

Response to
Request for Information: Public Access to Peer-Reviewed Scholarly Publications
Resulting From Federally Funded Research
Submitted by the Coalition of Open Access Policy Institutions (COAPI)
January 2012

Background:

Access to scholarly research literature is a crucial concern for universities, colleges, and research institutes worldwide. That concern, in addition to other considerations, has led faculty at many institutions to adopt open access policies designed to disseminate the results of their research as widely as possible.

During a July 19, 2011 teleconference, representatives from 22 North American institutions with existing faculty-initiated open access policies agreed to form a coalition in order to collaborate and share implementation strategies for their policies and advocate at national levels on issues related to their policies. This new alliance, the Coalition of Open Access Policy Institutions (COAPI), was announced on August 3, 2011 in a press release issued by the University of Kansas: <http://www.news.ku.edu/2011/august/3/openaccess.shtml> COAPI has since grown to 41 institutions that have open access policies or are working toward such faculty-led initiatives. COAPI members include leading public and private universities and colleges as well as independent research institutes. We represent an important segment of higher education and research communities in North America.

COAPI has a unique perspective because faculty at our institutions have recognized the importance of greater access to scholarship and embraced it as a core value. They view access to research literature as a critical component of both individual researcher and institutional effectiveness. COAPI faculty and researchers have firsthand experience with the problems created by limited access to research and scholarship and they have demonstrated in a concrete way their belief that broader access will benefit both scholarship and society.

Representatives of COAPI member institutions met in Washington, DC on November 8, 2011 prior to the Berlin 9 Open Access Conference. During the meeting COAPI members agreed that one of our first actions would be to respond to the Office of Science and Technology Policy's Request for Information to provide "recommendations on approaches for ensuring long-term stewardship and broad public access to the peer-reviewed scholarly publications that result from federally funded scientific research." The following response to the RFI, which has been

approved by COAPI members, was developed by a working group and discussed on two separate conference calls of the full COAPI membership.

Summary recommendation:

The current NIH Public Access Policy, implemented in 2008, applies to the results of approximately one-third of all federally funded scientific research. The NIH policy, while it is not without limitations, has been enormously successful in opening the results of NIH research to a broader audience – to the benefit of science and the general public. There is an urgent need for the federal government to adopt a comprehensive public access policy approach applicable to all major research funding agencies, one that would both extend and improve upon the current NIH policy. COAPI recommends a policy framework that 1) is as uniform as possible for all agencies, 2) is mandatory for all researchers funded in whole or in part by those agencies, 3) results in rapid and open access to the results of peer-reviewed, government-funded research, and 4) allows flexible rights of reuse.

The members of COAPI encourage policymakers to consider carefully the ways in which research information can be both accessed and reused for optimal scientific, economic, and social benefit. Faster public access, with minimal delays following publication, coupled with full reuse rights will result in more rapid advancement of scientific discovery, as well as faster product development and commercialization in all research areas. Such an approach will spur economic growth in broad sectors of the economy, including those of strategic importance such as biotechnology, renewable energy, and sustainable agriculture. It will encourage private investment in enterprises that capitalize on information generated from government-funded research. It will also have optimal benefits for the general public.

Comment 1

[1.a. Are there steps that agencies could take to grow existing and new markets related to the access and analysis of peer-reviewed publications that result from federally funded scientific research?]

Successful development of markets related to access and analysis of government-funded peer-reviewed publications depends in large part on the speed with which research information is made available and the terms under which it can be used. The combination of rapid public access and liberal reuse rights will drive software development that facilitates new types of information discovery and tools for research. It will create the capacity for new information-based business models that draw on the innovations in information technology, such as the semantic web, which fosters sharing and reuse of information across applications and community boundaries. Full open access in this sense will also foster commercialization of products that increase access to and awareness of specialized research information.

All of these potential capacities will be reduced to the extent that access is delayed through embargoes or that reuse rights are limited unnecessarily.

Text mining, data mining, other forms of information computation, and the creation of derivative works are examples of new research and information dissemination capacities that can be enabled through appropriate reuse rights. An example of one such tool that could be exceptionally powerful in a full open access environment is Action Science Explorer, which is designed to speed understanding of scientific literature. See: <http://www.cs.umd.edu/hcil/ase/> In addition to potential commercial applications, such tools could also be valuable to funding agencies by allowing them to monitor research developments in specific fields as part of the process of setting funding priorities.

A broader federal public access policy framework of the kind we envision will also foster the continued development of open access journals (which now number more than 7,000 titles) and the transition of traditional publishing to open access business models – again to the benefit of science, economic development, and public welfare. Commercial firms – both new firms such as Hindawi and existing ones such as Springer – are clearly realizing the economic benefits of open access through the creation of profitable new journals that follow open access business models. Nonprofit publishers are also experimenting with open access publishing and thereby extending the reach of the research they disseminate. The growth of publicly accessible research information will encourage scholarly publishers (both nonprofit and for-profit) to transition to open access in ways that meet both their scholarly missions and their economic interests. A broader federal public access policy framework will thus both add to and encourage the continued growth of openly accessible research information.

[1.b. How can policies for archiving publications and making them publicly accessible be used to grow the economy and improve the productivity of the scientific enterprise?]

Houghton's work clearly demonstrates the economic value of agency policies that ensure public access to the full results of their funded research. His 2010 study estimates that opening access to all U.S. federally funded scientific articles would result in at least a five-fold increase in return on investment. Specifically, the net present value gains of expanding an NIH-style policy to all other U.S. science agencies is estimated to be on the order of \$1.5 billion. Of that figure, approximately 60% is estimated to accrue directly to the U.S. economy.¹

¹ Houghton, J., Rasmussen, B., & Sheehan, P. (2010). *Economic and Social Returns on Investment in Open Archiving Publicly Funded Research Outputs*. Report to SPARC. Centre for Strategic Economic Studies. Victoria University. Victoria, BC. See: <http://www.arl.org/sparc/bm~doc/vufrpaa.pdf>

Minimal restrictions on the commercial use of federally funded research information will encourage economic growth. Current practices limit reuse rights to either what is allowed by fair use under copyright or what is permitted by licenses that are negotiated between journal publishers and libraries. Most restrictions on use needlessly hamper the commercial development of new products and services and their introduction into the marketplace; they stymie rather than encourage economic development. Appropriate commercial use can be achieved through current copyright law and the licensing framework for agency policies, as discussed below under Comment 2.

[1.c. What are the relative costs and benefits of such policies?]

Numerous studies have demonstrated that openly accessible research information reaches wider audiences and produces more citations than research published under access restrictions. Recent studies are also showing that openly accessible research produces more diversity in follow-on research. It encourages contributions by participants who would have had no opportunity to contribute in an environment with access controls. It thus increases the potential for innovation and the interdisciplinary application of research through a larger pool of participants.

As noted, Houghton's studies have demonstrated the clear economic benefits of opening access to government-funded research. Given his findings, the opportunity costs of not making government-funded research openly accessible are equally clear.

We know from the NIH example that making such research openly accessible is extremely cost-effective, especially when considered in the context of overall benefits. The NIH reports that it costs \$3.5 - \$4.6 million annually (or about one hundredth of one percent of the NIH budget) to provide access to results of its funded research. [PubMed Central](#) is currently used by more than 500,000 users per day, with the majority of users coming from outside academe, underscoring strong demand for this information by the public.

A government-wide public access policy or policies can be implemented by leveraging existing infrastructure in ways that minimize duplication of effort. The investments in software and other resources that already support NIH's PubMed Central and similar repositories can be utilized by other agencies either individually or in a federated model.

A comprehensive federal public access policy framework will have the added benefit of increasing the effectiveness of government research funding. One of the primary motivations of the NIH policy was improved documentation of the outcomes of sponsored research. A comprehensive federal policy will bring that benefit to all of the major scientific research funding agencies. It will also provide

congressional appropriators and authorizers better information to assess the value of existing expenditures and better target strategic funding priorities. It will thus increase agency accountability and support informed, transparent, and evidence-based budget and policy decision-making in accordance with the Obama administration's emphasis on open government.

[1.d. What type of access to these publications is required to maximize U.S. economic growth and improve the productivity of the American scientific enterprise?]

With the exception of research covered by the NIH policy, the present system of disseminating the results of government-funded research is clearly inadequate. The system does not adequately serve the interests of government, science, or economic growth. It relies heavily on researchers donating copyright to "toll access" journals that limit access by means of licenses and subscriptions. Dissemination of research information is primarily through academic and research libraries. Given constrained budgets and the current cost of scientific journals coupled with the rapid rate of cost increase over time (which has been significantly above the rate of general inflation in the economy), most libraries simply cannot afford to subscribe to most journal titles. As a result, researchers at most academic institutions lack the kind of access to research information that would enable them to build easily upon the results of previous research. Such limited access greatly reduces the efficiency of our nation's scientific productivity.

Access to research literature is also not optimal in the corporate sphere. Only wealthier corporations can provide even reasonably adequate access to the knowledge that their researchers (who drive product innovation) need or could benefit from. Access to current research literature at smaller companies and incubators is especially limited. Ready access to current research literature is essential for commercial product development, which is a primary driver of innovation that produces economic growth.

Inadequate access to research information also has negative effects upon broader public interests. While that is obvious in the case of health and medical information, the principle applies in many other subject areas. For example, it is important for the public to have access to the latest research information on such topics as environmental toxins and residential energy efficiency. Similarly, current research information is essential in a wide variety of public policy arenas at all levels of government, from federal to state to local. Policy decisions made without awareness of the latest scientific knowledge can result in policies that are less than optimal. Suboptimal policies in turn can have negative economic consequences. Improved access to research information would promote more informed policy debates and decisions at all levels. When scientific development, economic growth, and public welfare are considered together, the combined opportunity costs of poor access to research information are enormous.

The limitations of the present system can be overcome by providing open access to the results of research funded by the federal government. Open access in this sense means that the results of publicly funded research information should be made fully and freely accessible as rapidly as possible with few restrictions on subsequent use. Most restrictions on use will serve only to limit the return on the taxpayers' investment in research. Full reuse rights will enable researchers to build on the results of others in ways that fosters entirely new research capabilities. As noted, they will also speed the process of applying research findings to commercial products.

Comment 2 [What specific steps can be taken to protect the intellectual property interests of publishers, scientists, federal agencies, and other stakeholders involved with the publication and dissemination of peer-reviewed scholarly publications resulting from federally funded scientific research? Conversely, are there policies that should not be adopted with respect to public access to peer-reviewed scholarly publications so as not to undermine any intellectual property rights of publishers, scientists, federal agencies, and other stakeholders?]

Faculty and staff at COAPI member institutions have considerable experience in designing licensing frameworks that facilitate their open access policies. In general, these policies allow faculty authors to retain all of their original rights under copyright while granting non-exclusive licenses to their institutions and also making copyright arrangements with publishers. The institutional licenses vary to some extent in terms of their scope, but they all have the common purpose of providing a legal framework that allows the works of faculty authors to be made openly accessible by their institutions, while granting publishing entities the limited rights they need to disseminate the published copy. Faculty at COAPI institutions are aware that they benefit most by making their works widely available for subsequent use. Their primary interests are in reaching wide audiences, being credited for their work, and being cited in ways that demonstrate the impact of their scholarship.

If the goals of agency policies are to foster the development of science, encourage economic growth, and serve the public's interests in the broadest sense, then it will be important to construct the licensing framework for the policies according to principles that will facilitate those goals. Doing that requires no change in copyright law. It is only necessary to structure the licenses that authors grant to the agencies (as a condition of their funding) and the licenses that the agencies grant to the public in ways that facilitate both access to and maximum reuse of research information. A [Creative Commons attribution license](#) is an example of a license that would fulfill those purposes. Such a license would allow authors to receive full credit for their works while also creating great flexibility in terms of how their works can be used by others. Licenses that allow only for access to research information – but not subsequent reuse or redistribution to colleagues – are unnecessarily restrictive. Unlike the NIH policy, systematic downloading of articles

should be allowed in order to facilitate flexibility in terms of reuse, for example, by programs that compute on the textual corpus.

Since the licensing framework for the agency policies would be non-exclusive, authors would remain in a position to transfer appropriate rights to publishers. Like the NIH policy, agency policies should be mandatory, with authors required to deposit their final (post-peer-review) manuscripts. In view of that, publisher transfer of rights agreements for federally funded research articles could not be structured in ways that conflict with the licenses that researchers grant to the agencies. Publisher economic interests can be protected by brief embargo periods, as discussed below under Comment #8. During the embargo periods, use of the research information would be governed either by fair use under copyright for journals in print form or – in the case of electronic journals – by the provisions of license agreements. Metadata standards, as discussed below under Comment #5, would include a full citation to the publisher copy of record. Such a policy framework would balance the needs and interests of research authors, agencies, publishers, and the general public.

Comment 3 [What are the pros and cons of centralized and decentralized approaches to managing public access to peer-reviewed scholarly publications that result from federally funded research in terms of interoperability, search, development of analytic tools, and other scientific and commercial opportunities? Are there reasons why a federal agency (or agencies) should maintain custody of all published content, and are there ways that the government can ensure long-term stewardship if content is distributed across multiple private sources?]

Members of COAPI believe that a centralized or federated approach managed by the federal government is the most appropriate and effective strategy for ensuring interoperability as well as effective search mechanisms and analytic tools. Federally managed approaches are also the most feasible way to facilitate new research capabilities related to reuse (such as text and data mining, creation of derivative works, information discovery tools, and commercialization of products that increase access to and awareness of specialized research information). Even with carefully crafted regulatory requirements, it is clearly more difficult to establish and maintain such capabilities under a decentralized framework that includes partners outside the federal government.

The federal government has a long-term interest in making the results of its funded research permanently available. It is the only entity that has the capacity to make the full corpus of federally funded works publicly accessible, to establish and enforce standards of interoperability that ensure search access across repositories, and to establish and maintain an infrastructure that will allow new services and products to be built from publicly funded information. The federal government's capacity in this regard is demonstrated by its success in implementing the NIH Public Access Policy. As noted above, federal stewardship, as shown by the NIH

example, is cost-effective and its infrastructure can be leveraged by other agencies. A federal approach can also ensure transparency, openness, and accountability.

Primary reliance on a federal government role does not preclude private or third parties from participating in a decentralized approach. We would emphasize, however, that any decentralized approach that involves entities outside the federal government, whether public or private, would need to provide all of the capacities described above – public access, interoperability, search functionality across repositories, adherence to standards, long-term archiving and preservation, openness and accountability, and the potential for creative reuse for research and commercial purposes. If the federal government found that a decentralized approach was feasible and decided to rely on it heavily, then government agencies should maintain mirrored and accessible versions of the decentralized repositories in order to protect the public’s investment and ensure accountability. The federal government’s stewardship over this valuable public good is critical.

Comment 4 [Are there models or new ideas for public-private partnerships that take advantage of existing publisher archives and encourage innovation in accessibility and interoperability, while ensuring long-term stewardship of the results of federally funded research?]

As noted above, a decentralized approach that involves entities outside the federal government faces significant challenges that would not be present in an intragovernmental approach, especially if one goal of the decentralized approach is to allow and encourage a wide variety of reuse activities (such as text and data mining) that foster innovation in science and that lead to economic development. As noted, such approaches require clear standards for access, interoperability, metadata, search functionality, usage rights, and long-term preservation. The DRIVER project, funded by the European Commission, is one of the best examples of a decentralized, federated repository structure involving cooperation from universities and research institutes in several European countries. See: <http://www.driver-repository.eu/>

Academic research libraries, including members of COAPI, have developed extensive experience and expertise in creating and managing digital archives designed for long-term preservation and access. Examples include [arXiv](#) (now managed by the Cornell University Libraries), the digital repositories of several research universities (such as COAPI members Harvard and the University of Kansas), and the [HathiTrust](#), a major partnership of research libraries and research institutions that is designed to preserve digital books and broader cultural heritage. Given their expertise and focus on long-term preservation and access, research libraries could be important consultants in the development and implementation of federal, interagency and public/private partnerships in a public access policy. Some research universities could also partner with federal agencies to develop repositories for specific subject areas. We note that some academic and research

institutions have partnered with research funders to provide their permanent archives.

Publishers could be encouraged to participate in public-private partnerships by voluntarily providing the final published versions of articles after limited embargo periods that ensure their subscriptions and licensing revenues. However, given their focus on immediate income and the fact that they tend not to have long-term time horizons, commercial publishing firms in particular should not be relied upon solely for digital archiving. It should be obvious that long-term archiving and public access will be made much more difficult when corporate acquisitions, mergers, or business failures occur. For that reason, publishers should provide archiving and public access for the results of federally funded research only if the publishers' sites are mirrored by sites maintained by the federal government or by institutions that provide greater certainty of long-term preservation and access. Publishers would also have to be able to comply with detailed rules for user interface, access formats, and interoperability.

Comment 5 [What steps can be taken by federal agencies, publishers, and/or scholarly and professional societies to encourage interoperable search, discovery, and analysis capacity across disciplines and archives? What are the minimum core metadata for scholarly publications that must be made available to the public to allow such capabilities? How should federal agencies make certain that such minimum core metadata associated with peer-reviewed publications resulting from federally funded scientific research are publicly available to ensure that these publications can be easily found and linked to federal science funding?]

The development of “interoperable search, discovery, and analysis capacity across disciplines and archives” depends on the creation of carefully crafted metadata standards that are implemented for all archives containing the results of federally funded research. It is critical that metadata be both machine-readable and machine-interoperable if agency policies are to realize their full potential. Metadata standards for archives should be designed to facilitate the functions of use, reuse, and analysis described above.

Federal agencies, through their public access policies, are best positioned to ensure the creation of metadata standards that will meet the functional goals of their policies. The research library community, including the Library of Congress and organizations such as OCLC, has developed a variety of metadata standards that have been endorsed by standards organizations (NISO, ISO, etc.). These can be drawn upon in developing a broad federal metadata specification.

The specification should support multiple metadata standards in order to develop metadata that is as rich as possible. Some of the primary goals of the specification (along with examples of related standards) would be to: 1) provide institutional information for published sources (grant IDs, funding organization, I2 – Institutional Identifier, etc.), 2) provide descriptive information for both the

repository and published versions ([Dublin Core](#), [ORCID](#)), 3) support searching through keywords as well as controlled vocabulary schema appropriate to disciplines, 4) incorporate abstracts, 5) facilitate full text searching and web crawling, 6) support metadata harvesting ([OAI-PMH](#)), 7) establish relationships through semantic web standards ([RDF](#)), 8) support usage tracking ([COUNTER](#)), 9) support description of related data ([DataCite Metadata Schema](#)), 10) support data exchange standards ([JSON](#)), and 11) document IP rights.

It's especially important for metadata to support the capacity for machines to access and analyze both the publications themselves and the underlying data that support them – in those instances where that data can be made openly accessible.

Comment 6 [How can federal agencies that fund science maximize the benefit of public access policies to U.S. taxpayers, and their investment in the peer-reviewed literature, while minimizing burden and costs for stakeholders, including awardee institutions, scientists, publishers, federal agencies, and libraries?]

The benefits of public access policies to taxpayers will be realized to the extent that publicly funded research results are made openly accessible. The history of the development of the NIH Public Access Policy demonstrates conclusively that a broader federal public access policy (or policies) must be mandatory. The rate of compliance with the NIH policy increased dramatically following the end of the voluntary policy and the adoption of the current mandatory policy. Average manuscript submissions have grown from approximately 1,000 per month prior to April 2008 (the date of adoption) to current levels that are well over 5,000 per month (for the most recent twelve-month period). See:

<http://www.nihms.nih.gov/stats/>

A broader federal policy must be consistent across all agencies in its requirements and mandates. Uniform requirements and procedures across all agencies will reduce burdens on researchers (who often hold grants from multiple agencies) and on the institutions that support their compliance. Uniformity will reduce complexity and that in turn will reduce the time needed to educate researchers about policy requirements, to deposit articles, and to deal with deposit and compliance problems. Uniformity will also work to increase compliance rates. Publisher interests, for example those related to embargo periods and any deposit of final published versions of articles, are also best served by a uniform approach.

Procedures should include standard criteria for what should be deposited as well as clear instructions for the deposit process. Existing grant management systems should also be integrated into the deposit process to facilitate agency and public accountability.

Many researchers work with various deposit mandates. For example, most COAPI institutions expect faculty to deposit works in their institutional repositories and many faculty receive funding from multiple extramural sources that have

deposit requirements. Agency policies should leverage existing protocols to facilitate deposit of manuscripts to multiple repositories in a consistent, standardized manner.

Comment 7 [Besides scholarly journal articles, should other types of peer-reviewed publications resulting from federally funded research, such as book chapters and conference proceedings, be covered by these public access policies?]

The vast majority of scientific knowledge resulting from federal funding appears in the form of peer-reviewed journal articles, the primary mechanism for scientific communication. As noted above under Comment 1, dissemination of the results of federally funded research is severely hampered by limitations on access to journal literature – to the detriment of science, economic growth, and the general public interest. For those reasons, agency policies should focus on peer-reviewed journal articles. As a second priority, policies should address related supporting materials that document the research process (data, protocols, survey instruments, etc.) and facilitate replication of results. Specific requirements for supporting materials will vary across disciplines.

Comment 8 [What is the appropriate embargo period after publication before the public is granted free access to the full content of peer-reviewed scholarly publications resulting from federally funded research? Please describe the empirical basis for the recommended embargo period. Analyses that weigh public and private benefits and account for external market factors, such as competition, price changes, library budgets, and other factors, will be particularly useful. Are there evidence-based arguments that can be made that the delay period should be different for specific disciplines or types of publications?]

As noted above under Comment #1, not providing public access to federally funded research incurs significant opportunity costs. The scientific, economic, and public benefits of providing access – the return on our nation’s investment in research – diminish to the extent that access is delayed or denied. Immediate access at the time of publication is therefore ideal in terms of overall policy goals. In any case, embargoes should be as short as possible.

To protect publishers from possible financial harm due to loss of subscriptions and licenses, a maximum embargo period of up to six months could be allowed, if publishers (or others who advocate for embargoes) can provide empirical evidence demonstrating the need. Members of COAPI are not aware of any data demonstrating that the NIH Public Access Policy, with a one year embargo, has led to subscription or license cancellations or otherwise been harmful to publishers. The libraries of COAPI member institutions have not considered cancelling subscriptions due to public access and public access has also not been a factor in instances where journal cancellations were necessary due to budget reductions. In addition, COAPI members are not aware of any evidence that academic and research libraries either have considered – or would in the future

consider – public access to federally funded research to be an adequate substitute for journal subscriptions or licenses.

It is important to note that some publishers who have expressed concern in the past that public access would result in loss of subscription revenue have changed both their views and their practices. In addition, many journals, such as those of Highwire Press, open up retrospective access to their content following embargoes of 12 months or less. Embargo periods of six months or less are also the norm for biomedical research funders worldwide.

If it is demonstrated through empirical evidence that embargoes are necessary, members of COAPI believe that a uniform embargo period of six months or less should apply across all funding agencies. Such an approach has the benefits related to consistency discussed above under Comment #6; it would speed research access while also taking into account publisher interests.

If a decision is made to adopt different embargo periods for individual disciplines or sub-disciplines, shorter embargo periods (less than six months, for example) should apply to rapidly changing fields and those where research results often lead directly to commercialization.

We would emphasize that the burden of proof for the need for embargoes should rest on those who believe they are necessary. The benefits of public access are clear. In the absence of empirical evidence clearly demonstrating the need for embargoes, immediate public access should be the norm, since it is the best way to foster innovation, competition, economic growth and scientific progress.

Final Comment [Please identify any other items the Task Force might consider for federal policies related to public access to peer-reviewed scholarly publications resulting from federally supported research.]

Members of COAPI believe that public access involves a public good. Federally funded research information (in the form of final peer-reviewed author manuscripts) is made possible through taxpayer dollars and should therefore be made accessible to the public in ways that maximize the taxpayer's investment in research.

At the same time, we recognize that private parties contribute to the creation of federally funded final author manuscripts. While peer review is provided gratis by fellow researchers, publishers do assist in coordinating the peer review process. In view of that contribution, publisher interests do need to be taken into account in the development of public access policies. But publisher interests should not be allowed to outweigh the interests of the public in accessing such information, the interests of federally funded researchers in seeing the widest possible dissemination of their work, or our national interest in scientific and economic development that will clearly be furthered through an optimal policy approach.

Publisher interests should be protected in rough proportion to their contribution to the full process of research production and dissemination in the form of the final author manuscript. Given all that is involved in the process of creating research and producing final manuscripts, the publisher contributions are relatively small. For that reason we wish to reaffirm our conviction that publishers or others who advocate for embargoes that delay access should demonstrate through empirical means the need for such embargoes.

In conclusion, we urge the development of an optimal public access policy approach that is as uniform as possible for all major federal research granting agencies, that is mandatory for all researchers funded in whole or in part by those agencies, that results in access to final author manuscripts that is as rapid as possible (with embargoes only where need is empirically demonstrated), and that allows for flexible rights of reuse. That approach will maximize the outcomes of the taxpayer's investment in research to the benefit of science, the economy, and the general public.

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