

Developing the Data Steward Community in Hungary

Ákos Lencsés¹ , Júlia Egyed-Gergely² , Henrietta Farkas³ , Anna Horváth⁴ , Enikő Meiszterics⁵ ,
Zsuzsa Sidó⁶ , Bence Vida⁷ 

¹ Eötvös Loránd University, Research Centre for Linguistics; Pro-M Zrt.
lencses.akos@nytud.elte.hu

² Eötvös Loránd University, Centre for Social Sciences
egyed-gergely.julia@tk.hu

³ HUN-REN Hungarian Research Network
farkas.henrietta@hun-ren.hu

⁴ Eötvös Loránd University, Centre for Social Sciences
horvath.anna@tk.hu

⁵ Eötvös Loránd University, Centre for Social Sciences
meiszterics.eniko@tk.hu

⁶ Eötvös Loránd University, Department of Digital Humanities
sido.zsuzsa@btk.elte.hu

⁷ Eötvös Loránd University, Department of Digital Humanities
vida.bence@btk.elte.hu

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Data stewardship is an emerging professional field that supports researchers in managing, preserving, and sharing research data according to FAIR (Findable, Accessible, Interoperable, Reusable) and open science principles. In Hungary, this role has recently become institutionalized through coordinated educational and community-building initiatives. The first formal postgraduate data steward training program was launched at Eötvös Loránd University (ELTE) in 2023, providing interdisciplinary education that combines technical, legal, and research data management skills. Parallel to this, the HUN-REN Hungarian Research Network established its Data Steward Network in 2024, supported by infrastructure development and pilot projects. The network's members, trained through a dedicated internal training program, support research data management across diverse disciplines. Regular community meetings, workshops, and international collaborations further strengthen professionalization efforts. Together, these developments represent a significant step toward integrating data stewardship into Hungary's research ecosystem, creating a national framework that fosters sustainable research data management practices across institutions.

data steward, open science, research data, research support, Hungary, HUN-REN, ELTE

1. Introduction

Employment as a data steward is a relatively new phenomenon. The primary role of data stewards is to assist researchers in managing all aspects of research data maintenance within a research group or an institution. Their responsibilities are distinct from those of statisticians and data analysts; this distinction defines data stewardship as a unique professional profile among research support roles. Although research data management has always been part of the research workflow, it was typically handled by team members who were not solely dedicated to this task, often balancing the responsibilities of managing research data with other research duties.

As previous studies have shown, research data management practices are an integral part of research activities not only globally but also at major Hungarian universities. Several studies conclude that research data management practices are quite diverse, and researchers often face uncertainty regarding both the best practices and the expectations of research funders (Zeller, Hoczopán, Nagy, 2021; Faragó-Szilvási, Fejes, Móring, 2022). In many cases, it is also unclear who is responsible for handling research data during a project.

The diversity of research data management practices across research fields complicates the definition of the roles a data steward might fulfil. Wildgaard and Rantasaari quote a report from the Research Data Alliance (RDA) Professionalising Data Stewardship Interest Group arguing that „...[the] lack of consensus on the responsibilities, knowledge and skills of data stewardship results in confusion about the role of a data steward and hampers adequate data steward capacity” (Wildgaard, Rantasaari 2022, p. 6). In parallel, the European Open Science Cloud (EOSC) Task Force on Data Stewardship Curricula and Career Paths concludes „that the current panorama on Data Stewardship is too scattered regarding training and careers” (Kalová et al., 2024, p. 6).

This indicates that there is a clear trajectory toward the institutionalization of the data steward role within academia. A growing body of examples exist that outlines the necessary skillset for data stewards, and helps in distinguishing between different types of data stewards (Whyte et al., 2024). As the management of research data according to FAIR (Findable, Accessible, Interoperable, Reusable) principles becomes a key pillar of the open science movement, data stewards play a pivotal role in making open science the new norm in research.

This paper discusses the main steps taken by the Hungarian research community to institutionalize data stewardship across various research-related roles. The Hungarian case may mirror the difficulties described above. The process of forming the Hungarian data steward community includes the development of both formal and informal training programs for data stewards as well as the organisation of a professional data steward community that involves individuals from a diverse set of Hungarian higher education and research-performing institutions.

The main actors in this field in Hungary are Eötvös Loránd University (ELTE), the first institution to offer formal data steward education, and the HUN-REN Hungarian Research Network, where the first Hungarian data steward network has been developing. These institutions and their activities are discussed in detail in this paper. We also present the initial steps taken in forming the Hungarian national data steward network as well as the main activities of this emerging community.

2. ELTE Postgraduate Data Steward Training Program

In 2015, the European Commission launched what is now known as the EOSC, with the aim of building a research infrastructure based on open science principles. As part of this initiative, EOSC formed a special working group responsible for developing the data stewardship field: mapping career paths of data stewards, and collecting and systematizing job requirements.¹ This standardization and systematization activity was essential, because the field of data stewardship was poorly defined due to its novelty and its interdisciplinary nature. Although still loosely defined, the role encompasses diverse activities that intersect with multiple scientific domains and with the broader structure of academic research. According to the definition of the EOSC Data Stewardship, Curricula and Career Paths working group, data stewards are “*who plan, manage and maintain the data of a research unit, are skilled professionals essential in bringing about a culture change for data management, sharing research data, and developing infrastructures and data policies*” (Basalti et al., 2024, p. 4). The working group views data stewards partly as intermediaries between the national data management programs of European Union (EU) Member States and other international, and EU-level data management systems. Data stewards are also partly understood to be facilitators in the institutional implementation of nationally and internationally harmonized data management principles. The task of a data steward is to prepare a research data management protocol (an RDM protocol) for an institution, research group, or grant project, by identifying and involving stakeholders in data management, by establishing communication among them, and by monitoring, reviewing, and modifying the data management plan as needed, with sensitivity to the project's dynamics. (Basalti et al., 2024, p. 5–9.)

Data stewards perform their activities in alignment with the principles of open science, whose widespread adoption across the EU is a fundamental goal of the EOSC project. Open science can be defined as an approach that emphasizes the open and collaborative implementation of scientific processes, and it seeks to develop appropriate tools for knowledge sharing. Regulation 2021/695 of the EU is in line with the UNESCO recommendations, which also proposes opening up the process and infrastructure of knowledge sharing, with sensitivity to the multilingual scientific environment and the social reach and impact of scientific activity (UNESCO, 2021).

Open science, in terms of data management, primarily refers to the set of data management principles described by the acronym FAIR. These principles focus on the findability, accessibility, syntactic and semantic platform independence, and the

reusability of data, achievable within an appropriate legal framework. Therefore, the primary activity of a data steward should be directed towards developing a FAIR data management protocol based on the principles of open science.²

In Hungary, the National Research, Development and Innovation Office (NKFIH) – in tandem with the UNESCO and European Commission's initiatives – published an official statement in October 2021, advocating for the promotion of open science principles and articulating the need to transform the national scientific sphere in the spirit of open science.³ The statement prominently mentions the integration of open science principles into the education system, emphasizing the need to train specialists proficient in FAIR data management. Following the NKFIH's statement, the University of Debrecen led the implementation of the educational program, while the Governmental Agency for IT Development (KIFÜ) coordinated the development of IT infrastructure and sector-level coordination of developments, and the Open Science Forum, which was launched in 2021, as the platform for domestic communication concerning open science. The guidelines regarding the educational program can be understood to include the launch of data steward training in Hungary, as the statement, although using a different term ("accredited data management officer training"), essentially refers to data steward training.

The first resolution on establishing a specialized postgraduate training program for data stewards at the ELTE Faculty of Humanities was made in October 2021.⁴ The goal was to train specialists who are proficient in modern research data management standards and capable of data management, including the creation, preservation, and sharing of increasingly large amounts of digital research data. The organizers of the educational program sought to respond to the challenges arising at Hungarian memory institutions, i.e. libraries, archives, galleries and museums, as well as research institutions and higher education institutions. These challenges stem from the explosive growth in digital data volumes and the changes in regulatory systems within the international research community.

Based on the above background, the Department of Digital Humanities at ELTE began developing its data steward training program with the support of the National Laboratory for Digital Heritage (DH-LAB), established in September 2020.⁵ Among the objectives of the NKFIH-funded National Laboratory for Digital Heritage project was to develop methodologies for AI-based processing, research, education, and the widest possible dissemination of national cultural heritage in cooperation with GLAM institutions (Galleries, Libraries, Archives, Museums). A further goal with the launch of the training was to educate and support the staff of these institutions. From the outset, it was clear that the preparatory work would require mediating between institutions and developing the curriculum for the training in cooperation with partner organisations. The processes of digitization, corpus building, and web archiving at the DH-LAB generated considerable amounts of digital research data, the storage and publication of which are not trivial. Therefore, turning to the Hungarian Intellectual Property Office (SZTNH) for an expert opinion to map out and develop appropriate legal frameworks was a natural next step. Establishing the data steward training also contributed to the main objective of DH-LAB: the dissemination of data-driven approaches in public collections, humanities, and social sciences. The motivation was therefore clear: to find the right professionals for managing our research data and to begin developing a training program that extends beyond DH-LAB's own specific needs.

The Hungarian Educational Authority (OH) completed the accreditation of the data steward postgraduate training program in June 2022, and the first cohort of the then three-semester specialized program started in September 2023.⁶ During the implementation of the training, ELTE DH-LAB cooperated with KIFÜ/Pro-M and the University of Debrecen University and National Library (DEENK). This partnership provided systematized knowledge for the training of data stewards. International best practices were collected from various sources, including the OpenAIRE Train the Trainer workshop, which proved particularly useful in planning the training.⁷

From the beginning, it was an important aspect to leverage existing synergies within the university by involving instructors in both curriculum development and teaching from the ELTE Faculty of Informatics' Institute of Computer Science and Institute of University-Corporate Cooperation, as well as the ELTE Faculty of Humanities' Institute of Library and Information Science. The group of instructors was further expanded by inviting professionals, some working as data stewards, some as lecturers at the National Archives of Hungary, the National Széchényi Library, the Hungarian National Museum, and the Hungarian Intellectual Property Office. These lecturers presented the data management principles of their respective institutions and provided insights into the operation of workshops dealing with the creation of various research data, digitization, and data preservation through field practice. Students also learned about international examples, including an introduction to the research data management practices of the University of Bologna, the E-Ark Project, the University of Ljubljana, and the

National Archives of Slovenia. During the development of the curriculum, the curriculum planning team aimed to utilize the opportunities inherent in the developing network of connections at the ELTE DH-LAB.

Over the course of three semesters, students had to accumulate 90 credits, complete a 60-hour professional internship, and write a thesis applying one of the knowledge areas covered in the training to their own professional practice. A primary goal in designing the curriculum was to provide insight into the entire process of research support, ranging from the legal background and project management to the full lifecycle of research data.

The 'Data Asset Management Fundamentals' course aimed to present this spectrum with contributions from multiple lecturers representing their own institutions' practices. Students gained international archival, library, and research institution experiences, through which they learned the general principles and concepts of data management, the aspects of data classification, and the practical application possibilities of FAIR data management principles. The practical orientation of the training was further strengthened by the "Digital Text Processing" course, which introduced OCR (Optical Character Recognition) and HTR (Handwriting Text Recognition) technologies, as well as courses encompassing basic IT knowledge, such as database management, repositories, and text mining. Students learned to program in Python and became familiar with SQL queries in the context of relational databases. Although the development and support of digital data management systems are not always part of their job description, acquiring IT knowledge helps data stewards understand the processes at a system level.

Regarding the publication and sharing of research data, it is fundamental to enforce the principles of open science and FAIR to ensure that researchers' intellectual property rights are not violated, while guaranteeing that all conditions for the free flow of information in international scientific community are met: "*As open as possible, and as closed as necessary.*" Therefore, to fulfil these requirements, a data steward is expected to act as a mediator between researchers and their institutions, and in some cases, among institutions themselves. A data steward is required to remain well-informed about both domestic and international laws and frameworks. In designing the components of the training, particular emphasis was placed on data security, research data management and legal issues, as well as open science. These themes were also addressed in the course 'Principles and Practices of Open Science' course and 'Data Management Regulations'.

The first cohort of the training program had 17 students. While the majority of applicants were librarians, the group also included archivists, data stewards and researchers from various research institutions, as well as research support specialists from universities and memory institutions. A central aspect of the training's pedagogical approach was the desire to become one of the community centres for the domestic data steward profession. Based on the students' previous career paths, it can be said that existing staff are often appointed to data steward positions due to external pressures, as institutions are required to include research data management experts in professional collaborations, institutional development programs, and international research projects. In many cases, librarians responsible for publishing and preserving research data, as well as institutional administrators managing grants, see their roles expand. They increasingly need to understand, supervise, and manage the entire research lifecycle – working closely with both researchers and IT specialists. Naturally, IT specialists dealing with the management of repositories and the development of research data infrastructures may also encounter requests that exceed their narrowly defined job descriptions. This is coupled with the institution's expectation to organize training programs and the demand for data stewards to perform continuous quality assurance to ensure proper compliance with data management principles.

Within the framework of training development, ELTE aims to contribute to network building through project work, peer-to-peer learning opportunities, and the careful selection of internship locations and workshops visited during the training, in line with Skills4EOSC guidelines.⁸ Since the launch of the first cohort, the data steward workshops have been remarkably open, and there is hope that cooperation between institutions will be solidified in the long term. Upon completing the training, 15 students graduated, demonstrating the success of the pilot cohort. ELTE's specialized postgraduate training in data stewardship has played a key role in advancing and institutionalizing data stewardship in Hungary. Notably, many graduates of this program now conduct professional training within their own institutions, highlighting the additional impact of the specialised program at the ELTE Faculty of Humanities as a 'train the trainer' initiative.

Based on the evaluation of teaching and organizational experiences, the training program was redesigned to create a vocational course that is one semester shorter than a Master's program, while remaining comprehensive in content. Former students actively contributed to the redesign through questionnaires, focus group discussions, and other feedback mechanisms. Key objectives included consolidating partnerships, refining course materials, and customizing and expanding learn-

ing support tools and methods. The newly structured data steward specialized postgraduate training – now structured as a two-semester program – was launched in September 2025 with 18 participants. This specialized postgraduate training shows strong potential to become part of the professional development offerings at ELTE Faculty of Humanities.

3. HUN-REN Data Steward Network

The HUN-REN Hungarian Research Network is Hungary's publicly funded academic research network, which encompasses seven research centres, eight research institutes and more than one hundred independent research groups as of May 2025. Researchers at HUN-REN conduct basic and applied research covering most scientific disciplines, from mathematics and the natural sciences to the life sciences. In the summer of 2025 four institutes that previously belonged to HUN-REN came under the umbrella of ELTE.⁹ Researchers at these institutes conduct research in the fields of economics, linguistics, social sciences, and the humanities. HUN-REN employs more than 2000 researchers, while ELTE employs more than 800 as of October 2025. This makes HUN-REN and ELTE the two largest research institutions in Hungary. As in the previous months the original research network and its headquarters have undergone several organisational changes in recent years. In 2019, research institutions were separated from the Hungarian Academy of Sciences (MTA). These institutions were brought together under the umbrella of the Eötvös Loránd Research Network (ELKH), which was renamed and reorganised as HUN-REN in 2023. The story of this process is worth a publication in itself.

As of the fall of 2025, every HUN-REN and ELTE research institution has its own data steward. A year earlier, this was merely a dream.

The original conception of the HUN-REN Data Steward Network dates back to the early 2000s, when various data management and archiving projects started to take shape within the institutions of the Hungarian Academy of Sciences. These initiatives laid the foundation for the later formation of the Network. Below are the key milestones in the development of the Network.

In 2009, the *Voices of the 20th Century Archive and Research Group* started its activity within the framework of the OTKA¹⁰ research project at the Institute of Sociology of the Hungarian Academy of Sciences. Its purpose was to collect and archive important research materials from social science studies that were conducted in the 20th century. To support this, the team set up an archive infrastructure. These initiatives were significant precursors to later data management projects, emphasizing the importance of preserving valuable research data for future generations within the Hungarian academic sphere. The Archive served as a foundation – both in an organisational and developmental sense – for the creation of the Research Documentation Centre (RDC) at the Centre for Social Sciences (CSS)¹¹ at the MTA in 2013. Today, *Voices of the 20th Century Archive and Research Group* operates under the umbrella of RDC.

From its very beginnings, the RDC set out to archive research materials from ongoing studies at the CSS by launching the collection care staff program, and a repository infrastructure called RDC Repository. The program further expanded research data management and archiving initiatives, underscoring the necessity of structured processes for handling research data. The pilot project for research data management at RDC started in 2016. Alongside collection care, research data management consultation began at this point. This project marked an important step towards institutionalizing the consultation processes of research data management, while also paving the way for more formalized and systematic approaches to research data handling. Setting up the two infrastructures (the archive and the repository), as well as the teams maintaining them and managing the incoming research data collections were significant steps. The members of this team were one of the first data stewards in Hungarian research institutions, but under a different title at that time, referred to as "collections management staff". Following these developments, the practice of managing research data from the inception of research projects was another important step in HUN-REN's evolution.

In 2020, the HUN-REN Institute for Computer Science and Control (SZTAKI) established and launched the Dataverse based Concorda Data Repository infrastructure, thus offering new opportunities for storing and managing research data – primarily related to the Covid-19 pandemic. The service was a kind of experiment, with materials from a large international research project and some HUN-REN (then ELKH) research projects housed in the repository. The next year, a pilot project with the Hungarian National Node of RDA (HRDA) further strengthened the research data management infrastructure, by providing

a robust foundation for the growing needs of data stewardship within the HUN-REN. In the pilot project, researchers from different disciplines had the opportunity to test and use the Concorda Data Repository and to develop a process for how to deposit their own research data.

A significant milestone was achieved in November 2021, when SZTAKI, CSS, and the HUN-REN Wigner Research Centre for Physics (Wigner FK) jointly launched the Data Repository Platform (ARP) project, supported by ELKH (Kacsuk et al., 2023; Kovács, 2023; Tóth, 2023). The goal of the project was to create a unified platform (based on the Concorda Data Repository infrastructure) for managing and sharing research data primarily created within and owned by the HUN-REN (then ELKH) research network, thus facilitating collaboration and ensuring data accessibility across various research institutions as well as disseminating open science practices, FAIR research data management, and data repository culture. As one of its early accomplishments in spring 2022, the ARP project conducted a needs assessment in the research network (Gárdos et al., 2024; Egyed-Gergely et al., 2023; Kutnyánszky et al., 2023). The aim was to evaluate and support user needs as well as to provide a situational overview for the emerging infrastructure using qualitative and quantitative methodology. This assessment was crucial for tailoring the services and policies to the factual and authentic needs and requirements of the research community. Based on this assessment, recommendations and policies were created to facilitate state-of-the-art and conscious research data management within the research network. This evaluation provided critical insights into how to enhance the effectiveness and efficiency of data stewardship practices. Today, ARP operates under the umbrella of HUN-REN.

The needs assessment also revealed that, out of pure necessity, every institution had at least one employee tasked with research data management, though their identity and exact roles were unclear. In some institutions it was the researcher herself/himself, in others it was the Principal Investigator (PI), in others any fellow, who was known to have some knowledge in the field. In most cases however, these individuals lacked formal training in research data management and were not engaged with its practices on a regular basis. Their knowledge was often "patchy", and they handled related tasks only sporadically, only when the circumstances required. It also became clear that there are ever more and increasingly complex tasks in the field that researchers, PIs and their peers do not have the time, knowledge or mandate to do. There were only a few institutions which had dedicated and trained personnel for these tasks at that time – one of them was the above-mentioned CSS RDC. The evaluation proved to be – both in an explicit and implicit manner – a crucial proof establishing the need for data stewards in the research network. The appointment of the first official HUN-REN data steward at Wigner FK on March 1, 2023, marked the beginning of the professionalization of data stewardship within the research network, as it was the first time this specific title was held within the Network. The role this first and subsequent data stewards fulfilled was pivotal in setting a precedent for the network's commitment to professional research data management.

As part of the development efforts, the ARP Ambassador Program I was launched in 2023, to spread and support ARP services and conscious research data management practices across HUN-REN institutions.¹² This program played a crucial role in promoting the use of the ARP infrastructure, and in strengthening the skills and expanding the responsibilities of data stewards across the network. The initiative continued to grow in 2024 with the ARP Ambassador Program II, which ran parallel to the second phase of the first program. This dual initiative aimed to further extend support and outreach for ARP services within the network, thus fostering a more comprehensive and integrated approach to data stewardship. The ARP Ambassador Program III was launched in the spring of 2025 specifically to support the data stewards appointed at the HUN-REN (now ELTE) Research Centre for the Humanities – which is the institution with the broadest disciplinary coverage and the largest research staff within the network.

As a result of the advocacy work conducted by the ARP project, a landmark moment was reached on October 1, 2024, when the HUN-REN HQ officially launched the HUN-REN Data Steward Network. For the very first time, every HUN-REN institution had the opportunity and funding to appoint a data steward. This moment emphasized the advancement in the development and importance of dedicated research data management professionals. Between October 2024 and January 2025, the first phase of HUN-REN and ARP joint Data Steward Training was conducted to equip the new data stewards with the skills and knowledge necessary for their everyday work and the challenges they would face as pioneers of this field. This training phase was essential for ensuring that the newly appointed stewards were well-prepared to handle the demands of their roles. As a result of this initiative, 19 data stewards have started their work in the network.¹³

Since there was no formal data steward training previously in Hungary (as the first program started concurrently at ELTE), qualified data stewards were not available for these 19 positions; therefore people had to be recruited from other areas. HUN-REN was responsible for equipping them with basic and practical knowledge on data stewardship, which had to be done rapidly and efficiently to ensure that candidates could begin working while simultaneously receiving essential training. To achieve this, the HUN-REN HQ and the ARP project worked in close collaboration to design and launch an informal, institution-based Data Steward Training for the newly appointed data stewards.

The goal of the informal training program was for the data stewards to acquire fundamental knowledge related to modern research data management, to become familiar with key practical opportunities, to outline the practical and theoretical knowledge necessary for data stewardship tasks, and to facilitate networking among team members working in different institutions and scientific fields. It also aimed to prepare the data stewards for individual, institutional, and collaborative network-wide tasks. The training necessarily had a significant focus on HUN-REN and the ARP infrastructure. A major challenge in the design of the training was to set up the timetable and the curriculum and to recruit the right experts, as this type of education is still in its early stages in Hungary. Most of the trainers were professional educators, but rather research supporter specialists, who contributed mainly based on their own experience and practice over many years. Another important task was to harmonise the knowledge of the data steward candidates, as they came from very different fields (e.g. research, research support, IT). At this point, the training organisers worked on the course in collaboration with lecturers from ELTE DH-LAB and from other educational and research institutes, like Pro-M, DEENK or MTA. The main topics of the course were: open science, FAIR research data management, research data repositories, legal aspects, data management regulations, thesauri, ontologies, persistent identifiers, research data management plans, metadata, ARP, important projects related to the field, and the role AI could play in research and in research data management processes.

In early 2025, the HUN-REN Research Data Management Framework entered into effect, regulating the work of data stewards and providing guidelines for research data management across the network. This framework represented a formalization of the practices and policies that had been developed over the years, thus ensuring consistency and quality in research data management and stewardship.

The expertise and roles of data stewards was recognised on January 31, 2025, with an official certification by HUN-REN (HUN-REN Data Repository Platform, 2025). This certification was a testament to the rigorous training and the high standards upheld by the HUN-REN Data Steward Network. Following the certification ceremony, the second phase of the joint Data Steward Training began in February 2025, continuing to enhance the skills and capabilities of the data stewards at HUN-REN. This ongoing training ensures that the data stewards remain up-to-date with the latest developments and best practices in research data management as well as the ever-evolving pursuits of open science. Although the second phase of the training is still ongoing, all members of the HUN-REN Data Steward Network are already working as data stewards at their institution within their respective disciplines.

In the summer of 2025, four major research institutes were transferred from HUN-REN to ELTE. Due to the interconnections and interdependencies within the Hungarian research sphere, and to the intervention of the ARP team and the management of the HUN-REN Data Steward Network with the support of HUN-REN HQ, the data steward network remained intact. All data stewards continue to work in a networked manner at their own institutions.

The evolution of the HUN-REN Data Steward Network reflects a commitment to improve and institutionalize research data management in Hungary. Each milestone represents a step forward in creating a robust and unified approach to data stewardship, by ensuring that research data is managed efficiently and effectively across the network.

As the network continues to grow and develop, it serves as a model for other institutions and countries looking to enhance their own research data management practices. The collaborative efforts and progressive initiatives undertaken by HUN-REN demonstrate the importance of data stewardship in the modern research landscape.

In the case of HUN-REN, creating the Data Steward Network was a grassroots initiative that has developed organically. The need to be able to reach out to data stewards, to get support for their research originated with the researchers within HUN-REN, then was taken up by the ARP project, the supported by HUN-REN HQ, and finally implemented jointly. The implementation itself is therefore also a learning process, much as it is for data stewards to expand their previous knowledge with new research data management expertise.

During the training, there was a strong emphasis on community building: not only among the data stewards, but also between trainers and trainees. As this is a very new field in Hungary, it soon became clear that there is a substantial need to support each other not only in formal but also in informal ways. It also showed that those who are at different stages of the data steward journey can help each other a lot. Moreover, community building has begun not only within HUN-REN, but also on a much broader scale among data stewards in Hungary and even at the European level. This process started and is still ongoing in a bottom-up approach, with data stewards recognising their own needs to belong, and learn, and to receive more orientation and support.

The formation of the Hungarian national data steward community is based now on the informal collaboration between established professionals and beginners from important institutions like Corvinus University of Budapest, ELI ALPS, ELTE, HUN-REN, MTA, Pro-M Zrt., University of Debrecen, University of Pécs, University of Szeged, etc. This cooperation and collaboration represent a step towards the professionalization of data stewardship in Hungary, a process in which HUN-REN informal Data Steward Training program and the HUN-REN Data Steward Network aim to play an important and effective role.

4. Future Directions

To address the emerging needs for data stewards in the Hungarian research community, the authors of this paper initiated a bottom-up approach by inviting all Hungarian data stewards to community meetings. The first in-person meeting for data stewards was held in September 2024. This was followed by regular meetings every two months, typically including 1–3 invited presentations followed by open discussion. The network itself remains informal and has no official membership. Attendance at these events ranges from 15 to 40 participants, drawn from various research institutions and universities (Könnnyű, 2025). The informal network has benefited from the expertise provided by the expertise of the Skills4EOSC project. Though the network is informal, a mailing list for the Hungarian data stewards was started to help the communication among data professionals.

The data steward community in Hungary appears to have formed a stable foundation. The structure is greatly coherent thanks to the specialized postgraduate data steward training program at ELTE and the HUN-REN data steward network; all the while individuals from other institutions can easily connect to the network via the Hungarian data steward mailing list and the in-person meetings.

The future of data stewards will be formed by the research community – both by the researchers themselves, and the research funds. Research data as an emerging field in the era of data driven technologies might hint that the roles data stewards fulfil cannot be neglected. Continuously updated trainings and forming the network of data stewards with diverse expertise will play a crucial role in the future of the Hungarian data steward community.

Notes

¹ For the results of the working group so far, see Kalová, T., et al. (2024) Data stewardship career paths: recommendations of the EOSC Task Force Data Stewardship Curricula and Career Paths. Zenodo. <https://zenodo.org/records/11077722>; van Gelder, C. W. G., et al. (2024) *Fostering open science in Europe: engagement strategies from EOSC's task forces on research careers and curricula*. Zenodo. <https://zenodo.org/records/10925394>; Basalti, C., et al. (2024) Recommendations for data stewardship skills, training and curricula with implementation examples from European countries and universities. Zenodo. <https://zenodo.org/records/10573892>

² For more information on the FAIR Principles, see: <https://www.go-fair.org/fair-principles/> (Accessed: 28 October 2025)

³ The position paper addresses, among other things, the creation of the possibility of open access publications, the application of FAIR research data management, integrated research projects implemented in the spirit of open science, and new metrics and reward methods for performance evaluation. The position paper emphasizes the importance of citizen science projects, the incorporation of open science principles into the education system, and the need for international cooperation. See NKFIH (2021) Position paper on open science. Available: <https://nkfi.gov.hu/openscience/openscience-position> (Accessed: 28 October 2025)

⁴ The university made the official Senate decision in April 2023, which made it possible to start the training. See ELTE (2025) 2023-as szenátusi határozatok. Available: <https://www.elte.hu/dokumentumok/szenatus2023> (Accessed: 28 October 2025)

⁵ For more information see NKFIH (n.d.) *National Laboratory for Digital Heritage*. Available: <https://www.nemzetilaborok.nkfi.gov.hu/national-laboratory-for-digital-heritage/about> (Accessed: 28 October 2025)

⁶ For the accreditation see Felsőoktatási Információs Rendszer (2025) *Felsőoktatási képzések – Adatgazdász*. Available: <https://firgraf.oh.gov.hu/felsooktatasi-kepzesek/kepzes/TTOVADZ/> (Accessed: 28 October 2025)

⁷ For more about the workshop see OpenAIRE (2025) *3rd Open Science Train the Trainer Bootcamp*. Available: <https://www.openaire.eu/3rd-open-science-train-the-trainer-bootcamp> (Accessed: 28 October 2025)

⁸ For the guidelines see EOSC (2025) *Recommendations for data stewardship skills, training and curricula*. Available: <https://eosc.eu/task-force-deliverab/recommendations-for-data-stewardship-skills-training-and-curricula/> (Accessed: 28 October 2025)

⁹ The same as the institution mentioned above, in which the first accredited Postgraduate Data Steward Training Program started.

¹⁰ The Hungarian Scientific Research Fund (Országos Tudományos Kutatási Alapprogramok) was the main funding agency for research in Hungary, up until 2014.

¹¹ Centre for Social Sciences, an institute at ELTE (former an institute at HUN-REN)

¹² HUN-REN Data Repository Platform (2025) *Ambassadors*. Available at: <https://researchdata.hu/en/nagykoveteink> (Accessed: 28 October 2025)

¹³ HUN-REN Data Repository Platform (2025) *HUN-REN Data Steward Network*. Available at: <https://researchdata.hu/en/datas-towards> (Accessed: 28 October 2025)

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