

Lessons Learned and the Road Ahead: Building on the Success of RIS Synergy

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Keywords: Digital Workflows, Communities, Information Systems, IT Standards and Interoperability, Open Science

0. Introduction

The RIS Synergy project was launched in March 2020 under the leadership of TU Wien and is a part of the Research Data Cluster, which brings together digitisation projects to improve research support along the scientific project cycle. The project is funded by the Federal Ministry of Education, Science and Research (BMBWF) as part of the "Digital and Social Transformation in Higher Education" call for proposals (BMBWF, 2019) [1]. Initially starting with 13 partners (10 universities and 3 research funding institutions), the project consortium now includes 18 participating institutions (14 universities, 4 research funding institutions). The goals of RIS Synergy encompass optimising administrative support for research projects, enhancing data quality and transparency for research institutions, and improving the quality of research data. It addresses key aspects of digital transformation within a cross-institutional consortium.

The project is divided into two subprojects: Subproject One, "Interfaces and Standards", focuses on developing standardised access and exchange options for the systems of funding organisations, research institutions, and public administrative bodies. Subproject Two, "Concept Study for a Research Portal", then analyses the framework conditions and requirements for creating an Austrian national research portal. Thus, RIS Synergy aims to enhance visibility for science by standardising and digitising services, as well as by establishing expert networks.

This paper offers insights into the project's overall approach, key findings from the last four years as well as lessons learned, and provides an outlook on future challenges related to the project's conclusion and its transition to regular operations.

1. Background

Austria's research landscape has been characterised by diversity since the independence of universities as legal entities in 2002 [2]. The RIS Synergy consortium partners employ different systems with various data models for documenting research information, including vendor databases and in-house-built solutions. Due to this diversity, institutional workflows and CRIS are not interoperable, neither between research institutions themselves nor between funding organisations and research institutions. Leveraging existing inter-institutional bottom-up initiatives, such as the Austrian FIS/CRIS Network, RIS Synergy has established a new form of collaboration between research institutions and funders, laying a foundation for the digitalisation of the Austrian research landscape. The standardised exchange of metadata eases the burden on researchers, boosts the efficiency and quality of research support, and improves the data quality and transparency of research outputs. These advancements, in particular the implementation of standardised interfaces, also serve as the technical foundation for a national research portal in Austria, with the aim of increasing the international visibility of Austrian research.

A special feature of this collaboration is the close cooperation between research centres and funding institutions, providing a unique opportunity to benefit from mutual exchange. The foundational concept of this is the once-only principle, which serves as a guiding framework for achieving the project's deliverables.

2. Outcomes and Lessons Learned

A successful national process-oriented digitisation project requires a clear understanding of requirements and goals, alignment with international standards, collaboration and communication across institutional boundaries, and the establishment of a common language and processes.

A common language based on standards

Faced with diverse systems within the RIS Synergy consortium, the project has agreed to develop a common language focused on technical development based on international standards. Consequently, the consortium has chosen to adopt international standards, such as the Common European Research Information Format (CERIF) and the OpenAIRE Guidelines for CRIS Managers, along with established persistent identifiers (PIDs) for the development and implementation of data interfaces. Based on our work with CERIF and the OpenAIRE Guidelines for CRIS Managers, we have learned that the joint decision to use an established standard is the most critical in a project with so many diverse project partners. At the same time, it was necessary to extend the standard to meet specific requirements without altering its fundamental structure [3].

Challenges have emerged in using existing organisational identifiers for RIS Synergy, as revealed by an internal survey. For example, while open PIDs like ROR and Crossref Funder ID limit mapping to the top organisational unit, Ringgold ID provides identifiers for all levels but does not align with RIS Synergy's commitment to FAIR principles due to its commercial nature.

Consequently, the metadata schemas of interface specifications have been designed to include metadata fields for as many PIDs as possible, enabling institutions to exchange, deduplicate, or enrich their data. Nevertheless, except for the Crossref Funder ID, none of the persistent identifier fields are mandatory, necessitating the development of unique and persistent RIS IDs by the project to facilitate automatic data exchange. The project continues to prioritise the sustainable use of persistent identifiers in collaboration with Austrian and international consortia and organisations. While the adoption of persistent identifiers in the current RIS infrastructure leaves much room for improvement, RIS Synergy's data model already allows for future implementation of the meta-process in the form of a PID graph.

A common understanding of the meta-process and data exchange requirements

The agreement on a common understanding of the project lifecycle among all partner institutions marks a significant step for the project. The consortium has modelled a meta-process that depicts a research project's full workflow and use cases, showcasing the exchange of data between the CRIS systems of funding organisations and universities. To further promote a shared understanding, RIS Synergy working groups have developed use cases related to the exchange of data as outlined in the meta-process model [3]: funding programs, financial data, project data, project output, and organisational data. During the initial analysis phase, project partners identified relevant metadata fields necessary for data exchange for each use case, analysed the locally existing RIS infrastructure, discussed common denominators and differences, and defined the data exchange requirements that would most benefit their institutions. Furthermore, a project-wide glossary and vocabulary were established to provide classification schemes and foster a common understanding across the project.

Tool for the exchange of programme and call information

In addition to defining interfaces for data exchange, RIS Synergy has developed a central platform for the manual entry and storage of program and call information based on institutional needs. Research institutions can obtain and customise call data from all participating funding organisations via the central platform, irrespective of whether the data was entered manually or retrieved via an interface.

Basic parameters for a national research portal based on international experience

The RIS Synergy project also explores making national research and research competence accessible to a broad audience while strengthening research networks through efficient and internationally recognised measures. The RIS Synergy project focuses on sustainable results and is therefore drawing on international experience from successful implementations as well as assessing the needs of diverse target groups. It also reflects on the opportunities and risks of a national research portal, as well as past experiences.

To draw lessons from international implementations for the RIS Synergy concept study, a working group analysed 26 national and regional research portals using 25 criteria, such as operating organisation, software, compatibility with CERIF, usability, data/content types, and target groups. The analysis provided insights into the portals' data and content types, as well as their target audiences and usability. Findings were shared through a screencast by RIS Synergy staff, highlighting the utility of screencasts for disseminating information about national research

portals in Austria. Most recently, the screencast was updated in a joint effort with representatives of national portals in the euroCRIS community.

This comprehensive analysis, supplemented by a review of stakeholders and past initiatives, informs the concept study, leading to the development of actionable recommendations. The concept will also address the establishment of a modern operational and infrastructural environment and provide suggestions for a regulated organisational structure and governance for the ongoing operation and development of a research portal [4]. The results of the analysis phase results are incorporated into a basic module focused on sharing research information deemed valuable within the RIS Synergy consortium, with the potential for further development of components and features. This modular approach enables a structured development of a research portal with varying priorities and stages of implementation, based on the core elements.

Ongoing exchange in the Working Group on National and Regional Research Portals

While the analysis of 26 portals significantly contributed to shaping the vision for an Austrian research portal, it left several questions unanswered. To address this, RIS Synergy aims to network with portal operators and implement projects and initiatives in this area to facilitate the exchange of experiences and information. At a euroCRIS workshop organised by RIS Synergy, the keen interest of representatives from national and regional initiatives in discussing shared challenges and their readiness to exchange results and experiences insinuated the idea of establishing an international working group on the subject. Consequently, the euroCRIS Working Group on National and Regional Research Portals, CRISCROS in short, was established [4]. Coordinated by euroCRIS and RIS Synergy, this group provides a platform for organisations, projects, and initiatives focused on national/regional research portals and research information systems to share insights. Since its inception in December 2022, the working group has conducted regular online workshops and in-person meetings.

Public relations and communications

The scaling of the project makes effective communication a key to its successful execution.

Achieving a balance to address both external and internal communication needs was a challenge, particularly considering that no project budget was allocated to the task and thus no human resources were dedicated to it. However, the success of the project is linked to its dissemination and internal communication.

RIS Synergy's two subprojects, building APIs and conducting a concept study for a national research portal, have distinct communication needs. Despite their technical and conceptual interconnectedness, these endeavours cater to divergent audiences and convey different messages. While the subproject concerning APIs requires extensive internal, institutional, and inter-institutional communication, the concept study necessitates broader external communication. Nevertheless, effective internal and inter-institutional communication is essential for the concept study, which considers the perspectives of seventeen project partners and various external stakeholders. [3] Primarily, the project and its team required uniform terminology to convey the project's contents and goals effectively. The outcomes have been documented and are centrally available; which gives other institutions not involved in the project

an insight and enables them to get started at a later date or to plan their projects in a RIS-compliant manner.

A new era of cooperation

RIS Synergy has established a new model of cooperation within Austria's national research landscape, encompassing the extensive project consortium as well as other initiatives and projects. The collective expertise and networking opportunities offered by the diverse digitization initiatives, combined with the existing community's experience in cooperation and collaboration, provide a solid base for further development and the pursuit of project objectives.

A project resulting from this collaboration is the ARI&Snet project. Funded by the BMBWF and the RRF program of the European Union, it presents an excellent opportunity to leverage synergies and lay the foundational blocks. Launched in 2023, the project aims to establish an institutionalised Austrian network for the coordination, planning and management of research infrastructures, services, research information, data, and knowledge [5].

3. Conclusion and Future Directions

Nearing its 2024 conclusion, the RIS Synergy project reflects on a successful collaboration. This collaboration has not only established inter-university work as a standard practice, but it has also fostered the development and implementation of technical standards, ultimately facilitating consensus and widespread adoption. The 18 partner institutions represent the diversity of Austria's research landscape, including universities and funding organisations of varying sizes and specialisations, such as medical universities, technical universities, and art colleges. This diversity ensures sustainable results that provide a basis for further developments. Through collaboration with other projects, RIS Synergy has integrated itself into national developments and incorporated complementary perspectives.

The main challenge lies in ensuring the long-term utilisation of the project's results and organising the necessary communication and onboarding for future partners, to facilitate a smooth transition to regular operations. To this end, it is crucial to develop an operating model that preserves the project's outcomes. In the ARI&Snet project, initial technical measures are underway to secure the long-term viability of the project's results. However, the ongoing content-related activities of RIS Synergy will require additional funding. Beyond the project's foundational implementations, numerous initiatives are still in progress towards achieving the goal of one-time data entry in daily research practices. Realising these objectives necessitates further commitment (financial and in terms of content) and support from the ministry and universities.

References

- [1] Bundesministerium für Bildung, Wissenschaft und Forschung (BMBWF) (2019) Ausschreibung „Digitale und soziale Transformation in der Hochschulbildung“. <https://www.bmbwf.gv.at/Themen/HS-Uni/Aktuelles/Ausschreibung--Digitale-und-soziale-Transformation-in-der-Hochschulbildung-.html>,
- [2] Neff, S., Hartmann, S., Hicker, U., Fürst, E. & Erat, V. (2022). Implementing CRIS interfaces with RIS Synergy: Challenges and opportunities of a multidisciplinary bottom-up approach. *Procedia Computer Science*, 211, 118–125. <https://doi.org/10.1016/j.procs.2022.10.183>
- [3] Fürst, E., Greil, M., Harbich, M., Hartmann, S., & Hicker, U. (2023). RIS Synergy - Creating a Common Language Across Institutions: Lessons Learned and Challenges. in J-F. Desnos, & M. L. Nores (Hrsg.), *Proceedings of European University Information Systems Congress 2023* (Band 95, S. 101-110). EasyChair. EPiC Series in Computing <https://doi.org/10.29007/zbf3>
- [4] Erat, V., Fürst, E., Hicker, U., Neff, S., & Puttinger, J. (2023). Forschung im Fokus: Exzellenz sichtbar machen und Services bündeln. *Zeitschrift für Hochschulentwicklung*, 18(Sonderheft Forschung), 123–140. <https://doi.org/10.21240/zfhe/SH-F/08>
- [5] Erat, V., Hartmann, S., Hicker, U., & Neff, S. (2023). Zukunftsweisender Forschungssupport: Das Digitalisierungsprojekt RIS Synergy. *Zeitschrift für Hochschulentwicklung*, 18(Sonderheft Forschung), 89–107. <https://doi.org/10.21240/zfhe/SH-F/06>