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June 30, 2025

Senator Mike Rounds
Hart Senate Office Building, Suite 716
Washington, D.C. 20510

Senator Martin Heinrich
709 Hart Senate Office Building
Washington, D.C. 20510

RE: ASAP Request for Information Response

Dear Senators Rounds and Heinrich,

Thank you for the opportunity to comment on your bipartisan effort to accelerate American technical innovation through the American Science Acceleration Project (ASAP).

SPARC is a non-profit advocacy organization that supports open systems for research and education that enable everyone, everywhere to access, contribute to, and benefit from sharing knowledge. Our membership includes more than 200 libraries and academic organizations across the U.S. spanning 45 states, including universities in South Dakota and New Mexico. We believe that sharing knowledge is a human right, and that everyone should be able to access and contribute to the knowledge that shapes our world.

In response to your central question—*How should the United States achieve the goal of accelerating the pace of scientific innovation?*—SPARC recommends that Congress:

- Enact comprehensive legislation codifying the 2022 OSTP memorandum that establishes statutory requirements for immediate public access to all federally funded research with explicit reuse permissions; standardized open licensing frameworks across all federal agencies; and sustainable funding mechanisms for research infrastructure including repository services and persistent identifier systems;

- Mandate persistent identifier (PID) adoption to preserve attribution and accountability as AI transforms scientific research; and

- Support open education initiatives that enable rapid integration of federally funded discoveries into educational materials, creating a seamless knowledge ecosystem from research to classroom.

This legislative framework can dramatically accelerate knowledge sharing across American research institutions by creating consistent requirements and reducing compliance burdens on researchers. This approach ensures that the foundational knowledge underlying American scientific leadership remains accessible to all researchers regardless of institutional affiliation or economic resources, while maintaining the security and accountability standards that Congress has already established through prior legislation.

These recommendations directly address the systemic barriers currently constraining American innovation capacity, where publishing restrictions prevent researchers from accessing taxpayer-funded discoveries, resulting in duplication of efforts and missed breakthrough connections that could accelerate scientific progress.

In addition to addressing your central question about accelerating scientific innovation, we have provided responses to the additional questions outlined in your request for input in the attached appendix. These supplementary responses offer more detailed perspectives on implementation strategies, potential challenges, and specific policy mechanisms that could support the acceleration of American science.

Systemic Barriers to Scientific Acceleration

America faces a critical inefficiency in its scientific enterprise that undermines our competitive advantage and wastes taxpayer investment. Current publishing practices create systematic barriers that prevent researchers from accessing the very discoveries their tax dollars funded, forcing scientists to work with incomplete information, duplicate existing research, and miss breakthrough connections that could accelerate innovation. When a researcher at a smaller institution cannot access federally funded findings published just months earlier, or when interdisciplinary teams cannot search across the full corpus of government-supported research to identify patterns, America loses the compounding benefits that should flow from its substantial research investments.

These access barriers fragment our scientific community precisely when global competition demands maximum collaboration and knowledge velocity. Meanwhile, the lack of standardized identification systems makes it much more difficult to trace research lineage, verify findings, or enable the large-scale analysis that artificial intelligence tools require to unlock cross-disciplinary discoveries.

The result is a research ecosystem operating far below its potential—where taxpayer-funded discoveries remain trapped in subscription silos, where promising research directions go unexplored due to access limitations, and where America's substantial investment in science generates diminished returns compared to what an open, interconnected system could achieve. This systemic inefficiency not only wastes public resources but handicaps America's ability to address complex national challenges that require rapid knowledge integration across disciplines and institutions.

Open Access: A Strategy for Scientific Innovation

Open access is an effective and scalable strategy available to accelerate American scientific innovation. Open access provides free, immediate online availability of research articles coupled with full reuse rights, enabling anyone, anywhere in the world to read, access, and build upon scientific discoveries.

This comprehensive approach encompasses two critical components: eliminating financial barriers to reading and contributing to research and providing full reuse rights to enable scientists to develop entirely new analytical tools and methodologies.

The transformative potential of open access extends far beyond simple document sharing. For example, full reuse rights enable researchers to examine and search articles for patterns, identify relationships across disciplines, extract genetic sequences mentioned in multiple papers, and discover conceptual connections between biology and chemistry research that individual researchers could never uncover by reading articles in isolation. This capacity for large-scale analysis and cross-disciplinary discovery represents exactly the type of breakthrough thinking needed to address complex national challenges, especially as artificial intelligence tools become more sophisticated and readily available.

To realize this potential, Congress should enact legislation that codifies and strengthens the 2022 OSTP memorandum "Ensuring Free, Immediate, and Equitable Access to Federally Funded Research." A legislative framework supporting open access should establish three core requirements that build upon proven Congressional precedents:

- **Statutory access requirements**: Mandate immediate, free public access via open repositories to all federally funded research outputs with explicit reuse permissions, creating legal certainty that transcends political transitions and ensures consistent implementation across all federal agencies.

- **Standardized licensing infrastructure**: Require federal agencies to adopt uniform open licensing frameworks that eliminate confusion for researchers and institutions while enabling the automated analysis tools that artificial intelligence systems require for large-scale knowledge discovery.

- **Sustainable funding mechanisms**: Provide dedicated appropriations for research infrastructure that supports immediate dissemination, including repository services, persistent identifier systems, and technical support that prevents open access requirements from becoming unfunded mandates on researchers.

This legislative approach transforms the current patchwork of agency-specific policies into a coherent national strategy that ensures federally funded research serves as a dynamic foundation for continuous innovation rather than a collection of static publications locked behind institutional barriers. By ensuring immediate access to federally funded research with

full reuse rights through permanent legislative action, Congress can unlock the transformative potential of American scientific investment while maintaining global leadership in innovation.

Supporting Reuse and Accountable Research Through Persistent Identifiers

Robust technical infrastructure supports the effective reuse of open access articles and contributes to the broader open research movement, extending transparency and accessibility across the entire research lifecycle and promoting accountability, research integrity and public trust. Persistent identifiers (PIDs) and high-quality metadata[1] are foundational infrastructure that enable trustworthy reuse within an open research ecosystem. PIDs become even more critical as AI systems increasingly assist scientific discovery.

PIDs uniquely identify researchers, institutions, research components, and outputs throughout the scientific lifecycle, enabling proper attribution and greater discovery while supporting AI-powered analysis that can trace information back to authoritative sources. PID technical infrastructure also addresses common concerns about quality control and research security by creating transparent, traceable connections between funding, researchers, and outputs.[2] This persistent attribution infrastructure addresses a fundamental challenge in the AI era: ensuring that scientific contributions receive proper credit and that research lineage remains traceable as knowledge compounds through automated analysis and synthesis.

Congressional action should mandate PID adoption to uniquely identify people, organizations, funding, and outputs within the research lifecycle, specifically to preserve attribution and accountability as AI transforms scientific research. AI-powered research analysis becomes more trustworthy under open science frameworks because transparent, traceable data sources enable verification of analytical results, but only when robust identification systems ensure that every contribution—human and AI-assisted—can be properly attributed and validated. This attribution infrastructure protects both individual researchers' contributions and public trust in AI-enhanced scientific discovery.

Open Education: Democratizing Learning and Innovation

America's capacity for scientific innovation depends not only on open access to research but also on educational systems that prepare the next generation of researchers and innovators. Open education encompasses resources, tools, and practices that are free of legal, financial, and technical barriers, maximizing the Internet's power to make education more affordable, accessible, and effective.

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[1] In this context, high-quality metadata includes detailed descriptive information that helps contextualize the resources.

[2] See: National Security Presidential Memorandum-33, "United States Government-Supported Research and Development National Security Policy," January 14, 2021, https://trumpwhitehouse.archives.gov/presidential-actions/presidential-memorandum-united-states-government-supported-research-development-national-security-policy/

Textbook prices have risen at three times the rate of inflation for decades, creating financial barriers that prevent students from accessing required materials and forcing schools to use outdated content. Open Educational Resources (OER) provide teaching and learning materials with legal permission for open use, enabling dynamic, current content that can incorporate the latest scientific discoveries immediately rather than waiting for traditional publishing cycles.

Congress should support open education initiatives that complement open access requirements for federally funded research, including funding mechanisms that enable educational institutions to adopt OER at scale.

Federal support for open education creates a virtuous cycle where federally funded research discoveries can be rapidly incorporated into educational materials without licensing barriers, ensuring that the latest scientific knowledge reaches students immediately. By combining open access to research with open education initiatives, America creates an integrated knowledge ecosystem where scientific discoveries flow seamlessly from research institutions into educational environments, maximizing the return on federal research investment while building the scientific workforce needed for continued innovation leadership.

The Path Forward

The current research access system contradicts core American values by making financial means and privileged access prerequisites for accessing taxpayer-funded research, as described in the 2022 OSTP memorandum "Ensuring Free, Immediate, and Equitable Access to Federally Funded Research."

The OSTP memo established a clear policy framework requiring federal agencies to 1) provide expeditious sharing of federally funded research outputs by December 2025, and 2) support scientific and research integrity by requiring quality metadata and use of PIDs by December 2027. This executive guidance demonstrates the administrative commitment to open principles, but Congressional action would provide the stability and permanence needed to ensure America maintains its commitment to scientific transparency and innovation acceleration.

A legislative framework codifying and strengthening the OSTP memo's requirements would create durable policy infrastructure that transcends political transitions while building upon successful Congressional precedents like the Taxpayers Right-To-Know Act, NAIRR, and the OPEN Government Data Act. Such legislation would establish statutory requirements for immediate public access to federally funded research, with explicit reuse permissions, mandate standardized open licensing frameworks, and provide funding mechanisms for sustainable implementation of both access and reuse infrastructure.

Implementing these statutory requirements effectively requires strengthening the technical foundation that enables research discoverability and reuse. The technical infrastructure outlined in the OSTP memo—persistent identifiers and high-quality metadata—becomes even more

critical when research outputs are designed for reuse. Open repositories serve as foundational components of our national research infrastructure, providing trusted platforms for discovery and access while ensuring long-term preservation of scholarly outputs. PIDs enable proper attribution as research is transformed and built upon, while standardized metadata ensures that AI-powered analysis can trace findings back to authoritative sources, addressing security concerns while maximizing innovation potential.

Congressional codification would strengthen the OSTP framework by ensuring consistent implementation across all federal agencies, providing legal certainty for researchers and institutions making long-term investments in American scientific enterprise.

By ensuring immediate access to federally funded research with full reuse rights through permanent legislative action, Congress can unlock the transformative potential of American scientific investment, maintain global leadership in innovation, and create a system where all stakeholders—administration, industry, academia, and civil society—can work at full capacity to accelerate scientific discovery for generations to come.

We welcome the opportunity to discuss these recommendations further and share our experience implementing open access policies and supporting research infrastructure. Our organization stands ready to work with your offices to advance legislation that codifies and strengthens the OSTP framework, ensuring the full potential of open scientific knowledge for American innovation and competitiveness

Sincerely,

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Appendix: ASAP Pillar Responses

Data

Scientific data sharing in America faces a fundamental challenge rooted in misaligned incentives and inadequate infrastructure. Today's researchers operate within systems that rarely reward data sharing through tenure and promotion decisions, creating an environment where the act of making valuable datasets publicly available becomes an unfunded burden rather than a recognized contribution to scientific progress.

The barriers extend beyond institutional recognition. Researchers confronting the prospect of sharing their data encounter significant time and resource requirements to properly prepare datasets for public use, often without dedicated funding or technical support. Legal uncertainties around privacy, intellectual property, and regulatory compliance create risk-averse environments where keeping data private becomes the default choice rather than navigating complex regulatory landscapes that few researchers are equipped to handle.

Perhaps most critically, the current landscape lacks the standardized digital infrastructure necessary for effective data sharing. Without persistent identifiers and high-quality metadata systems, even well-intentioned data sharing efforts fall short of their potential impact. Datasets become difficult to discover, properly attribute, or integrate into the AI-powered research systems that could amplify their value across disciplines.

The recently issued Phase 2 implementation guidance for the Foundations for Evidence-Based Policymaking Act[3] offers a framework for addressing these challenges through systematic federal data management. The guidance establishes clear requirements for agencies to maintain comprehensive data inventories using standardized metadata schemas, ensuring that federal research datasets become discoverable through machine-readable catalogs. By mandating open formats and interoperability with the Federal Data Catalog, this implementation creates the foundation for a purpose-built data service infrastructure that could extend beyond government to encompass academic and private research.

The guidance's emphasis on open government data assets, which require machine-readable formats, open standards, and minimal access restrictions, provides a blueprint for how scientific datasets should be structured and shared. Its framework for balancing public access with privacy and security considerations through risk assessment processes[4] offers researchers a pathway to navigate the legal uncertainties that currently inhibit data sharing. The requirement for agencies to engage with stakeholders and establish public feedback mechanisms creates opportunities for the research community to influence federal data priorities and standards.

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[3] Shalanda Young, "Phase 2 Implementation of the Foundations for Evidence-Based Policymaking Act of 2018: Open Government Data Access and Management Guidance," Office of Management and Budget Memorandum M-25-05 (January 15, 2025).

[4] Corinna Turbes, "Implementing the Vision of the Evidence Act: A Risk-Based Approach to Data Sharing Using the Five Safes Model," Data Foundation (January 2024)

This “standardization-first” approach is essential because emerging initiatives like the National Artificial Intelligence Research Resource (NAIRR) and the National Secure Data Service (NSDS) must be built upon these foundational standards to truly serve data users and research needs. These initiatives should adopt policies that recognize data sharing as a fundable research activity, provide legal safe harbors for good-faith sharing efforts, and create institutional incentives that reward rather than penalize researchers who contribute to shared data infrastructure. Coordinated policy reforms that align federal standardization requirements with institutional incentive structures can help ensure that NAIRR and NSDS fulfill their promise of democratizing access to high-quality research data while maintaining the trust and participation of the scientific community.

Looking forward, America needs a federated scientific data infrastructure that builds upon emerging initiatives like the National Artificial Intelligence Research Resource (NAIRR) and the National Secure Data Service (NSDS). This infrastructure should seamlessly integrate public access principles with robust technical frameworks that handle exponentially growing datasets while ensuring research integrity and enabling AI-powered discovery. The foundation requires distributed storage networks for long-term preservation, automated data management systems powered by artificial intelligence, secure access frameworks that protect sensitive information while enabling analysis, and standardized metadata systems that make datasets discoverable across disciplinary boundaries.

Artificial Intelligence

A democratic AI ecosystem requires similar openness for foundational research supported by federal funding. This means making algorithms, datasets, and evaluation methods widely accessible ensuring that AI innovation benefits reach the broader research community and society. This approach demands transparency in AI development, requiring federally funded research to adhere to public access principles that make training data, model documentation, and performance evaluations available for scrutiny and building upon.

Distributed access becomes essential for maintaining democratic oversight of AI systems. Researchers, policymakers, and the public need the ability to understand how AI systems function and verify that they serve the common good rather than narrow interests. This transparency prevents the dangerous concentration of AI capabilities within a few large corporations by maintaining open access to foundational research that enables broader participation in AI development.

The implications extend beyond technical considerations to fundamental questions about how AI shapes society. When AI research remains locked behind proprietary walls, democratic institutions lose the ability to understand and govern these powerful technologies. Open access to federally funded AI research creates the foundation for informed public discourse and evidence-based policy decisions about AI's role in society.

Collaboration

Breaking down the institutional silos that fragment scientific research requires fundamentally reimagining how we treat research data and publications. Rather than viewing these outputs as institutional assets to be protected and controlled, we must recognize them as shared resources that amplify their value through open accessibility and interconnection.

The most effective transformation involves creating federated research infrastructure where data, publications, and research tools become accessible across institutional boundaries through standardized, machine-readable formats. This approach enables researchers to build upon each other's work regardless of their institutional affiliation, creating opportunities for breakthrough discoveries that emerge from unexpected connections between disciplines.

Emerging technologies can accelerate this collaborative transformation by leveraging openly accessible research and persistent identifiers to automatically identify collaboration opportunities and knowledge gaps that human researchers might miss. AI-powered analysis of scientific literature becomes exponentially more effective when operating on comprehensive, openly available research outputs that are uniquely identified rather than the fragmented, paywalled collections that characterize much of today's scientific communication.

The potential for researcher matching systems that suggest optimal interdisciplinary teams depends entirely on access to comprehensive data about research interests, methodologies, and outcomes. This data becomes readily available when federal funding agencies require public access to research outputs, creating a virtuous cycle where transparency enables more effective collaboration, which in turn accelerates scientific progress and justifies continued public investment in research.

The collaborative benefits extend beyond individual research projects to transform entire fields of inquiry. When researchers can easily access and build upon each other's work, scientific progress accelerates as discoveries compound more rapidly.

Process

The most transformative change needed in federal research funding lies in ensuring that agencies provide adequate support for researchers to comply with public access requirements without creating unfunded mandates that burden investigators. This transformation requires agencies to integrate public access compliance into their fundamental funding models, recognizing that data management, repository services, persistent identifiers, and open publication represent essential components of research infrastructure necessary to maximize public benefit from federal science investments. Rather than treating open access as an additional requirement imposed on researchers, agencies should view it as a core component of research infrastructure that enables the full realization of publicly funded research.

The process improvements should focus on three key areas that work together to create sustainable change. First, agencies must fund infrastructure development that supports institutions in building capacity for immediate research dissemination, providing the technical

and administrative resources necessary for effective data sharing and open publication. Second, standardizing processes across agencies reduces the compliance burden on researchers who often work with multiple funding sources, creating consistent requirements and tools that researchers can master once and apply broadly.

Finally, incentivizing best practices through recognition and additional support, rewards researchers and institutions that exceed baseline sharing requirements, creating positive feedback loops that encourage innovation in open science practices. This approach transforms compliance from a bureaucratic burden into an opportunity for research enhancement and professional advancement.

The ultimate goal involves creating a research ecosystem where open access becomes the natural, supported path for disseminating federally funded research, rather than an additional requirement that researchers must navigate without adequate resources or institutional support.