

Journal Responses to New Federal Requirements for Public Access to Scientific Research

REPORTER:

Lindsay Fischer

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At the May 2025 CSE Annual Meeting, held in Minneapolis, Minnesota, three speakers presented on the federal government's push to require open access (OA) practices and how researchers and publishers are responding to these changes.

The Move Toward Open Data

The first speaker presented on the Office of Science and Technology Policy (OSTP)'s guidance to make federally funded research freely available.¹ The "Ensuring Free, Immediate, and Equitable Access to Federally Funded Research" memorandum (also known as the "Nelson Memorandum"), issued in 2022, represents a requirement to make taxpayer-supported scientific data, along with peer-reviewed research, freely available.¹ As this speaker noted, the Nelson Memorandum signaled a shift in how the Federal government defines data. Namely, "scientific data" now includes the factual material needed to validate and replicate research findings. The newfound emphasis on replication has left scientific publications grappling with what, exactly, must be shared to enable replication.

He noted that digital materials, which include the code needed to analyze the results, the data that underlies results, and an explanation of how the findings were achieved (e.g., a Methods section with preregistered protocols) are considered factual materials needed to replicate findings. "These are the items that other researchers will need to conduct the study again," he said. "This means that items like digital stimuli and protocols will need to be available in a manner that they have not been before."

In comparison, other items such as notebooks, preliminary analysis, case report forms, drafts, plans for future research, peer reviews, communication with colleagues, or physical objects or materials (i.e., laboratory specimens, artifacts, and field notes), are not considered necessary factual materials.

However, while the Nelson Memorandum represents a united push toward transparent, available scientific data, an analysis of government agencies showed a wide variability in how access to data and research outputs will be handled.² While all agencies assessed in this preliminary analysis (N = 9) will require data management and sharing plans (DMSP), none had publicly available DMSPs at the time of analysis; only 33% (n = 3) had peer-reviewed DMSPs, and only 33% (n = 3) had a mechanism to enforce compliance with the DMSP.² Finally, only 44% (n = 4) had policies that outline what research outputs are needed to validate and replicate findings.²

"Several, but not all, federal agencies are planning on evaluating the DMSPs as part of the scored criteria of grant applications," he said. "In addition, several, but not all, agencies are expanding their definition of 'data' to better align with the Nelson Memorandum."

The speaker concluded his talk by sharing survey results on researchers' perspectives on OA as a concept. Researchers were asked for their opinions on open science practices, along with their perceptions of what their peers think. Notably, the findings demonstrated a gap between individual attitudes and perceived collective attitudes; most respondents believe that open science is favorable—yet doubt whether their colleagues feel similarly.

"There are two possible explanations for this result," he said. "The first is that we don't have a representative sample from the research community, and that they are more open to data sharing than their peers are. The alternative explanation is that the scientific community is very open to data sharing, but that individuals still feel that their beliefs are a minority. With such a belief that you are a minority, it becomes difficult to act on those ideals, which can reinforce the perception that sharing is not widespread."

In conclusion, the move toward open data is becoming increasingly mainstream. The key focus now for scientific publications is to make sure that data sharing efforts are grounded in the best practices outlined in the FAIR (findable, accessible, interoperable, and reusable) principles and the ethical standards outlined in the CARE (collective benefit, authority to control, responsibility, and ethics) principles.

Revising Current Business Models

The next speaker represented a fully OA publishing organization, where he focuses on external relations and

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advocacy. A significant part of his role involves traveling to Washington, DC, to advocate for research funding.

He noted that there has been a global decline in research funding and library budgets, alongside growing pressure on public institutions to control costs. Simultaneously, there is increasing interest in alternatives to traditional peer review, such as preprints and postpublication reviews, as well as broader open science initiatives like open data, open code, and open peer review.

"Geopolitical turbulence is affecting research collaboration and causing unpredictable regulatory effects in these key publishing markets," the speaker said. "Researchers are prioritizing open science to drive research efficiency and impact and are exploring new ways of disseminating their research alongside journal publications."

As a result of these evolving priorities, the publishing industry is facing new market challenges. In the United States, it is still unclear how the executive and legislative branch measures will impact grant funding. Publishing houses are not sure of the role that the OSTP will play, or how immediate public access to federally funded research will look.

"It's still an open question as to what role the Office of Science and Technology Policy will play in the second Trump administration," he said. "The OSTP in the first Trump administration was largely in favor of OA; they proposed the ideas that the Biden administration's OSTP put into guidelines in August 2022 as the Nelson Memo. However, the OSTP in the new Trump administration is more focused on technology—especially artificial intelligence—than on science."

In response to these changes, publishers should consider the cost efficiency, scalability, and public value of different OA models. There are several different models in practice. For example, a hybrid model is one in which individual articles are fully accessible. A green model is one where authors can deposit their articles in an institutional repository and where preprint or postprint versions are freely available. A diamond model (also known as platinum) is one in which journals are free to access, and there are no article processing charges—this is limited by a dependency on consistent funding.

At the speaker's organization, Gold OA is considered the most effective means of disseminating research. In this model, articles are made freely available online immediately and authors typically pay a processing charge. Regardless, he noted that, "as researchers' and institutions' needs evolve, business models also need to evolve to adapt to the policy environment to support researchers, libraries, and institutions."

To that end, the organization continuously revises its business models to enable researchers to publish their research OA. For example, they offer a flat fee, uncapped

model for research-intensive institutions that want budget predictability, as well as discount-based plans for less research-intensive institutions. According to the speaker, his company's success exemplifies the viability of the Gold OA model. "Scientific and academic OA publishing can be done with high quality, at scale, and with a strong focus on researchers' needs," he concluded.

Economic Uncertainty Looms

The last speaker represented a self-described "small, but mighty" publisher known for its diverse journal portfolio. This publishing house features a wide breadth of topics across their 41 journals, ranging from New England cultural history to brain sciences. They also boast significant growth in recent years; they are currently publishing 40% more articles than they were before the COVID-19 pandemic.

Since 2010, they have steadily shifted their business model towards OA. Whereas, 15 years ago, their journals were almost exclusively subscription-based or hybrid models, today only about half of their journals remain subscription-based. The rest operate under OA models, primarily Diamond and Gold OA.

The publishing house is already compliant with the Nelson Memorandum, as all authors are permitted to upload the author accepted manuscript in a noncommercial repository. However, despite this process, uncertainties remain. For instance, it is unclear whether increasingly available manuscripts will lead to a high volume of subscription cancellations. Moreover, for certain journals, especially in the arts and humanities, a transition to OA will be difficult. Most of these journals rely heavily on subscription models. It is also unclear what represents a "reasonable" publication cost.

Finally, as the speaker pointed out, the transition to OA could lead to unforeseen equity concerns. If only the well-funded researchers can afford publication fees, valuable research may go unpublished. If small publishing houses collapse, it could destabilize the research ecosystem. "In the short term, we have done okay," he concluded, "but in the medium-to-long term, we anticipate challenges."

References and Links

1. Nelson A. Ensuring free, immediate, and equitable access to federally funded research. Office of Science and Technology Policy, Executive Office of the President; 2022. [accessed August 14, 2025]. <https://bidenwhitehouse.archives.gov/wp-content/uploads/2022/08/08-2022-OSTP-Public-Access-Memo.pdf>.
2. Mellor DT. COS assessment of federal agency responses to OSTP. [accessed August 14, 2025]. Open Science Framework; 2023. <https://osf.io/pnga8>.