

ON THE NEED TO ESTABLISH PUBLIC INFRASTRUCTURE TO PRESERVE DIGITAL SOVEREIGNTY

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DIGITAL SOVEREIGNTY

Digital sovereignty – the ability to have control over your own digital destiny: the data, hardware, and software that you rely on and create² - is paramount for universities and other academic institutions as a prerequisite for equitable and open research and teaching. Rising prices for reading and publishing charged by publishers and the increasingly oligopolistic structure of these companies are putting pressure on universities' budgets, independence, and control. In addition, a new data business has emerged in the field of scholarly communication: mining data of citations and downloads and processing these into 'scholarly productivity impact' assessments and predictions of future research trends. As a result, commercial companies are in a position to influence academic reward systems and evaluative decision-making systems.³

LERU's Public Infrastructure Taskforce (PIT)⁴ has therefore addressed the issue of digital sovereignty and explored what universities can do in establishing a public infrastructure to publish all kinds of academic output – in all stages of the research process – in open access, while preserving digital sovereignty, academic quality, and integrity. LERU's PIT envisions an open and public infrastructure landscape with a number of specific features (see text box).

A SURVEY AMONG LERU MEMBERS

A survey among LERU members was conducted to gather good practices and to get an idea of what kind of infrastructure is already in place in the respective countries of LERU members, and to what extent these existing infrastructures meet the criteria for open and public infrastructures. Aspects such as quality control, cost, long-term access, and responsible metrics were addressed. The results of the survey have been summarized in a report.⁵ The PIT has made the following observations.

OBSERVATIONS

- 1. Endorsement of Digital Sovereignty:**
The inclusion of the concept of digital sovereignty as a leading principle in university policy attracted great interest among the respondents, while three universities have already taken action⁶.
- 2. Endorsement of Digital Public Infrastructure:**
Universities are aware that digital sovereignty requires the use of a public infrastructure at a national and European level offering a wide range of publishing services for scholarly research and teaching.
- 3. Public infrastructure for all types of research outputs:**
Public infrastructure should enable the publication of *all* types of research output, such as reports, protocols, data descriptions, research datasets, software, teaching materials, etc., in addition to articles, monographs, edited volumes, and conference proceedings.

Five main characteristics of an open and public infrastructure as proposed by the PIT

1. The infrastructure landscape is not-for-profit and is led and controlled by the academic community. Appropriate governance and oversight are ensured.
2. Public infrastructure is supported by public funding (e.g., through funders, universities or directly from governments). Authors do not pay to publish, and readers do not pay to get access.
3. Establishing, sustaining, and operating the infrastructure is ensured by cooperative working models. Within such a working model, universities are responsible for administrative and academic quality assurance.
4. Different research cultures generating and disseminating knowledge in their respective disciplines are recognised and respected. Differences in terms of publication outputs, standards and metrics are reflected and accommodated.
5. Bibliometric indicators for research outputs should be used responsibly. They should be complimented by qualitative assessments, which are preferably generated by research communities themselves.

4. **Administrative quality assurance required; academic review optional:**
Universities agree that publication requires administrative quality assurance, but that academic review may depend on the type of publication and on local policies. In addition, academic reviews may take place after (rather than before) publication and may themselves be published as open peer review reports.
5. **Institutional repositories:**
All universities have institutional repositories for textual research output, while most of them have an institutional data repository or an institutional space in a national or shared data repository and one institution is developing such a data repository. The large majority of the repositories for textual output and for datasets currently meet the characteristics of a public infrastructure as identified by the PIT. In a few cases, however, universities are using commercial platforms for their repositories.
6. **Preference for a federated model for the public infrastructure platform:**
Many respondents expressed a preference for a federated model for open and public infrastructures. In such a federated model, managerial and administrative matters and academic control remain the responsibility of universities. The federated model can start at a regional or national level and be extended to international levels. One can envisage funding by governments and funders at the national level. In this model, dissemination and indexing at the international level are fundamental features. A federated model also makes it easier to resolve differences between institutions and countries, such as copyright and open licensing. In addition, such a federated model facilitates integration with EOSC infrastructures.⁷
7. **Build such a federated platform on existing infrastructures:**
Universities make it very clear that there are already many infrastructures available that meet the desired characteristics of a public infrastructure enabling digital sovereignty. As a result, many universities already use public infrastructures that meet the desired characteristics, which can and should be used for the creation of the open and public infrastructure as envisaged by the PIT.⁸

RECOMMENDATIONS TO LERU'S RECTORS' ASSEMBLY

The issue of digital sovereignty is growing in importance and urgency. Universities may want to consider their position in view of threats to their digital sovereignty. One response to these threats is to create an open and public infrastructure for all types of publications. This would enable to maintain (or regain) digital sovereignty and – by providing an alternative outlet – improve their bargaining power vis-à-vis commercial publishers. LERU's PIT therefore makes the following recommendations to LERU's Rectors' Assembly:

- **Integrate digital sovereignty into university policies:** The Rectors' Assembly recognises the importance and urgency of safeguarding the digital sovereignty of universities and recommends that LERU members to make it a leading principle in their institutional policies.
- **Advice paper on a public infrastructure for all kinds of research outputs:** The Rectors' Assembly establishes a working group that builds on the PIT results and produces an advice paper on an open access publication platform for all types of research outputs, with a particular focus on disciplines that lack such a platform. The paper will explore and analyse the options for setting up a federated structure linking existing infrastructures of LERU universities and other organisations to create such a platform. The paper will conclude with concrete proposals for the funding, construction, and sustainability of such a federated, open, and public infrastructure.

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² This is the [definition](#) by the World Economic Forum.

³ See:

- Holzer, J. Kant (2021) [Data tracking in research](#): aggregation and use or sale of usage data by academic publishers; the Deutsche Forschungsgemeinschaft;
- J. Pooley (2022), '[Surveillance Publishing](#)',
- S. Lamdan (2022), [Data Cartels](#). The Companies That Control and Monopolize Our Information.

⁴ LERU is the League of European Research Universities (leru.org); PIT is a working group established by LERU's Open Science Ambassadors.

⁵ Public Infrastructures: Results of a survey among LERU members. The report is published at Zenodo with DOI: [10.5281/zenodo.8209068](https://doi.org/10.5281/zenodo.8209068)

⁶ See for example the paper with strategy recommendations and practical guidelines developed by one LERU university: D. Bündgens, D. Dittrich, O. Jacobsen, D. von Suchodoletz, E. Spanke (2022). [Sicherstellung der digitalen Souveränität](#) und Bildungsgerechtigkeit - Empfehlungen zur Ausgestaltung von Rahmenbedingungen für die Nutzung von Cloud-basierten Angeboten im Bildungsbereich (1.0).

⁷ EOSC Strategic Research and Innovation Agenda and Multi-Annual Roadmap: <https://www.eosc.eu/sria-mar>

⁸ Desiderata are listed in Table 1 of <http://doi.org/10.5281/zenodo.4758335>.