Open Infrastructures

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Open Science (A.Y. 2024/2025)
Second Cycle Degree in Digital Humanities and Digital Knowledge
Alma Mater Studiorum - Università di Bologna

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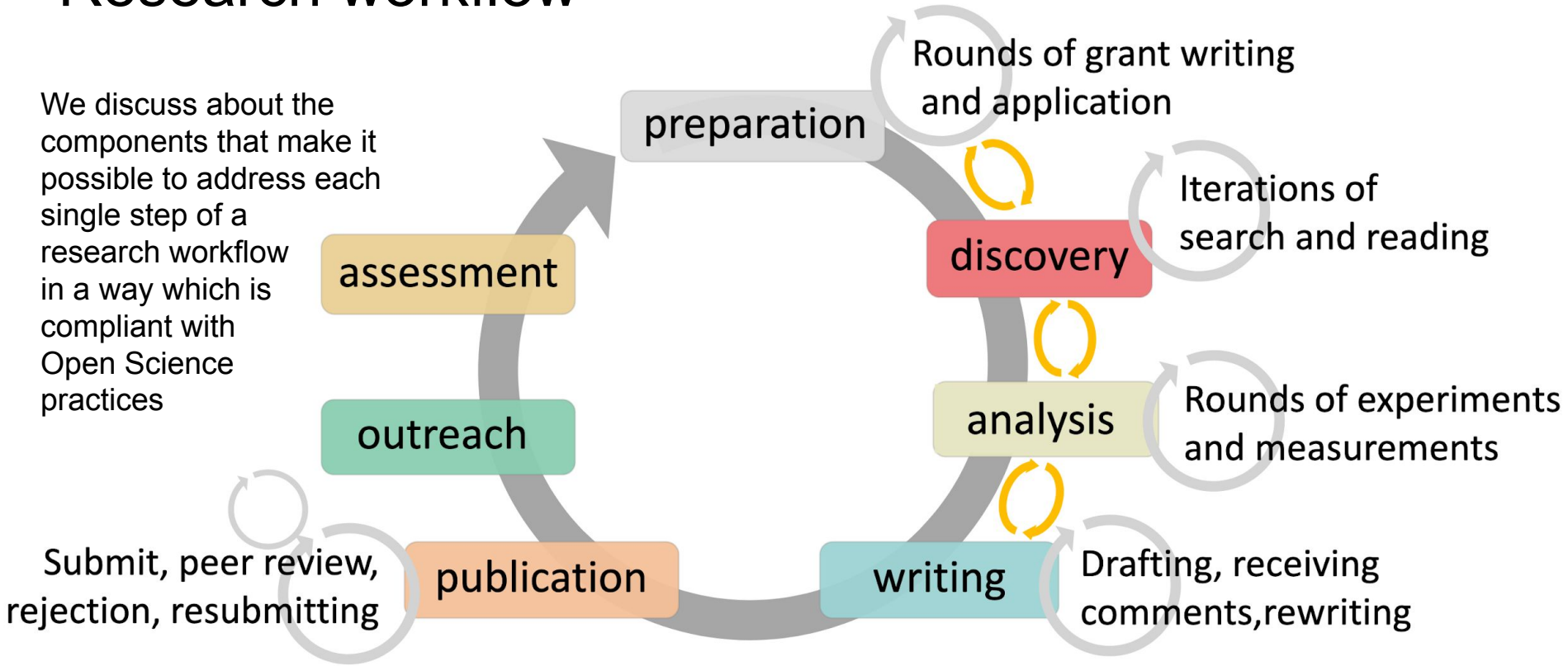
DIPARTIMENTO DI FILOLOGIA CLASSICA E ITALIANISTICA

Discussion

Goudarzi, S., & Dunks, R. (2023). Defining Open Scholarly Infrastructure: A Review of Relevant Literature (Version 2). Invest in Open Infrastructure. https://doi.org/10.5281/zenodo.8064102

Research workflow

We discuss about the components that make it possible to address each single step of a research workflow in a way which is compliant with Open Science practices



Kramer, B., & Bosman, J. (2015, June 18). The good, the efficient and the open—Changing research workflows and the need to move from Open Access to Open Science. CERN Workshop on Innovations in Scholarly Communication (OAI9), University of Geneva, Geneva, Switzerland. https://www.slideshare.net/bmkramer/the-good-the-efficient-and-the-open-oai9

The commercial side of the force

4TU.ResearchData is an international repository for research data in science, engineering and design

It has used Fedora (an open source repository system) in the past 10 years to host data, but in 2020 decided to migrate a significant part of its technical infrastructure to a commercial solution offered by figshare (which is a hosting solution similar to Zenodo)

They provided a justification about why they decided not try with open source repository solutions:

> “We tried hard. We were in discussion with Zenodo (who are working on the Invenio out of the box repository solution), but the product was still at the pilot stage when we had to start our tender. We had discussions with Dryad, but Dryad’s offering at the time did not give us the functionality we required.”

They set up a tender but they did not receive any interest from other open source repository tools providers, only by commercial entities

Teperek, M., & Dunning, A. (2020, August 18). Why figshare? Choosing a new technical infrastructure for 4TU.ResearchData [Blog]. Open Working. https://openworking.wordpress.com/2020/08/18/why-figshare-choosing-a-new-technical-infrastructure-for-4tu-researchdata/

How the open replied

Zenodo and Dryad decided to reply to that message clarifying some aspects

In the 4TU.ResearchData post, the original authors stated that the decision about who to choose was made around features and capabilities; however Zenodo and Dryad clarified that the structure of the process excluded non-commercial open source solutions, due to the huge and unmanageable bureaucracy of the tender process which presented a number of challenges that inherently favor commercial entities that are well-suited to go through the process

Zenodo and Dryad met briefly with 4TU.ResearchData (a single 1-hour meeting per entity), and they understood that the tender process was not one in which they could be able to compete, so they did not continue conversations – thus, the decision was not made because of features, pilot-phases, or other product judgements

Processes that disfavour non-commercial platforms and communities:

1. will continue to feed this cycle of questioning the sustainability of our well-adopted and researcher-supported platforms
2. illogically promote belief that commercial solutions are more sustainable and well suited to meet researcher needs

Sustainable, open source alternatives for open research infrastructure not only exist but also thrive

Teal, T., Lowenberg, D., Smith, T., Gonzales, J. B., Nielsen, L. H., & Ioannidis, A. (2020, August 26). Sustainable, Open Source Alternatives Exist [Blog]. Dryad News and Views. https://blog.datadryad.org/2020/08/26/sustainable-infrastructure-exists/

There and back again

“We are very pleased to announce that 4TU.ResearchData is taking the strategic choice to go free and open source! We are planning to go live with our in-house developed open source software repository in March this year.

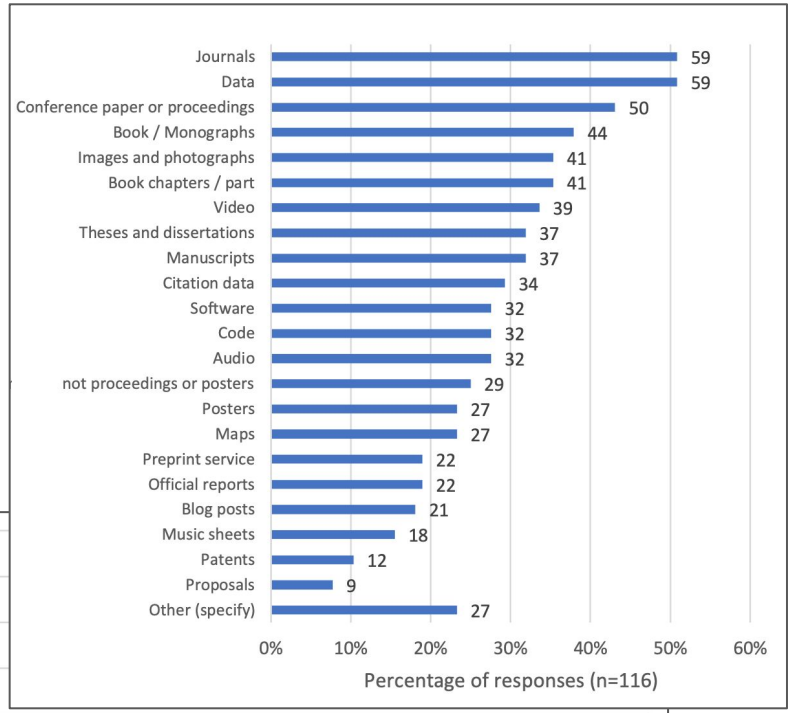
[...]

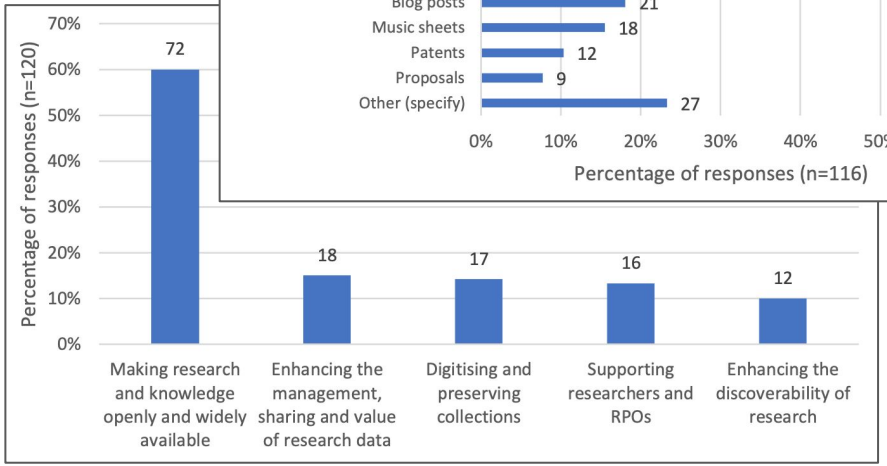
Our community is increasingly tech-savvy and started coming up with strong wishes to make improvements to the software operating 4TU.ResearchData, or even proposing co-development of new solutions. Unfortunately, the use of proprietary software made it impossible for us to embrace the wish of the community to shape the technical development of 4TU.ResearchData.”

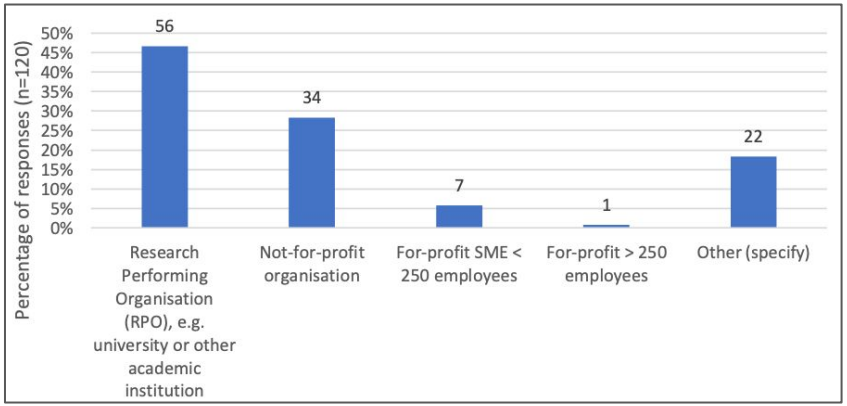
Janssen, R., Gramsbergen, E., de Smaele, M., Teperek, M., & Popescu, I. (2023, January 30). We are going free and open source! [Blog]. 4TU.ResearchData Community. https://community.data.4tu.nl/2023/01/30/we-are-going-free-and-open-source/

Are they right?

Survey of infrastructures that are part of the European Open Science Infrastructure (OSI) landscape – total respondent: 120 infrastructures







Ficarra, V., Fosci, M., Chiarelli, A., Kramer, B., & Proudman, V. (2020). Scoping the Open Science Infrastructure Landscape in Europe. SPARC Europe. https://doi.org/10.5281/zenodo.4159838

Principles of Open Scholarly Infrastructures

Infrastructure at its best is invisible – we notice it when it fails but, if successful, it is stable, sustainable, trusted and relied on by the broad community it serves

Trust must run strongly across

- Governance, i.e. running the infrastructure
- Sustainability, i.e. funding it
- Insurance, i.e. preserving community ownership of it (insurance)

The authors of the Principles of Open Scholarly Infrastructures (POSI) and the related adopters have updated a set of design principles we think could support the creation of successful shared infrastructures

Bilder, G., Lin, J., & Neylon, C. (2023, November). The Principles of Open Scholarly Infrastructure. The Principles of Open Scholarly Infrastructure. https://doi.org/10.24343/C34W2H

POSI: Governance

Coverage across the scholarly enterprise – transcend disciplines, geography, institutions, and stakeholders

Stakeholder Governed – decisions driven by community consensus and a balance of interests

Non-discriminatory participation or membership – representation in governance must reflect the character of the community

Transparent governance – processes and policies for selecting representatives to governance groups should be transparent

Cannot lobby – not lobby for regulatory change to cement their own positions or narrow self-interest

Living will – plan how any assets could be archived and preserved when passed to a successor

Formal incentives to fulfil mission & wind-down – regularly review community support and the need for their activities

Bilder, G., Lin, J., & Neylon, C. (2020). The Principles of Open Scholarly Infrastructure. The Principles of Open Scholarly Infrastructure. https://doi.org/10.24343/C34W2H

POSI: Sustainability

Time-limited funds are used only for time-limited activities – operations are supported by sustainable revenue sources

Goal to generate surplus – be able to adapt and change to have financial resources beyond immediate operating costs

Goal to create financial reserves – have financial reserves, separate from operating funds, that can support implementing living will plans

Mission-consistent revenue generation – revenue evaluated against the mission

Revenue based on services, not data – revenue sources might include value-added services, consulting, API Service Level Agreements or membership fees

Bilder, G., Lin, J., & Neylon, C. (2020). The Principles of Open Scholarly Infrastructure. The Principles of Open Scholarly Infrastructure. https://doi.org/10.24343/C34W2H

POSI: Insurance

Open source – all software and assets required to run the infrastructure available under an open-source licence

Open data (within constraints of privacy laws) – necessary to replicate all relevant data, while privacy and data protection laws will limit the extent to which this is possible

Available data (within constraints of privacy laws) – underlying data should be made easily available via periodic open data dumps

Patent non-assertion – not use patents to prevent the community from replicating the infrastructure

Bilder, G., Lin, J., & Neylon, C. (2020). The Principles of Open Scholarly Infrastructure. The Principles of Open Scholarly Infrastructure. https://doi.org/10.24343/C34W2H

SCOSS

The Global Sustainability Coalition for Open Science Services (SCOSS) is a network of organisations formed in 2017 and committed to helping secure OA and OS infrastructure well into the future

Goal: provide a new co-ordinated cost-sharing framework that will ultimately enable the broader OA and OS community to support the non-commercial services on which it depends

Sherpa Romeo

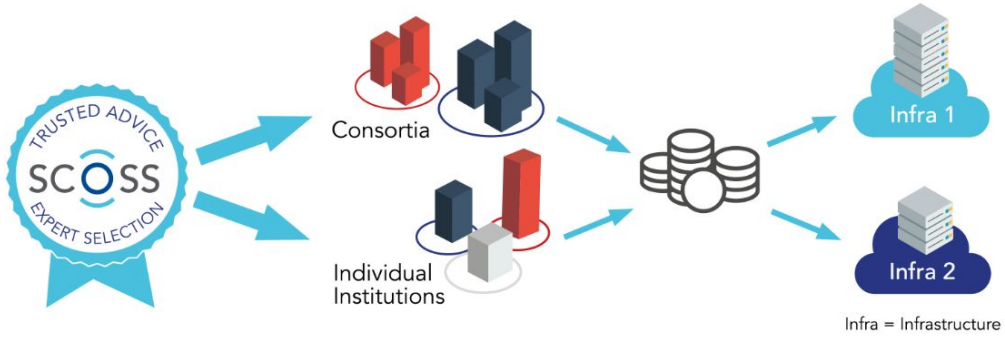
DOAJ

OpenCitations

PKP PUBLIC KNOWLEDGE PROJECT

doab directory of open access books

open Open Access Publishing in European Networks



Invest in Open Infrastructures

Invest in Open Infrastructure (IOI) is an initiative created in 2018 dedicated to improving funding and resourcing for open technologies and systems supporting research and scholarship

Two core premises:

- Open, community-owned infrastructure is necessary for research to thrive
- The way we fund and resource open projects we rely on is insufficient, and working against our aims to build a healthy, collaborative ecosystem

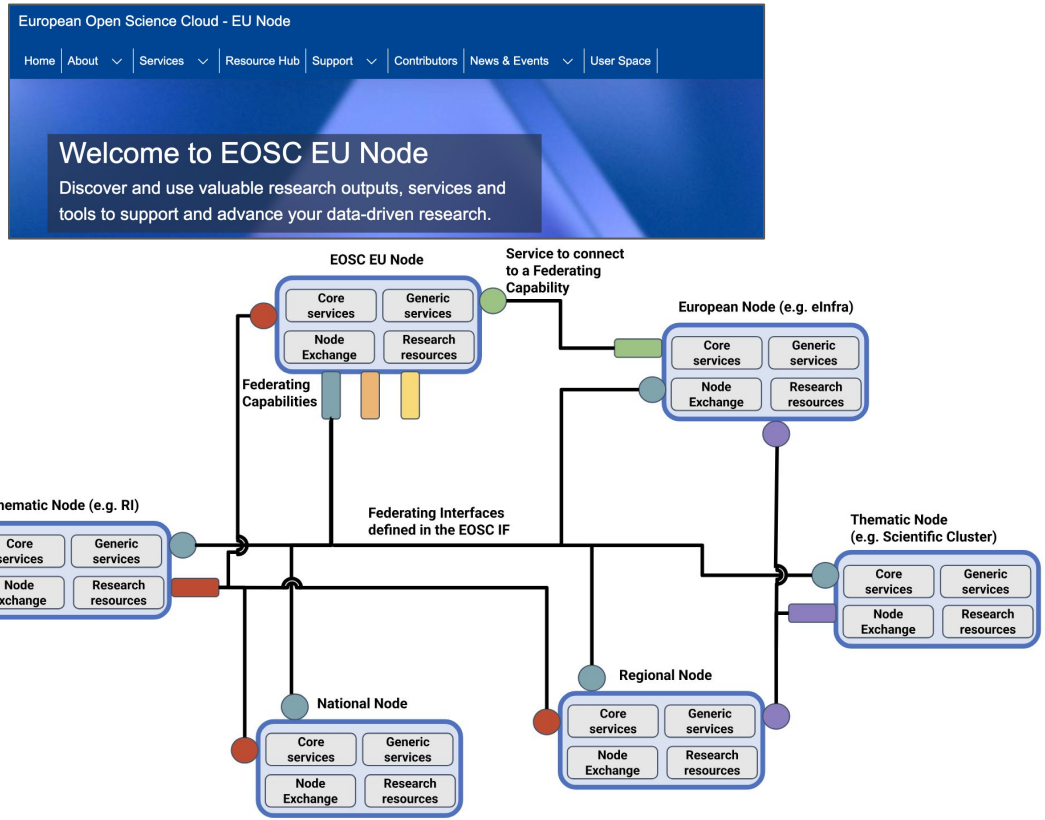
JROST Rapid Response Fund was launched in 2020 to create a means to give back to the open infrastructure and technology community, awarding a range from 5,000 to 10,000 USD dedicated for activities that are necessary and that would not be possible, or would be in jeopardy, without them

EOSC

The European Open Science Cloud (EOSC) is a distributed infrastructure to provide European researchers, innovators, companies and citizens with a

- federated
- open
- multi-disciplinary

environment where they can publish, find and reuse data, tools and services for research, innovation and educational purposes



EOSC Association. (2025). EOSC Federation Handbook (Handbook Version 1). EOSC Association. https://doi.org/10.5281/zenodo.14999577

End

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