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Prioritizing Open Infrastructure Needs: IOI Funding Framework

Core to any discussion of funding mechanisms is a framework and a thesis for how IOI prioritizes open infrastructure needs to achieve and advance our mission of sustaining effective digital infrastructure needed for open knowledge to flourish. Critical to this is also an understanding of what types of infrastructure or focus areas we are looking to explore for funding potential and impact (think of this as “funding bucket” or to borrow from Open Philanthropy, “causes”).

We aim to find areas where investment in open, shared infrastructure can most impact and advance access and participation in research. As we begin this prioritization process, we propose starting that work by exploring attributes of what we are **looking to enable**.

There are a number of ways to look at this, which are shared below, as well as what we’re looking to design for as we move into “cause and conditions research” with members of the communities most involved and affected by open infrastructure decisions, augmenting our financial and quantitative analysis.

Key design questions:

- What is IOI’s position on funding technologies versus funding areas of development that affect the conditions necessary for them to flourish (e.g. governance, interoperability, accessibility, adoption)? What does that mix look like?
- What context is needed to best understand existing funding needs for projects?
- Where can capital be allocated to help increase growth, adoption, and interdependence of offerings to help make open infrastructure the default in research?

Exploring causes & conditions for funding

In our research to date, we’ve found that what counts as “core infrastructure” for communities can heavily depend on disciplinary behaviors and history with specific technologies (e.g. arXiv for high energy physics), community demographics, and dynamics determining reliance (e.g. Mukurtu’s commitment to serve indigenous populations), and geographic dimensions (e.g. services like SciELO and Redalyc/AmeliCA for use in Latin/South America).

We at IOI believe that determinations regarding what counts as “core infrastructure” services need to be made in concert with the communities most impacted or served by those services. These focus areas often emerge in our monitoring of the open infrastructure landscape in conversation with governance and collaborators. Specific areas of investigation are also surfaced by funders, administrative leaders, and other decision makers who are either already investing in open solutions or interested in exploring open options due to cost, demand, values-alignment, or concern over the risk faced if a service depended on is shuttered.

We refer to these top line areas of investigation as **causes**. These areas signify broad program areas or categories of infrastructure, such as preprints, open books and monograph publishing infrastructure, repository systems, and persistent identifiers, to name a few.

In our selection of causes, we aim to be both exploratory but also intentional about our process, focusing on areas where there are factors such as :

- Significant reliance by the research community. (*note: this may vary depending on size of community served and uniqueness. E.g., Mukurtu*)
- Heightened risk of commercialization and/or switching to a closed model.
- Limited alternatives (both commercial and not-for-profit).
- Financial and/or organizational concerns affecting operational runway and ongoing viability.

In addition to **causes**, we also examine the **conditions** necessary for open infrastructure to become the default in research and scholarship. This work has been informed from our extensive work with the infrastructure and research community via the Future of Open Scholarship research as well as our efforts to research the hidden costs of open infrastructure projects with service providers and funders, supported by the Mellon Foundation.

These conditions are designed to provide an additional lens to what we view as some of the preconditions necessary to advance an open infrastructure landscape, not only increasing resourcing, but viability and adoption. They also illustrate areas we see as often under-resourced by conventional funding models.

We conduct research into these conditions at a variety of levels, from foundational research into community governance models (for example), as well as assessing these conditions as part of specific cause research into open infrastructure verticals (such as open access publishing solutions).

Please note: Both causes and conditions are subject to evolve.

They include:

- **Accessibility & affordability.** This includes research into bandwidth and connectivity limitations for services (e.g. mobile access for certain regions), translation, inclusive costs structures)
- **Reliability & delivery of services.** Technical debt costs, ongoing maintenance support, understanding of the reliability of core dependencies.
- **Interoperability & interdependence.** Persistent identifiers, standards and protocols to enable exchange of information, discoverability; funds to incentivize collaboration and integration across services to increase resilience.
- **Embeddedness & adoption.** Support for local organizations and training efforts, financial incentives for migration and adoption costs to move away from extractive services, consortial/ NREN support to expand reach and availability.
- **Oversight & accountability.** Financial support for building intentional, representative governance, financial oversight mechanisms, evaluative mechanisms to assess progress towards operational maturity, support for documentation, long-term planning and stewardship.

Research process

Once causes and conditions are identified, we work to conduct the following initial examination of the issue area:

- **Scoping & definition.**
 - Initial definition of our research aims, what we know, what we are aiming to learn.
 - Outline our research questions and methodology.
 - Identify subject area experts and those most affected by this area to interview; craft shortlist, discussion guide, outreach.
 - Identify any additional resources for examination.
- **Research & stakeholder interviews.**
 - Documentation & literature review.
 - Interviews and focus groups with core stakeholders.
 - Additional research and synthesis of initial findings.
- **Generate initial recommendations; share with team & invited reviewers for feedback.**
- **Reporting & community review.**
- **Assessment of future needs.**

In addition to the generation of the report and accompanying materials, researchers also catalog their learnings and resources used in [IOI's Zotero library](#), and comments from community review periods are archived along with other artifacts in IOI's shared Zenodo repository.