Public Access and Open Science

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2013 (Holdren) Memo

- **First commitment by the U.S. federal government** to the proposition that the results of publicly funded research be made accessible to the public.
- Directed agencies with research expenditures of $100M annually to develop Public Access plans to ensure that the results of federally funded scientific research are made publicly available: 1) **peer-reviewed publications**, and 2) **digital data**
- Allowed for a **1-year embargo** of peer-reviewed articles after publication.
- Led to significantly **scaled-up programs by different federal agencies** (notably NIH PMC and DOE OSTI) and **periodic monitoring inquiries** by OSTP and GAO.

2022 (Nelson) Memo

- Applies to **all Federal agencies**
- Calls for **Free, Immediate, and Equitable** public access, responding to widely perceived criticisms and flaws of the Holdren memo over the previous decade.
- Default now **zero-embargo** to peer-reviewed articles and data underlying article at time of publication
  - Develop approaches for sharing scientific data not underlying publications
- Support scientific and research integrity through **metadata and persistent digital identifiers** for research awards, researchers, and research outputs.
- Major agencies such as **NSF required to submit a new Public Access plan** at the end of Feb 2023, and all other research funding agencies by August 2023.
- Undertake **OSTP engagement** through NSTC Subcommittee on Open Science WGs, and continuation of **GAO inquiries** on agency implementations.
Interagency Coordination: NSTC Subcommittee on Open Science (SOS)

- Promote the **exchange of information** regarding open science initiatives, policies, practices, and programs between and among Federal agencies.
- Facilitate **interagency coordination and cooperation** on topics of common interest related to open science;
- Advise on and contribute to OSTP’s **reporting requirements to Congress** on public access of Federally funded research and data;
- Facilitate coordination of agency efforts to **support training, education, and Federal workforce development** related to open science policies, practices, and programs; and,
- Engage with **national and international stakeholders** to advance open science.

Agency co-chairs: NASA, NIH, NSF
Enacted by the 117th United States Congress and signed into law by President Biden 8/9/22

- Less specific and more aspirational than the Nelson memorandum
- Section 10344 (research reproducibility and replicability) has many statements directing the NSF and its Director to take actions related to Public Access & Open Science:

  "...shall facilitate public access to research products, including data, software, and code, developed as part of Foundation-supported projects."

  "ensure program officers and merit review panels are equipped with the resources and training necessary to review the quality of data management plans; and... ensure program officers and merit review panels treat data management plans as essential elements of award proposals, where appropriate"

  "develop and widely disseminate a set of criteria for trusted open repositories to be used by Foundation-funded researchers"

  "incentivize the deposition of data, software, and code into repositories"

*NSF Public Access 1.0 Plan (PA1) entitled “Today’s Data, Tomorrow’s Discoveries: Increasing Access to the Results of Research Funded by the National Science Foundation” (NSF 15-52)*

- **Published in Mar 2015**, under then NSF Director France Córdova, with plan & implementation led by Amy Friedlander (SBE, then CISE OAC) with leadership at NSF in the CISE & SBE Directorates
  - Broad engagement across agency by new NSF PA WG and NSF Policy Office
- Published, peer-reviewed articles are uploaded by PIs during annual reporting and made publicly accessible through the NSF Public Access Repository (PAR)
  - NSF PAR was implemented as an integrated part of annual reporting system, with an additional public repository run by Department of Energy (DOE) under contract to NSF and tightly integrated with Research.gov
    - PAR deposits available to the public
- A research portfolio began in OAC and continues today ($1.5M in FY23). Other research funded by a variety of programs, including SBE’s Science of Science (SOS:DCI), and also by research programs across NSF

https://par.nsf.gov/
Public Access Initiative: 2022 – and onwards

NSF Public Access 2.0 Plan (PA2) entitled “Ensuring Open, Immediate and Equitable Access to National Science Foundation Funded Research” (NSF 3-104)

- **Published in June 2023**, under NSF Director Sethuraman Panchanathan
- **New requirements will be deployed in NSF PAR version 3.0 in 2025**, as implementation of policy in that year’s PAPPG (NSF 25-1)
- NSF PAR continues to be developed (slowly) as part of Research.gov reporting modules, with new features rolled out in the public repository module run by DOE in PAR 2.0 (2021) and PAR 2.5 (2023)
- Because of the rapid turnaround deadline established by OSTP for the PA2, NSF has held multiple public and internal webinars on the Nelson Memo and its requirements
- Several key policy questions for implementation are now being examined and discussed
NSF Changes Post-Nelson Memorandum

• The associated areas of NSF’s policies that will be impacted effective in 2025 are undergoing close examination by various parts of NSF

• The default expectation starting with awards made in 2025 after the annual policy guide is issued will be that peer-reviewed articles and undergirding data arising from NSF awards be made publicly accessible without paywalls immediately upon publication through annual reporting

• NSF has been undertaking a variety of engagements, with societies, universities, publishers and others with interests

• Equity concerns for disadvantaged researchers have been highlighted and specific strategies to alleviate these concerns are being discussed for the implementation steps
NSF’s Engagements

- **NSF listening sessions** throughout 2023: https://new.nsf.gov/public-access


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

NSF is seeking public input from the science and engineering research and education community on implementing the NSF Public Access Plan 2.0: Ensuring Open, Immediate, and Equitable Access to National Science Foundation Funded Research. This plan, described in the SUPPLEMENTARY SECTION of this Federal Register notice, represents an update to NSF’s current public access requirements in response to recent White House Office of Science and Technology Policy guidance.
Equity: NSF’s guiding priority for on-going engagements

NSF internal activities

• Meetings across working group, agency leadership team, sub-groups, office/division presentations, director’s office consultations
• Engagement with NSF’s Broadening Participation Knowledge Sharing Group and other key groups
• Working in coordination with NSF’s Diversity, Equity and Inclusion Office (established 2023)

Equity has been featured in internal PAOS activities, it is guiding NSF’s external engagements, and driving NSF’s public access and open science policy and practices

NSF’s research agenda

• Various programs fund PAOS proposals
• SBE’s Science of Science research to empirically understand issues of open science and public access
• Science of Science research to determine equity impacts – both positive and negative
NSF’s Engagements... What we have heard

**principles and values**

Broad agreement that expanded public access, in principle, is beneficial to scientific enterprise, advances equity, and that the trend towards open research will likely continue.

- **Publishing is critical** to the research ecosystem, and both advances science and supports specific communities.
- **Cross-disciplinary scientific value** of shared data should be maximized.
- Communities want to help develop new mechanisms/ecosystems for sharing research.
- **Researchers**, including international authors, should have an **equitable ability/right to submit research** results for publication.
- **Avoiding duplicative effort** and unnecessary researcher burden is valued.
- Want public access to **serve community goals** rather than be simply a compliance issue.
What we have heard, continued:....

**costs and concerns**

**Equity concerns are a primary driving factor** for many communities:

- Over-reliance on Gold OA may disadvantage many researchers, esp. marginalized groups and early career.
- Scholarly societies and large commercial publishers will have access to different solutions.
- Shifts from subscription access to page charges may have large-scale implications and equity impacts.

**Shifting publication costs** to research grants would **reduce funding** intended for research, development, training, or conference attendance/travel.

**There are non-trivial technical, cultural, and economic challenges surrounding data sharing**.

**Mandating liberal re-use rights** could result in data use contrary to the author’s intents / preferences.

**Publishing and data norms vary among disciplines**; and publishers have different infrastructures to support open access; one-size will not fit all.
NSF Public Access Repository
Development Arc 2020-2025

2016
version 1.0
Articles Baseline

2021
version 2.0
Research Datasets

2023
version 2.5
Proceedings & Workshop Reports

2025
version 3.0
Research Products Interlinkage
Q&A Discussion

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