

Summary from Invest in Open Infrastructure's community workshop on June 8, 2022

This document supplements IOI's community response to the [UNESCO Global Call for Open Science Best Practices](#), submitted on 15 July, 2022.

Background

[Invest in Open Infrastructure](#) (IOI) has been working to conduct research to provide strategic support and guidance to funders, budget holders, policymakers, and other stakeholders on investing in open infrastructure for scholarship and research. To this end, we wish to work with our community to contribute to this Global Call, to gather our experiences to identify best practices in supporting, adopting, using, and contributing to open infrastructure.

We collaborated with [the Turing Way](#), the [Tools, Practices & Systems \(TPS\) Programme](#) at the Alan Turing Institute, and [Open Life Science](#) to create a series of three 90-min community workshops. The workshop hosted by IOI focussed on gathering input on the priority area "investing in open science infrastructure and services".

The workshop resulted in rich discussions and outputs. In addition to our UNESCO response, we have summarised some key points from our reflections and discussions below.

This document and the resulting UNESCO response are co-produced and reviewed by:

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In particular, we would like to sincerely thank Malvika Sharan and Arielle Bennett for setting up the initial structure and template for the workshop, and Gracielle Higino for drafting the UNESCO response.

Summary from discussion notes

The full set of shared notes from the workshop can be found [at this link](#).

1. Invest in community engagement and building for open infrastructure

- a. **Reward contributors:** “I really liked to contribute to this project because the process to be involved (how they explained and invited me, and also how I could promote something in my community by testing their platform) was personally rewarding in the sense that I felt like I was really contributing to a movement, more than just the platform.”
- b. **Lower technical and other barriers to contributing:** “A huge barrier I see for a lot of people in similar positions is a lack of confidence and skills with GitHub (I had never successfully done a pull request before the workshop!). A lot of other projects seem to only have technical contribution pathways and do not make other opportunities to be involved very clear.”
- c. **Clear pathways to contribution:** need to be clearer how people can contribute to open infrastructure - governance structure and formal development
- d. **Support new contributors:** “Turing Way is explicit about supporting new contributors from the beginning! Now I'm involved in other community-orientated projects as well and can mentor others to contribute.”
- e. “For open infrastructure it's so important to **offer sustainable pathways for contributors** and for the growth of the projects - they need to be maintained long-term in order to grow and provide a solid foundation for research progress”
- f. **Cultivate a sense of co-ownership:**
 - i. “It felt good to pay for some further development of the software and raise new features that might make it a better solution.”
 - ii. “I am participating in thinking about mission and vision, including both sustainability of the initiative itself and also how to ‘give back’ to the sources of metadata used.”

Summary paragraph:

As stated in the recommendations, open science infrastructure and services should be owned and governed by the community. To accomplish that, we recommend an investment in community engagement and building through clear and sustainable pathways for contributors. This practice includes support and rewards for contributors, as well as attribution and cultivation of a sense of co-ownership. Additionally, it is important that technical, social, and economic barriers to contributions are lowered, and this includes welcoming non-technical knowledge.

2. Invest in case-making to stakeholders

- a. **Funders, policymakers, and technocrats:** “I and my team needs to work seriously with funders, policy makers and technocrats for making open data infrastructure a reality.”
 - i. “Multistakeholder engagement and the role of social scientists and creating awareness will go a long way. Policymakers need to place and allocate the roles and **acknowledge the critical engagements and contributions of various actors.**”
- b. **IT department:** “It was a challenge to make the business case as our IT department did not seem to understand that we are paying for open source and the effort to set it up for us because we didn’t have the institutional capacity”
- c. **Institutions:** “hesitant to make data/service open for everyone as institutions want to get “their money’s worth” from what they have created”
- d. **Vocabulary matters:**
 - i. “Open is not part of the vocabulary we use with our funders and institutions; we use “public data” and “public tools”. Public is an ambiguous term that doesn’t come with the same technical definition as “open”.
 - ii. “Vocabulary is very tricky, so although many people are working openly, they don’t know it. Especially in the Global North, people don’t know they are part of open infrastructure and hence don’t participate in these niche conversations.”

Summary paragraph:

For investments in open infrastructure to be sustainable, various stakeholders in the research ecosystem needs to be engaged. These stakeholders include funders, policymakers, technocrats, institutional leadership and research support staff, and researchers from all disciplines. To effectively engage these stakeholders and create a shared roadmap towards open infrastructure, their contributions, needs, and values need to be recognized. Furthermore, stakeholders should be aware of their use of vocabulary, reinforcing the principles of open science (e.g., by differentiating "public" from "open") and welcoming new participants to old conversations (e.g., when people are part of the open infrastructure but are not aware of it, and hence don't participate in niche conversations).

3. Invest in a cultural change towards open infrastructure as the default for research & scholarship

- a. **“Contributing to a movement, something bigger** than an individual project but can mean people feel obligated to act as a champion in their own environments”

- b. “We’ve also articulated **different aspects of ‘open’** to encourage people to reflect on what’s important to them when choosing to use and/or support tools/platforms/infrastructures”
- c. “It’s hard to be the first one/one of the few moving towards open infrastructure when the **wider culture** is still very much focused on not-open.”
- d. **Recognizing the powers** that we have within our own communities and organization, and how we can use that to influence change.

Summary paragraph:

To invest in a cultural change towards open infrastructure as the default for research and scholarship, it is important to first recognize power dynamics within communities, as well as how this power can be used for change. By encouraging individuals to reflect on their own experiences and contexts and promoting the articulation and advancement of different aspects of "open", we design a collective cultural change where individuals are empowered to drive change and contribute to a bigger movement.

4. Invest in maintaining open infrastructure

- a. “Easier to get funding to develop new things, but harder to get funding to maintain them in the longer term.”
- b. “Funding is currently the biggest challenge we face, as the project is near its end, and we struggle to communicate the value of our tools to funders.”

Summary paragraph:

It is also urgent that funders start to invest in the maintenance of open infrastructure, rather than only focusing on the development of new projects. By doing that, we prioritize sustainability and empowerment of existing communities, allowing them time to make permanent and more profound changes.

5. Invest in capacity building and staffing

- a. “Hiring folks to work on open infrastructure is still under-explored - not many institutions have built these roles/careers yet.”
- b. “Investment in open infrastructure should involve investment in long term positions.”

Summary paragraph:

We also suggest that the investment in open infrastructure includes investing in capacity building and the creation of long-term positions specifically dedicated to open science. Doing this avoids over-exploitation and cooptation of human resources, as well as guarantees that long-term changes will have time to be implemented.

6. Build strategic commercial partnerships

- a. “Commercial involvement in research should be allowed but specific standards and rules around open market bidding, open source development and interoperable tools should be provided.”
- b. “When involving commercial sectors they have different standards and framework or open source, interoperability and data ethics.”
- c. “Challenging notions from UNESCO where we should cut ties w/ commercial partners, but instead influencing them and build the case for improved transparency. (e.g. [CHAOSS working with Red Hat](#), [NHS Interoperability Framework](#))”
- d. “Tension between commercial partners investing in open to serve their own interest, and what that brings to the sustainability/governance of that open project.”

Summary paragraph:

Open science is built in a context where strategic commercial partnerships should be encouraged, as long as specific standards and rules around open market bidding, open source development, common interest, data ethics, and interoperable tools are provided. Instead of cutting ties with commercial partners, we should influence them towards improved transparency.

Other input from our discussion

- “Vendor lock-in and lack of control over your own services long-term are a major driver for me to push for open source based solutions whenever possible.”
- “In privileged UK institutions that can afford paying for solutions, it seems hard to make a case for things that the wider community can benefit from.”
- “I believe preprint review platforms are an important part to engage people to this activity.”
- “We work with some sensitive data, so it’s important for us to have ownership of the tools and that the data are stored in our own servers.”
- “We have limited resources, so using open tools is a way we can reduce costs.”
- “Because we are a governmental agency, it’s also our “duty” to (use open tools).”
- “These communities (Turing Way, Open Life Science and similar community-oriented efforts) also lead discussions to advocate and lead efforts for sustainable funding for supporting human-in-the-loop within open infrastructure.”
- “Lots of people don't know about what is available - open infrastructure doesn't always factor into tool selection.”
- “Difference between our view as individuals vs. our work in organisations. Individual values vs. institutional values not always aligned.”
- “This is a piece of broader accessibility issues, infra/tools should also be

contextualized e.g. to bandwidth, to local infrastructure, culture, etc”