

Public Access to Advance Equity

The American public should have access to the knowledge produced by the nation's research and innovation enterprise. Here's how to ensure that access to federally funded research is open, equitable, and secure.

Open science began in the scientific community as a movement committed to making all aspects of research freely available to all members of society.

As a member of the Organisation for Economic Co-operation and Development (OECD), the United States is committed to promoting open science, which the OECD defines as “unhindered access to scientific articles, access to data from public research, and collaborative research enabled by information and communication technology tools and incentives.”

At the White House Office of Science and Technology Policy (OSTP), we have been inspired by the movement to push for openness in research by community activists, researchers, publishers, higher-education leaders, policymakers, patient advocates, scholarly associations, librarians, open-government proponents, philanthropic organizations, and the public.

Open science is an essential part of the Biden-Harris administration's broader commitment to providing public access to data, publications, and the other important products of the nation's taxpayer supported research and innovation enterprise. We look to the lessons, methods, and products of open science to deliver on this commitment to policy that advances equity, accelerates discovery and innovation, provides opportunities for all to participate in

research, promotes public trust, and is evidence-based. Here, we detail some of the ways OSTP is working to expand the American public's access to the federal research and development ecosystem, and to ensure it is open, equitable, and secure.

Equitable access to federal research

President Biden has demonstrated a long-standing commitment to public access. During his time as vice president, for example, he fought to ensure that all federally funded cancer research was made publicly available. Although previous guidance had allowed for a 12-month embargo on scientific publications before they were made available to the public, earlier this year the Biden-Harris administration updated and expanded its public access guidance to ensure that by December 31, 2025, all federally funded research—across fields including biomedicine, the social sciences, and the humanities—becomes publicly available immediately. This new guidance exemplifies the administration's commitments to generating, disseminating, and employing the best evidence and data and upholding the principles of accountability to the American public. As President Biden said in a speech about new initiatives in the Cancer Moonshot in September 2022, “When I led the Cancer Moonshot as vice president, one of the biggest issues I talked

about was how federally funded cancer researchers were not sharing their results with their peers or the public.... And today, as president, we're making sure that transparency applies to all federally funded science beyond just cancer."

Federally funded research and data from researchers inside and outside the government are public assets. Making that research and data available to the public, as appropriate, serves many purposes, including facilitating replication of findings and secondary data analysis (in fields where this is applicable and relevant), and sharing research and data with scholars who may not otherwise have access to them. This approach will foster collaboration, ensure evidence-based policymaking is informed by the most current information, and accelerate the ability of innovators across the globe to translate research findings into products, practices, and policies.

Too often, the institutional incentives of the traditionally closed science system have created a multitiered structure where elite institutions preserve access, while others—including community

Public access restores trust and integrity

Providing communities with opportunities to openly and freely participate in research can spark an individual interest in new careers in science, technology, and beyond. These efforts can support the workforce that is needed to ensure that discoveries are made and translated into innovations, policies, and practices that make it back into those same communities. This work is of paramount importance to ensure that science and research benefit everyone. For example, the Crowdsourcing and Citizen Science Act of 2017 gives agencies direct authority to collaborate with individuals or organizations in the research process. The number of citizen science and community science activities reported to Congress has increased in recent years, expanding the accessibility, participation, and benefits of federal research and development investments for all American communities.

When diverse communities participate in research, the discussion of restoring trust in science moves beyond the ivory tower and becomes a conversation among the broader public. Open science is an important

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and regional colleges, emerging universities, small businesses, and the broader community—are excluded. This administration and this public access policy guidance respond to President Biden's mandate that the government work in service to the American public and for the benefit of all of America, not special interests.

To live up to the administration's national aspirations—to cut in half both the cancer death rate and greenhouse gas emissions, narrow the racial wealth gap, foster good and sustainable jobs in the coming decades, and more—the country first has much to learn from the open science movement. These complicated problems require complex thinking from a diverse and collaborative knowledge base. A research ecosystem where everyone can participate and contribute their skills and expertise must be built. Open science has been part of ongoing efforts to expand public access, including democratizing the ability to set research agendas, to ask the important questions, and to generate and use knowledge.

facet of facilitating public trust in federally funded research. The 2022 Biden-Harris administration report *Protecting the Integrity of Government Science* notes that "open science is an essential enabler of scientific integrity." Such practices demystify the research process and make it more transparent. Opening up these processes can reveal insights into how research is conducted, communicated, and used in policy decisions. When data and research results are accessible, the public is empowered with information about how policy decisions reflect real evidence. This is true for research in the natural and physical sciences, and also for other fields of study, including the social and behavioral sciences. Open data and research also help government make better evidence-based policy that is transparent to the public.

Public access can be an important safeguard against political interference in science. It may help to provide a clear communication pathway between researchers and communities, upholding scientific integrity and

ensuring the public stays informed. Maintaining this connection in a way that has the greatest impact with the least amount of burden requires strong policies that promote accountability and efficiency in research.

Ensuring free, immediate, and equitable access to federally funded research

Now comes the work of translating public access principles into action. And in the spirit of the open science movement, OSTP is sharing our progress. The timeline for agencies to adopt the administration's public access guidance extends into 2025 to give agencies time to successfully complete rulemaking and implementation. This also provides the research community an opportunity to adjust. Some federal agencies are already implementing provisions articulated in the new guidance. The National Institutes of Health's Data Management and Sharing Policy, for example, will go into effect in January 2023 and requires that all data from newly funded projects and protocols are shared.

their PIDs, much as they would a curriculum vitae or resume, by keeping their records up to date with important information such as funding sources, research outputs, and affiliations.

Supporting public access also means working to prevent the misuse of research and data by actors that seek to do harm. Privacy and security must be protected, even as federally funded research becomes more open. Policies that support the principles of secure public access ensure a more equitable scientific landscape in which all members of society can benefit from investments in research, as the United States recently articulated at the 2022 G7 Science Ministerial.

Ultimately, eliminating the barriers to discovery and research outputs are critically important to realizing the Biden-Harris administration's day one commitment to equity, week one commitment to scientific integrity and evidence-based policymaking, and every day commitment to providing research, innovation, cures, and improved health and well-being to the nation and the world. Fully realizing the

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As a resource to help federal agencies support access to research data, OSTP released the National Science and Technology Council's "Desirable Characteristics of Data Repositories for Federally Funded Data" report in May 2022. This work, spearheaded by the council's interagency Subcommittee on Open Science, better equips agencies to inform their research communities of the best practices for sharing their data transparently, freely, openly, and securely.

OSTP also provided guidance on the use of digital persistent identifiers (PIDs), which give a unique name to a digital entity that allows it to be reliably found. These tools can improve transparency to the public, protect the integrity of US-supported research and development, and reduce the administrative burden for researchers. PIDs can also ensure that individuals and institutions that produce research get credit even as personal identities and institutional affiliations might change. Researchers can maintain

ambitions of the administration's public access policy requires working together across borders, sectors, and disciplines. We at OSTP invite you to engage in these federal initiatives directly, whether through participating in listening sessions, responding to requests for public comment, sharing your research data, participating in clinical trials, applying for research grants, becoming a trainee, or leading community science initiatives. OSTP will continue to advance these public access commitments to ensure that US research and development remains open, equitable, and secure.

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