There is no Open Science without infrastructure and science community: a case study of Slovenia

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ABSTRACT

This paper focuses on the role of national-level infrastructure in promoting open science principles, with a specific emphasis on Slovenia. It presents the latest measures implemented within the country to facilitate open science practices.

The first part of the paper explores the specific measures adopted in Slovenia to promote open science. It highlights the ongoing development of regulations to implement scientific research following open science principles. The Slovenian Scientific Research and Innovation Activities Act (ZZrID) and the Resolution on the Slovenian Scientific Research and Innovation Strategy 2030 (ReZrIS30) strongly emphasise open science and encompass various measures. The paper discusses the accessibility of research data addressed by the ZZrID and the Decree on the implementation of scientific research work in accordance with the principles of open science. Furthermore, it outlines upcoming actions in education and infrastructure solutions, as outlined in the Open Science Action Plan.

The second part of the paper delves into the role of the Academic and Research Network of Slovenia (ARNES), the Slovenian national research and education network (NREN). ARNES has played a pivotal role in the construction of two new national data centres dedicated to the permanent storage of research data. The paper analyses the benefits of these national solutions, which enhance infrastructure accessibility, simplify researchers' work, and provide a more efficient and secure environment for research organisations to store their data. The development of data storage services and the construction of data centres take into consideration existing best practices and collaboration with researchers and research organisations. The solutions offered by the data centres will support existing university repositories and align with the objectives outlined in the Open Science Action Plan. The integration of research funding and evaluation services into a centralised platform will be thoughtfully considered, taking into account the requirements of the research community. A key objective is to enable the implementation of services and infrastructure in accordance with OpenAIRE, where ARNES will play a pivotal role. As a mandated organisation in the European Open Science Cloud (EOSC) and being in touch with best practices in the EU area as an NREN, ARNES is well-positioned to contribute to this endeavour.

The paper also highlights the broader objective of improving research quality, efficiency, and responsiveness within the national open science ecosystem. It discusses the establishment of the Slovenian Open Science Community (SSOZ) as part of the tripartite

European Open Science Cloud (EOSC) event, making Slovenia one of the pioneering countries in the European Union. The SSOZ, along with Slovenian representatives in the EOSC, has already addressed challenges related to the permanent preservation of research data, which will be comprehensively discussed in relation to the new data centres and associated activities.

Additionally, there is a growing demand for education on repository usage and infrastructure upgrades. The Slovenian Open Science Community serves as a unifying platform for all major universities and research institutions in Slovenia, fostering collaboration among its members. It encompasses participants from various initiatives, such as the NI4OS project, which aims to promote the European Open Science Cloud (EOSC) at a regional level. Furthermore, the community includes stakeholders from the Coalition for Advancing Research Assessment (CoARA) and similar European and institutional initiatives dedicated to advancing open science principles.

Drawing from the experience of the case study, the paper critically highlights how the national infrastructure can simplify researchers' work. It emphasises the role of data centres in fostering sustainable and long-term data storage solutions aligned with the principles of open science. As an NREN, ARNES already manages public research infrastructure and offers solutions that facilitate research, such as data sharing and access to EuroHPC's supercomputing infrastructure. The establishment of new data centres by ARNES will significantly enhance the infrastructure for open science in Slovenia, providing primary conditions for implementing open science principles in research work. The implementation of planned professional training programs focused on utilising the infrastructure, along with workshops on open science organised by the Central Technical Library at the University of Ljubljana specifically for researchers in Slovenia, will serve as essential catalysts for enabling research activities that align with the principles of open science. With the infrastructure in place, these initiatives will empower researchers with the necessary knowledge and skills to embrace open science practices effectively.

KEYWORDS

Academic and Research Network of Slovenia; data centre; infrastructure; open science; Slovenia

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