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Response to "Request for Information: Public Access to Peer-Reviewed Scholarly Publications Resulting from Federally Funded Research, November 2011"

The University Library at the University of Illinois at Chicago (UIC) would like to thank the White House Office of Science and Technology Policy (OSTP) for this opportunity to comment on the development of policies ensuring long-term stewardship and public access to peer-reviewed scholarly publications resulting from federally funded research. The UIC University Library supports the development of a federal policy that provides free, public, and immediate access to the results of taxpayer-funded research, along with the rights to fully reuse these works in a digital environment. Providing public access—without commercial restriction—to the complete body of publicly funded research is a reasonable request and achievable goal. The public is entitled to access the results of the research their tax dollars fund. Developing new policies in support of this access ensures that the public receives the vast and wide benefits of its investment.

Comment 1

> *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? 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? What are the relative costs and benefits of such policies? What type of access to these publications is required to maximize U.S. economic growth and improve the productivity of the American scientific enterprise?*

Given the tens of billions of dollars of research funded each year by the public, the federal government should set up policies providing free, immediate, unhindered access to the research and publications that are developed through tax payer (public) funds. Agencies, thus, should require full and complete open access to the scientific research articles produced as a result of publicly funded research. This requirement should ensure that the complete collection of articles is made freely accessible with full public use and without commercial restriction.

The NIH Public Access Policy is a good example of a method to increase and improve access to federally funded research. The NIH Public Access Policy requires that grantees of NIH funding deposit either the final peer-reviewed manuscript or the final published version of articles into PubMedCentral, which is a publicly available digital repository. The success of the NIH Public Access Policy demonstrates the ability and the value of such endeavors. However, the NIH public Access Policy stops short in terms of addressing the rights for reuse that should also be placed on research funded through public funds. Limiting the ability to reuse (copy, amend, or redistribute) diminishes the potential impact of the research.

Research demonstrates that openness in the academic community has led to an increased rate of exploration and more diverse research. The same findings were not found in situations where information was restricted for intellectual property reasons. Open access to research drives

scientific innovation and productivity. Open access can enable computers as a new category of readers and users, opening up vast, previously unobtainable new research pathways, and making new connections possible. In addition, open access ensures that scientists can quickly and broadly identify relevant articles to facilitate their own research. It improves educational opportunities, allowing important research to be integrated rapidly into the teaching and learning process, providing students, researchers, and the public with access to critical, timely information. It spurs new and follow-on research, encourages faster application of research, and leads to the creation of new tools to incorporate research results more quickly. Open access to publicly funded research also allows those in the private sector to stay on top of cutting-edge ideas. It generates innovation and supports the creation of new products and businesses, while also speeding their launch into the marketplace. Faster commercialization spurs economic growth, creating new jobs across broad sectors of the economy.

Let me reference NIH as an example once again. The NIH Public Access Policy emanates from its recognition that it must leverage research expenditures to improve human health by decreasing the time from basic scientific discovery to clinical application. Through its Clinical and Translational Science Awards (CTSA) Program, NIH is channeling funds to promote research, collaboration, infrastructure, and a culture of information sharing (https://www.ctsacentral.org/). As a recipient of a CTSA, UIC has witnessed firsthand NIH's commitment to speeding up the research and discovery process in order to maximize health benefits for the greatest number of people. Open access to the basic science research results and the results of clinical trials can lead more rapidly to both the development of new drugs, instruments, and tests, as well as to improved health outcomes. While NIH's application of open access is not perfect, it does strongly support the notion that open access ought to be applied across the disciplines to help address other major issues of our time, from environmental conditions to the economy to our decaying infrastructure to violence, among many others. The importance of open access to the rapid translation of research to practical application cannot be overstated.

The following research publications provide evidence for the increased rate of exploration and discovery, the increased diversity of research, and the increased speed with which the products are launched into the marketplace as a result of making the results of research openly available:

> Williams, Heidi. *Intellectual property rights and innovation: Evidence from the human genome*, December 2009, p. 25. Available at http://deugarte.com/gomi/Williams_jmp.pdf. *This study demonstrated that restricted access to gene-level scientific research resulted in 30% less scientific research and product development compared to open access gene-level scientific research.*
>
> Lakhani, et al., *The Value of Openness in Scientific Problem Solving*, October 2006, p. 2. Available at http://www.hbs.edu/research/pdf/07-050.pdf.
>
> *This study demonstrated that reaching out to researchers in communities beyond the primary research community resulted in one-third more problems solved than research and development firms had been able to solve on their own.*
>
> Murray, et al., *Of Mice and Academics: Examining the Effect of Openness on Innovation,* October 2008. Available at http://www.hbs.edu/units/tom/seminars/2007/docs/Of%20Mice%20and%20Academics%20Stern.pdf

This study demonstrated that limits on access to research because of intellectual property restrictions resulted in less research while open access resulted in a greater diversity and a greater quantity of research building on the research.

As the Lakhani et al. article highlights, researchers can contribute significantly to solving problems outside their specialty. However, most researchers only purchase access to the journals in their own fields. If researchers can contribute to innovation outside their domain, then open access across the disciplines is paramount to success.

When a full open access policy is adopted, it speeds the potential for scientific research and discovery for those institutions receiving federal funding because they will have open access to the research results (in addition to the added benefit that they will be giving back by sharing their research). Government agencies will also benefit because they will have access to federally funded research publications. It is important to keep in mind that no institution can afford to buy access to all journals and the same is true for government agencies.

See http://www.wired.com/threatlevel/2009/12/doj-pacer/. *(In 2009, the Department of Justice paid more that $4 million for access to documents in the public domain.)*

Here are some additional papers demonstrating the economic benefits of open access to research:

Houghton, J.W. & Oppenheim, C. (2009) The Economic Implications of Alternative Publishing Models. Prometheus 26(1): 41-54.

Houghton, et al., *Economic and Social Returns on Investment in Open Archiving Publicly Funded Research Outputs*, July 2010, p. 7-8. Available at http://www.arl.org/sparc/bm~doc/vufrpaa.pdf.

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?

NIH again demonstrates that a new, government-wide open access policy is realistic and can be built upon existing infrastructure, maximizing the contributions it has already made. NIH provides a simple method for public access without copyright infringement. It requires its grantees publishing peer-reviewed articles to retain the right for NIH to provide public access to that research. NIH grant recipients are, therefore, protected from inadvertently transferring the complete package of copyrights to the publisher, ensuring that their work may remain publicly accessible.

This simple and effective model demonstrates that a public access policy providing immediate access and full rights for reuse can be created within the current copyright framework. Much like the NIH, when granting funds for research, federal agencies should obtain the right to make that research public. Publishers should not be granted exclusive rights that would give them the

authority to limit access to that publicly funded information. While the publisher adds value, it does not warrant the protection of rights to the degree that impedes the greater public interest.

Mechanisms to enable full use (i.e. distribution, reuse, text mining, data mining, computation, creation of derivative works, etc.) should be part of any government wide public access policy. This can be accomplished by respecting and working within the current copyright framework by implementing appropriate licenses, such as the Creative Commons Attribution (CC-BY) license that permits any and all uses with attribution.

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?*

The federal government has a unique opportunity right now to create policy that ensures that the results of publicly funded research are permanently accessible and usable. However, it is unlikely that a single centralized approach will be sufficient to manage the broad scope of publications. Institutions, organizations, agencies and disciplines have already invested in building digital repositories that could play a role in a distributed infrastructure governed by federal standards. The best approach would provide flexibility, allowing agencies to host their own publicly accessible repositories or grantees to place their work in digital repositories that meet standards for open access, interoperability, and long-term preservation. The previously proposed Federal Research Public Access Act (FRPAA, S.1373 in the 111th Congress) provided for such a flexible and effective model.

It is surely the case that it will be difficult and time-consuming to determine the minute details for managing public access to peer-reviewed scholarly publications that result from federally funded research. Ensuring that publicly funded research is permanently accessible and usable is an extremely large and complex task. However, these details and the complexity of the problem should not prevent the federal government from moving forward on the issue and implementing immediate measures towards a comprehensive federal open access policy.

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?*

Under a new federal open access policy, public/private partnerships can still be encouraged as long as resulting repositories meet standards for public accessibility, use rights, interoperability, and long-term preservation of publicly funded articles. Universities and libraries have extensive experience in this area and would serve as ideal partners in establishing and maintaining the archive infrastructure required under a federal open access policy. ICPSR, ArXiv, and the HathiTrust are examples of large-scale collaborations of universities and libraries focused on access and preservation of scientific and scholarly content. None of the 50+ research funders who currently have public access policies are using proprietary sites as the final archives. Under no condition

should publisher sites be the single point of access for these articles.

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?*

Existing standards should be used to inform a broader metadata specification. Metadata should be viewed as a means for enabling specific actions, rather than simply item description. It should facilitate use, reuse, and analysis of published works. It should be machine-readable and machine-interoperable.

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?*

A federal public-access policy needs to ensure consistency of requirements. Currently, research universities have faculty members and researchers who hold grants from all federal funding agencies and some of them have grants from multiple agencies concurrently. Requirements and procedures regarding deposit of peer-reviewed literature need to be uniform. Establishing standards for these requirements across all funding agencies would be a strategy for reducing the complexity and cost, while also supporting and encouraging compliance.

Policies can also create opportunities to create or enhance productivity management tools, such as the opportunity for universities to better measure research output, and promote branding of research. For example, at UIC, we have an institutional repository to highlight the publications of our researchers. However, we are limited in what we can add to the repository because of publisher limitations, despite the fact most of the research is federally funded. Even the current NIH policy does not allow the University to post those publications in our own repository, but is limited to archiving in PubMedCentral. It is important to us to have the ability to archive these materials in our own repository in order to highlight and measure our own scholarly output and provide free and continuing access to them.

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?*

Educational materials resulting from publicly funded research, such as chapters from books, conference proceedings, and other texts, should also be readily accessible to the public. However,

since different conditions apply, the policies developed for educational materials may need to differ from policies covering journal articles.

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?*

Immediate access is ideal to optimize scientific and commercial utility of information contained in these articles. However, to accommodate those journal publishers who continue to rely on subscription income, an author determined embargo period of 0-12 months has proven effective across multiple disciplines. There is no evidence that this embargo period has harmed any publisher—primarily because the publishers themselves are the ones with this information. If such an embargo period is harmful to publishers, they bear the responsibility of demonstrating that. At this point, they have failed to do so.

Embargos of 12 months or less are the norm in research funder policies around the globe. Embargos of 12 months or less have been adopted by hundreds of journals. Even publishers who previously expressed concern that opening access to back content would result in loss of revenue have now changed practices. Ideally, we support an embargo of no more than six months.

Public access to the published results of federally funded research should be a requirement across all agencies. In order to make this effort as cost effective and smooth as possible, implementation of a single federal public-access policy should be closely coordinated across all agencies. Within this policy, we strongly believe that articles should be made freely accessible within six months of publication, if not immediately. While the preference would be to have immediate access to the final published version of an article, at a minimum it is crucial to require the author's final, peer-reviewed draft be deposited in the author's institutional repository immediately upon acceptance for publication and that access to the author's final manuscript be immediate.

Once again, we thank OSTP for solicitation of our feedback on this issue and for facilitating a discussion of this important opportunity. We encourage the development of a federal open access policy that will provide free, public, and immediate access to tax payer-funded research, along with the rights to fully reuse these articles in a digital environment.

Sincerely,

Mary M. Case

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