Issue Brief on Scholarly Communications Infrastructure

A CRITICAL JUNCTURE

The academy finds itself at a critical moment in time as the landscape of scholarly communication shifts before us. Scholars are increasingly and rapidly sharing research outputs (code, software, data, articles, etc.) in open and collaborative ways to collectively tackle the world's largest challenges like COVID-19 and climate change, and to comply with emerging funder requirements. The [federal government](#) and other major funding bodies increasingly value and incentivize the open public sharing of research outputs. However, open outputs are often produced, disseminated, and accessed through closed, siloed, and expensive scholarly communications infrastructure. Technological transformation is enabling the sharing and reuse of research outputs at a scale unimaginable to earlier generations. This requires new strategic investments in hardware, processing power, and data storage.

The challenges of this new paradigm are considerable - how do institutions invest wisely, safeguard data security and privacy, unlock the potential for AI and other technologies, ensure technological sustainability, and make infrastructure choices that stimulate both innovation and equity? But there are opportunities as well. Shrewd, forward-looking decisions about scholarly communications infrastructure can be a key catalyst for growing institutional competitiveness on a national and global scale;

SCHOLARLY COMMUNICATIONS INFRASRUCTURE DEFINED

Scholarly communication infrastructure encompasses the services, protocols, standards, and software that enable the entirety of the research lifecycle — including project design; experimentation; data collection, organization, and storage; analysis and computation; content creation and dissemination; and information discovery[1]. Examples of scholarly communication infrastructure include institutional and disciplinary research repositories, large research data storage, software to replicate and reproduce experiments, and research information management systems. Technical and operational considerations such as storage, preservation, metadata standards, and persistent identifiers are critical to enabling open scholarship that is findable, accessible, interoperable, and reusable within appropriate governance frameworks.

[1]Adapted from IOI definition at https://investinopen.org/about/

accelerating and optimizing the research lifecycle; improving our capacity to innovate and to solve the world's most pressing knowledge problems; and establishing a level playing field where the world's best snd brightest can contribute to knowledge development.

KEY CONSIDERATIONS DRIVING INFORMED INFRASTRUCTURE DECISIONS

Given the centrality of scholarly communications infrastructure to the research endeavor, it is important to move beyond the binary "buy vs. build" decision-making framework. The budget and person-power necessary to sustain infrastructure are part of a larger matrix of considerations that warrant careful consideration, including maximizing research impact and utility; respecting data and user privacy; balancing research transparency and security; encouraging sustainability and future-proofing; and promoting interoperability and collaboration. These "big picture considerations" are, in turn, driven by a raft of operational issues– like maintenance and development resources and staffing, the need and means for clear documentation, access and reuse rights, ease of installation and launch, security, storage, local customization opportunities, community presence, privacy, governance and business models, and data/code portability, among others.

There is not a one-size-fits-all solution to informed scholarly communications infrastructure decision-making. Increasingly, given both the scale and complexity of open science projects, institutions are collaborating with other colleges and universities – as well as federal agencies, philanthropies, professional societies, and other aligned organizations – to explore shared infrastructure. These collaborations open an entirely new vista for coordinated, scalable solutions.
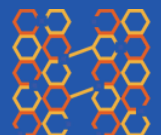
In short, scholarly communications infrastructure decisions are complex and should be made with due consideration of the myriad ramifications for your institution, the researchers and scholars you support, and the broader communities that can potentially leverage the fruits of your collected knowledge.

WHAT COMES NEXT?

Knowing that choices about scholarly communications infrastructure are complex and involve more than consideration of, "Do we have budget or do we have people?" is only a first step. In 2023, the Higher Education Leadership Initiative for Open Scholarship (HELIOS - see more details below) Shared Infrastructure Working Group will release a decision-support rubric informed by the community's input. This resource will provide a rational approach to facilitate informed, methodical scholarly communications infrastructure strategies.