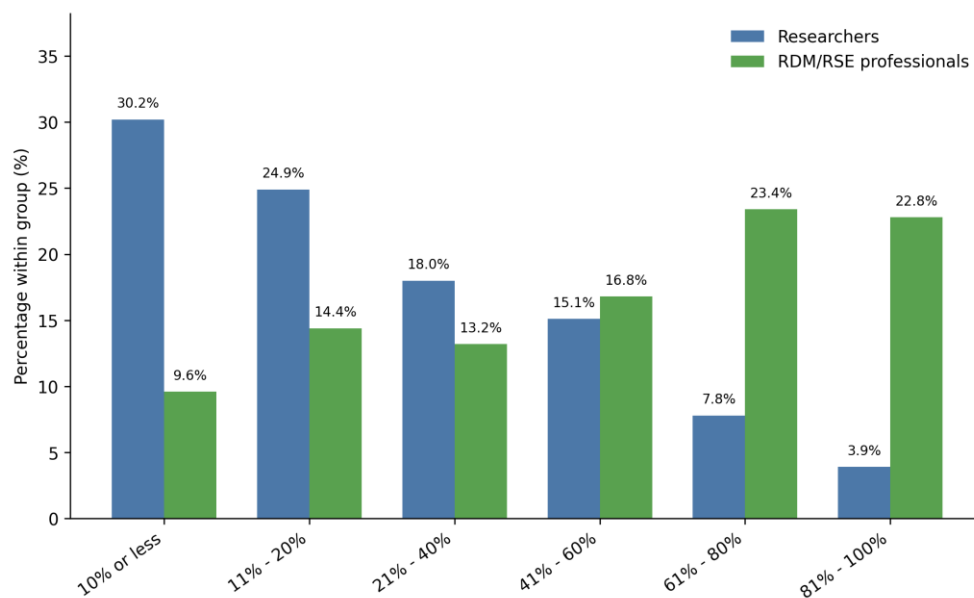


Figure 3. Percentage of time respondents spend on RDE/RSE tasks

The pattern was substantially different among RDM/RSE professionals. Almost half (46%) reported spending between 61% and 100% of their working time on RDM/RSE tasks, including 23% who dedicated 81–100% of their workload to them. A further 17% spent 41–60% of their time on such activities. The estimated average for this group was approximately 52% of working time. These findings illustrate the coexistence of two broad communities within the ETH Domain: researchers for whom RDM/RSE is typically an embedded or secondary responsibility, and professionals for whom it constitutes a substantial or primary component of their role.

Respondents reported engaging in a broad range of RDM and RSE related activities (Fig. 4), reflecting the diverse skills and responsibilities required within the ETH Domain research ecosystem. Frequently reported activities included research software development, data curation, metadata management, research data publication, data storage and archiving, training activities, and support for research data management planning. Researchers more commonly described activities closely linked to their own research workflows, such as managing project-specific datasets, supporting publications, or developing software directly associated with scientific work. Dedicated RDM/RSE professionals more frequently reported activities related to infrastructure development, training, consulting, advisory services, and broader support functions extending beyond individual research projects.

Qualitative responses illustrate these different forms of engagement. For example, researchers frequently described RDM/RSE as closely integrated with project-specific scientific work:

“Part of my job is to make sure that for every publication, all data and software necessary to reproduce the results are properly assembled, annotated with metadata, and stored.”

Dedicated RDM/RSE professionals more commonly described broader support and infrastructure responsibilities:

“I lead a team developing services and infrastructures that enable researchers to manage, share, and reuse data in compliance with FAIR and legal principles.”

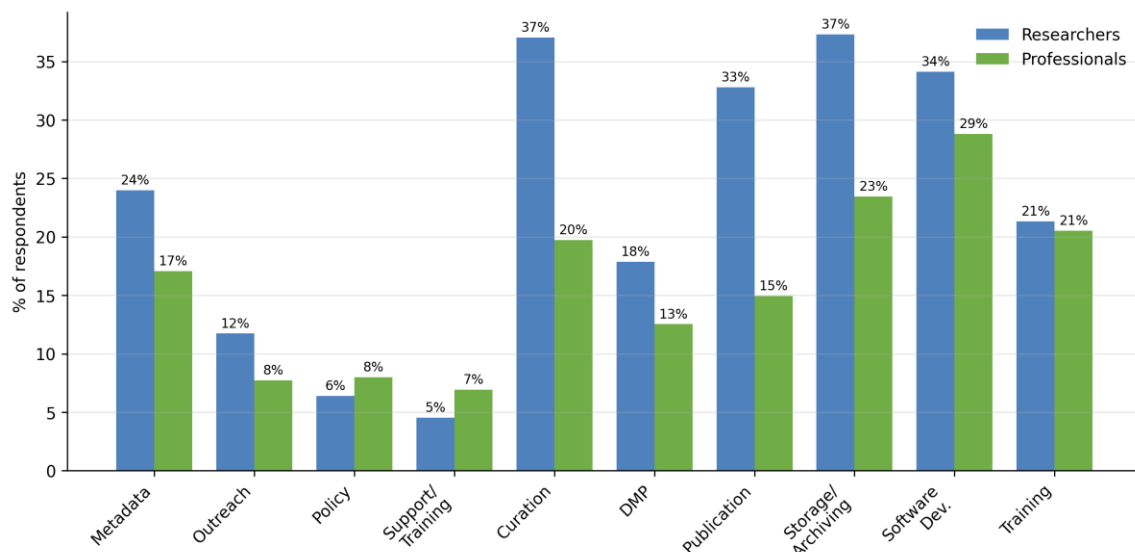


Figure 4. Types of research data management (RDM) and research software engineering (RSE) activities undertaken by researchers (blue) and dedicated RDM/RSE professionals (green). Respondents could select multiple activities

Respondents also reported working with data and digital research assets across a broad range of scientific fields, highlighting that RDM and RSE activities are distributed across much of the ETH Domain research landscape. The most frequently represented fields were materials science (39%), environmental sciences (34%), and biology (29%). Other prominent areas included medicine and biomedical engineering (22%), computer science (20%), chemistry (19%), mechanical engineering (17%), and architecture and civil engineering (14%). Additional representation was found in information technology (13%), social and political sciences (13%), mathematics (11%), and management and economics (8%). This distribution suggests that RDM and RSE work is not confined to a small number of data-intensive disciplines but is instead embedded across a broad range of research domains. Dedicated RDM professionals reported working across a broader range of research areas, selecting on average 3.2 fields, demonstrating that many professional RDM roles function across disciplinary boundaries and support multiple research communities rather than operating solely within a single scientific context.

Despite the widespread engagement in RDM and RSE related activities, the extent to which this work is formally recognised within existing employment structures appears uneven. Across the broader respondent population, only 51% reported that RDM or RSE responsibilities were explicitly mentioned within their current job descriptions. However, substantial differences emerged between the researcher and RDM/RSE specialist respondent groups. Among researchers, only 3% reported that RDM or RSE was explicitly identified as a primary component of their role, while 63% indicated that such responsibilities were not formally reflected in their job descriptions. Dedicated professionals were more likely to report that RDM and RSE related competencies formed an explicit component of recruitment requirements and role expectations (34%). This suggests that while RDM/RSE activities are already widely performed across the ETH Domain, the degree to which these responsibilities are formally embedded within employment structures remains low.

Taken together, these findings indicate that RDM and RSE within the ETH Domain represent a continuum ranging from project-level data activities embedded within research practice to specialised support, infrastructure, and advisory roles.

3.5 The Impact of Open Science Concepts on RDM/RSE Work

Half of respondents reported that the recent push towards open and shareable research data has had an impact on their work, with 36% saying their work had somewhat changed and 14% reporting significant change. A further 28% indicated no impact and 22% were unsure. This suggests that Open Science policies are influencing a substantial portion of the community, although their effects are not yet uniformly experienced across all roles and institutions.

Among respondents who reported an impact, frequently cited effects were an increase in workload (48%) and the need to comply with additional rules and requirements (54%). At the same time, respondents also identified positive effects. Around half (51%) reported

that their work has become more visible, 37% felt that it has greater impact, and 39% indicated that researchers now rely more on their work. Taken together, these findings indicate that Open Science initiatives are both expanding the scope of RDM and RSE work and increasing its visibility, while also introducing additional demands in terms of compliance and workload.

Respondents reported varying levels of familiarity with Open Science concepts. Overall, 29% indicated that they were either unfamiliar with these concepts or had only a basic understanding without actively applying them. A further 33% reported a moderate level of familiarity, 28% regularly implement Open Science practices across projects, and 10% identified as experts who train others or develop policies. Dedicated RDM and RSE professionals were much more frequently represented among respondents identifying as experts (20%, compared with 4% of researchers). Researchers were more likely to report basic familiarity (26%). Thus, Open Science expertise is low and unevenly distributed across the broader RDM/RSE community. Researchers may benefit from practical guidance integrated into research workflows, while RDM/RSE professionals may require opportunities for advanced development, leadership roles, and recognition of their specialist expertise.

There is a continued need for training, support, and capacity building to ensure consistent understanding and implementation of Open Science practices across the ETH Domain.

3.6 RDM/RSE Experience, Training and Support

Respondents reported a wide range of experience working in RDM and RSE related roles. 21% indicated less than one year of experience, while the largest group (41%) reported 2–5 years. A further 18% had 6–10 years of experience, and 20% reported more than 10 years, indicating a mix of early-career entrants and more established practitioners. In addition, 30% of respondents reported experience with RDM related roles outside of academia, suggesting some degree of cross-sector mobility.

Approaches to training vary considerably. While 38% of respondents have completed or are currently pursuing formal training in RDM or RSE, only 19% are working towards a formal qualification (e.g. MSc, CAS). The majority of respondents rely on informal pathways: 74% reported learning on the job, and 66% engage in self-directed learning using online resources. Notably, 10% of respondents reported that they have not undertaken and are not currently pursuing any form of training in this area.

Differences between researchers and dedicated RDM/RSE professionals emerged in approaches to training and skills development. While both groups relied heavily on informal learning pathways, dedicated RDM/RSE professionals reported substantially higher engagement with formal training pathways. Approximately 30% reported undertaking formal qualifications or certifications compared with 13% of researchers, while participation in non-certified formal training was also higher (23% compared with 16%). This suggests that researchers frequently acquire RDM/RSE competencies as an

extension of broader scientific work, whereas dedicated professionals are more likely to pursue structured development of specialist expertise.

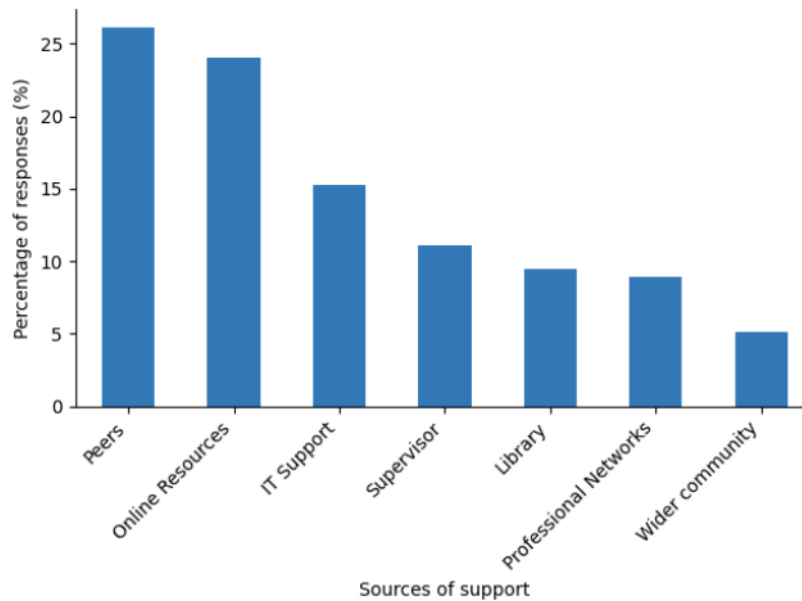


Figure 5. Sources of support for RDM and RSE challenges. Peer support and online resources are most commonly used, with lower reliance on institutional services and professional networks. Multiple responses were possible

When encountering challenges related to RDM or RSE, respondents most frequently rely on peers and colleagues (69%) and online resources (64%). Other sources of support include IT support services (41%), supervisors (30%), professional networks (30%), and library services (25%) (Fig. 5). Differences between the two groups suggest different support patterns. Researchers were more likely to seek help from supervisors (36%, compared with 19% of dedicated professionals) and IT support (43%, compared with 37%). Dedicated RDM professionals were more likely to use online resources (72%, compared with 60% of researchers), professional networks (37%, compared with 16%), and the wider RDM and RSE community outside the ETH Domain (23%, compared with 8%).

Engagement in formal professional networks differed substantially between researchers and dedicated RDM/RSE professionals. Overall, 67% of respondents reported that they were not affiliated with any professional network. However, this was driven primarily by researchers, of whom 85% reported no network affiliation, compared with 55% of RDM/RSE professionals. Participation in the ETH Domain Research Software Engineer Network was considerably higher among professionals (28%) than researchers (11%), while the Data Stewardship Network showed an even larger contrast (23% versus 2%). Participation in the Swiss Reproducibility Network was low across both groups (7% of professionals and 2% of researchers).

Institutional support for training and professional development is variable. Only 23% of respondents reported access to financial support for training, and 20% reported having paid time allocated for training activities. While 50% have access to online courses and learning resources, and 41% attend workshops or short courses, more structured forms of support are less common. Only 18% reported access to technical skills training, and 16% indicated that they receive structured mentorship or coaching. Notably, 16% of respondents reported that they were not aware of any institutional support available to them.

Dedicated RDM or RSE professionals reported greater access to several forms of institutional support. For example, 30% reported financial support for training compared with 19% of researchers, and 32% reported paid time for training compared with 13% of researchers. Access to technical skills training was also somewhat higher among professionals (23%) than researchers (16%). However, structured mentorship or coaching remained limited in both groups (15% of professionals and 16% of researchers), indicating that mentorship is a shared gap across the community.

Overall, these findings suggest that training and professional development in RDM and RSE remain heavily dependent on informal learning, self-direction, and peer support. Dedicated RDM professionals appear more likely to access formal training and professional networks, while researchers more often rely on local structures such as supervisors and IT support. Both groups, however, report limited access to structured mentorship and protected development pathways, which may have implications for the consistency of skills development and the long-term professionalization of RDM and RSE roles across the ETH Domain.

3.7 RDM/RSE Recognition and Impact

While respondents reported a broad range of impacts resulting from their work, including increased research data reuse, time savings for researchers, improved grant success, and higher acceptance of research publications—perceptions of institutional recognition remain mixed. Only 26% of respondents felt that RDM and RSE work is viewed as essential or highly valued by the leadership of their institution. A further 42% reported that it is somewhat recognized, while 32% felt that it is merely tolerated or regarded as a bureaucratic burden. Perceptions of recognition were somewhat more positive among dedicated RDM/RSE specialists, but remained limited in both groups, suggesting that although professionals may experience slightly greater recognition, limited institutional valuation of RDM and RSE remains a shared concern.

3.8 Career Progression and Future Prospects

Overall, 62% of respondents saw themselves performing RDM or RSE-related tasks in five years' time, while 29% were unsure. This finding, however, masks important differences between researchers and dedicated RDM/RSE professionals. Among RDM/RSE professionals, 68% expected to still be undertaking RDM/RSE work in five years, compared with 57% of researchers. Researchers were also almost twice as likely to report that they did not expect to be performing RDM/RSE tasks in the future (12% versus 7%), reflecting that many view RDM/RSE as a component of their research role rather than a career in itself.

Perceptions of career progression were consistently pessimistic across both groups. Overall, only 14% of respondents reported that there were clear opportunities to advance an RDM/RSE career within their unit or institution, while 43% were unsure and 43% perceived no clear pathway. Although RDM/RSE professionals were slightly more likely than researchers to perceive clear career opportunities (16% versus 11%), almost half of professionals (46%) still reported that no clear career pathway existed. These findings suggest that the absence of structured career progression is recognised not only by researchers who undertake RDM as a secondary activity, but also by those working in dedicated RDM/RSE roles, highlighting a systemic challenge across the ETH Domain.

Access to support structures also appears limited. Overall, only 26% of respondents felt they had access to the mentorship and resources necessary to advance their careers. Researchers were slightly more likely to report such access (30%) than dedicated RDM/RSE professionals (24%), while approximately half of both groups were unsure. This suggests that structured career support remains weak across both groups. Indeed, responses to the open-ended question on what is lacking to advance careers in RDM and RSE revealed several shared recurring themes that reflect structural, institutional, and capacity-related challenges faced by individuals across the ETH Domain (Table 1). Researchers often framed these barriers in relation to competing academic priorities, limited time, and the dominance of traditional research outputs. Dedicated RDM/RSE professionals more often framed them in relation to professional identity, unclear job profiles, and limited advancement structures. However, the overlap between the two groups is substantial, suggesting that many barriers arise from broader institutional structures rather than from specific role types (Info Box 3).

Only 22% of respondents would recommend a career in RDM/RSE in higher education, while 47% were unsure and 19% would not. Dedicated RDM/RSE professionals were more likely than researchers to recommend such a career (31% compared with 16%), but uncertainty remained high in both groups (51% of professionals and 44% of researchers). This reinforces the finding that RDM/RSE is widely viewed as important work, but not yet as a clearly supported or sustainable career path.

Theme	Description	Illustrative quote
Lack of time	Limited time due to competing priorities such as research and teaching.	“What I learnt I did in my spare time, which should not be the case.”
No clear career path	Absence of defined progression routes for RDM/RSE roles.	“There’s not really an existing career path for RSE.”
Lack of stable positions	Prevalence of temporary contracts and limited long-term opportunities.	“We are hired as Postdocs... with no long-term future.”
Limited recognition	RDM/RSE is undervalued compared to traditional research outputs.	“My role feels more like a technician. However, I am judged by scientific papers...”
Insufficient funding	Lack of funding for staff, infrastructure, and long-term support.	“There are essentially zero funding opportunities to finance development.”
Need for training	Lack of structured, practical, and accessible training opportunities.	“I have learned everything on my own...”
Unclear job profiles	Roles not reflected in formal job descriptions or HR structures.	“I’m simply hired as a scientist, even though I do software engineering.”
Weak institutional strategy	Lack of coherent policies and leadership around RDM/RSE.	“Clear strategy... not only political buzz wording.”
Need for community	Limited networking, mentoring, and peer exchange opportunities.	“Inter-institutional RDM networks... to find peers and support.”
Lack of infrastructure/guidance	Fragmented tools, unclear guidance, lack of standards.	“Every group has to develop their own solution, and reinvent the wheel.”

Table 1 Respondent identified barriers to a successful career in RDM/RSE

3.9 Survey Conclusions

Overall, the findings indicate that research data management (RDM) and research software engineering (RSE) work within the ETH Domain is carried out by a highly skilled but structurally under-supported workforce. While respondents demonstrate diverse expertise and engagement across institutions, disciplines, and roles, important differences exist between researchers who undertake RDM/RSE alongside broader scientific responsibilities and dedicated professionals whose primary work focuses on support, infrastructure, and data stewardship. However, despite these differences, both groups reported similar challenges.

Career progression pathways remain unclear, with limited access to stable positions, mentorship, and formal development opportunities. At the same time, increasing expectations linked to Open Science and data stewardship are placing additional demands on this community. Together, these results highlight a growing gap between the strategic importance of RDM and RSE and the institutional structures currently in place to support and sustain these roles.

Info Box 3: Current Recruitment and Hiring Processes

Hiring processes appear similar across institutions. Taking ETHZ as an example: there are currently no dedicated ETH Zurich guidelines for the recruitment and classification of Research Data Management (RDM) and Research Software Engineering (RSE) specialists. Instead, these roles follow the standard [ETH Zurich recruitment process](#), involving the future supervisor, HR and the relevant decision-making bodies (e.g. the departmental board) at different stages. The final job description is agreed jointly by the supervisor and the employee during the first days after the employee takes up the position.

HR becomes involved at an early stage of the recruitment planning process. Since February 2026, generally all positions with a duration of more than 12 months require approval by the relevant department or institution. To obtain this approval, the future line manager, supported by HR, prepares the required proposal, including funding information, an initial role description, and a preliminary assignment to an ETH job family and function level (see Info Box 6).

For RDM and RSE specialists, selecting the appropriate job family—typically but not exclusively scientific, IT or management—is an important strategic decision, as it determines how the role is positioned within the organisation. The potential function level is determined based on the planned responsibilities, required competencies, the applicable salary framework.

Following approval, the position can be advertised. Following the first interview the proposed function level and salary range are reviewed to ensure that salary expectations can be addressed transparently. HR supports employers by advising on job classification, function level and remuneration, ensuring consistency with the ETH functional framework, relevant job profiles (e.g. ICT profiles), and ETH Zurich's compensation principles. ETH Zurich does not currently use the swissICT profiles for management positions.

Once a candidate has been selected, the final function level and job description are confirmed based on the ETH functional framework, relevant job profiles and the specific responsibilities of the position. These form the basis of the employment contract, including the final salary determination and formal position description.

4. Interview Findings: Thematic Analysis

4.1 Profile of Interviewees and Organisational Context

The interviewees represent a diverse cross-section of professionals involved in RDM and RSE across the ETH Domain (see Appendix D). They include Professors and senior scientists leading laboratories, heads of Scientific IT and data support units, research software engineers (RSEs), and staff working in library-based or faculty-level services. They hold coordination or leadership roles, managing teams of RSEs, data specialists, or support staff. All of them are directly involved in recruitment and strategic planning.

Their work spans the full research data lifecycle, including infrastructure development (e.g. implementation of platforms such as OpenBIS), high-performance computing support, data curation and publication, and training and consulting for researchers. In several cases, interviewees operate across multiple organisational levels, supporting both central initiatives and individual research groups.

The types of data and outputs involved are correspondingly diverse, ranging from large-scale simulation data and experimental datasets to software tools, pipelines, and curated datasets prepared for reuse. This diversity reflects both the breadth of research across the ETH Domain and the wide scope of RDM/RSE related work.

4.2 RDM Work as a Hybrid and Emerging Profession

A central theme across all interviews is the hybrid nature of RDM and RSE roles, which is at the intersection of research, software engineering, and data stewardship. These roles do not align neatly with existing professional categories and are often described as bridging different domains of expertise. One interviewee characterised this position as *“Grenzgänger — people who come from one side but need skills from the other.”*

Professionals in these roles are expected to combine:

- technical expertise (e.g. software engineering, data systems)
- understanding of research workflows
- communication and advisory skills

Career paths into these roles are similarly non-linear. Many individuals transition from academic research (particularly postdoctoral positions), while others enter from industry or IT backgrounds. In most cases, these roles have emerged organically in response to growing institutional and research needs, rather than through predefined job profiles or training pathways.

While this hybridity enables flexibility and responsiveness, it also contributes to a lack of clear professional identity and makes it difficult to define expectations, competencies, and career trajectories.

4.3 How RDM and RSE Needs are Currently Met: Ad Hoc Practice and Structured Support

Across institutions, needs are currently met through a combination of informal practices and emerging support structures.

In many research groups, RDM and RSE tasks are still handled on an ad hoc basis, often by doctoral students or postdoctoral researchers. While this approach provides flexibility, it is widely viewed as inefficient and unsustainable. As one interviewee noted: *“PhD students... are assumed to handle data management, but they neither have the time nor are they given time.”*

Alongside these informal practices, more structured forms of support have developed. Central service units, such as libraries and Scientific IT, provide training, consulting, and guidance. These services play an important role in establishing standards and helping researchers navigate increasingly complex requirements. However, they are often perceived as somewhat distant from day-to-day research practice.

Embedded roles, in which RDM specialists or RSEs work directly within research groups or facilities, provide a more integrated form of support. These roles allow for close collaboration with researchers and the development of domain-specific solutions but are typically resource-intensive and often dependent on short-term funding.

Overall, the findings highlight a landscape in which multiple approaches coexist, often without clear coordination, and where responsibility for RDM/RSE remains unevenly distributed.

4.4 Service Delivery Models: Centralised, Embedded, and Hybrid Approaches

Building on these practices, three main models of RDM and RSE service provision can be identified from the interviews (as well as the survey and the career models developed in by the RSE and DSN): embedded, centralised, and hybrid.

The embedded model is widely regarded as the most effective in terms of impact, as it allows RDM professionals to work closely with researchers and tailor solutions to specific needs. However, it is difficult to scale and often relies on project-based funding. The centralised model, typically based in libraries or Scientific IT units, offers efficiency, consistency, and the ability to develop shared infrastructure. However, it may lack the disciplinary context required for specialised research environments.

Increasingly, interviewees point to hybrid models as a promising approach. These combine central coordination with decentralised expertise. Examples include:

- dual-affiliation roles, where staff are centrally employed but embedded in research groups
- central pools of experts providing consulting or project-based support
- emerging co-funding arrangements between central units and research groups

As one interviewee observed. “Having a nucleus is useful for sustainability... but we need to connect to decentralised people.”

These models aim to balance scalability with relevance and enable more efficient use of specialised expertise. However, they remain largely informal and often under supported.

Info Box 4: The Functional Grid

The ETH Domain's [function grid](#) establishes a standardised, transparent foundation for job grading and salary determination across all its institutions. Operating strictly on the single-grade principle, the system dictates that an employee can only move to a higher salary level if they take on a new function or experience a fundamental upgrade in their position's responsibilities. To achieve this, the grid categorizes all positions into 15 functional grades based on their distinct levels of requirements. Human Resources and supervisors evaluate individual job descriptions against four standardised competency criteria: professional, personal, social, and leadership competence. Every grade is mapped to a specific salary band with a defined minimum and maximum level. An individual's precise placement and progress within their salary scale depends on their credited useful experience (up to a maximum of 15 years) and their annual performance evaluation. Notably, academic training roles like doctoral students and postdoctoral researchers are exempt from this system and receive fixed, flat-rate salaries instead.

To streamline this process, all positions within the ETH Domain are allocated to one of the following primary job families:

- Science: Scientific employees, senior assistants, senior scientists, and leading scientific staff.
 - Administration: Personnel handling commercial, administrative, and executive support tasks.
 - Technology: Technical staff and laboratory specialists.
 - IT Support: IT Software engineers, system specialists, and IT professionals.
 - Management & Staff: Operational leaders, managers, and strategic staff units.
-

All HR departments currently apply the rule that a person can only have one employment contract within an institution; consequently, it is not possible for one person to be employed on two different functional categories.

4.5 Recruitment and Skills: Building a Hybrid Workforce

In contrast to the relatively emergent nature of RDM and RSE roles themselves, hiring processes are generally described as well-structured and rigorous across institutions (Info Box 3). Recruitment typically involves multiple stages, including technical and team-based interviews, and often formal involvement from HR departments. These processes are designed to assess not only technical competencies but also interpersonal skills and the candidate's ability to operate within interdisciplinary environments. Several interviewees highlighted that hiring decisions are taken carefully and collaboratively, reflecting both the complexity of the roles and the significant investment required.

However, despite these structured processes, identifying suitable candidates remains challenging due to the hybrid skillset required and the limited availability of profiles combining technical expertise with a strong understanding of research contexts. While positions often attract large numbers of applicants, relatively few candidates possess the combination of technical, scientific, and interpersonal skills. Successful candidates are typically expected to demonstrate:

- strong technical competencies (e.g. programming, data systems)
- ability to communicate with and support researchers
- adaptability and problem-solving skills

Recruitment into RDM and RSE roles is characterised by a strong reliance on postdoctoral researchers transitioning out of academic career tracks. These candidates bring valuable domain knowledge and familiarity with research processes but may initially have unclear expectations about the nature of the role. Several interviewees emphasised the importance of clearly communicating that these are not traditional research positions, but professional roles focused on enabling research through technical and data-related expertise.

In addition, hiring is constrained by structural factors such as a limited number of permanent positions, driven by a dependence on project-based funding, and competition from industry, making it difficult to attract and retain experienced professionals. These findings suggest that recruitment challenges are not caused by weak hiring processes, but by the hybrid expertise required for RDM and RSE roles and by the structural employment conditions in which these roles are created.

Info Box 5: swissICT Job Profiles

SwissICT is the largest professional association for IT in Switzerland. It is a network that brings together about 2,500 members, including IT companies and people working in IT.

SwissICT carries out a salary study that typically tracks around 39,500 ICT professionals from more than 230 companies - spanning everything from agile IT startups and local SMEs to major Swiss banks, insurance firms, and federal administrations.

The swissICT Job Profiles Catalogue is an established reference framework for classifying ICT professions in Switzerland. Through standardised role profiles, competency descriptions and market-based salary information, it enables cross-sector comparisons of ICT roles, competencies and remuneration.

In contrast, the ETH Domain uses an internal function framework tailored to the needs of higher education and research institutions, particularly in the natural sciences and engineering. This framework is based on job families, function levels and career pathways (see Info Box 6). In the rapidly evolving ICT labour market, this can present challenges when attracting and retaining highly specialised ICT professionals whose expertise and market value develop faster than traditional function structures can adapt.

To address this, ETH Zurich began mapping its internal ICT functions to the swissICT Job Profiles Catalogue in 2025 to develop an [ETH-specific catalogue](#). Approximately 700 job descriptions at ETH Zurich were mapped on the swissICT job profiles. Where necessary, job descriptions would be reviewed. This mapping exercise aims at transparent comparison between ETH function profiles and recognised ICT labour market roles. This supports employing units and HR partners in benchmarking job profiles, competency requirements and remuneration against external standards, while providing employees with an additional reference point for positioning their profiles.

This mapping exercise is currently specific to ETH Zurich. ETH-Domain Model descriptions remain the reference for a function level assignment. The swissICT catalogue and the internal function grid help understanding complex roles and provide additional assistance in determining function level of specific jobs. The other ETH Domain institutions are following its implementation and assessing its potential applicability within their own organisational contexts.

4.6 Organisational Misalignment and Role Ambiguity

A recurring theme across interviews is the misalignment between RDM/RSE roles and existing organisational structures. These roles do not fit clearly within traditional categories such as research, technical, or administrative positions (Info Box 4). As a result, RDM professionals are often formally classified under categories that do not reflect the nature of their work, leading to ambiguity in:

- job descriptions
- evaluation criteria
- salary levels
- career progression

One interviewee summarised this challenge:

“It is neither a purely research track nor a purely administrative track.”

This lack of alignment also affects how RDM and RSE work is perceived within institutions, contributing to limited visibility and recognition despite its growing importance.

To counter this misalignment, several interviewees called to establish a distinct employment category that reflects the hybrid nature of these roles. Others suggested mechanisms to improve pathways and mobility between existing job families, creating greater flexibility while recognising the interdisciplinary character of the work.

From an HR perspective, suitable employment solutions for RDM and RSE specialists can generally be found within the existing ETH Zurich function framework. The case-by-case approach provides considerable flexibility to reflect diverse responsibilities, organisational needs and institutional contexts. An informal survey of members of the ETH Zurich Data Stewardship Network (excluding academic positions) illustrates this diversity. RDM specialists are currently employed across several job families—including ICT, technical, administrative and management functions—and across multiple function levels.

However, this flexibility comes at the expense of transparency and comparability. Because emerging RDM and RSE roles do not map consistently onto existing job families and career structures, equivalent roles may be classified differently across institutions or organisational units. As a result, transparency regarding career pathways, role

development, remuneration and career progression is limited. The institutional visibility of these professions likewise depends heavily on local organisational arrangements and the initiative of individual line managers and employees.

These observations are present in the interview findings. One interviewee noted that the current employment framework does not provide sufficient comparability between equivalent posts across the ETH Domain. Consequently, equal pay and equal career opportunities cannot always be ensured in the same way as established scientific, technical or administrative professions, and the visibility of these roles within the overall employment system remains limited.

The ETH Domain has recognised these challenges. Recent work at ETH Zurich to map ICT functions to the swissICT Job Profiles Catalogue is intended primarily to strengthen benchmarking against the external ICT labour market and support competitive remuneration for ICT specialists. This represents an important step towards improving transparency and consistency in the classification of ICT-related roles (Info Box 5).

At the same time, applying swissICT profiles highlights the limitations of existing ICT classifications for research-oriented roles such as RSE and RDM. These professions combine ICT expertise with research-specific competencies, including reproducible software development, research data management, data annotation, quality assurance and the long-term stewardship of research outputs.

Info Box 6: International Benchmarking: Mature Models for RDM/RSE Research Partnership

The ETH Domain is taking important steps towards the professionalisation of RDM and RSE. However, several leading international institutions have progressed further by establishing recognised professional career pathways and multidisciplinary teams that support the full research lifecycle. University College London (UCL)⁵ and TU Delft⁶ provide particularly relevant examples of how complementary professional roles can be brought together to strengthen institutional research support. There are also efforts and specific calls from research communities to drive this development forward⁷⁸.

Selected examples of professional profiles established across these institutions that might be of interest for the ETH Domain include:

⁵ [Our People | Advanced Research Computing - UCL – University College London](#)

⁶ <https://www.tudelft.nl/digital-competence-centre>

⁷ [Neuroscience needs a career path for software engineers | The Transmitter: Neuroscience News and Perspectives](#)

⁸ <https://www.ucl.ac.uk/advanced-research-computing/our-people>

- **Data Scientists** – Apply advanced statistical methods, machine learning and computational analysis to extract insights from complex research data and develop reproducible analytical workflows.
- **Research Data Stewards** – Advise researchers on research data management, FAIR principles, metadata, governance, data sharing and Open Science, acting as a bridge between researchers and institutional services.
- **Research Software Engineers** – Develop robust, sustainable and reusable research software, supporting computational methods, reproducibility and long-term software maintenance.
- **AI and Digital Skills Specialists** – Adopt AI technologies and develop ethical research capabilities to use emerging computational methods for research.
- **Operations and Strategic Managers** – Provide strategic leadership, program management and operational oversight to ensure digital research services are sustainable, coordinated and aligned with institutional priorities.

Key message:

Rather than relying on individual roles, leading institutions are investing in complementary professional career pathways, each with its own career ladder (e.g. junior, senior), to enable high-quality, sustainable and data-intensive research. One insight worth highlighting is that RDM/RSE should no longer be viewed merely as support functions, but as digital research partners on an equal footing with researchers, who are not merely supportive but indispensable to the successful completion of a research project, and whose roles – including their salaries – should be shaped accordingly.

Direct mapping is therefore only partially possible. While, for example, the *swissICT Software Engineer* profile overlaps with Research Software Engineering, RSE roles additionally require a deep understanding of scientific methods, research workflows and domain-specific research challenges.

Similar limitations apply to data-oriented roles. The *swissICT* framework reflects established ICT functions centred on software development, operations and database management. By contrast, research data specialists increasingly combine software engineering, data engineering, research data management and artificial intelligence. Within the ETH Domain they may design research data architectures, develop specialised algorithms, build research data pipelines and prepare complex datasets for machine learning and large language models. Traditional ICT profiles such as *Database Specialist* therefore capture only part of these increasingly interdisciplinary responsibilities.

The findings suggest that the long-term challenge is therefore not simply one of salary benchmarking, but of ensuring that employment frameworks evolve alongside the increasing specialisation and interdisciplinarity of digital research support. Continued development of job profile frameworks will be essential to improve comparability across the ETH Domain, strengthen career transparency, and support the professionalisation of research-oriented digital specialists.

4.7 Career Pathways, Recognition, and Retention Challenges

The absence of clear and sustainable career pathways is one of the most consistent findings across the interviews. RDM and RSE roles are frequently associated with:

- fixed-term contracts
- limited progression opportunities
- unclear long-term prospects

Even where individuals demonstrate high levels of expertise and institutional value, structural constraints often prevent long-term retention. A key structural constraint highlighted by several interviewees relates to the time limits associated with postdoctoral employment frameworks, which are often used to host RDM and RSE roles. In many cases, individuals are employed under contracts that are limited to approximately five to six years, after which they are required to leave the Domain, regardless of performance or ongoing need. This includes time before the current position and creates a fundamental misalignment between the long-term nature of RDM/RSE work, such as maintaining infrastructure, developing services, and building institutional knowledge, and the short-term employment structures used to support it. As a result, institutions risk failing to recruit or losing highly skilled staff and repeatedly investing in recruitment and training.

As one interviewee noted, “If you have a great person... you still can’t keep them.”

These challenges are further compounded by a lack of formal recognition of RDM/RSE work in particular, both in terms of career advancement and institutional evaluation systems.

4.8 Structural Barriers to Sustainable RDM and RSE

Beyond individual roles, the interviews highlight several systemic barriers to the sustainable development of RDM and RSE within the ETH Domain. These include:

- reliance on short-term, project-based funding
- fragmentation of efforts across institutions and units
- lack of coordinated strategy and governance
- insufficient investment in long-term infrastructure and maintenance

Project-based approaches are seen as particularly problematic, as it can take a year of training for a new hire to become proficient, and this experience is lost once funding ends creating discontinuity.

4.9 Future Directions: Towards Professionalisation and Institutionalisation

Looking ahead, interviewees broadly agree that RDM and RSE will become increasingly central to research practice. However, achieving this will require a shift from ad hoc and fragmented approaches to more professionalised and institutionalised models.

Key priorities include:

- the development of clearly defined job profiles and career pathways
- the establishment of sustainable funding and employment models
- stronger institutional commitment and leadership
- improved coordination across units and institutions

Emerging roles, such as Research Data Engineers, and the development of hybrid service models point towards possible future directions. However, these innovations remain at an early stage and require further consolidation. As one interviewee emphasized, *“You cannot do this at 50%; you need to shape it.”*

4.10 Interview Conclusions

The interviews depict a field in transition. RDM and RSE work is widely recognised as essential, yet the organisational, professional, and structural frameworks required to support it remain underdeveloped and heterogeneous. RDM and RSE specialists are seen as support functions rather than research partners with established career pathways. Addressing these gaps will be critical to ensuring the long-term sustainability and effectiveness of research data management within the ETH Domain.

5. Towards a Framework for a Professionalised RDM/RSE Ecosystem

In parallel with the present analysis, findings from several complementary initiatives and papers are important for informing our report and recommendations for the improvement of RDM and RSE career paths. These originate primarily from other projects funded by the ORD Program, as well as from internal initiatives across the six institutions of the ETH Domain and from national and international efforts to advance professionalisation in this field.

What these initiatives have in common is that they develop perspectives on the professionalisation of RDM, RSE and related roles within and beyond the ETH Domain. It is therefore worthwhile to identify and extract the elements most relevant to the ETH Domain. Together with the insights from the survey and interviews, these findings can support the development of a role and career framework that enables the practical implementation of career paths and roles for RDM/RSE specialists.

5.1 National and International Initiatives

Over the past decade, the professionalisation of RDM and RSE support has gained increasing attention both nationally in Switzerland and internationally. Driven by the growing complexity of research data, FAIR requirements, and Open Science policies, there is broad recognition that effective data stewardship requires dedicated expertise and cannot be treated solely as an additional responsibility of researchers. Consequently, a range of national and international initiatives have emerged to strengthen the professional foundations of RDM and RSE through competency frameworks, training programs, professional networks, and role definitions for Data Stewards, RSEs, and related specialists.

In Switzerland, these developments have been supported by the National Open Research Data Strategy and its associated action plan, which in Action B5.4 explicitly aims to establish professional data stewardship, as an independent professional career path within Swiss higher education institutions by 2028. It provided the policy rationale for a range of national initiatives aimed at developing competency frameworks, role profiles, training programs, and professional communities to support the professionalisation of RDM and RSE specialists.

One of the most significant initiatives in this context has been [SwissDS-ENV](#)⁹. The project's principal output was a comprehensive competency framework for Data Stewards, accompanied by discipline-specific profiles and recommendations for training and professional development. These outputs subsequently informed the creation of a national Data Stewardship training program (CAS) and the Swiss Research Data Stewardship Network (SRDSN). While the initiative did not propose a formal career framework, it provided key building blocks for career-path development by clarifying role expectations, identifying required competencies, and promoting recognition of Data Stewardship as a distinct professional field. The project therefore demonstrates the importance of competency-based role definitions, structured training pathways, and professional communities as prerequisites for sustainable career development in RDM and related professions.

Similar developments can be observed internationally through organisations such as the Research Data Alliance (RDA), the European Open Science Cloud (EOSC), and national programs in countries including the Netherlands and Germany. In particular, two recent community-led initiatives have provided valuable reference points for defining Research Software Engineer (RSE) roles and career pathways, and served as crucial references for the Swiss RSE network that was funded by the ETH Domain ORD Programme and for

⁹ Claivaz, J.-B. et al. (2023) *Definition and Profile of Data Professions (v.2)*. Lausanne: Swiss Data Stewardship Environment (SwissDS-ENV), University of Lausanne. Available at: [SwissDS-ENV Action 1 Report](#) (Accessed: 22 June 2026).

the profiling work developed in section 7.4 of this report. [The DIRECT Framework](#)¹⁰ offers a competency-based model for digital research professionals, providing a common language for describing skills and responsibilities across hybrid technical-research roles. Complementing this, [the Foundational Competencies and Responsibilities of a Research Software Engineer](#) framework¹¹, developed through the German Research Software Engineering (de-RSE) community, defines the core competencies, responsibilities, and values specific to the RSE profession. Together, these frameworks support the development of consistent RSE work profiles, clearer career pathways, and greater recognition of the profession.

Collectively, these initiatives have contributed to the development of competency frameworks, role descriptions, training pathways, and recommendations for integrating RDM expertise into research organisations.

Despite this progress, many of the challenges identified across these initiatives remain unresolved. Common themes include the need for clearer role definitions, stronger institutional recognition, sustainable funding models, structured career pathways, and effective collaboration between central services and embedded disciplinary specialists. These recurring findings provide an important context for the present study and underline the need for coherent institutional approaches to the recruitment, development, and retention of RDM professionals within the ETH Domain.

5.2 Key Relevant Outputs from the ORD Program of the ETH Domain

(i) The Checklist for a Generic Data Steward Job Description

Against the backdrop of increasing need for dedicated expertise in RDM, the ETH Domain Data Stewardship Network (DSN) developed the [Checklist for a Generic Data Steward Job Description](#) to support institutions in defining and recruiting for Data Steward roles in a more consistent and structured manner.

Rather than prescribing a single job profile, the checklist provides a competency-based framework that identifies core responsibilities, required skills, and areas for local adaptation. It reflects the understanding that Data Stewards operate at the interface of research, IT, libraries, and institutional services, requiring a combination of technical, organisational, and interpersonal competencies. By establishing a common reference for role definition and recruitment, the checklist contributes to the professionalisation of Data Stewardship within the ETH Domain and provides an important foundation for the

¹⁰ Nenadic, A., Reed, P., Horsfall, D., Goel, A., *et al.* (2026). *DIRECT (Digital Research Competencies) Framework* (Version 2.0). Community framework for Digital Research Technical Professionals. Available at the DIRECT Framework website and GitHub repository.

¹¹ Goth, F., Alves, R., Braun, M., Castro, L. J., Chourdakis, G., Christ, S., Cohen, J., Druskat, S., *et al.* (2025). *Foundational Competencies and Responsibilities of a Research Software Engineer*. *F1000Research*, **13**, 1429.

development of more coherent RDM career pathways. The checklist serves as a basis for the development of RDM-Specialists profiles in this report (see section 7.4).

(ii) The Swiss RSE Survey 2025

As RSE becomes increasingly important for data-intensive and computational research, concerns have grown internationally about the sustainability, recognition, and career development of RSE professionals. The Swiss RSE Survey 2025, conducted as part of the ETH Domain-funded RSE4ORD project, was designed to provide an evidence-based understanding of the Swiss RSE workforce, including working conditions, skills, professional identity, job satisfaction, and career prospects. The survey collected responses from 192 participants across Switzerland and sought to identify structural factors that support or hinder the development of sustainable RSE careers.

The survey found that career satisfaction is shaped less by salary than by organisational factors such as employment stability, recognition, and team structure. RSEs employed on permanent contracts reported significantly better career prospects than those on fixed-term contracts, while women reported substantially lower satisfaction with future career opportunities than men despite similar satisfaction with their current work. The strongest and most consistent finding was the positive impact of dedicated RSE teams: individuals working within dedicated teams reported higher recognition, stronger software engineering skills, greater satisfaction with work organisation, and a stronger professional identity as engineers. The report therefore argues that professionalisation requires not only technical training but also institutional structures that provide visibility, recognition, stable employment, and clear career trajectories for RSE professionals.

5.3 Position Paper on the Professionalisation of RDM Specialists at ETH Zurich

Building on findings of the Open Research Data Program of the ETH Domain (2020–2026) and the Open Science Programs of swissuniversities (2021–2024 and 2025-2028) a [position paper on the professionalisation of RDM Specialists](#) was produced at ETH Zurich in 2026. Using a slightly different vocabulary in this paper RDM specialist is used as an umbrella term encompassing Data Stewardship and RSE skilled staff. The position paper starts from the observation that scientific research is becoming increasingly data-intensive, complex, and dependent on digital infrastructures. As a result, effective management of research data and software is no longer a secondary or purely technical task, but a core component of scientific quality, reproducibility, and efficiency. At the same time, ensuring that research outputs meet FAIR and Open Science requirements introduces additional demands related to data organisation, metadata, interoperability, and long-term accessibility. These challenges are reflected not only in RDM, but also in adjacent domains such as research software engineering, where the Swiss RSE Survey

highlights the growing need for specialised expertise, clearer role definitions, and stronger institutional support structures.

Within this context, a structural gap becomes evident across all three sources: while RDM AND RSE-related activities are already widely performed, they are often distributed across heterogeneous roles and carried out without formal recognition, dedicated training pathways, or stable career perspectives.

At the same time, isolated examples of role descriptions show that the scope of RDM/RSE work is already being articulated in practice. For example, institutional job profiles, such as that developed at EPFL, outline responsibilities including advising on data management planning, supporting FAIR data practices, delivering training, contributing to infrastructure and tool development, and fostering community engagement. However, such profiles remain local initiatives and do not yet constitute a consistent or formally recognised role definition across the ETH Domain.

To address these challenges, the position paper proposes a shift towards the systematic professionalisation of RDM specialists, including data stewards, research software engineers, and related roles. A central element of this vision is the recognition of RDM expertise as a distinct and essential professional domain within the research ecosystem. The paper argues that high-quality, reproducible, and FAIR-compliant research depends on specialised roles that complement scientific work, rather than being treated as an additional responsibility for researchers.

5.3.1 Key recommendations of the position paper

The proposed model combines several key elements:

- **Formalisation of roles and career paths.**
Establishing clearly defined job profiles, competencies, and progression pathways for RDM specialists, integrated into institutional HR frameworks. Both the position paper and developing job descriptions underline that these roles require a combination of domain knowledge, technical expertise, and advisory skills, which should be reflected in structured career paths.
- **A hybrid organisational model.**
Combining strong central services with locally embedded expertise in research units, ensuring both general support and discipline-specific knowledge. This model is consistent with findings from the RSE community survey, where effectiveness depends on balancing central coordination with proximity to research practice.
- **Sustainable funding and employment conditions**
Moving beyond short-term project funding towards stable, long-term positions supported by institutional and shared funding models. Evidence from both RDM and RSE contexts suggests that reliance on temporary or fragmented funding structures limits continuity and professional development.

- **Integration into research processes and governance**
Recognising RDM specialists as active contributors to research planning, infrastructure development, and institutional strategy, rather than purely service-oriented support roles.
- **Investment in training and community building**
Strengthening professional development and fostering networks such as data stewardship and research software engineering communities. Across all three sources, continuous learning and peer exchange emerge as key enablers for maintaining high-quality support and adapting to evolving research needs.

Overall, the paper articulates a vision in which RDM and RSE expertise is fully integrated into the research lifecycle, supported by clearly defined roles, appropriate institutional structures, and sustainable career pathways.

5.4 Complementarity with this Report

While the position paper outlines a strategic vision for the future of RDM within the ETH Domain, and the proposed role descriptions and RSE community survey provide operational and comparative insights, the present study offers an empirical assessment of the current situation within the ETH Domain. The survey and interview results show how RDM AND RSE work is currently organised in practice, highlighting fragmentation, diversity of roles, and gaps in formal structures and career pathways. They also confirm that many of the functions described in formal job profiles already exist in practice, albeit often in a distributed and informal manner.

These perspectives provide a coherent basis for action: the position paper and example role descriptions define what a mature and sustainable RDM ecosystem should look like, while this report analyses where the ETH Domain currently stands.

Taken together, these documents provide a strategic, operational, and community-level perspective on the evolving role of data and software specialists in research. The subsequent sections build on this combined evidence to formulate recommendations on how the transition towards a professionalised and sustainable RDM AND RSE system can be achieved.

5.5 Conclusion

The review of national and international initiatives, together with the survey and interview findings presented in this report, points to an important conclusion: the development of sustainable career paths for RDM and RSE specialists is not solely an HR challenge. While HR functions play a critical role in defining job profiles, recruitment processes, training opportunities, and recognition mechanisms, the establishment of viable career pathways also depends on institutional leadership, funding models, organisational structures, and professional communities. The professionalisation of RDM/RSE therefore requires coordinated action from multiple stakeholders across the research ecosystem.

At the same time, any future framework for RDM and RSE careers within the ETH Domain must be grounded in existing organisational and the realities of research communities.

The six institutions operate within established employment frameworks that provide flexibility in job content, funding arrangements, and organisational placement. As a result, the formalisation of RDM/RSE roles cannot simply be achieved through the introduction of new job titles or career schemes. Rather, it must build on the ways in which RDM/RSE expertise is already organised and deployed across the Domain.

The survey, interviews, and review of existing initiatives indicate that RDM/RSE expertise is delivered through different organisational models across the ETH Domain. In addition to researchers, dedicated RDM/RSE professionals can be broadly grouped into embedded roles (23 respondents within departments and research infrastructures) and central support roles (37 respondents within Scientific IT and libraries). These models differ in their responsibilities, employment conditions, and career opportunities, and provide the conceptual typology forms a useful framework for the recommendations presented in the following sections.

Central RDM/RSE Specialists are located within libraries, Scientific IT services, and other central support units. Their work is primarily driven by institutional policies and infrastructure needs and includes the provision of guidance, services, training, and technical support for researchers. These roles are typically embedded within a limited number of long-term institutional structures, such as the three libraries and the Scientific IT Services, and are often associated with professional or technical career tracks.

Embedded RDM/RSE Specialists are situated within faculties, departments, technology platforms, research centres, or other specialised units. Their work is closely aligned with disciplinary practices and community standards, providing domain-specific expertise and support that bridges institutional requirements and local research needs. They are not aimed at all members of an institution, but rather at those who need a specific kind of support.

Research-Based RDM/RSE Specialists are researchers who assume substantial responsibility for the management of digital research assets within projects, laboratories, and research consortia. In these roles, RDM activities are closely integrated with research itself and are often supported through project-based or external funding.

This typology expands the distinction between centralised and embedded expertise proposed in previous ETH Domain initiatives. While the centralised–embedded model remains a useful starting point, the findings of this study indicate that researchers who undertake significant RDM/RSE responsibilities constitute a third and distinct category that should be recognised in discussions of career development and workforce planning.

These categories should be understood as ideal types rather than rigid classifications. In practice, overlaps, hybrid roles, and institution-specific variations are common. Nevertheless, the typology provides a useful analytical framework for understanding the diversity of RDM and RSE work across the ETH Domain and for developing recommendations that reflect this diversity. The following sections therefore examine how

these different forms of RDM expertise can be supported, recognised, and developed through appropriate career frameworks and organisational measures.

6. HR Perspectives on the Professionalisation of RDM and RSE Specialists

As part of this project, the preliminary findings and emerging recommendations were presented to the human resources departments of the six ETH Domain institutions, as well as to the ETH Domain HR leadership group. The purpose of these consultations was not only to validate the findings, but also to identify where HR functions could contribute to addressing the challenges identified through the survey and interviews and where responsibility lies with other stakeholders.

Overall, the consultations confirmed the relevance of the challenges identified by RDM/RSE professionals and their employers. Participants broadly agreed that unclear role definitions, limited training opportunities, weak career development structures, insufficient visibility and recognition, and the prevalence of short-term employment arrangements represent significant barriers to the professionalisation of RDM and related specialist roles. At the same time, the discussions highlighted that these challenges differ in the extent to which they can be addressed through HR policies and processes alone.

From an HR perspective, the areas where the greatest contribution can be made include the development of clearer role profiles and job descriptions, support for structured training and professional development, improved recognition of specialist contributions, and the creation of frameworks that support mentoring and career development. In contrast, issues such as project-based funding, long-term infrastructure investment, service coordination, and strategic governance were seen as requiring action from institutional leadership, research funders, service units, and Domain-level bodies. The consultations therefore reinforced a central conclusion of this report: while HR is an important enabler of professionalisation, sustainable career pathways for RDM and RSE specialists depend on coordinated action across multiple levels of the research system.

The consultation process also provided an initial basis for assigning responsibilities for the implementation of recommendations. Several recommendations, including the development of role descriptions, training frameworks, and recognition mechanisms, could be advanced through collaboration between HR departments, line managers, and professional communities. Other recommendations, particularly those concerning funding models, governance structures, and long-term service provision, require engagement from institutional leadership and the ETH Domain as a whole. These observations informed the allocation of responsibilities in the recommendations presented in the following section.

6.1 Issues and challenges

Based on the analysis of the survey, interviews, literature, and consultations with HR departments, the following key challenges to the professionalisation of RDM and RSE were identified:

- **Unclear job descriptions and roles**

Impact: Creates uncertainty about responsibilities, limits career progression, and makes recruitment and evaluation more difficult.

- **Hybrid nature of roles not reflected in employment frameworks**

Impact: Specialists operate at the intersection of research, data science, and research support, but this hybrid nature is often not recognised in existing employment frameworks. This limits appropriate job classification, career progression, mobility between job families, and recognition of the full scope of their expertise.

- **Lack of structured training**

Impact: Leads to inconsistent skills development, reliance on self-learning, and uneven quality of RDM and RSE support.

- **Absence of mentorship and career development pathways**

Impact: Restricts professional growth, reduces retention, and makes RDM and RSE careers less attractive.

- **Lack of visibility and recognition**

Impact: RDM and RSE contributions are undervalued, reducing motivation and limiting recognition in performance evaluations and promotion.

- **Short-term contracts and funding instability**

Impact: Creates job insecurity, hampers retention, and results in the loss of valuable expertise.

- **Fragmented support structures**

Impact: Causes duplication of effort, inconsistent service provision, and inefficient use of expertise.

- **No clear strategy, ownership or governance at Domain and institutional level**

Impact: Leads to inconsistent approaches, unclear responsibilities, and poor coordination of RDM and RSE services and career development.

- **Little investment in long-term infrastructure and maintenance**

Impact: Undermines the sustainability of RDM and RSE services, with expertise and systems often disappearing when project funding ends.

6.2 Recommendations

Based on the findings of this study, the following recommendations are proposed to address the challenges identified and strengthen the professionalisation of RDM and RSE across the ETH Domain.

1. Clarify and standardise RDM and RSE functions and roles

Develop clear role profiles and job descriptions that distinguish between researchers who undertake RDM/RSE responsibilities as part of their research and dedicated RDM/RSE professionals, such as Data Stewards and Research Software Engineers. Common role profiles and functional frameworks should be adopted across the ETH Domain to improve recruitment, role clarity, and career development.

Discuss whether in the ETH Domain functional framework:

- a) a new job family is required for digital research specialists, within which data- and code related roles can be accommodated. Roles that are not merely support functions, but rather equal partners in the research process, who further develop methodologies, ensure reproducibility of studies and drive digital research forward. How many positions a new job family would potentially cover and how other related roles would be incorporated should also be explored (e.g., data scientists, AI specialists).
- b) opportunities for RDM and RSE specialists to transition between the 'science' and 'IT' job families can be defined.

2. Establish structured training programs

Develop coordinated training programs that provide both foundational RDM/RSE competencies for researchers and advanced professional training for dedicated specialists. Institutions should allocate protected time and appropriate resources for professional development and reduce reliance on informal, self-directed learning.

3. Strengthen mentorship and career development

Support structured mentorship, peer learning, and professional networking to facilitate career progression. Existing initiatives, including the Data Stewardship Network (DSN) and the Research Software Engineering (RSE) Network, should be institutionalised, adequately funded and strengthened as mechanisms for training, mentoring, knowledge exchange, and community building.

4. Improve visibility and recognition of RDM and RSE work

Increase the visibility of RDM/RSE roles and recognise their contribution to research excellence. Institutions should review evaluation and promotion criteria to ensure that

RDM activities are appropriately recognised and consider certification or other mechanisms that acknowledge professional expertise.

5. Develop sustainable employment and funding models

Move beyond project-based employment wherever possible by establishing sustainable service models that provide continuity for RDM and RSE expertise and support research communities over the long term.

6. Improve coordination of RDM and RSE services

Clarify institutional responsibilities for support and strengthen coordination between libraries, IT services, research support units, and research groups. Clear governance and communication will reduce duplication of effort and improve service delivery.

7. Develop a coordinated Domain-wide strategy

Establish an ETH Domain-wide strategy for the professionalisation of RDM and RSE that aligns governance, job categories, professional standards, training, and career pathways across institutions while allowing for local implementation.

8. Invest in long-term infrastructure and capacity

Recognise RDM/RSE as a long-term institutional capability by incorporating both digital infrastructure and specialist expertise into strategic planning. Sustainable investment in infrastructure, maintenance, and professional capacity is essential to ensure the continuity of RDM services beyond individual projects.

6.3 Conclusions from HR Consultations

A key outcome of the HR consultations was the recognition that responsibility for addressing these challenges is distributed across multiple actors. While HR departments have an important role in supporting role definition, training, recognition, and career development, many of the structural challenges identified by respondents—including funding models, governance arrangements, service coordination, and infrastructure sustainability—require action from institutional leadership, research funders, service providers, and the ETH Domain as a whole.

Importantly, the three RDM/RSE typologies described above (central, embedded and research based RDM and RSE specialists) have overlapping but distinct needs which must be considered when designing and implementing recommendations.

The consultations therefore reinforced the conclusion that the professionalisation of RDM and RSE specialists should be understood as a shared institutional responsibility rather than solely an HR matter. Meaningful progress will require coordinated action at multiple levels, with clearly defined roles and responsibilities. An action plan to achieve these changes will be outlined in the following section.

Challenge	Recommendations	Ownership
Unclear job descriptions and roles	Clarify and standardise roles by developing clear role profiles and job descriptions; distinguish between researchers with RDM responsibilities and dedicated RDM/RSE professionals; use common templates and functional grids; align roles across the ETH Domain.	HR departments and professional networks
Lack of structured training	Introduce formal, structured training programs; provide basic and advanced training; allocate protected time and funding for training; reduce reliance on learning on the job.	Service units, professional networks
Absence of mentorship and career development pathways	Formalise and strengthen professional networks; support the RSE and DSN communities; promote training, mentorship, community building, and professional visibility.	Service units, professional networks
Lack of visibility and recognition	Improve the visibility of RDM roles and contributions; consider certification or labelling systems; review evaluation and recognition criteria.	RDM Services Working Group Service Units
Short-term contracts and funding instability	Develop sustainable RDM service models that support research communities rather than individual projects.	ETH Domain Board and Institutional management
Fragmented support structures	Improve central coordination of RDM services and clearly define institutional responsibilities.	ETH Board, ETH Domain Meeting
No clear strategy, ownership and governance at Domain and institutional level	Develop an ETH Domain strategy and action plan; establish Domain-wide structures; align job categories, training, and professional standards.	ETH Board, ETH Domain Meeting
Little investment in long-term infrastructure and maintenance	Integrate RDM into long-term infrastructure planning and investment.	ETH Domain meeting, Institution Management

Table 2. Summary of issues and recommendations.

7. Action Plan: Transitioning to an efficient and sustainable RDM AND RSE system

7.1 Introduction

The findings of this study demonstrate that the professionalisation of RDM and RSE support cannot be achieved through isolated institutional initiatives alone. Across the ETH Domain, RDM and RSE specialists face common challenges, including unclear job profiles, fragmented support structures, limited professional development opportunities, insufficient recognition of specialist expertise, and unstable funding models.

Addressing these challenges requires coordinated action at both institutional and Domain level. RDM and RSE expertise should be recognised as a strategic capability that underpins research excellence, compliance with funder requirements, and the long-term stewardship of research outputs.

The principal recommendation of this report is therefore that the ETH Board, together with the leadership of the six ETH Domain institutions, establish a coordinated program for the professionalisation of RDM and RSE specialists. The program should define common principles, standards, and support mechanisms while allowing sufficient flexibility for institutions to implement these according to their local organisational structures and needs.

In addition to coordination efforts, a key priority should be to ensure transparency regarding:

- a) Existing career opportunities. For example, the available Senior Scientist positions at ETH Zurich, which encompass four focus areas (including 'Focus Infrastructure' and 'Focus Research Coordination'), have not yet been utilised for RDM/RSE-related purposes.
- b) The rationale for proposed actions. For example, it is important to recognise that sharing experiences and developing concrete use cases for RDM/RSE career paths may ultimately have a greater impact than the introduction of ETH-wide guidelines.

It should also be emphasised that any restructuring or expansion of the current job families at the ordinance level (see Info Box 4) is inherently a political matter. Consequently, the implementation of any action plan must take the broader institutional context into account. RDM/RSE-related career development competes with a range of other demands for new or enhanced career pathways. Examples include roles in the medical sector, data science, and emerging professional profiles associated with the ETH Domain's AI initiatives.

In the context described above, it is important to recognise that HR is not the most appropriate function to lead the establishment and long-term ownership of RDM/RSE career paths. Instead, responsibility and leadership should be anchored within the academic community. Accordingly, a FAIR Board with faculty representation, a research committee, or the existing Expert Group Research of the ETH Domain ORD Programme

would be better suited to provide strategic oversight and governance. HR departments can play an important supporting role and should lead those work packages that fall within their areas of responsibility and expertise.

The project lead (Karsten Bugmann, Head of HR, ETH Board) and the Heads of HR of the six ETH Domain institutions therefore recommend that the Steering Committee invite the ETH Board to mandate the development and implementation of the action plan set out below. The action plan should be implemented over a two-year period with appropriate coordination and resources.

7.2 ETH Domain action plan

	Action Area	Key Actions	Lead Responsibility	Supporting Actors	Deliverables (within 2 years)
Governance	GO1 Governance and Strategic Coordination	Establish an ETH Domain-wide strategy for the implementation of the M5 recommendations; create a coordination group; agree on key actions to be implemented; approve a sustainable financial plan.	ETH Board, ETH Domain Meeting	Institution Management (ETH Zurich, EPFL, RIs), HR Departments, Research Offices	Clear governance, shared strategic direction, implementation procedure and financial plan.
	GO2 Ownership and Monitoring	Refine and finalize action plan; have action plan approved; monitor implementation of clearly defined actions.	Coordination Group	ETH Domain Meeting Institution Management	Approved action plan continuously adapted to evolving needs.
	GO3 Sustainable Funding and Workforce Stability	Develop long-term funding mechanisms; reduce dependence on short-term project funding; integrate RDM and RSE support into infrastructure planning and budgeting.	ETH Domain, Institution Management	Research Funders, Research Groups	Stable employment conditions and sustainable service provision.
	GO4 Professional Networks and Communities of Practice	Sustain and formalize/institutionalize Data Stewardship (DSN) and Research Software Engineering (RSE) Communities	ETH Domain Meeting, Institution Management	Service Units, Professional Networks	DSN and RSE communities formally embedded within the organisations of the ETH Domain.
Career Framework	CF1 Professional Profiles and Career Frameworks	Define an RDM and RSE career framework; develop harmonised job descriptions for RSE/RDM specialists away from support functions as research partners, role profiles and career paths from junior to senior all the way to principle investigator, review alignment with, e.g. ICT Professional Role Profiles; have framework confirmed and approved.	HR Departments, Professional Networks	ETH Domain Meeting, Institution Management	Transparent and approved roles, job descriptions and career paths
	CF2 Functional Framework and Support	Align existing functional frameworks for RDM/ RSE specialists based on use cases and scenarios (new job family / transition between 'Science' and 'IT'); develop practical resources that support professors and heads of units in recruiting, developing and retaining RDM specialists.	HR Departments	Professional Networks, Professors, Heads of Units, Institution Management	Toolbox for recruitment, development and long-term employment.
	CF3 Recognition and Professional Status	Recognise RDM and RSE expertise in recruitment, promotion and evaluation; explore certification mechanisms.	Institution Management, HR Departments	Professors, Heads of Units, Professional Networks	Increased attractiveness through full institutional recognition.

Training, Mentoring & Services	TM1 Training and Skills Development	Establish structured training pathways; expand RDM Campus (ORD M3) offerings; develop specialist training modules and guidance materials.	Professional Networks, Service Units	Professors, Heads of Units, HR Departments, ETH Domain Leadership	Consistent competency development and approved learning pathways.
	TM2 Identity and mentoring	Ensure exchange formats and online platforms for DSN and RSE networks; strengthen professional identity, collaboration, knowledge exchange; establish a mentoring system.	Service Units Professional Networks	Professors, Heads of Units, ETH Domain Leadership	Procedures for support and supervision are clearly defined and approved.
	TM3 Coordination and Visibility of RDM Services	Establish a Domain-wide RDM and RSE services network; coordinate libraries and Scientific IT; further develop the RDS Explorer; promote exchange program for ETH Domain RDM specialists.	RDM Services Working Group Service Units	Libraries, Scientific IT Services, Institution Management	Improved visibility for researchers, coherent support services.

Table 3 - Proposed action plan for the implementation of the recommendations

7.3 Proposed implementation t

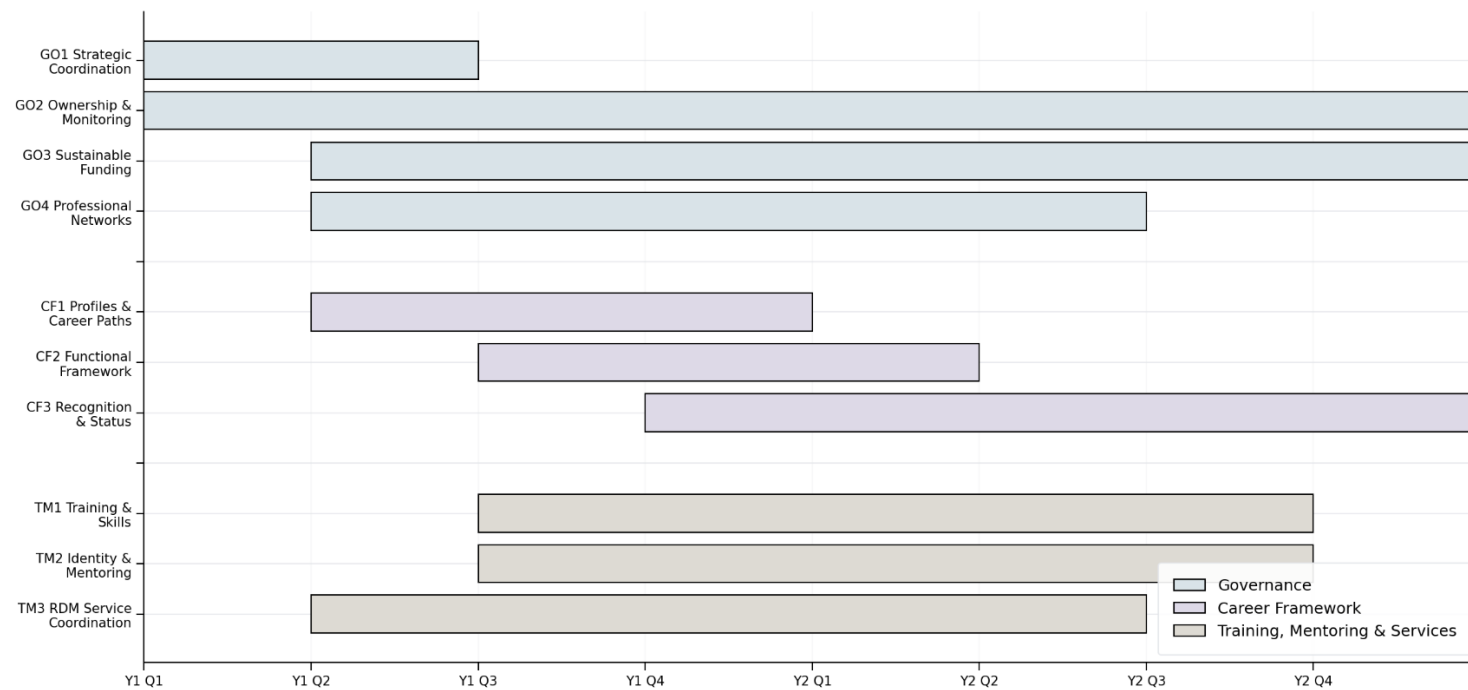


Table 4: Proposed implementation timeline

7.4 Guidelines for profiling Research Data Management and Research Software Engineering

7.4.1 Background

To support Action CF1, Professional Profiles and Career Frameworks, as outlined in the action plan, the project provides a guide that sets out the criteria for defining the job profiles of RDM professionals and RSEs side by side. This comparison is not intended to distinguish between the two roles. Rather, it establishes a common set of criteria with a consistent structure for both profiles, facilitating the permeability between them. As discussed above, this permeability is becoming increasingly important in the context of advances in AI and data-driven research.

The M5 project is thus being leveraged to contribute insights gained through the ORD program funded [Data Steward Ship Network \(DSN\) in the ETH Domain](#) and the [RSE4ORD – building a research software engineering community to promote open science](#) initiatives. These insights inform the discussion on the profiling of RDM and RSE specialists and feed into the subsequent implementation of the action plan.

We draw on two sources: firstly, the '[Checklist for a Data Steward Job Description within ETH-Domain Institutions](#)' v2.0 developed by the Data Stewardship Network; and secondly, the reference framework of the Research Software Engineering Community, in particular the [Digital Research Competencies Framework](#) and the deRSE community paper '[Foundational Competencies and Responsibilities of a Research Software Engineer](#)', in particular see section 4.

RDM and RSE profiling are presented in a structured list that includes (i) key responsibilities, (ii) skills, (iii) qualifications and (iv) specialisations.

7.4.2 Implementing the guidelines

As part of the action CF1, international examples of profiling as described in Info Box 6 should be kept in mind as the list is further developed in three ways:

Firstly, as a pool from which elements can be transferred into specific job profiles, it should be developed as a support tool for writing of job descriptions.

Secondly, as a reference framework to help, formulate templates for job profiles more effectively (e.g. based on experience (e.g. senior, junior), performance (e.g. high achieving) specialisation (e.g. data curation in scientific collection, data stewardship for medical research) and/or the specific role within the ETH institutions (e.g. employed in central services, research units or as a researcher offering RDM/RSE support).

And thirdly, the ETH Domain must also define criteria or set criteria in the list as mandatory through which they wish to promote RDM and RSE requirements, such as FAIR4AI, RSE4FAIR, Open Research Data, the FAIR principles.

Profiling Research Data Management and Research Software Engineering in the ETH Domain

Research Data Management (Based on Input from ETH Domain Data Stewardship Network)	Research Software Engineering (Based on Input from ETH Domain Research Software Engineering Community)
1. Key Responsibilities	
1.1 Researcher Support & Advisory	
– Advise on RDM, ORD, FAIR principles, licensing, and legal/ethical standards across the research lifecycle – Promote reproducibility, open science workflows, and RDM best practices – Support DMPs, metadata, data publication, preservation, and repository selection – Advocate for data stewardship as a profession; communicate with diverse audiences	– Advise researchers on software architecture, development approaches and tooling – Promote reproducible, maintainable and FAIR research software practices – Translate research requirements into sustainable technical solutions – Guide researchers in selecting appropriate computing and infrastructure solutions – Promote collaborative and open software development practices
1.2 Training & Education	
– Design and deliver RDM training, workshops, and e-learning materials for diverse audiences – Mentor research groups and researchers at all career stages – Contribute to onboarding programs – Organise events and campaigns to promote RDM best practices and change management	– Deliver RSE training in programming, software engineering and reproducibility – Mentor researchers and research teams in software development – Develop technical documentation, tutorials and onboarding materials – Support skills development in modern research computing practices
1.3 Technical & Tool Support	
– Develop, configure, and maintain RDM tools, repositories, and data infrastructures – Ensure metadata quality, curation, and long-term accessibility; automate data workflows – Support data anonymisation, secure sharing, and technical compliance with data protection requirements	– Design, develop and maintain research software applications and services – Develop computational workflows, automation and research pipelines – Implement testing, validation and software quality assurance practices – Support software deployment, packaging and release management – Maintain development infrastructure and automation workflows – Optimise software performance, scalability and maintainability

1.4 Policy, Strategy & Compliance	
– Develop and maintain institutional RDM strategies, policies, and Open Research Data frameworks – Ensure compliance with funder and legal requirements (SNSF, Horizon Europe, GDPR, nFADP) – Advise on licensing (Creative Commons), IP rights, and ethical requirements for research data	– Contribute to institutional software sustainability strategies – Support responsible and ethical use of digital technologies – Ensure compliance with licensing, governance and security requirements – Advise to software standards, guidelines and best practices
1.5 Coordination & Community	
– Coordinate RDM across teams; liaise between researchers, IT, library, legal, and external providers – Build national/international networks (RDA, EOSC, NFDI, Swiss Data Custodian Network) – Represent the institution in RDM working groups and open science task forces	– Collaborate with interdisciplinary research teams – Coordinate technical activities across projects and stakeholders – Participate in research software and open-source communities – Support community building, mentoring and knowledge sharing – Represent institutional interests in digital research initiatives
2. Skills	
2.1 Domain Core Skills (RDM resp. RSE)	
– Deep expertise in RDM, ORD, and FAIR principles across the full research data lifecycle – Knowledge of metadata standards (Dublin Core, DataCite, schema.org, RO-Crate), curation, and preservation – Awareness of open science policies and funder mandates (SNSF, Horizon Europe, NIH) – [Domain-specific expertise: specify if needed]	– Software engineering principles and practices – Research software sustainability and reproducibility – Research computing and scientific workflows – Computational methods and algorithm development – FAIR and open-source software approaches – Domain-specific expertise (optional)
2.2 Tools & IT	
– Proficiency with RDM tools (Zenodo, Dataverse, CKAN, iRODS) and DMP platforms – Scripting and programming skills (Python, Bash, R); experience with databases, APIs, and data formats – Version control (Git/GitHub/GitLab); awareness of information security in data services	– Programming languages (Python, R, C/C++, Julia, etc.) – Version control and collaborative development – Testing, CI/CD and automation – Containers and virtualisation – Cloud and HPC environments – Databases, APIs and data engineering

	– Web and application frameworks – AI/ML frameworks and tools
2.3 Communication & Collaboration	
– Strong service orientation; ability to translate complex requirements into practical guidance – Excellent communication with diverse audiences (researchers, IT, administrators, students) – Experience with training delivery, trusted advisory, and stakeholder relationship management	– Technical writing and documentation – Knowledge exchange and mentoring – Public speaking and presentation – Translating technical concepts for diverse audiences – Stakeholder engagement – Interdisciplinary collaboration – Active listening and constructive feedback – Open-source collaboration practices – Community engagement and networking
2.4 Project Management & Problem Solving	
– Experience in managing RDM projects; strong organisational and analytical skills – Ability to facilitate workshops and synthesise diverse inputs into recommendations – Proactive, solution-oriented, adaptable to changing requirements and stakeholder contexts	– Agile and Scrum methodologies – Project and task management – Workflow automation – Analytical problem solving – Systems thinking – Performance optimisation – Troubleshooting and debugging – Risk awareness and mitigation – Gathering stakeholder requirements – Strategic technical planning
2.5 Legal, Ethical & Funding Awareness	
– Knowledge of copyright, data licensing (Creative Commons, open licences), and IP rights – Understanding of GDPR and nFADP; awareness of funder mandates (SNSF, Horizon Europe, Wellcome Trust) – Ability to advise on ethical/regulatory requirements and to escalate to legal experts as needed	– Software licensing and IP – Open-source compliance – Reproducibility and FAIR software principles – Security and privacy awareness – Ethical use of AI and data technologies – Research integrity and governance – Awareness of institutional and funder requirements – Sustainable and responsible computing practices

3. Qualifications	
3.1 Education & Research Background	
– Master's or PhD in data science, computer science, information/library science, or a data-driven discipline – Experience with the research lifecycle and interdisciplinary collaboration – Engagement with RDM/open science communities (RDA, RDMLA, EOSC) is an asset	– Master's or PhD in computer science, computational science, engineering or related discipline – Experience in computational, data-intensive or software-supported research – Understanding of research environments and scientific workflows – Familiarity with reproducible and open research practices
4.2 Professional Experience	
– Experience in RDM support roles in academic or research environments – Track record of advising researchers, developing institutional processes, and delivering training – Experience with stakeholder engagement and cross-functional team structures	– Experience developing and maintaining research software – Collaborative software development workflows – Cloud, HPC or distributed computing environments – Support for interdisciplinary research projects – Software sustainability and automation practices – Technical documentation and training materials
4.3 Personal Competencies	
– Fluent English; French and/or German an asset – Strong interpersonal, advisory, and relationship-building skills; empathy in user support – Organised, proactive, user-focused, and committed to continuous improvement and equity – Mentoring and supportive mindset – Integrity and ethical awareness – Ability to work in teams across disciplines and technical domains – Initiative and self-management – Adaptability and resilience – Scientific integrity and responsible research practices	
4. Specialisations	
– Domain/Discipline Data Steward (e.g. life sciences, social sciences, humanities, engineering) – Legal & Ethics Data Steward (data protection, consent management, data governance)	– HPC RSE – AI/ML RSE – Scientific Computing RSE – Data Engineering RSE

- Open Science & Scholarly Communication Steward (open data, open access, open publishing)
- Research Infrastructure & Repository Steward (repository management, platform development)
- Training & Capacity Building Steward (education, change management, community building)

- Cloud/DevOps RSE
- Web Platform RSE
- Open Science RSE
- Research Infrastructure RSE
- Visualisation RSE
- Computational Methods RSE
- Workflow Automation RSE
- Digital Humanities RSE

APPENDIX A: SURVEY INSTRUMENT

Title: Defining Careers Related to Research Data Management and Software Engineering in the ETH Domain

Purpose

This survey was administered across institutions of the ETH Domain to better understand roles, responsibilities, employment conditions, competencies, training opportunities, and career pathways related to research data management (RDM) and research software engineering (RSE). The survey structure and questions asked are outlined below.

1. At which institution in the ETH Domain do you work?

ETH Zurich; EPFL; PSI; WSL; Empa; Eawag; Multiple (please specify)

2. What is your age in years?

18–25; 25–30; 30–40; 40–50; Over 50; Prefer not to say

3. What is your gender identity?

Female; Male; Non-binary; Rather not say

4. What field of study or area of education have you specialized in?

Art, music and design; Computer sciences; Digital Humanities; Historical and civilization sciences; Languages and literature, communication and information; Law and economic sciences; Mathematics; Medicine, health and sport; Natural and environmental sciences; Social sciences; Teaching and pedagogy; Technical sciences; Theology and religious sciences; Other

5. What is your highest completed level of education?

Secondary; Vocational training/apprenticeship; Bachelor's; Master's; Doctorate; Other

6. How many years of work experience have you accumulated in higher education institutions?

0–1; 2–5; 6–10; Over 10

7. Do you have a permanent work contract?

Yes; No

8. What is your current level of employment (%FTE)?

20% or less; 21–40%; 41–60%; 61–80%; 81–100%

9. What is your current personnel category?

Full Professor; Associate Professor; Assistant Professor; Senior scientist; Established Researcher; Scientific Coordinator; Scientific Assistant; Postdoctoral researcher; Doctoral student; Administrative Staff; Technical Staff; Other

10. Which best describes the unit where you are employed?

Research group; Department; Library; Scientific IT services; Technology Platform/Research Infrastructure; Other

11. Is RDM/RSE your primary responsibility according to your job description?

Explicitly primary; Implicitly primary; Secondary; Not mentioned

12. Were RDM/RSE skills explicitly required when hired?

Mandatory; Preferred; Experience considered; Not mentioned; Not applicable

13. What % of your time is spent on RDM/RSE tasks?

10% or less; 11–20%; 21–40%; 41–60%; 61–80%; 81–100%

14. Which activities do you carry out? (Select all that apply)

Research data curation; Metadata management; Data storage/archiving; Research software development; Policy development; Training; Outreach; Data management planning; Data publication; RDM Support/Training; Other

15. Briefly describe your RDM/RSE activities.

Open response

16. Which profile best describes your professional self-image? (Select all that apply)

Research Data Steward; Research Software Engineer; Research Data Analyst; Digital Curator/Archivist; Domain-specific IT Specialist; Research Data Infrastructure Manager; Project Data Manager; Researcher; Other

17. Who are the primary beneficiaries of your RDM/RSE work?

Own projects; Research group; Specific departments; Institution; Other research groups; Entire institution; Other

18. Which scientific fields do you work with? (Select all that apply)

Scientific field options; Other

19. Has your work been impacted by the recent push to openly share research data?

Yes, significantly; Yes, somewhat; Unsure; No

20. If yes, how has it changed? (Select all that apply)

Workload increased; New rules; More visible; Greater impact; Researchers depend more; Other

21. How familiar are you with Open Science concepts?

Unfamiliar; Basic; Moderate; Proficient; Expert

22. In which Open Science areas could you provide guidance? (Select all that apply)

FAIR; Open Data; Open Access; Software sharing; Reproducibility; Open methods; DMPs; None; Other

23. What is the level of interoperability of data infrastructures in the ETH Domain?

Very low; Low; Moderate; High; Very high

24. Are you involved in an ORD/Open Science funded project?

Yes; No

25. How many years of experience do you have in an RDM/RSE role?

0–1; 2–5; 6–10; Over 10

26. Have you worked with RDM/RSE in non-academic settings?

Industry; Government; NGO; No

27. What training have you completed? (Select all that apply)

Formal qualification; Formal non-qualification; On-the-job; Self-study; None; Other

28. Where do you seek help if unable to resolve an RDM/RSE issue? (Select all that apply)

Supervisor; Peers; Library; IT; Online resources; Wider community; Professional networks; Other

29. Which professional communities are you affiliated with?

ETH RSE Network; ETH Data Stewardship Network; Swiss Reproducibility Network; None; Other

30. Do you use institutional RDM/RSE support services?

No; Infrequently; Moderately; Frequently; Very frequently

31. What support does your institution provide? (Select all that apply)

Financial support; Paid training time; Online resources; Workshops; Technical training; Mentorship; Other

32. What's lacking to advance your career in RDM/RSE?

Open response

33. Does RDM/RSE receive appropriate recognition from institutional leadership?

Not valued; Minimally valued; Somewhat valued; Valued; Highly valued

34. In which ways has your RDM/RSE work had an impact? (Select all that apply)

FAIR; Reuse; Audits; Time savings; Grant success; Discoverability; Prevented data loss; Collaboration; Data quality; Reproducibility; Publications; Other

35. How are your contributions acknowledged?

Research Papers, Databases and Grants: Authorship; Acknowledgements only; Not acknowledged; Not applicable

36. Do you see yourself performing RDM/RSE tasks in 5 years?

Yes; No; Unsure

37. Are there clear opportunities to advance an RDM/RSE career?

Yes; No; Unsure

38. Do you have access to the resources and mentorship needed to advance your career?

Yes; No; Unsure; Optional comment

39. What are the main challenges to a rewarding RDM/RSE career? (Select all that apply)

Recognition; Financial support; Technology change; Resistance; Conflicting priorities; Unclear need; Unclear career path; Salary; Permanent positions; Other

40. Would you recommend an RDM/RSE career in Swiss higher education?

Yes; Maybe; No; No answer

41. Comments or suggestions regarding RDM/RSE career pathways.

Open response

42. May we contact you for follow-up questions?

Yes; No

43. If yes, please provide your name and email address.

Open response

Note: The survey contained a combination of multiple-choice, rating-scale, and open-ended questions. Conditional questions were displayed based on responses provided by participants.

APPENDIX B: SEMI-STRUCTURED INTERVIEW GUIDE

Title: Defining Careers Related to Research Data Management and Software Engineering in the ETH Domain

Interview Duration: Approximately 60 minutes

Purpose

The interviews were conducted with researchers, principal investigators, managers, and other stakeholders across the ETH Domain to explore workforce needs, recruitment practices, organisational structures, and future career pathways for research data management (RDM) and open research data (ORD) professionals.

1. Introduction
 - Purpose of the interview
 - Confidentiality and anonymisation of responses
 - Permission to take notes and/or record the interview
2. Participant Background
 - Could you briefly describe your research area and the type of data and/or software used by your team?
 - What are the main challenges your group faces regarding research data management and open research data practices?
3. RDM Workforce and Recruitment
 - How does your group currently meet its research data management needs?
 - Do you typically hire specialists, assign responsibilities to existing team members, or outsource services?
 - Can you provide an example of a recruitment or staffing decision related to RDM?
 - What unique expertise do RDM professionals contribute to your team?
 - How do you assess the value and costs associated with RDM support?
 - What skills and competencies are most difficult to recruit?
 - What level of scientific domain knowledge is required for these roles?
 - What recruitment channels are most effective?
 - How are researchers prepared for RDM responsibilities when specialist staff are not available?
4. Organisational Models
 - Where should RDM professionals be located within the organisation (research group, department, central service, etc.)?
 - What are the advantages and disadvantages of centralised versus decentralised RDM support?
 - What funding models are most appropriate for these positions?

- Do you prefer embedded specialists or shared service models?
 - What collaborations are required between RDM professionals and other stakeholders?
 - How much autonomy should these roles have?
5. Performance and Evaluation
- How should the success of RDM professionals be measured?
 - Are there existing frameworks for evaluating performance in these roles?
6. Career Development and Sustainability
- What are your views on current promotion pathways, job security, and recognition mechanisms?
 - What professional development opportunities should be available?
 - Are these positions generally temporary, grant-funded, or permanent?
 - How can institutions retain talented RDM professionals?
 - How important is flexible or hybrid working for these roles?
7. Future Outlook
- How do you expect RDM and ORD-related roles to evolve in the coming years?
 - What impact will developments such as AI, automation, and policy changes have on these professions?
 - What is currently working well within the ETH Domain?
 - What unmet needs or challenges do you anticipate over the next three to five years?
8. Closing
- Is there anything else you would like to add?
 - May we contact you for follow-up questions if necessary?

APPENDIX C: INTERVIEW PARTICIPANT SELECTION CRITERIA

Interview participants were selected using purposive sampling to ensure representation from key stakeholder groups involved in research data management (RDM), open research data (ORD), and research software engineering across the ETH Domain.

Selection criteria included:

1. Institutional Representation

Participants were selected to provide broad representation across the ETH Domain, with the following target distribution:

- ETH Zurich: approximately 50%
- EPFL: approximately 25%
- Research Institutes (PSI, WSL, Empa, and Eawag): approximately 25%

2. ORD Project Leaders

Individuals leading Open Research Data (ORD) projects funded under the ORD Program were prioritised due to their direct experience with workforce development, data stewardship, research software engineering, and implementation of Open Science practices.

3. Heads of Central RDM Service Providers

Interviews included leaders of major institutional RDM support services, including:

- ETH Zurich Library
- EPFL Library
- Lib4RI
- Scientific IT Services

These participants provided perspectives on institutional support structures, service provision models, and workforce requirements.

4. Heads of Technology Platforms and Research Infrastructures

Interviews included leaders of technology platforms and research infrastructures, including representatives from:

- Nexus and other technology platforms
- Swiss Data Science Center (SDSC)

These participants contributed perspectives on technical expertise requirements, infrastructure support, recruitment challenges, and future workforce needs.

The selected participant groups were intended to capture strategic, operational, and technical perspectives on the professionalisation and career development of RDM and related professions within the ETH Domain.

APPENDIX D: INTERVIEW PARTICIPANTS

Nicolas Argento — EPFL SV-IT

Alun Ashton — Paul Scherrer Institute (PSI)

Anusch Bachofner — Empa

Guilaine Baud-Vittoz — EPFL Library

Fabian Felder — Eawag Library

Chiara Gabella — EPFL Library

Michele Griffa — Empa

Michael Greeff — ETH Zurich

Ellen Knappe — Eawag Library

Henry Lütcke — ETH Zurich

Gian-Kasper Plattner — WSL

Giovanni Pizzi — Paul Scherrer Institute (PSI)

Jörg Rieckermann — Eawag

Bernd Rinn — ETH Zurich

Henning Stahlberg — EPFL

Elizabeth (Liz) Tilley — ETH Zurich

Matthias Töwe — ETH Zurich Library

Charlotte Weil — ENAC Computer Services, EPFL

Thomas Wüst — ETH Zurich