CHANGING RESEARCH INCENTIVES IN PRACTICE: LESSONS FROM INSTITUTIONAL EXPERIMENTS

Research institutions around the world are increasingly developing open science policies, strategies and action plans. Following this momentum, the 2021 UNESCO Recommendation on Open Science provides common ground in terms of the open science definition and key areas that institutions should consider when promoting it. Multiple initiatives recognize the key importance of institutionalizing incentives for recognizing and encouraging open scholarship practices.

International initiatives such as DORA and CoARA have been instrumental in gaining leadership support to make change happen at research institutions and universities worldwide. Considering this, after the 2023 CERN-NASA Summit "Accelerating the Adoption of Open Science" a group of participants highlighted **there is a need for connecting broad principles with concrete strategies to change research incentives towards open scholarship**.

This brief presents lessons learned and open questions from various initiatives aiming to change incentives for open scholarship in practice. It intends to add to the global discussion in this field, some of which is referenced at the end of this document. As with any other case studies, the intention is to inspire others working in this topic; learnings need to be contextualized before being taken as implementation guidelines.

EXPERIENCES OVERVIEW

The four experiences we present here illustrate how different types of institutions, at different scales, are experimenting with changes in research incentives towards open scholarship. Full text case studies can be found as an annex to this document.

New funding categories and narrative CVs – Luxembourg National Research Fund (FNR)

The Luxembourg National Research Fund (FNR) aims to foster cultural change in research assessment, with open scholarship amongst their values. This involves a threefold strategy: allowing flexible funding allocation for open science, the introduction of narrative CVs, and the development of a [mentorship platform](#).

Lessons learned:

- To incentivize open science the approach must be holistic, aimed at changing research culture
- Flexible funding categories allow researchers to do open science beyond open access and provide useful data for assessing implementation
- Narrative CVs implementation demands negotiation but slowly switches perceptions of what is valuable as a research output
- Rather than demanding change, facilitate connections and infrastructures needed for it e.g. mentoring networks

Transforming research assessment through infrastructure – BIH QUEST Center for Responsible Research @ Charité (Germany)

The BIH QUEST Center in Berlin aims to transform research evaluation processes towards more equity and transparency, incentivizing translation, collaboration and open science. Current evaluation processes favor quantitative indicators such as h-index or Impact Factor, and rely on multiple applicants' documents, which are summarized in large tables. This leads to biases and inefficiencies in decision-making.

With support from the organization's 's leadership, the team at QUEST developed the MERIT Portal, which provides evaluators with more accessible and structured information about applicants. The portal allows applicants to provide in-depth insights into their academic achievement via a structured, narrative CV and facilitates content-oriented evaluation, but also anonymizes diversity criteria first and showcases collaborative and open science work.

Lessons learned:

- Making change easier through better infrastructure is a good way of incentivizing open science
- Co-designing infrastructures with applicants and evaluators is key to ensure adoption
- There was a significant need to clarify that the portal is a tool for providing insights, not for automated decision-making
- Open sourcing infrastructure can help generate external interest, which facilitates internal processes

Recognizing open source contributions in promotions - Monash University, Australia

Open source software development is a key domain of open scholarship, but researchers suffer a lack of recognition for such contributions. At Monash University's Business School, researchers with experience in open source proposed changes in evaluation policies to consider this work. The new policy requires peer-reviewed evaluation of software contributions similar to that of journal papers.

Lessons learned:

- There is a need to articulate policies with existing quality assessment frameworks in open source, such as CRAN or rOpenSci.
- Although funders are increasingly supporting open source development through grants, there is a need for higher quality work e.g. by involving research software engineers in the process
- The top-down policy approach must be complemented with bottom-up initiatives like training students in open source software best practices

Open Source Program Offices enabling research impact - Carnegie Mellon University, USA

The Open Source Programs Office (OSPO) at Carnegie Mellon University serves as a hub for building capacity and resources to identify, manage, promote, share, and use open source software within and beyond the university. The OSPO creation responds to the growing importance of open source software in academia as a primary research object, object of research, and core resource for education. Beyond academia, the OSPO supports industry engagement, in partnership with the CMU technology transfer office, and community engagement, including for social impact and next generation infrastructure development.

Lessons learned:

- The goal is to make existing open source work more impactful, complementing existing structures like tech transfer offices, including for license recommendations
- Open source software is an important component of a broader open science program.
- Supporting student-led open source projects and courses, e.g. addressing project continuity as students graduate, nurtures internal open source growth
- Efforts are underway to systematically track and assess the impact of open source projects, in order to better recognize this work

WHAT WE NEED TO MOVE FORWARD

> Embed open science incentives within ongoing assessment workflows

Institutions need to avoid treating open science as a separate effort from the existing incentives and assessment structures. Instead, integrate open science practices into these workflows to ensure alignment with existing academic

and research priorities. This integration helps to normalize open science as a core component of scholarly activity rather than an optional add-on.

> Complement top-down approaches with infrastructure strategies

Providing incentives for open science demands holistic strategies. New or modified policies are needed to provide a framework for institutional change, but this is not enough. Top-down incentives can be complemented with alternative action plans, like building mentoring networks, implementing changes in assessment infrastructure or creating hubs for making ongoing open source work more visible.

> Co-design and consider the politics of implementation

Anticipating and addressing potential resistances is crucial when implementing changes to promote open science within a research institution. Recognize that there may be political and cultural barriers to overcome, such as concerns about intellectual property, fears of increased workload, or skepticism about the value of open practices. Strategies to support change may involve building alliances with external stakeholders, providing training and support to address skill gaps, and allowing discussion and the co-design of new practices to foster adoption.

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