Scholarly Communication Infrastructure Guide:
Buy, Build, or Partner

A Decision-Making Framework to Support Campus Leaders

Goal: The Higher Education Leadership Initiative for Open Scholarship (HELIOS) created this rubric to assist institutions in making informed decisions when buying, building, or sharing/partnering on scholarly communication infrastructure.

Who We Are: HELIOS is a coalition of more than 90 US colleges and universities committed to open scholarship. This guide is a product of the HELIOS Shared Open Infrastructure Working Group.
https://heliosopen.org/members

Want more help? Individual consultation options through HELIOS: Our national cohort of scholarly infrastructure experts is available to provide informal consulting guidance and mentoring as you consider options and make decisions. Contact caitlin@orfg.org to chat with academic community members who have agreed to volunteer their time and expertise in support of informed decision-making.

Key Considerations: HELIOS has adapted UNESCO's key factors to consider when developing, funding, and using open science or scholarly communications infrastructure. In summary, when making decisions about scholarly communication infrastructure, you should factor:

1. **Transparency of costs and benefits**: Resources (both human and technical) needed at each stage of the infrastructure, where is the funding coming from and where does it go, and what is the value of the infrastructure.
2. **Partnering/Sharing to avoid duplication:** Shared attention to existing infrastructure rather than risking unnecessary system-level duplication.
3. **Technical capabilities:** Interoperability and portability to enhance and reuse the infrastructure.
4. **Governance:** Mission-driven, cooperative creation of community-based infrastructure.
5. **Harmonization with public access compliance efforts**: enabling an environment with community standards that are monitored and evaluated under public oversight and allow for ease of compliance with funder's public access policies.
6. **Timeliness:** balancing the urgency of open scholarship advancements with necessary investments of time and effort into solutions that meet the above criteria.

HELIOS affirms UNESCO's vision that "Open science infrastructures should be organized and financed on a primarily not-for-profit and long-term vision, which enhance open science practices and guarantee permanent and unrestricted access to all, to the largest extent possible."

References:
https://www.unesco.org/en/open-science/implementation
https://openscholarlyinfrastructure.org/
https://www.whitehouse.gov/wp-content/uploads/2022/05/05-2022-Desirable-Characteristics-of-Data-Repositories.pdf
Technology-specific Decision-Making Resources:
https://www.scomcat.net/
https://investinopen.org/catalog/

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Cost Transparency

BUYING

Are short-term pricing and long-term costs (e.g., annual price increases, costs of exit) transparent and affordable?

Are cost increases for growth to accommodate additional institutional partners and/or usage/traffic/content manageable and transparent?

Are costs worth the tradeoffs or benefits related to alignment with open scholarship goals (open source, e.g.), compliance needs, FAIR requirements?

Will the solution avoid anti-competitive practices such as non-disclosure agreements and long-term lock-ins?

BUILDING

Will building a solution in-house lower overall cost?

Will building a solution enable technical capabilities (below) that add value to the institution, factoring in soft costs such as labor for implementation, setup, and critically–ongoing maintenance?

PARTNERING

Is sharing a solution a more economical way, in the short- and/or long-term, to meet the campus needs?

Are there current opportunities to partner with open source or not-for-profit solutions providers?

Will our participation in this model enable other research institutions to more easily afford access to the solution, thereby adding benefit to our teaching and research mission by enhancing access to others' scholarship and data?

Avoiding Duplication

BUYING

Will buying infrastructure add unique capabilities beyond what may be available already to the institution through existing scalable, low cost infrastructure?

Will the solution replace another, less-optimal solution?

BUILDING

Will building a new in-house infrastructure solution meet unique or bespoke institutional needs, beyond what existing scalable, low cost infrastructure can provide?

PARTNERING

Are many institutions building or buying the same solution to meet similar needs?

Are there opportunities to partner with others to take advantage of existing infrastructure solutions?

Technical Capabilities

BUYING
Does this solution rely on standard, interoperable formats and protocols, rather than proprietary technology?

BUILDING
Will building a solution allow needed control, customization, and agency over technical goals and training needs?

Are we capable of sustaining on-going development for security patching, and the addition of features or capabilities as needed?

PARTNERING
Will partnering on a solution allow the necessary range of bespoke institutional customizations needed?

Governance

BUYING

For commercial solutions: are this company's financials sound? Is the business model sustainable?

Is this provider operating within a competitive marketplace that is likely to keep pricing reasonable?

BUILDING

Are there structures to ensure that in-house users of the solution are able to provide guidance on its direction, usability, and development?

PARTNERING

Is the infrastructure owned and/or governed by members of the academic community?

Is there a sound plan for how and when the infrastructure can be bought, sold, and/or discontinued, minimizing the risk of corporate takeover?

Is the business model sustainable, and unlikely to be sold to the private sector?

Compliance

BUYING

Will the existing infrastructure enable meeting existing minimum requirements for all applicable funding agency policies?

Can you project the evolution of requirements - will this solution meet compliance demands likely to come into place over the next several years?

BUILDING

Does the institution have the right skill sets in-house to build and maintain infrastructure that will meet all applicable funding agency policy requirements?

Is the institution able to commit appropriate development resources for on-going maintenance and development as external compliance requirements evolve?

PARTNERING

Are there opportunities to partner with existing infrastructure services and solutions that already comply with funder policies?

Would a partnership increase ability to nimbly maintain and develop solutions over time?

Timeliness

BUYING

This option can be the fastest, often limited only to the time-span of an RFP process and/or institutional contract review.

Is having a turn-key, out of the box solution that can be rapidly deployed a top priority right now?

BUILDING

Depending on the depth of in-house development resources, this option can take longer.

Do you have time to allow for the development of an in-house solution?

PARTNERING

Given the complexities of cross-institutional partnerships, this option can take lengthy periods to develop commitment and governance structures.

Do you have time to pursue a multi-institutional partnership agreement, with development of necessary MOUs?

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Decision-Making Rubric

For any scholarly infrastructure solution, utilize the following checklist to evaluate its overall capabilities as well as your process. Beyond this list of considerations that would apply to any type of solution, see the decision-making guide for further guidance about whether buying, building, or sharing a given scholarly infrastructure solution might be right for your institution.

INPUT INTO DECISION
YES

Has the solution been evaluated by personnel responsible for various aspects of scholarly infrastructure and communications, such as the CIO, University Librarian, and VPRI or equivalent senior research officer? ☐

TECHNICAL CAPABILITY
YES

- Is the solution extensible, and does it support FAIR (findable, accessible, interoperable, reusable) considerations? ☐

- Can this solution handle non-traditional research output formats, such as very large data, A/V, software and code? ☐

- Can this solution effectively manage access to restricted outputs, such as protected intellectual property, culturally restricted property, and/or copyright-protected components? ☐

- Can this solution be scaled to accommodate future growth in usage, traffic, and content volume? ☐

- Does this solution interoperate with other common data applications; does it support import/export using common file formats, does it support APIs for data exchange with other platforms? ☐

- Does the solution support metadata and/or access control using standard content licenses? ☐

- Does the solution's overall usability, support, and user documentation meet our needs? ☐

COMPLIANCE
YES

- Does the solution meet institutional requirements and standards regarding digital accessibility? ☐

- Will the solution enable compliance with regulatory and funding agency requirements around research output sharing? ☐

COST CONSIDERATION
YES

- Are hard and soft costs manageable and transparent? ☐

- Can you afford short-term and long-term costs; including potential costs of exit, and growth/inflation scenarios ☐