

STM Response to Request for Information (RFI) on NSF Public Access Plan 2.0: Ensuring Open, Immediate, and Equitable Access to National Science Foundation Funded Research (88 FR 85664)

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Submitted by:

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STM is a **non-profit organization** (trade association for scholarly publishers).

About STM

At STM we support our members in their mission to advance trusted research worldwide. Our more than 140 members collectively publish 66% of all journal articles and tens of thousands of monographs and reference works. As academic and professional publishers, learned societies, university presses, startups and established players, we work together to serve society by developing standards and technology to ensure research is of high quality, trustworthy and easy to access. We promote the contribution that publishers make to innovation, openness and the sharing of knowledge and embrace change to support the growth and sustainability of the research ecosystem. As a common good, we provide data and

analysis for all involved in the global activity of research.

The majority of our members are small businesses and not-for-profit organizations, who represent tens of thousands of publishing employees, editors, reviewers, researchers, authors, readers, and other professionals across the United States and world who regularly contribute to the advancement of science, learning, culture and innovation throughout the nation. They comprise the bulk of a \$25 billion publishing industry that contributes significantly to the U.S. economy and enhances the U.S. balance of trade.

STM stands for advancing open and trusted research, where researchers and the rest of society can rely on information that is credible, accessible, linked, and searchable in perpetuity.¹ We therefore share with NSF the goal of increasing access to publications and data, not just for federally funded research, but for all research. Publishers have led and responded to the interest in open science by investing heavily in open science over the past 25 years, broadening and expanding the public's ability to access and understand the work of scientists and scholars. Many of the products and services necessary for open science were created and maintained by publishers, including online infrastructure, preprinting, archiving, linking, and data management. We continue to support and grow those efforts today. STM members have also invested in new approaches to providing access, including experimentation with a variety of business models without compromising on quality and integrity, and supporting sustainability and equity.

As a participant in the Federal Government's Year of Open Science, we welcome the opportunity to comment on NSF Public Access Plan 2.0 ("the Plan"). To provide additional details that could not be addressed in the space allowed, we also refer NSF to STM submissions in response to NIH, NIST, NASA, and DOT RFIs on public access in recent years.²

Overall, (in response to prompts 1 and 2), we view public access requirements as having a positive effect on not only equity and inclusion in science, but also on the quality and integrity of the scientific record, but only if implemented with appropriate support, including funding, and in collaboration with the full research community, which includes our publisher members. Our members can help ensure the success of the Plan by supporting data sharing in repositories of all types (some of which may be hosted by publishers) and can help with other needs of the Plan (e.g., persistent identifiers, accessibility requirements) only if they can maintain revenues that allow them to invest in the same. In this spirit, we provide responses to prompts 3, 4, 5, 6, and 7 in the RFI below.

3. *What opportunities or benefits do you anticipate?*

STM believes that open sharing of publications accrues significant benefits for the use and utility of the research reported on in those publications and has the potential to help researchers and the rest of society by improving transparency, discoverability, reliability, and reproducibility of the underlying research. It is key to note that these all depend on a sustainable and well-functioning publishing ecosystem, taking into account the services provided by publishers in creating and supporting journal communities and managing, organizing and innovating peer review. STM appreciates the Plan's recognition of the criticality of peer-reviewed publications in the research ecosystem, and encourages NSF to ensure that, where versions of articles are made available through the NSF Public Access Repository, these articles are linked to the permanent and authoritative Version of Record (VoR). The VoR is more cited, used, and garners more attention than other versions of an article.³ This version can interlink with research objects like data and code, has the latest updates and corrections, and sits on the publisher's platform where it can be integrated with other relevant content, allowing readers to better put information into context.

4. *What challenges or barriers do you anticipate [with respect to] publications?*

While STM fully supports a transition to open access, there are significant challenges related to making a transition from the current system to one where peer-reviewed publications reporting on NSF-funded research and associated data are made immediately available upon publication. Below we discuss some key challenges, including ensuring the continuation of a vibrant ecosystem for the communication of the results of NSF-funded research with appropriate funding, budgeting support, and guidance; protecting academic freedom and author choice in journal outlets rather than restrictive licensing requirements; and promoting culture change and avoiding confusion amongst stakeholder communities.

Fostering a vibrant ecosystem for the communication of the results of NSF-funded research with appropriate and sustainable funding: Current global efforts to expand open access indicate that direct support for publishing (which includes APC-supported open access, Read and Publish Agreements, subsidies, memberships, and other evolving models) provides the most sustainable and rapid transition towards open access.⁴ Without consistent and appropriate funding for a diversity of models for access, coupled with guidance and budgeting support, the maintenance and improvement of the quality and integrity of the scientific record is at risk, undermining the ability of scholarly communication to support public trust in science and resulting in a dampening effect on innovation, job growth, and scientific progress. New barriers to access could also be created if important journals that serve critical research communities cease publication, in conflict with efforts to promote equity. Appropriate and sustained funding to underrepresented groups and fields could also help address equity.

STM welcomes efforts by NSF to explore new ways to sustainably fund immediate access to peer-reviewed articles reporting on NSF-funded research. STM recognizes that recent grants to publishers to transition journals to fully open access publishing are part of this effort. At the same time, it is important to note that the announcement of an EAGER grant on this issue last year emphasizes that “there is no viable, assured funding model” for diamond open access⁵ and one of the journals transitioned under the same program had to increase APCs to remain viable.⁶ Therefore, it is important that NSF work to continue to enable researchers to support publishing in whatever journal they choose.

Ensuring author choice and a diversity of business models through licensing options: Flexibility in licensing options not only promotes academic freedom, but it also supports equity, bibliodiversity (i.e., smaller publishers), and supports information integrity. Flexibility supports equity by enabling researchers to choose the methods and modes of communication and protect against misuse and misrepresentation of their work if they so desire. Flexibility supports bibliodiversity by providing options for journals that need exclusive rights to support sustainable business models and continue investments needed for quality, preservation, discoverability, innovation, and impact, particularly those pursuing Green open access approaches. Flexibility supports information integrity by allowing copyright holders to approve translation, modification, and commercial dissemination of works in advance, as well as its use by LLMs and AI tools, preventing the use of the work in ways that misrepresent it or promote misinformation.

NSF-funded researchers should have the ability to utilize their copyright in any peer-reviewed articles reporting on NSF-funded research in the manner of their choosing, in order to best serve their interests in communicating their results and increasing the impact of their work. This should include applying their license of choice or assigning copyright to others. Any approaches that restrict author choice in determining the journal in which to publish or that require authors to relinquish rights to the public without the ability to review further uses, is inconsistent with academic freedom and the goals of funding independent research.

While NSF may have a legitimate interest in ensuring that the findings of NSF-funded research is able to be used and reused in the widest possible manner, this interest does not in fact extend to the unique tangible expression of these ideas, that is, the peer-reviewed article itself, which are subject to copyright protection. No specific license is needed for such a reuse of the ideas in an article, but copyright holders should be allowed, if they choose, to retain their exclusive rights to approve future uses (e.g., reproduction, adaptation (modification), or communication to the public (redistribution)) of the unique expression of ideas in the article. STM therefore recommends that NSF avoid mandating a common licensing scheme across the Foundation or federal funding agencies and focus only on requirements necessary to achieve the articulated open science goals of sharing articles with the public, which are often already enabled (see [howcanishareit.org](https://www.howcanishareit.org) for more information on article sharing).

Promoting culture change and avoiding confusion amongst stakeholder communities: Surveys regularly demonstrate that researchers are uncertain of open science practices, funder requirements, and their rights and responsibilities for sharing of outputs related to their research, and many do not engage in open science practices even when they support them in principle.⁷ Publishers make significant efforts to ensure that researchers understand and have tools to support open science activities through training, editorial policies, and direction to authors. STM and our members welcome additional collaboration with NSF and other stakeholders to support open science culture and norms. All stakeholders need to come together to support incentives, tools, and education to do so, and financial and logistical support for open science: the sharing, curation, validation, and preservation of research artifacts.

Researchers also need to be supported and encouraged to plan and budget for these activities. One way to do this would be to follow the example set by NIH for data management and sharing by requiring budgets to include, and review panels and program administrators to evaluate budgets for, appropriate and full support for the costs of all open science practices.⁸

5. What challenges or barriers do you anticipate [with respect to] data?

As in the case of publications, there will be significant costs related to the sharing of research data in a responsible, curated, and high-quality manner that is useful to the research community and the general public. There will need to be cultural changes that value the sharing of data and investments in ensuring that it is prepared for sharing and reuse, well-labeled, and curated. Focused attention will need to be given to build on efforts such as STM's Research Data Program⁹ to support the use of clear, transparent data availability statements, the implantation of data management and sharing plans, and all stakeholders will need to work together to enhance research data sharing practices.¹⁰

6. How can NSF best engage affected communities regarding public access issues?

All NSF-related communities will be significantly impacted by public access, and continual engagement with all stakeholders is the best way to ensure the success of the Plan. As publishers are a key stakeholder enabling access to high-quality articles and data, publishers should be included in two-way dialogue about the impact and implementation. In addition, STM recommends that NSF recognize that scientific society publishers and those in the social science and humanities may be marginalized or under-represented in conversations about public access and should therefore be targeted for such dialogue.

7. If you have any additional comments about NSF's Public Access Plan, please share them here.

All approaches to publication have costs that need to be addressed in NSF's policies: While efforts to provide immediate access to articles under some models may appear cost free to the researcher and funder, they are reliant on some form of revenue to support the significant investments publishers make that ensure the quality, integrity, discoverability and accessibility of research in perpetuity. Where the Plan claims that "promoting use of" accepted manuscripts "as a no-cost option," may shape NSF policy, STM encourages NSF to take a more holistic view. Where articles are published in subscription-supported journals, the journals' viability is put at risk by the immediate availability of a large body of freely available accepted manuscripts, as demonstrated by widely used resources, such as Unsub.org, that encourage institutions to cancel subscriptions for materials that can be freely accessed. Nor is immediate access to articles cost-free for funders and institutions, as it causes additional, and duplicative, costs for dissemination and long-term curation. Recent economic studies of the costs of similar approaches in Europe have indicated that these costs remain high even in a repository-based environment.¹¹ In further development of policy and its implementation, NSF will need to take a serious look at all of the costs involved.

Appendix: Notes, References, and Links

- ¹ See, for example, STM’s statement of support for open access <https://www.stm-assoc.org/stm-oa-position/>, and our research data program <https://www.stm-assoc.org/research-data-program/>.
- ² STM response to Request for Information on the NIH Plan to Enhance Public Access to the Results of NIH-Supported Research (NOT-OD-23-091), April 24, 2023 <https://www.stm-assoc.org/wp-content/uploads/STM-submission-to-NIH-public-access-RFI-2023.pdf>. STM response to Request for Information on “Increasing Public Access to the Results of USDOT-Funded Transportation Research” (DOT-OST-2023-0045), May 10, 2023 https://www.stm-assoc.org/wp-content/uploads/DOT-OST-2023-0045-0019_attachment_1.pdf. STM response to National Institute of Standards and Technology (FR Doc # 2023-13866), Aug 14, 2023 <https://www.stm-assoc.org/document/stm-response-to-request-for-information-on-nists-draft-plan-for-providing-public-access-to-the-results-of-federally-funded-research-88-fr-42302/>. STM Response to Request for Information: NASA Public Access Plan for Increasing Access to the Results of NASA-Supported Research (88 FR 31827), August 17, 2023 <https://www.stm-assoc.org/document/stm-response-to-request-for-information-nasa-public-access-plan-for-increasing-access-to-the-results-of-nasa-supported-research-88-fr-31827/> See also earlier submissions, including the STM response to Request for Public Comments on a DRAFT NIH Policy for Data Management and Sharing and Supplemental DRAFT Guidance, January 10, 2020 https://www.stm-assoc.org/wp-content/uploads/2020_01_10_STM_Response_to_Request_for_Information_on_NIH_draft_data_management_and_sharing_policy-1.pdf and “Scholarly Publishers Seek to Support Federal Open Science through Collaboration Response to RFI: Implementation and Changes to Science Policy Document (SPD)-41: Science Information Policy.” March 4, 2022, https://www.stm-assoc.org/wp-content/uploads/2022_03_13_STM_response_NASA_SPD41_final-1.pdf
- ³ Researchers prefer the Version of Record, as found in various surveys, including a 2020 survey by Springer Nature, “Exploring researcher preference for the version of record” <https://www.springernature.com/gp/open-research/version-of-record>.
- ⁴ STM’s Open Access Dashboard provides information on the growth of open access and various types and funding models, including Read and Publish and other pooled funding arrangements <https://www.stm-assoc.org/oa-dashboard/>.
- ⁵ MIT Press announcement of NSF EAGER grant <https://mitpress.mit.edu/national-science-foundation-research-award-will-expand-shiftopeninitiative/>.
- ⁶ Open access publishing in Quantitative Science Studies – An update <https://www.issi-society.org/blog/posts/2022/november/open-access-publishing-in-quantitative-science-studies-an-update/>.
- ⁷ Note, for example, a 2022 survey of Springer Nature authors discussed here: <https://scholarlykitchen.sspnet.org/2023/02/02/guest-post-are-we-providing-what-researchers-need-in-the-transition-to-open-science/>.
- ⁸ NIH application instructions include a requirement that costs for open science, specifically to support a data management and sharing plan, must be explicitly noted on the budget form (see <https://grants.nih.gov/grants/guide/notice-files/NOT-OD-23-161.html>). We encourage NSF and other agencies to do the same for all public access and open science activities.
- ⁹ More on the STM Research Data Program is available at <https://www.stm-assoc.org/research-data-program/>.
- ¹⁰ See <https://www.stm-researchdata.org/data-availability-statements-tips/#DASsamples> for our template statements, which are based on the Belmont Forum’s DAS template. It was designed by a combined group of funder and publisher representatives, ratified in October 2018 and is available through a CC-BY 4.0 license.
- ¹¹ Operationalising Open Research Europe as a collective publishing enterprise <https://op.europa.eu/en/publication-detail/-/publication/81b9cd30-5104-11ed-92ed-01aa75ed71a1>