Guide to Supporting Open Scholarship for University Presidents and Provosts

Open Scholarship Defined

Open scholarship (also referred to as "open science" and "open research") is the idea that, to advance knowledge, research results of all kinds should be openly shared as early as is practical. Open scholarship encompasses all disciplines, including science, the professions, arts and the humanities. As an element of open scholarship, open access is the ability to freely read and reuse publications.

Importance for Universities

Open scholarship is a key strategy for universities to fulfill their core missions of creating, disseminating, and preserving knowledge for the benefit of society. It provides transparency so that others can validate the quality, accuracy and reproducibility of research, thus building the public's trust. It enables and expedites collaboration among researchers through sharing of data, methods and tools early in the discovery process. It promotes efficiency, by rapidly informing others of promising avenues of research as well as potential dead-ends.

Much as MIT's OpenCourseWare initiative has democratized access to online learning, open scholarship is a key tool for creating a more equitable, inclusive, and just research environment. It increases recognition for research through broad availability and engages both peers and the public at large in science and other scholarly activity.

Open scholarship has proved particularly effective in addressing grand challenges, such as the Covid-19 pandemic, by providing a platform for global cooperation, rapid dissemination, and information equity. Institutions that embrace open scholarship are increasingly seen as global research leaders.

Requirements of Federal Government and Foundations

Federal research sponsors are following open science guidelines created by the White House Office of Science and Technology Policy.   For instance, in October of 2020, the NIH expanded data sharing and management requirements for grantees. Like federal sponsors, scores of foundations are increasingly requiring grantees to share research data and other research products as well as publish open access articles. Continued receipt of grant funds by universities requires compliance with these sponsor rules.

Steps to Support Open Scholarship

Open scholarship entails a culture shift in how research is conducted in universities. It requires action on the part of university administration, working in concert with faculty, sponsors and disciplinary communities. Universities should consider steps in three areas:

- **Policies:** Language and guidance should be reviewed for alignment with open scholarship, in particular: (1) academic hiring, review, tenure and promotion (valuing diverse types of research products; metrics that incentivize the open dissemination of articles, data, and other research outputs; and valuing collaborative research); (2) intellectual property (ownership, licensing and distribution of data, software, materials and publications); (3) research data protection (for data to be stored and shared through repositories); (4) attribution (recognizing full range of contributions); and (5) privacy (insuring that privacy obligations are met).

- **Services and Training:** Researchers need support to assure that data and other research objects are managed according to FAIR Principles: findable, accessible, interoperable and reusable. While the specific solution must be tailored to the discipline and research, common standards, including Digital Object Identifiers (DOIs), must be followed.

- **Infrastructure:** Archival storage is required for data, materials, specimens and publications to permit reuse. Searchable portals are needed to register research products where they can be located and accessed. Universities can recognize efficiencies by utilizing external resources (including existing disciplinary repositories) and by developing shared resources that span the institution when external resources do not exist.

Presidents and provosts are encouraged to work with their academic senates to create an open scholarship initiative that promotes institution-wide actions supporting open scholarship practices, while remaining sufficiently flexible to accommodate disciplinary differences and norms.

Who Should Participate

Universities should view open scholarship as a holistic change in research practices spanning the institution. Presidents and provosts are encouraged to designate and empower a senior administrator to lead their effort, engaging these university units in a combined open scholarship initiative:

- **Libraries:** curation services and training, and support for open access publication
- **Information Technology:** repositories and security, as well as access portals
- **Faculty Affairs:** hiring, review, tenure and promotion standards
- **Research:** policy creation and alignment with sponsor expectations
- **Faculty, Departments and Schools:** fulfilling open scholarship within disciplinary communities, and drawing from faculty who are experienced in open scholarship practices

Financing Open Scholarship

While some aspects of open scholarship (such as policy review) can be implemented with minimal resources, others will require careful review of financial needs. **These are two examples.**

1. **Open Access:** As journals gravitate toward open access publication, publishers are transitioning from subscriptions to alternative business models (including, but not limited to, article processing charges for authors). Universities must evaluate how to support these models in a manner that promotes openness, equity, trust, and sustainability in scholarly research, as well as how to best inform and support their faculty's publication decisions.

Other Services: Though costs of data storage are declining (and sometimes available at no charge), more data are being stored and for longer periods of time. Universities need strategies for financing storage, curation and access, which may require a combination of research grant charges and institutional investment. Universities may need to reallocate existing resources to better serve modern research practices.

About the Roundtable

The National Academy of Sciences, Engineering, and Medicine's Roundtable on Aligning Incentives for Open Science convenes critical stakeholders to discuss the effectiveness of incentives for adopting open science practices and ways to align incentives that support common missions.   To learn more about the Roundtable's activities, or to join the hundreds of universities, departments, foundations, government agencies, and professional societies that are collaborating to align research practices, values, and incentives, contact the Roundtable secretariat.