OFFICE OF SCIENCE AND TECHNOLOGY POLICY

# Compilation of E-Mailed Comments
# for Public Access Policy Forum

## Part 4

Comments of the Special Libraries Association regarding Public Access Policies for Science and Technology Funding Agencies across the Federal Government

The Special Libraries Association (SLA) firmly supports expanding public access to information and materials arising from federal research. Representing more than 10,000 corporate, academic, and government information professionals in 75 countries, we have interests in:

> 2. What characteristics of a public access policy would best accommodate the needs and interests of authors, primary and secondary publishers, libraries, universities, the federal government, users of scientific literature, and the public?

SLA has repeatedly expressed support for open public access to the results of NIH-funded research and supports access to all documents that are federally funded. Though the NIH practices are an excellent policy model to follow, SLA would make improvements to any new federal policy by shortening the embargo period to six months or less.  A short (or no) embargo period would more accurately reflect the pace of research and discovery within all scientific fields and, at the same time, align U.S. policy with others in use around the world.  In our highly competitive global economy, a minimal embargo period is critical to ensuring that our research institutions remain competitive with the rest of the world.

It is also crucial that final electronic documents/manuscripts of federally funded research are stored in standardized archives and made publicly available, as they are in the NIH policy. This ensures that the U.S. government has a permanent archive of critical publicly funded research, allowing scientists, researchers and the public to easily collaborate on and engage in new discoveries and the creation of derivative works, further fueling the growth and advancement of society in the United States and around the globe.

Respectfully,
Doug Newcomb, Chief Policy Officer

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 The American Dental Association (ADA) is pleased to comment on your efforts to enhance public access to archived, scientific peer-reviewed publications resulting from federally funded research. We offer these comments in response to your Federal Register notice of December 9, 2009 (74 FR 235: 65173).

The ADA supports the goal of providing timely health information to the public, particularly when it comes to taxpayer supported research. However, efforts to hasten such access should not jeopardize the understandability and trustworthiness of the information. It should also preserve the public's trust in journal publishers as credible, reliable filters of scientific information. Toward that end, we encourage you to incorporate the following principles into your efforts to enhance public access to archived publications resulting from research funded by Federal science and technology agencies:

***Grant access to final published versions only.*** The content of an author's final peer-reviewed manuscript can be substantially different from a copyedited manuscript and a final published

journal article. The differences can be significant enough to cause the intentional or unintentional suppression or distortion of "peer-reviewed" research findings. To preserve the integrity of federally supported research, we recommend limiting the public's access to anything other than the *final published version(s)* of peer-reviewed journal articles. Allowing publishers to *voluntarily* assume liability for author submissions should help accomplish this in a manner consistent with federal copyright law.

**P*rotect Intellectual Property.*** It is critical that the intellectual property of scientific papers be protected against plagiarism and misrepresentation—a problem in both the U.S. and in other countries. We do not feel that the public's best interest is being served in this regard because the current digital system does not have appropriate software to guard against such violations. We strongly encourage the government to work with all vested stakeholders to identify the appropriate digital controls that will protect the integrity of the peer-reviewed content.

***Preserve the digital image of the final published article.*** Publishers vary widely in the types of research they publish and the manner in which the content is presented. The availability of tables, charts and other "extras" add value to the narrative text and sometimes lead to a greater understanding of the narrative itself. An author's final peer-reviewed manuscript is lacking in these "extras." A one-size-fits-all submission format (such as text-only) may also not accommodate these "extras."
We strongly urge that you require federal agencies to establish a journal article collection process would preserve the style and format of the *final published version(s)* of peer-reviewed journal articles. This might be done through the use of certain scanning technologies or proprietary digital images, such as the portable document format (PDF) developed by Adobe Systems, Inc.

**• *Limit access until 12 months after publication.*** Once an author's manuscript has been accepted for publication, publishers – who are typically not party to federally-funded research grants – incur significant costs for peer review. Our own Journal of the American Dental Association (JADA) recovers its peer-review and other operating costs through advertising and subscription revenue. The incentive, to advertise or subscribe would be threatened, however, once it is realized that the journal's content can be obtained for free on a federal agency Web site. Our current policy is to make JADA articles freely available to the public 12 months after publication. This has historically provided sufficient time for JADA to recover its peer review costs and sustain its ongoing activities. Based on this experience, we strongly urge you to limit public access until at least 12 months after publication.

We strongly encourage you to incorporate the principles described into any public access policies you may develop. Doing so would expedite public access to publications resulting from federally supported research. It would also maintain the public's trust in journal publishers as credible, reliable filters of scientific information.
We would welcome the opportunity to discuss this issue with you further. If you have any questions or would like additional information, please contact Mr. Robert J. Burns in our Washington Office.

Ronald L. Tankersley, D.D.S.          Kathleen T. O'Laughlin, D.M.D., M.P.H.
President                             Executive Director

John Wiley & Sons (Wiley) is pleased to respond to OSTP's December 9, 2009 Federal Register notice requesting comments on "Public Access Policies for Science and Technology Funding Agencies Across the Federal Government." We appreciate the opportunity to participate in the Administration's open consultation with all stakeholders who support the scientific research enterprise. Founded in 1807, Wiley is North America's oldest independent publisher, and has a distinguished history as a literary, scientific, technical, medical, and scholarly publisher, serving researchers and practitioners in the US and around the world. Today, we employ approximately 2600 staff across the country and 5300 globally. We are one of the world's foremost academic and professional publishers.

We publish over 1,500 scholarly peer-reviewed journals, and our online service Wiley InterScience (www.interscience.wiley.com) provides electronic access to more than three million articles across these journals. Wiley-Blackwell is also the world's largest society publisher, working in partnership with over 700 learned and scholarly societies that represent close to 1,000,000 members globally. Among them are the American Cancer Society (ACS), for which we publish *Cancer*, the flagship ACS journal; the Sigma Theta Tau International Honor Society of Nursing, with more than 120,000 members; and the American Anthropological Association, for which we publish 23 journals. Wiley supports the Open Government Directive issued by President Obama and Director Orszag's December 2009 memorandum to the heads of executive departments and agencies.

The three principles outlined in those documents–transparency, participation, and collaboration– form the cornerstone of an open government. However, in creating an open government and a sustainable public access policy, it is critically important that these objectives be accomplished without damaging the private institutions on which the Government depends. To quote Dr. Kathryn Jones, President of the American Association of Anatomists and Professor at Loyola University Chicago's Stritch School of Medicine, "there is no crisis in the world of scholarly publishing or in the dissemination of scientific materials. Unlike so many other issues faced by this Administration, there is no emergency to address." Not only is there no crisis, there is no lack of public access to the scholarly peer-reviewed literature, including those works based on federally funded research activities. The combination of investments in digital and online technology (by publishers as well as others), and the formation of library consortia John Wiley & Sons—Public Access Policy Recommendations (January 2009) (assisted by publishers in many cases) around the country and the world, has accelerated and broadened access to the peer-reviewed literature by orders of magnitude. Publisher innovation and investment over the past 15 years has made this possible.

This public access, as all publishing, is a business underpinned by the copyright laws of the US and almost all other countries. However, in the vocabulary of many current anti-copyright activists, "public" is being conflated with "free." Mandating such free access constitutes a taking. There is already a robust public access model for the dissemination of the peer reviewed results of taxpayer (and other) funded research. It is the global journal corpus. Agencies dispensing funds to support taxpayer funded research may wish to collect and publish free of charge reports

generated by the recipients of those funds. However, those agencies have no rights to research reports written for and published by journals, nor is such a claim justified by an absence of access. It is clear from many of the comments submitted to this consultation that OSTP and the public recognize the value added provided by scholarly publishers to the scientific research community. This is most evident in the calls for public access to the final, publisher version of peer-reviewed articles (the 'Version of Record'). There is no evidence that making the current broad public access to the journal literature free will improve research productivity or the public weal.

In his Memorandum, President Obama notes that "collaboration improves the effectiveness of Government by encouraging partnerships and cooperation within the Federal Government, across levels of government, and between Government and private institutions." This is the most critical element of the Administration's Open Government Directive and was the key element missing from NIH's approach to shaping its public access policy. With little opportunity for the publishing community to provide substantive input, the NIH model was developed and implemented on the flawed premise that the free access benefit to researchers, practitioners, and the general public outweighs any harm that would result to scientific publishers.

Respectfully,
Eric A. Swanson
Senior Vice President, Wiley-Blackwell
John Wiley & Sons, Inc

**In the following section, we respond to the specific questions posed by OSTP as part of the RFI process.**
### SUMMARY OF KEY CONCEPTS AND RECOMMENDATIONS
**We reject the premise that because government funds scientific research, it is entitled to full access to and control of the manuscripts stemming from this research**.
Taxpayers fund the research, but they do not fund the publication of this research and therefore should have no expectation of receiving free access to this material.

**Society today depends on the well-functioning system of STM communications that provides extremely broad access and strong quality controls**.
STM publishers are custodians of this system today because of the essential role that they play in the communication of scientific, technical and medical research results. Wiley supports the view that government should be guided by the principles of transparency, participation and collaboration as noted in the Open Government Directive. As OSTP considers possible steps to create a government-wide public access policy, we urge you to ensure that this policy is developed according to these same principles that have inspired the entire undertaking. **Unlike so many other issues faced by this Administration, there is no crisis in STM publishing and access to peer reviewed articles is greater than ever. Taking the time to ask for a full, impartial, evidence-based assessment will help ensure that unintended consequences do not lead to a crisis in the future**.
☐**Accordingly, government should not impose mandates that pertain to outputs of the publishing process, including accepted author manuscripts and published journal articles.**

**Such policies would not be justifiable or warranted, and would result in a government taking of private sector works**. Government-imposed public access policies would violate fundamental copyright principles by allowing the government to diminish existing copyright protections for private sector journal articles.

**Any effort by government to establish policies in this area should be done in consultation with all affected stakeholders**, ensuring that such policies do not undermine the sustainability of the peer review publishing system which is necessary to ensure the quality and integrity of scientific research.

**The government should consider the National Science Foundation public access approach in the America COMPETES Act as a model for other agencies**. The America Competes approach adheres to the President's pledge in his Open Government memorandum to "take appropriate action, consistent with law and policy," and will better ensure that research dollars are consistently accounted for. Taxpayers will also gain access to the research results they have funded in formats that they can more easily understand. Publishers strongly support extending the NSF model to all federal agencies that fund research and will partner with the Administration to successfully implement such a public access policy.

**Publishing peer-reviewed research is expensive and someone has to pay for it. The government pays only for the research; it cannot lay claim to the final publication**. Having each funding agency open its database of funded projects, including research project reports and lay summaries, best serves the public interest and protects the scientific research enterprise.

**QUESTION 1: How do authors, primary and secondary publishers, libraries, universities, and the federal government contribute to the development and dissemination of peer reviewed papers arising from federal funds now, and how might this change under a public access policy?**
The current system for the dissemination of scholarly information is an example of a well functioning public-private collaboration: the government contributes funds for research; researchers and their institutions then provide the facilities and knowledge to support research and informal communications; publishers manage the value-added peer review publishing and distribution system of formal scholarly communication via journals which place such research into context, assist in its validation, and distribute and preserve the scientific record. Finally, libraries and universities subscribe to journals to provide access to their researchers and readers.
☐Publishers manage the peer review of manuscripts, apply quality standards, create new journals in
developing fields of science, provide electronic platforms for efficient discovery and archive the version of record. Perhaps most important to this RFI, publishers *publish*, providing public access
worldwide through a variety of options, including, but not limited to, subscriptions, individual article sales, sponsored access and consortial access licensing.
☐Many of the manuscripts submitted to a given scientific journal are found to be of insufficient quality for publication upon careful review. In operational terms, this means that journals must finance the collection and review of significantly more manuscripts than they will actually publish to

effectively serve as quality gatekeepers for the scientific record. Publishers also provide a number
of other value added services such as high quality production, reference checking and reference linking.

☐Publishers make ongoing capital investments and incur significant expenses in carrying out these value-added activities. These are not paid for by taxpayer dollars. Any mandate that decreases the revenue publishers derive from journal publication has the potential of limiting their ability to create the peer-reviewed literature in the first place. A government-mandated free access policy such as that implemented by NIH undermines incentives for the peer review, publishing and dissemination of private-sector journal articles. In doing so, such a policy would directly undermine Congress's allocation of the benefits of private/public partnership as expressed in the Bayh-Dole Act for patents.

☐The bottom line is that publishing peer-reviewed research is expensive and someone has to pay for it. The government pays only for the research; it cannot lay claim to the final publication. Having each funding agency open its database of funded projects, including research project reports and lay summaries, best serves the public interest and protects the scientific research enterprise.

**QUESTION 2: What characteristics of a public access policy would best accommodate the needs and interests of authors, primary and secondary publishers, libraries, universities, the federal government, users of scientific literature, and the public?**

☐Wiley supports the notion that the Federal Government could make the outputs of taxpayer-funded research, including grant reports or research progress reports from its grantees, freely available to the public. **However, these outputs should not be confused with peer-reviewed journal articles**.

**Question 3: Who are the users of peer-reviewed publications arising from federal research? How do they access and use these papers now, and how might they if these papers were more accessible? Would others use these papers if they were more accessible, and for what purpose?**

☐Researchers and academics are the primary users of peer-reviewed publications. Over **96%** of scientific, technical and medical (STM) journals are online. One study showed that **94%** of university and college based respondents found access to information very easy or fairly easy, and **access to journals is 14th on their list of concerns (lack of funding is number one; too much bureaucracy is number five)**.

☐Public access users constitute a tiny fraction of the overall user base of STM journals, not least because STM journal articles are so highly specialized and technical. However, access for the public is also extremely broad, having expanded dramatically due to initiatives that STM publishers have led in collaboration with others to broaden access for researchers in developing countries, patients, the public and disabled persons. For example:

• Research4Life is a public-private United Nations initiative that makes thousands of STM journals available to over 5,000 institutions in over 100 developing countries at no or low cost.

• Publishers, including Wiley, have created PatientINFORM in partnership with key medical associations including the American Cancer Society, the American Heart Association, and the American Diabetes Association. PatientINFORM is a public health literacy project that provides patients and caregivers with a free online resource of interpreted, packaged, and up-to-date

research about specific diseases that is based upon recently published journal articles.

• Wiley maintains walk-in clauses that enable libraries licensing specific products to give any member of the public free electronic on-site access to any journal article licensed by a library. Wiley also offers articles on a pay per view basis to anyone with access to a computer.

☐There is no systematic, quantitative evidence to show that access is an issue for researchers or the public. It is therefore unclear why the government would seek to implement any policy that pertains to the outputs of published research.

**Question 4: How best could federal agencies enhance public access to the peer-reviewed papers that arise from their research funds? What measures could agencies use to gauge whether there is increased return on federal investment gained by expanded access?**

☐This question, as many of the others, accepts as a given the premise that public access to the actual peer-reviewed literature is problematic. There are no barriers to access. Anyone with a computer has complete access to scholarly journal articles (either through a license or by pay-per-view). Wiley and many other publishers already make abstracts of all published journal articles freely available.

(Footnote: Access by UK small and medium-sized enterprises to professional and academic information Mark Ware Consulting Ltd for Publishers Research Consortium (April 2009)).

☐Furthermore, peer reviewed papers do not arise from federal agencies' funds. Peer reviewed papers arise from the peer review publishing process that publishers fund.

☐If federal agencies want to ensure free access to peer reviewed papers, they should provide funds either to license access for specific users in the US, or to sponsor access for all potential users globally (see response to question 3 for a fuller discussion of possible mechanisms).

☐To gauge whether there is an increased return on federal investment gained by such free access, the US government would first need to quantify what existing levels of access are for researchers and the public, and what is spent to achieve those levels. It would then need to quantify what metrics would be used to define return on investment, e.g. articles published, patents applied for. Once baseline metrics have been established, only then could impact be measured. We would recommend that impact on other areas that are also important to STM researchers and society are also quantified, e.g. quality control, researcher productivity and cost effectiveness.

**Question 5: What features does a public access policy need to have to ensure compliance?**

☐We do not feel qualified to advise OSTP on how the Federal Government can provide access to that for which taxpayers have paid.

☐Wiley agrees that the Federal Government could provide access to federally funded research. We do not agree that journal articles, which are the result of significant publisher investment, should be made freely available at any stage.

**Question 6: What version of the paper should be made public under a public access policy (e.g., the author's peer reviewed manuscript or the final published version)? What are the relative advantages and disadvantages to different versions of a scientific paper?**

☐This is a leading question.

☐Our journals, in which we and our society partners invest heavily, provide critical editorial, peer review and quality assurance services to the scientific community. We make all of the results of this value-added investment available to the public by license.

☐We do not agree that any versions of a paper that are the result of publishers' investments, (i.e. accepted author manuscripts and published journal articles) • should be made free under a public access policy unless the government compensates the publishers for their private-sector investments.

☐We recognize that serious errors in manuscripts are frequently corrected *after* the peer review process. We are extremely concerned that using any version other than the true "final" one will cause confusion, at a minimum, and could significantly compromise the scientific record. For medical journals, we are additionally concerned with the potential health implications of non-final versions being made accessible to the lay public.

**Question 7: At what point in time should peer-reviewed papers be made public via a public access policy relative to the date a publisher releases the final version? Are there empirical data to support an optimal length of time? Should the delay period be the same or vary for levels of access (e.g. final peer reviewed manuscript or final published article, access under fair use versus alternative license), for federal agencies and scientific disciplines?**

☐If this question is defining "public" as equivalent to "free," then we believe that peer-reviewed papers should not be made public within the duration of the article's copyright without the copyright holder's permission.

☐For accepted author manuscripts and published journal articles, both of which publishers have invested in heavily, Wiley believes that publishers should determine the business models on which their publications operate and this should include the time, if any, at which the final peer-reviewed manuscript or final published article are made publicly available.

**Question 8: How should peer-reviewed papers arising from federal investment be made publicly available? In what format should the data be submitted in order to make it easy to search, find, and retrieve and to make it easy for others to link to it? Are there existing digital standards for archiving and interoperability to maximize public benefit? How are these anticipated to change?**

☐Peer-reviewed papers are not the direct result of the Federal Government's investment. They should not be made freely available to the public unless the copyright owner authorizes the government to do so.

☐Since the mid-1990s, the science journal publishing industry has been a key player in the dramatic digital revolution in the sciences, investing heavily to drive the shift of published research from print-only to "E-only." According to a 2008 survey by the Association of Learned and Professional Society Publishers, 96% of science, technical and medical journals are available online. The results so far of the end-to-end digitization of publishing systems are robust digital platforms with the latest Web 2.0 capabilities that can support the government's effort to link policymakers, researchers and the public.

☐Rapid innovation in the publishing industry has dramatically improved functionality and efficiency for doctors and researchers, who can now perform complex searches of journals, immediately retrieve and print full text articles, link instantly to other cited articles, export text to other databases and programs, and receive e-mail alerts when new journal issues are released. **Mandating free access will stifle innovation in what is now a rapidly changing**

**environment, both by decreasing the amount that publishers are able to invest and reducing their incentive to try new approaches**.

**Question 9: Access demands not only availability, but also meaningful usability. How can the federal government make its collections of peer-reviewed papers more useful to the American public? By what metrics (e.g. number of articles or visitors) should the Federal government measure success of its public access collections? What are the best examples of usability in the private sector (both domestic and international)? And, what makes them exceptional? Should those who access papers be given the opportunity to comment or provide feedback?**

☐ If the goal is truly "meaningful usability," we urge OSTP to look closely at the America COMPETES Act (Pub. L. No. 110-69, Aug. 9, 2007) as it pertains to the reporting of research results by the National Science Foundation (NSF). The Act reads: "*SEC. 7010. REPORTING OF RESEARCH RESULTS. The Director shall ensure that all final project reports and citations of published research documents resulting from research funded, in whole or in part, by the Foundation, are made available to the public in a timely manner and in electronic form through the Foundation's Web site*."

☐ **PLEASE NOTE**: Peer-reviewed journal articles, which are the result of private sector investment, cannot be considered federally funded "research results" or reports of research results without the permission of the copyright owner.

☐ To fulfill this mandate, NSF announced that it would modify its reporting system and require principal scientific investigators to prepare a brief summary – specifically for the public – on the nature and outcomes of the award that will be posted on the Foundation's website.

☐ An earlier Audit of Interest in NSF Providing More Research Results, based on a survey of key constituents, noted that, "in terms of the best format to convey the research results, organization executives and NSF program officers expressed an overwhelming interest in NSF posting brief summaries of research results and publication citations on its website…They cited multiple advantages to NSF providing this information, such as helping researchers identify possible collaborators and improving the public's understanding of scientific research…By providing greater public access to the results of the research it funds, NSF would further the public's knowledge and understanding of scientific research, assist researchers in building on prior work, and make its operations more transparent and accountable."

☐ NIH already has research progress reports on all grants. Expanding this information by requiring the addition of a one-paragraph lay summary has more potential to enhance pubic understanding than does providing public access to scientific journals. Also, as noted previously, most STM publishers voluntarily make abstracts available on their platforms for free, which can perform a similar function.

☐ Most funding agencies already maintain databases listing the names of award recipients and titles of their proposals; many agencies already receive lay summaries of projects for distribution to the public. Investigators can also be directed to submit lay summaries with their annual progress reports.  This approach recognizes and does not undermine the value-added that publishers bring to the formal scholarly communication system.

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The following remarks are offered in response to the request for information issued December 9,

2009 by the Office of Science and Technology Policy regarding public access policies for science and technology funding agencies across the federal government.

Dartmouth College has a long standing commitment to solving the most pressing challenges facing humanity, as exemplified in former president John Sloan Dickey's exhortation to graduates: "the world's troubles are your troubles". It is of paramount interest to the College, and in the furtherance of the missions of its funding agencies, that its scholarship be disseminated as widely as possible to achieve this goal. Therefore, Dartmouth College Library supports access to publicly funded research in order to speed the resolution of critical scientific, medical and social needs. In that spirit, we endorse the comments and recommendations detailed below, and in the letter submitted on January 12th 2010 by the American Library Association (ALA) and the Association of College and Research Libraries (ACRL).

1. **Which Agencies.** All federal agencies funding significant research should adopt public access policies. This is important in a wide variety of disciplines, as new research in many fields can have an immediate impact on the public good. It is also necessary to establish consistent expectations and conditions for the management of grants and resulting output, saving institutions and principal investigators valuable time.
2. **Mandatory.** Based on the initial experience of low manuscript deposit rates under a voluntary NIH Public Access Policy, mandatory policies are necessary to ensure compliance and routine uptake of such submissions.
3. **Earlier Access.** We urge a short embargo period and recommend a 6-month maximum to bring U.S. policy into alignment with policies already in place in Canada, the United Kingdom, and the European Union. This would better reflect the rapid pace of research in the science and technology fields and would enable more timely use of research results.
4. **Version.** While the final published version of an article is preferred, we consider the authors' peer-reviewed manuscript to be an acceptable substitute, as long as it is clearly noted as such, and includes the publication citation and a link to the final published article.
5. **Format.** The authorized repository should provide support for converting the file to a standard mark-up language, such as the currently preferred XML, if the file is not submitted in that format. PDF, a document format in ubiquitous use, does not support robust searching, linking, text-mining, or reformatting over the long-term, nor does it provide full accessibility for the blind and reading impaired. Standardization of format across the board is a key element to long-term public access. The options for submission format should follow the conventions of the disciplines from which the papers come, and not create an undue burden for the authors or publishers.
6. **Cost control.** To keep implementation costs reasonable, it will be important for agencies to avoid establishing independent proprietary repositories. Federal agencies should look for possible economies of scale by partnering with each other or with academic institutions.
7. **Comment/feedback features.** Scholars are increasingly communicating peer-to-peer while research is in progress. In some disciplines, there is a movement to "democratize knowledge," which can be interpreted as both reaching out to the public to share academic discoveries and inviting contributions. In light of this, any measures or policies being adopted now must be carefully crafted to allow, and not inadvertently thwart, changes in scholarly practices that are emerging or that have yet to emerge.

Furthermore, we support the response to your request for information made by the Scholarly Publishing and Academic Resources Coalition (SPARC) on January 19th 2010. Thank you for this opportunity to provide input.

I'm writing to comment in response to the RFI on this topic. For context, I have been a librarian since 1982 and have worked extensively with university research faculty and with many different types of publishers. For the past twenty years I have been a librarian at the University of Arizona Libraries, but I am writing to represent my own thoughts and do not represent the official position of either the University or the Libraries.

Making information and knowledge developed through federally funded research is a desirable end. However, the proposals and requirements to make published articles about the research openly available are not necessarily the best way to insure that that information and knowledge is widely available.

I fear that well-intentioned academic librarians have convinced some scientists and some members of the federal government to implement such requirements as a means of saving money. The budget issues around journal and other publications are really a separate problem and need to be addressed separately. The current initiatives appear to be leading to a repeat of history. There is no sustainable model in existence to support open access publishing. Many of the open access "publishers" are beginning to seek funding either through contributions or annual fees. So, the approach advocated by many research librarians is not a long-term solution; it is a temporary fix.

If the desired end is to make knowledge and information resulting from federally funded research widely available there are other options. The National Technical Information Service could provide a model on which to build. Here is how such an option could work.

a) all researchers receiving federal funding would be required to report the results of their research to a central unit similar to NTIS
b) the central unit would index (create metadata/subject headings) for the reports
c) the reports would be made openly available from central servers
d) affiliated data sets could be attached or linked from the reports (if data were not confidential in nature)
e) researchers would be required to submit citations to resulting articles or other publications

This approach would address making results readily available and would insure that reports of all research were made available, not just the information that is contained in published articles. It would also support provision of information that leads interested parties to publications resulting from the research. At this point not all research results in published articles. Articles that are published may not include all of the results of the research.

Thank you for soliciting input.
Chestalene Pintozzi

We thank the Administration for raising the important issue of "Open Access" for research results and papers that are funded by federal agencies, and for giving the community the opportunity to comment. The issue of whether the government will create central repositories for publications arising from federally-funded research is one of the most important issues to the scholarly scientific community. The solicitation raises critical questions such as how peer reviewed publications of research-results can be shared more widely than they are today to further innovation and how to maintain sustainable publishing enterprises that serve the longterm interest of the scientific community. These issues are complex and impact a number of stakeholders from the publishers themselves to scientists working in the field and the public at large.

As publishing has evolved from print to digital media, ACM has been at the forefront of thinking about how to answer these critical questions. It has an industry-leading Copyright and Permissions Policy that balances between the revenue requirement to sustain quality scientific publications and the mission of providing widest possible access.  In summary, our publishing model allows for authors to immediately post their peer-reviewed works for free public access, while we maintain and preserve a comprehensive searchable Digital Library of well-organized, complete publications for the community. Further, we have kept access costs to our Digital Library very low for both people in the field and for institutions.  These are very real market responses to the realities of scientific publishing in the digital age and they have been carefully constructed over the years by the elected members of the computer science and information technology community who govern our Association.

We believe that this balance should be maintained in any "Open Access" policy that the government considers. It should seek to enable sharing of works to foster further research and discourse, while allowing the community to serve its membership in the way it feels best to do. We are concerned that extension of the NIH model to all agencies and to all disciplines will upset the careful balance that ACM has constructed by having the Federal Government recreate value- added services ACM provides to its membership and subscribers. Moving in such a direction would not only harm ACM, but the community itself by undercutting our ability to reinvest in services the field seeks.  This will not serve the key goals of enabling innovation and scientific discovery. We recommend that any final policy ensure that the forward- looking and balanced approach ACM has adopted can continue.

**How ACM Supports Free Access**
ACM's main consideration as a publisher has always been to further research.  ACM has made the discovery part of publishing free to the world; its advanced search is open, and the rich, extended metadata returned with abstracts and reference links are likewise free to all. And not just for ACM publications: ACM maintains and operates a large secondary database of computing literature from all publishers that is open to the world for search and discovery.
For certain of its own publications, ACM has used surplus to underwrite entirely free access. Within its financial constraints, ACM will continue to experiment with alternate ways to fund its publications.

Voluntary postings by authors following the ACM Copyright and Permissions Policy result in

more than 95% of our articles freely available with no embargo at all and often prior to publication. Only half of these articles are based on research funded by the federal government. Some other disciplines may not have such high percentages of authors taking advantage of publishers' nearly universal embrace of some form of posting rights. Nonetheless, these posting policies will result in far more free and timely literature than the mandates proposed for publications arising from federally funded research.

ACM is aware that access by itself does not guarantee a readership. There are a plethora of sites and a glut of information. That is why ACM invests heavily in support of rigorous peer-review and other filtering tools and technology. The ACM imprimatur means something both to authors and to readers as well as to the large community of top-notch editors, program chairs, and referees that participate in its publishing program. Continued investment is needed to ensure the ongoing quality of publications and integrity of the process. While lack of access does not really interfere today in the further development of the discipline, the ability to find exactly the right prior research appropriate to the problem of the moment without wasting a lot of time doing so, is a serious matter for researchers. A search result of 10,000 items, vetted and unvetted alike, does not serve them as well as an organized and well indexed collection of peer-reviewed publications, which ACM does provide for the public through its secondary database (as do other free services and commercial services such as Scopus and Web of Knowledge).

Research issues of precision and recall have in this day and age become a primary practical concern of the publisher. Like many other scholarly and commercial publishers, ACM continues to invest in technology to improve the speed and accuracy of publications search. And ACM continues to explore ways to situate access conveniently in the normal work-flow of the enduser. Access is not a problem for ACM publications. In less than a decade, publishers like ACM have adapted their industry to the internet. Online publishing has become the rule while print is rapidly becoming something of an afterthought for scientific, technical and medical publications. Publishers have utilized the new technologies to focus equally on expanding access and on the services and functionality that accompany content.

How ACM Supports Author Rights to Intellectual Property Simultaneous with achieving a very high rate of content freely available to anyone, and technology and functionality to search, find, and utilize that content, ACM has also been dedicated to the protection of intellectual property rights of authors. We have been able to protect those rights while achieving this high rate of free content. The principle that the government can seize products privately invested in and under copyright (rather than gather and publicize the technical research reports and raw data sets directly developed under their funding), sets a precedent which is already being taken up by universities. A faculty senate vote to mandate deposit of works written by faculty and graduate students in open access institutional repositories is now being viewed by universities as a legitimate way to supersede the copyrights traditionally held by the authors. Using the NIH model, universities are beginning to feel they can take ownership of faculty intellectual property through a vote that mandates the disposition of each individual's intellectual property.

As a not-for-profit scientific and educational society, ACM feels that the principle of an authors'

right to decide how and where to publish, perform, distribute, duplicate and transform his or her work should not be tampered with. Voluntary postings preserve that right while mandated deposits undermine it. Some publishers offer an author a set of services in exchange for some exclusive publication rights that enable a return on the investment required to provide those publishing services. Others offer their services in exchange for fees paid up front by the authors or their institutions. Some manage to offer services without recouping costs. Authors today choose among them.  Mandated deposits of scholarly articles in any institutional repository also coerces the authors' rights to their intellectual property, invading those rights reserved to authors and inventors in copyright and patent law to an extent beyond Fair Use, library exemptions, and time limits.  Some have argued that authors' rights have been subverted in a practical sense by publishing 'monopolies' exploiting their need to 'publish or perish'. Whether this was ever true may be arguable, (though certainly the same U.S. Government proposing mandates that coerce the author has never recognized any of the thousands of existing publishers as monopolies). But it is certainly not true today, with thousands of open access journals to choose among; with the variety of Creative Commons licenses and modified copyright transfer agreements available from non-OA publishers; and with ready access to self-publishing technologies.

Publishing Rights and ACM's Business Model and Pricing Policy
ACM achieves an extraordinary degree of free access, the protection of author rights, and quality publication through its Copyright and Permissions Policy which aligns with its business model.  ACM has a subscription business model that supports a robust, dynamic publishing program and provides the revenue to develop new Digital Library features and new publishing venues which the community wants and appreciates. It is the success of this subscription business model which in fact enables ACM to support the policies that make more than 95% of its articles freely available through voluntary posting by authors.  With ACM's business model, the 95% of articles are *really free* for readers. Under a government mandated central publications repository, the government will need additional resources in a time of budget pressures; readers' tax dollars will have to pay for the construction, maintenance and enhancement of the government publications repository.  ACM's pricing policy was designed to ensure wide dissemination. Prices were never set as obstacles and numerous buying options coupled with a degree of free pass-along permission, created enough flexibility to ensure that there was always an affordable way for anyone who needed a publication to get it. Over the decades, ACM has managed to keep its costs down and its prices low through the volunteer efforts of ACM reviewers, chairs, and editors.

Publishers like ACM have utilized the technology to globalize the reach of their publications, providing more access at lower costs than they have ever been able to achieve. Even under its paid-for subscription access, ACM is currently able to provide its publications at an overall average price of about $1 for each article read.  ACM understands the Open Access business model to mean that publications are paid for by someone or some entity other than the end-user. In a practical sense, this is consistent with today's subscription model, as subscription licenses are being sold to larger and larger consortia, even to governments for free access by all the end-users within their national research networks.  ACM is committed to more than a simple cost-recovery, break-even model. The aim is to generate a reasonable margin with cost-plus pricing. The goal is not merely to sustain existing publications but to re-invest those margins to

provide new publishing venues, grow content, and develop enhanced services. Only with such a surplus could the highly esteemed ACM Digital Library be launched and continue to evolve. Surplus publication revenue is also used to support other educational activities which the members of the Association deem important to the community.

Open Access publications have arrived without government intervention in the publishing industry. There are now over 4,000 open access scholarly and scientific journals as reported in the Directory of Open Access Journals (DOAJ), **http://www.doaj.org/**.  Many scholarly societies with publishing programs like ACM's feel that free copies of articles readily discovered and retrieved from the Web ensure that there are no financial barriers to access. But at the same time, these free copies do not entirely undermine additional value these publishers can provide to keep their publications marketable. These values lie in the convenience of a set of complete publications composed of final definitive articles (the "versions of record") maintained in an organized digital library that is navigable and searchable and enhanced by a set of tools and features such as citation and download metrics and author and institutional profiles. Central repositories of definitive works which duplicate this costly effort by freely appropriating its content, whether mandated by the government, or developed by interoperating technologies overlaid on mandated institutional repositories, put the entire publishing enterprise at risk.

The ACM community has achieved a successful balance in its publishing program– guaranteeing immediate free access to peer-reviewed accepted articles without embargo through voluntary postings while reserving a market space as the exclusive source for the definitive, organized and complete archive of its publications.  To date the subscription model is working for ACM. In fact, the subscription model in conjunction with the formation of academic consortia and even national networks of research institutions whose subscription licenses are underwritten by governments, now achieves a better return with wider access and a fairer distribution of costs than in the past. **ACM was founded in 1947.** Today it has 96,000 members and is widely recognized as the premier membership organization for computing professionals, delivering resources that advance computing as a science and a profession; enabling professional development; and promoting policies and research that benefit society.

**Invitation To Comment**
ACM offers the following comments on the specific questions raised in the Solicitation.
1. How do authors, primary and secondary publishers, libraries, universities, and the federal government contribute to the development and dissemination of peer reviewed papers arising from federal funds now, and how might this change under a public access policy?
**A public access policy which provides free access to a comprehensive, well maintained, indexed, collection of peer-reviewed articles or publications will reduce the investment made by publishers in creating these quality publications in proportion to the loss of revenue.**
2. What characteristics of a public access policy would best accommodate the needs and interests of authors, primary and secondary publishers, libraries, universities, the federal government, users of scientific literature, and the public?
**Anyone who needs information should be able to search for it and find a free version of it without undermining the financial viability of publishers' investment in the**

**Version of Record and the complete publication.**
3. Who are the users of peer-reviewed publications arising from federal research? How do they access and use these papers now, and how might they if these papers were more accessible? Would others use these papers if they were more accessible, and for what purpose?
**The majority of users of peer-reviewed publications developed from federally funded research in our field are graduate students, researchers, and higher education teachers. The three main ways our publications are accessed are through institutional or government subscription (free to the user); membership in our organization (very inexpensive: $99 for professionals for annual subscription to entire 50-year archive); and through free copies retrieved from author Home Pages and Institutional Repositories through Web search indexes like Google, Yahoo, Bing, etc.)**

4. How best could federal agencies enhance public access to the peer reviewed papers that arise from their research funds? What measures could agencies use to gauge whether there is increased return on federal investment gained by expanded access?
**Download and citation statistics are two measures of usage. We record and freely expose those statistics for all articles available from our Digital Library. Similar statistics gathered by government agencies would not by themselves measure any increase in usage; they would need to be compared and aggregated with existing statistics from the publisher sites as well as similar measures somehow aggregated from Institutional Repositories and distributed Home Pages serving the same articles.**

5. What features does a public access policy need to have to ensure compliance?
**There is very little motivation on the part of most authors to deposit articles that are already available freely from their own home pages and by subscription from ACM's Digital Library. Deposit in Institutional Repositories or Federal Agency Repositories will not be voluntary for most authors and will only be accomplished by mandate coupled with penalties such as withholding future grants.**

6. What version of the paper should be made public under a public access policy (e.g., the author's peer reviewed manuscript or the final published version)? What are the relative advantages and disadvantages to different versions of a scientific paper?
**All the interim and final technical reports that are required under the terms of the grant and therefore directly funded by the government should be made freely available to the public as long as the government can afford to do so. (The NTIS charges for reports funded directly and entirely by the government.)**

7. At what point in time should peer reviewed papers be made public via a public access policy relative to the date a publisher releases the final version? Are there empirical data to support an optimal length of time? Should the delay period be the same or vary for levels of access (*e.g.,* final peer reviewed manuscript or final published article, access under fair use versus alternative license), for federal agencies and scientific disciplines?
**The importance and usefulness of peer-reviewed articles over time varies by discipline. In some fields, the newest work is most important and the value of older work fades rapidly. In others, the classic works are constantly re-used. In many areas of computer science, the**

**first 2-3 years see the most intensive usage, but usage of all older material is fairly even and constant going back in time; in the aggregate, the usage of the archive exceeds usage of most recent 2-3 years.**

8. How should peer-reviewed papers arising from federal investment be made publicly available? In what format should the data be submitted in order to make it easy to search, find, and retrieve and to make it easy for others to link to it? Are there existing digital standards for archiving and interoperability to maximize public benefit? How are these anticipated to change? **The preferred form for retrieval today seems to be PDF format for scientific literature. The best archival format for text is a structured document mark-up like XML governed by some standard DTD at a granularity that serves the requirements for searching on important elements without overly complicating the expense of the structure.**

9. Access demands not only availability, but also meaningful usability. How can the federal government make its collections of peer reviewed papers more useful to the American public? By what metrics (*e.g.,* number of articles or visitors) should the Federal government measure success of its public access collections? What are the best examples of usability in the private sector (both domestic and international)? And, what makes them exceptional? Should those who access papers be given the opportunity to comment or provide feedback? **In our field, most of what we publish requires an advanced degree in computer science to be meaningfully understood. A small portion of what we publish (which is not usually funded research) is written for a more general, computer literate audience.**

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DIGITAL ANTIQUITY RESPONDING TO THE REQUEST FOR COMMENTS ON PUBLIC ACCESS POLICIES FOR SCIENCE AND TECHNOLOGY FUNDING AGENCIES ACROSS THE FEDERAL GOVERNMENT-- IMPLEMENTATION, TECHNOLOGY, MANAGEMENT We applaud the Office of Science and Technology Policy (OSTP) for establishing the Public Access Forum and seeking formal comments on how to improve access to the trove of scientific data produced by federally funded or required projects. Digital Antiquity, the organization that we represent participated in the forum portion with a posting on 20 December. Our concern expressed in the comment regarded the importance of including federally-generated archaeological data as one of the kinds of data for which improved access should be considered. We hope to ensure that the public access initiative extends beyond federal agencies that produce research as their primary product. The majority of archaeological research in the United States is performed pursuant to federal projects and undertakings that have other primary objectives, such as water management, natural resource extraction, improvements of the communications, energy and transportation infrastructures, or the conduct of military exercises. However, the archaeological data and research from these projects are essential for improving our understanding of American archaeology and the past human behaviors and cultures of the Americas that can be derived through the appropriate analysis of these data. We emphasize this concern in our comment here, along with other considerations of how access to the research data can be improved. Our comments are organized according to the three general areas that OSTP used in soliciting comments: implementation, features and technology, and management.

Digital Antiquity (http://digitalantiquity.org) is a new organization dedicated to establishing an on-line digital repository of archaeological data and documents. Its primary goals are to expand dramatically access to the digital records of archaeological investigations and to ensure their long term preservation. Based at Arizona State University (where it is sponsored jointly by the School for Human Evolution and Social Change and the Arizona State University Libraries), Digital Antiquity is multi-institutional organization operating collaboratively with the University of Arkansas, Pennsylvania State University, the SRI Foundation, the University of York's Archaeology Data Service, and Washington State University.

Implementation: We wish to ensure that any federal policy and administrative actions developed out of this initiative to improve public access to scientific data include archaeological data that are produced by federal agencies for the management and protection of archaeological resources for which they are responsible or that are impacted by undertakings that involve federal agencies. We would welcome the opportunity to discuss this matter in more detail and at greater length with OSTP representatives.  Federal agencies annually produce, or require the production of, most of the archaeological research and associated data in the United States. The data from these individual research efforts can be substantial and have addressed important anthropological and historical issues, such as the development of agriculture; the actions ancient human societies took in the face of changing climate; and, interactions among different ethnic groups during ancient times and the historic period. However, the mass of archaeological data from this large overall research effort are not effectively shared, integrated, or utilized by other scientists and scholars.

United States government agencies reported producing or requiring the production of 86,000 archaeological overviews or record searches, 103,000 archaeological field studies, and 518 archaeological excavations during 2008 (http://www.nps.gov/archeology/SRC/index.htm, accessed 18 December 2009). In addition to the National Science Foundation and the National Endowment for the Humanities, nearly three dozen federal agencies conduct or require archaeological research. Agencies with the largest archaeological programs or that fund large amounts of archaeological research include: the Forest Service, the Bureau of Land Management, the National Park Service, the Corps of Engineers, the Bureau of Reclamation, the Federal Highway Administration, the Department of Energy, and the Department of Defense services (see The Goals and Accomplishments of the Federal Archeology Program: The Secretary of the Interior's Report to Congress on the Federal Archeology Program, 1998-2003 for a description of the Federal Archeological Program;
http://www.nps.gov/archeology/SRC/index.htm, accessed 18 December 2009).
Much of the archaeological research in the United States results from environmental or historic preservation reviews required by federal statutes, such as the National Historic Preservation Act, the Archaeological Resources Protection Act, or the National Environmental Policy Act. The research typically is organized in relatively small projects focused on specific areas where some kind of environmental impact is expected. Research involves checking these areas to see if archaeological resources exist there, and if they do, conducting historical and scientific research to determine the significance of the resource. If significant resources are identified and the project cannot be relocated to avoid further disturbance of them, additional research to recover the data that will be destroyed by the planned project is conducted.

Federal agencies already have the legal responsibility (e.g., under federal regulation 36 C.F.R.

79) to require curation of digital data in a form that will be accessible and survive in perpetuity. Yet, despite federal mandates requiring preservation and access to digital archaeological data and collections, the vast majority of data from federal research are difficult or impossible to access. Enforcement of the existing mandates would encourage widespread professional participation. Of course, enforcement presumes repositories that are capable of meeting the existing data access and curation requirements. Much of the archaeological research data produced by or for federal agencies over the past century exists in technical, sometimes lengthy, limited-distribution reports scattered in offices across the nation. Some of the data that underlie these reports are encoded in computer cards, magnetic tapes and floppy disks degrading in archives, book shelves, file cabinets, or desk drawers, while the technology to retrieve them and the human knowledge to make them meaningful rapidly disappears (Michener et al. 1997).

Rather than systematically archiving computerized information and making it available electronically so that it is useable, museums and other repositories typically treat the media on which the data are recorded as artifacts – storing them in boxes on shelves. Childs and Kagan (2008) report that only a few of the 180 archaeological repositories that responded to their recent survey charge a fee to upload digital data from the collections and records they curated to computers for preservation and access. This implies that the repositories recognized the seriousness of this activity and costs inherent in uploading and providing access, but that they are not able to provide digital access and preservation. Along with Childs and Kagan, we are concerned that the default preservation treatment for digital data used by almost all of the repositories that responded to their survey preserves the digital media, but leaves the data on the media actually inaccessible. Moreover, as computer software and hardware change and as the bits on the magnetic and optical media gradually, but inevitably "rot," the data will be completely unavailable for future research.

We believe that the agencies conducting or requiring archaeological research should ensure that the results of this research, publications, technical and popular reports, and data of various sorts, should be made more easily accessible. We understand, however, that simply requiring agencies to do something is not very helpful, if these agencies do not have readily accessible means of complying. To that end, we believe the creation of trusted repositories as well as software designed to allow for the successful digital archiving of these materials is crucially important.

Features and Technology: Today, archaeologists in public agencies, private sector consulting firms, and academic settings spend a great deal of time searching for and acquiring relevant archaeological datasets and reports. Once found, more time is required to hunt for key data in volume after volume of hard copy reports that sometimes extend to more than a thousand pages. The ability to reanalyze existing data can make present-day investigations more productive. Easy and complete access to existing data also reduces the likelihood of costly and unnecessary redundant projects. The ability to identify and integrate existing data that are comparable with new data sets being analyzed provides the opportunity for comparative investigations that have the potential for expanding and extending the scope of knowledge creation. One example of how money could be saved if easier and wider access to existing archaeological data were available is found in a recent investigation in New Mexico. SRI, a private sector consulting firm, conducted archaeological investigations as part of a federal undertaking in the Loco Hills, a 460 square mile area in southeastern New Mexico. The firm

carried out a field survey of 75,000 acres to identify and evaluate archaeological sites within the area and assess the impacts of proposed energy extraction activities to significant archaeological resources. In assessing the results of their field survey, it was learned that about 12,000 of these acres were areas that had been previously archaeologically surveyed. The reason for the re-survey was that the information on what had been surveyed previously was only available in files at the New Mexico State Historic Preservation Office. The state office is years behind in placing information about already investigated area on their statewide GIS. Oil and gas companies, such as the one that funded the Loco Hills investigation as part of their environmental review requirements, find it easier to resurvey plots than to send someone to Santa Fe and go through the paper records. If we estimate the average cost per acre for an archaeological survey at $100, the re-survey of the already investigated portion of the Loco Hills project cost about $1.2M. If such unnecessarily redundant studies occur in 50 other situations, roughly $60M is wasted conducting archaeological field investigations that are not needed. By contrast, entire budget of NSF's archaeology program is only $7.5M annually. This example suggests that improving the availability and ease of access to archaeological data for environmental compliance activities alone would accrue savings that could fund the bulk of American academic archaeology for 8 years.

In recent years, the National Science Foundation has funded the development of a prototype digital repository for archaeological data, known as the Digital Archaeological Record (tDAR). The digital repository software is being refined and expanded as a part of the Digital Antiquity implementation. Digital Antiquity's repository will encompass digital documents and data derived from ongoing archaeological research, as well as legacy data and documents collected through more than a century of archaeological research in the Americas. The information resources preserved and made available by tDAR will be documented by detailed metadata submitted by the user before uploading the data and documents. Metadata may be associated generally with a project or specifically with an individual information resource (such as a database, document or spreadsheet). In addition to technical and other bookkeeping data, these metadata provide spatial, temporal, and other keyword information that will facilitate other users' discovery of relevant datasets and documents. They also include detailed information about authorship and other sorts of credit that must (as a requirement of the tDAR user agreement) accompany any use of information downloaded from the repository. For databases and spreadsheets, the metadata include column-by-column descriptions documenting the observations being made including, "coding sheets" that will decode numerical values or string abbreviations associated with the appropriate labels of nominal categories.

tDAR now accommodates databases, spreadsheets, and documents in a limited number of formats. While the digital files are maintained as submitted, they are also—whenever necessary—transformed into a format that can be sustained in the very long term (e.g. translation of Word files into a more sustainable PDF/A format). Planned development includes the expansion of the data and document formats accepted, as well as the inclusion of images, GIS, CAD, LiDAR and 3D scans, and other remote sensing data. The inclusion of these more exotic forms of data awaits the completion of another component of the Digital Antiquity project, development of "best practices" guidelines for the creation and preparation of metadata descriptions and standards for different sorts of archaeological digital data. These guidelines

build on the well-developed guideline series published by the Archaeology Data Services (ADS) in the United Kingdom http://ads.ahds.ac.uk/project/goodguides/g2gp.html. Julian Richards, Director of ADS, and Fred Limp of the University of Arkansas are leading the preparation of these guidelines.  Individual repository data sets and documents will be assigned persistent URIs that will provide permanent, citable web addresses. When content is revised, earlier content will be automatically versioned, so that the exact content as of a given date always can be retrieved. Sensitive information, such as site locations, can be restricted to qualified individuals. Investigators also can mark content (notably for ongoing projects) as "private" for a defined period, prior to a public release.

The development of tDAR, an easily accessible archive of digital archaeological data, offers the potential for more efficient and effective background research of past archaeological work, saving time and money for public archaeological management and preservation efforts, as well as for scholarly research. This online archive also will permit broad, comprehensive upgrading of digital data as new platforms for data storage and retrieval develop.

Management: To achieve this potential, we must transform archaeological practice so that the digital archiving of data and the description of metadata necessary to make it meaningful for general searching and access become a standard part of all archaeological project workflows. Federal agencies can and should play an important role in facilitating this transformation. Agencies with land and resource managing responsibilities (such as, the Forest Service, Bureau of Land Management, Fish and Wildlife Service, National Park Service, Defense Department services, and Tennessee Valley Authority) and agencies with development or licensing responsibilities (for example, the Federal Highway Administration, the Environmental Protection Agency, the Federal Energy Regulatory Commission, and the Corps of Engineers) either fund or require tens of thousands of archaeological investigations annually (see the first section of this comment for references). By including among the requirements in scopes of work for these investigations the digital archiving of documents, data, images, and other products agencies can have a widespread, immediate, and lasting effect on American archaeological research.

Agencies like the Advisory Council on Historic Preservation, the Council on Environmental Quality, and state agencies responsible for archaeological and historic resources in each state (the State Historic Preservation offices established by the National Historic Preservation Act and partially funded by federal grants) also can influence archaeological practice by requiring that final reports of these public archaeology investigations demonstrate that the digital archiving of the results of the studies has been accomplished before approving any final report, which often is a project requirement.

As noted in the first section of this comment, Federal agencies already have the legal responsibility (e.g., under federal regulation 36 C.F.R. 79) to require curation of digital data in a form that will be accessible and survive in perpetuity. A new policy that promotes wider access to government data will underscore this responsibility. Emphasis will support efforts by archaeologists within the federal agencies to procure funding to support the digital archiving activity.  New policy development, led by OSTP, opening access to federal archaeological data presents an exciting opportunity for advancing knowledge through improved and wider-ranging comparative analysis of archaeological data and easier synthesis of these data. Already

developing within the discipline of American archaeology, are mechanisms (such as Digital Antiquity and tDAR) for federal agencies and other public institutions to satisfy their legal mandates and professional responsibilities to provide access to the digital records of archaeological research and to effect long term curation using professional archival practices. These mechanisms will not only store data, but will provide the tools required by archaeologists to identify and access those data. It is anticipated that these mechanisms will enable private sector consulting archaeology firms, public agencies, and academic archaeologists to work much more effectively. It will enormously increase the accessibility – and impact – of the important work that the consulting firms and agencies do in managing, preserving, and protecting America's archaeological record.

Indeed, widespread digital access to archaeological data of the sort envisioned using tDAR has the potential to transform the practice of archaeology by enabling synthetic and comparative research on a scale heretofore impossible. The moment is right for this initiative. To succeed, however, cooperation and coordination throughout the discipline is needed. Those of us involved in Digital Antiquity look forward to working with OSTP and other organizations through mutually beneficial partnerships to achieve the potential that the is possible.

Francis P. McManamon, Ph.D. Executive Director, Digital Antiquity
Sander van der Leeuw, Ph.D. Chair, Board of Directors, Digital Antiquity
Director, School of Human Evolution and Social Change, Arizona State University

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The American Association of Immunologists, Inc. (AAI), a professional association of almost 7,000 research scientists and physicians dedicated to understanding the immune system, and the

publisher of *The Journal of Immunology* (*The JI*), the world's largest and most cited immunology journal, respectfully submits the following comments on the Office of Science and Technology Policy's (OSTP) Request for Information (RFI) on "Public Access Policies for Science and Technology Funding Agencies Across the Federal Government." (Federal Register, Vol. 74, No. 235, Pages 65173-65175, December 9, 2009).

By way of this RFI, OSTP invites the public and the stakeholder community to comment on the promulgation of federal public access policies. As a professional scientific society of biomedical researchers and as a scholarly publisher, AAI has had experience with the National Institutes of Health (NIH) Public Access Policy, both when it was a voluntary policy (2005) and after it became law in 2008. As enacted by the Consolidated Appropriations Act of 2008 (P.L. 110-161), the law requires that *"all investigators funded by the NIH submit or have submitted for them to the National Library of Medicine's PubMed Central an electronic version of their final, peer-reviewed manuscripts upon acceptance for publication, to be made publicly available no later than 12 months after the official date of publication: Provided, That the NIH shall implement the public access policy in a manner consistent with copyright law."*

AAI strongly supports the goal of increasing access to the results of federally funded scientific research and works to enhance access to such information and publications. However, AAI has significant concerns about the effect of federally mandated public access policies, including the NIH Public Access Policy, and believes that such policies are detrimental to the very publishers whose mission it is to publish and disseminate research findings. AAI believes that federal access policies like the NIH Public Access Policy duplicate, at great cost to federal agencies and to taxpayers, publication services which are already provided cost-effectively and well by the private sector1 and weaken federal intellectual law protections which have been the engine of innovation in science and technology. Rather than diverting precious dollars away from research toward a new government bureaucracy of federal agency publishers, federal agencies should partner with private sector publishers to develop a plan that enhances public access while also addressing publishers' key concerns, including ensuring journals' continued ability to provide high quality, independent peer review of NIH-supported research. AAI therefore urges OSTP not to mandate additional public access policies, and to reinstate a voluntary Public Access Policy at the NIH, while exploring ways to foster expanded access through a federal partnership with the private sector.

***The American Association of Immunologists (AAI)***
The purpose of AAI is to advance knowledge of immunology and related disciplines, foster interchange of ideas and information among investigators in scientific disciplines related to immunology, and promote an understanding of the field of immunology among research scientists, educators, legislators, and the public. In its pursuit of this purpose, the principal activities of AAI include: disseminating scientific information about advances in immunology through publication of *The JI;* developing and hosting an annual international scientific meeting on immunology (including lectures and symposia on recent discoveries in immunology and related research; workshops on topics such as grant-writing, funding opportunities, the spectrum of scientific careers, and job opportunities; and programs to promote the careers of women and under-represented minority scientists); offering professional development opportunities for immunologists; hosting introductory and advanced courses on immunology; sponsoring an

awards program to recognize scientists who have made significant contributions to the field of immunology; offering a summer fellowship program for high school and college science teachers; and interacting with other organizations, government agencies, and legislators to promote the importance of biomedical research and the field of immunology.

### *The Journal of Immunology ("The JI")*

*The JI* is a peer reviewed scientific journal that has been owned and published by AAI since 1916. *The JI* publishes original reports from all areas of experimental immunology, and is one of the leading scholarly journals not only in the field of immunology but in all biomedical science.2 Publishing *The JI* is a central part of the longstanding AAI mission to serve immunologists and advance our scientific discipline.

1 The private sector, including not-for-profit scientific societies, already publishes - and makes publicly available - thousands of scientific journals that report cutting-edge research funded by both NIH and other public and private entities.

2 Of the approximately 25,000 scientific and scholarly journals which publish research, approximately 6,600 are ranked by the Institute for Scientific Information ("ISI"); *The JI* is ranked 16th (in the top 0.25%) for number of citations.

3 *The JI* accepts approximately 45% of all submitted manuscripts but provides peer review services for all submitted manuscripts.

*The JI* fosters scientific discourse among immunologists by establishing a forum for the reporting, dissemination and discussion of cutting-edge research in immunology. It also creates an archive of scientific advances in the field of immunology for which AAI is responsible and is dedicated to preserving. *The JI* is so important to the immunology community and the advancement of the field that AAI continued to publish it even during years when it was not financially self-sustaining. Indeed, AAI has published *The JI* for 94 years and plans to do so in perpetuity. As such, AAI is highly motivated to ensure *The JI's* continued vitality and success, and does so by publishing the highest quality research and making those research results - as well as relevant reviews and commentary - available quickly, easily, widely, and at reasonable cost.

As a peer reviewed scientific journal, *The JI* maintains a database of, and relies upon, thousands of volunteer experts to serve as reviewers and editors and to evaluate submitted manuscripts. Currently, *The JI* peer reviews over 4,000 submitted original scientific manuscripts annually, as well as re-reviewing approximately 2,500 revised manuscripts. This effort requires over 10,000 reviews and thousands of editorial decisions by expert scientists. Via a three-tiered review structure, volunteer experts and editors review and critique almost every paper that is submitted. Reviewers' written comments are shared with manuscript authors regardless of whether the manuscript is accepted or rejected for publication.3 This feedback is invaluable to developing both the writing and research techniques of authors, who must publish in order to receive further grant funding and to advance their career. In addition, voluntary participation with *The JI* (by serving as a reviewer or editor) is considered both a valuable and prestigious credential for any scientist's career.

*The JI's* comprehensive peer review process, like that of many non-profit scholarly scientific journals, also provides a crucial public policy function: ***expert scientists provide, through independent peer review, a validation of the research funded by the federal government***; this enhances Congressional efforts to ensure that federal tax dollars devoted to biomedical research are well spent.  Publishing a journal the size and quality of *The JI* is costly and involves significant administrative and technical support. In addition to the peer review process, *The JI* provides other essential publication services, including copy editing, production services (print and electronic), archiving, dissemination, and author and customer services. AAI and *The JI* also ensure compliance with laws and good standard business practices/reporting; develop and implement editorial policies and oversight; and manage allegations of misconduct and ethical violations related to scientific publishing. To stay competitive and deliver author and reader services, a publisher must keep up with technical advances and innovations; this requires on-going professional education and expert consultations.

Like most publishers of scholarly journals, AAI has only a few sources of revenue to support the significant expense of publishing *The JI*. These sources are primarily subscriptions and reprints, advertising, and author charges. Because author charges alone are insufficient to cover the full cost of publication, publication costs are subsidized significantly by revenues from subscriptions, reprints, and advertising, with subscriptions being the largest source of revenue. If these supplementary revenue sources are lost or eroded, as is likely to result from the adoption of public access policies, authors will have to pay more - or all - of the cost of publishing. This "author pays all" system will obviously result in significantly higher costs to authors.  AAI members receive a subscription (print and/or online) to *The JI* as part of their membership. Non-members and institutions such as libraries purchase subscriptions (print copies and/or electronic access via single and multi-site licenses). While *The JI* has more than 8,000 subscriptions, the number of readers of *The JI* cannot be accurately estimated because many institutional subscribers make the online version available to a wide readership. However, *The JI* online has over 4 million views per year.

Over the years, *The JI* has become increasingly accessible to the general public. AAI provides free, online access (open to the public) to the abstracts of every article immediately upon publication. Public online access to all full text articles (at no charge) is made available 12 months after publication. Further, all articles in *The JI* are available to the public immediately upon publication for a small fee ($10 per article or $40 for two weeks' unlimited access to the complete archive). Print copies of full length articles are available to the general public through subscribing public libraries, universities, and medical schools.

***AAI Concerns about the NIH Public Access Policy and Federal Public Access Policies***
AAI has repeatedly expressed concerns about the NIH Public Access Policy through previous submissions – solicited and unsolicited – to NIH. Our concerns have ranged from legal to policy to practical. And yet we have had few answers provided to our many questions. AAI sincerely hopes that OSTP will endeavor to learn the following before retaining the NIH Policy or replicating it at other agencies:
      **A. Legal Concerns**
1. In developing its Public Access Policy, did NIH comply with the following laws:
      the Freedom of Information Act (and its impact on patent applications);

the Administrative Procedures Act (including providing adequate notice and the opportunity for public comment);

the provisions of OMB Circular A-76;

the Regulatory Flexibility Act; and

the Paperwork Reduction Act?

2. Since the law applies to "all investigators funded by the NIH," how does NIH address situations where investigators have minimal NIH funding and depend on another primary funder who objects to submitting to PMC?

3. Who is responsible if the publisher's embargo period (and therefore the publisher's copyright rights) is violated?

4. Who ensures that NIH complies with a publisher's copyright rights once a manuscript is submitted (*i.e.,* who makes sure that NIH does not transfer a manuscript to any other entity/repository without permission from the publisher)? How is NIH preventing the distribution of copyrighted material to sites outside the United States if the publisher does not grant approval?

5. What are the penalties for non-compliance by a grantee? Does it matter if the non-compliance is intentional or inadvertent?

### B. Policy Concerns

1. NIH has revealed little regarding the cost of developing and implementing its Public Access Policy. What was the cost of:

implementing the voluntary NIH Public Access Policy (May 2, 2005 – January 11, 2008)?

implementing the mandatory Policy in Fiscal Year (FY) 2009? How much of this cost was a one-time implementation cost, and how much will be an annual cost?

2. In regard to the above question, how much was expended by the National Library of Medicine (NLM) and the various NIH Institutes, Centers, and Offices involved, including:

the number of FTEs and contracted services used to accommodate this initiative;

the cost of personnel and administrative services for this program (including associated space for infrastructure and personnel);

the time spent directly on the promotion, management, enforcement and assessment of this program to/by NIH grantees and the public; and

all costs associated with network infrastructure improvements including but not limited to bandwidth capabilities, server capacity, and equipment.

3. Was the Policy analyzed regarding its relative costs and benefits compared to the dynamic, time-tested free market alternatives, and if so, what were the findings?

4. Since publishers invest millions of dollars in the publication process (including peer review, editing, design, printing, and posting online), is NIH compensating publishers for their loss of revenue when PMC posts articles that violate a publisher's embargo period?

5. Will NIH provide publishers with the data necessary to evaluate the effect of this Policy on their business model (including their subscription base)? Will NIH provide publishers with PMC usage (and other relevant) statistics?

### C. Practical Concerns

1. Did NIH unfairly post on its website a list of journals which submit authors' articles directly to PMC (http://publicaccess.nih.gov/submit_process_journals.htm)? Authors might perceive these

publishers as preferred by NIH, their funding agency, dealing an unfair blow to other publishers who are not submitting authors' articles but who comply fully with the Policy.

2. How does NIH ensure that it posts only manuscripts eligible for posting under its Public Access Policy, and how does it ensure the prompt removal of manuscripts which should not have been posted? To date, the burden of ensuring compliance has fallen to publishers who have been forced to expend time and resources monitoring the PMC site and contacting NIH to request removal of articles which have been posted in violation of journals' copyright rights.

3. How is NIH preventing piracy, alteration, re-publication, or other illegal use of copyrighted material that is published on PMC? Does NIH notify publishers and provide them with the information necessary to protect their copyright?

4. How is NIH addressing allegations of/evidence regarding plagiarism, including issuing corrections and retractions?

5. How is NIH ensuring that manuscripts accepted for publication but not ultimately published (due to legal or other issues arising between the date of acceptance and the date of publication) are not posted?

6. How is NIH preventing "repurposing," *i.e.,* modifications to the manuscript by authors or NIH that result in variations from the original manuscript?

7. How is NIH ensuring the inclusion - and protection – of publisher and society trademarks and branding? Absence of these proprietary marks may confuse or mislead readers as to the owner of the copyright (or the existence of copyright), and may result in inadvertent misuse.

**OSTP Request for Information – Questions**
As requested by OSTP, AAI responses to the questions posed by OSTP appear below:
*1. How do authors, primary and secondary publishers, libraries, universities, and the federal government contribute to the development and dissemination of peer reviewed papers arising from federal funds now, and how might this change under a public access policy?*
The federal government provides important but partial financial support to many scientists to conduct their research. Financial support for most scientists comes from many sources, including academic institutions, state funds, private foundation and corporate partnerships.
Once research is performed, scientists prepare manuscripts describing aspects of their work. After submission to a scholarly journal, the manuscript undergoes peer review to assess its quality and relevance. If it meets the journal's standards, it will be published. Most important in this process is peer review as it establishes the value of the research. Scholarly peer review for publication is the most crucial assessment for scientific research available.

The value to the federal government and the public of the peer review and publication by private journals is that it is a process of independent review and assessment of the money spent by the federal government on research. Further, publication in scholarly journals is a major benchmark of research progress and is used by government officials in the assessment and continuance of grant applications. Publication is also a key consideration for employers, particularly academic institutions which base promotion and tenure decision in part on a scholar's record of publication. **Authors** disseminate their peer reviewed works by reference in lectures, by citation, on their web sites, and in sending reprints (digital or paper).

**Libraries** purchase subscriptions to the official journal of record and make it available to their students, staff, and for some institutions, the public.   The **federal government**, as of May 2005,

started a voluntary program posting manuscripts on an NIH website called PubMed Central (PMC). This has been an unnecessary, poorly executed, and costly endeavor. NIH's repeated rejection of viable alternatives and lack of good faith negotiating alienated the very entities that support and had previously been partners with NIH in the scientific endeavor: the scholarly publishers. Furthermore, journals themselves are ranked in a hierarchy of excellence based on high impact articles and use by readers, so *which journal* an author publishes in is also an important consideration. This process of peer review, publication, and journal ranking is a private enterprise which was independent of federal government mandates prior to 2008, and which remains private and independent today. It would have been successful from the start, but the initial launch of PMC was demonstrably unsuccessful. In order to make it work, an act of Congress mandating scientists' compliance was necessary. This policy raises the fundamental question of how the government can require that private entities give over their privately owned content to the government for its distribution and use; the federal government should not use threats and coercion to force a policy that has never been proven to be needed.

**Authors:** Scientists who receive federal funds to support their research report their research findings to their funding agency through regular progress reports, working groups, and special meetings. However, to continue a successful career, scientists must write scholarly manuscripts summarizing their research for the benefit of their peers and to advance their scientific discipline. These manuscripts must undergo a validation process and the only official source for this process is the peer review provided by scholarly journals. The peer review process in society journals is – more often than not – educational in nature and intended to assist the author with his/her research by providing a critique. If accepted, the manuscript is further improved through an editing process that polishes text and figures, and is subsequently published (in print and online). If the manuscript is not accepted, it is returned to the author and may be revised and resubmitted. Not only is publication essential if an author is to receive future federal funding, but it is a key consideration for employers, particularly academic institutions which base promotion and tenure decisions in part on a scholar's record of publication.

Under a public access policy such as the NIH Public Access Policy, authors still submit articles to a journal for peer review and publication. In fact, the NIH policy *requires* that manuscripts submitted to NIH for public dissemination have been peer reviewed and accepted for publication by a scholarly journal. Based on the policy of the publishing journal, authors must either submit the accepted manuscript to NIH themselves or authorize journals to submit the article to NIH on their behalf. The accepted publications are then posted on national and international servers for open public viewing, often in violation of the publisher's embargo period.

**Publishers:** Primary publishers such as The AAI (owner of *The JI*) receive submitted manuscripts, facilitate peer review, publish journals containing the final article in print and online, maintain an archive of all published journals/articles; and enforce copyright related to the journal/article. The role of professional society publishers in the peer review process cannot be overstated. Society publishers create, maintain and manage large databases of scientists who are willing and able to provide high quality peer review of submitted manuscripts. After receiving a submitted manuscript, the journal solicits reviewers and manages the review process to ensure that reviews are timely and thorough, that submitting authors receive useful critiques, and that published manuscripts satisfy the journal's quality standards. In providing this review and

editorial process*, journals are effectively acting as independent evaluators of government-funded research and are ensuring that published manuscripts reporting the results of federally-funded research are of quality and value. Society publishers are, therefore, critically important partners of the federal government in the review and publishing of the results of federally funded research.*

Society publishers also ensure that a correct and final version of the article is made publicly available as soon as possible, and that it remains so. *The JI*, for example, makes all content available in print and online to AAI members and subscribers to *The JI* immediately upon publication. It makes its online content available to all others immediately upon publication for a small fee (pay-per-view fees for *The JI* are $10 per article or $40 for two weeks' unlimited access to the complete archive). All *JI* content is available at no charge to the public immediately after publication if visiting a subscribing library, and all content published from 1998 to 12 months after publication is available at no charge if searching online.

Other not-for-profit scholarly publishers make their content publicly available at no charge as their business models allow; some do so immediately, while others have varying embargo periods. Public access policies such as the NIH policy have added additional burdens to the publication process. Primary publishers continue to perform all of the work described above (i.e., peer review, editing, publication, dissemination, etc.). In addition, they must devote staff time to oversight of and corrections to errors in PMC postings; answer author questions regarding the NIH Policy; and divert funds and energy away from their continuing efforts to improve submission-to-publication times, decrease the cost of publication, increase dissemination of their publications to both the scientific and lay communities, and provide innovative features to enhance the reader's experience (for example, by keeping up with technological advances such as mobile devices and by implementing more rapid publication via Publish Ahead of Print).

**Federal Government:** The federal government contributes to the development and dissemination of peer reviewed papers arising from federal funds indirectly. By making federal funds available for research, the federal government supports (in whole or in part) the work of scientists who apply for and receive these grant funds. In addition, the federal government, through these grants, provides some funds to assist grantees with some of the costs of subsequent publication; however, these funds represent only a portion of the cost of publication, and the remainder is paid by the publishing journal. It is important to note that federal dollars allotted for publication fees are neither intended for, nor used as direct support for the research performed by grantees; rather, they partially pay for the purchase of necessary publication-related services, including peer review and editing.

Under a public access policy such as the NIH Public Access Policy, the federal government requires grantees to submit their final, peer reviewed, accepted manuscript to NIH, which then posts the article online at no charge to the public and with no payment to journals which provided the peer review and editing services. Such a policy threatens the viability of the publishing journal by:
1) depending on authors to know journal's copyright policy and embargo period The Consolidated Appropriations Act of 2008 (P.L. 110-161) requires *"(t)hat the NIH implement the public access policy in a manner consistent with copyright law."* And yet, in its Notice and Revised Policy Statement dated January 11, 2008 (NOT-OD-08-033), NIH shifts what is clearly

its legislative responsibility to ensure (*i.e.,* that the Policy respects publishers' copyright rights) to institutions and investigators: "Institutions and investigators are responsible for ensuring that any publishing or copyright agreements concerning submitted articles fully comply with this Policy." This is clearly creating concern and confusion among investigators and institutions and must be addressed in a way that eases compliance for authors while respecting publishers' rights. As the NIH deflects this responsibility, it accepts whatever the authors send to PubMed Central (PMC) without confirming the existence of copyright agreements with the publishers. This has resulted in NIH consistently posting material which violates copyright agreements with publishers, requiring publishers to seek out the violations and bring them to NIH's attention.  In 2005, fifty seven not-for-profit scientific publishers offered to NIH leadership a "Linking Proposal," which would provide seamless links on PubMed Central (PMC) to the journals' websites, enable readers to access the full text of any article funded by NIH (and in many instances, the full text of _all_ articles published in the journal,

2) requiring journals to monitor the NIH website for embargo violators and to contact NIH to take down any non-compliant postings 5
3) posting material owned and/or copyrighted by the publishing journal on a government website
4) depending on scholarly journals to perform all the work necessary to ensure the quality of the submitted manuscript (i.e., the peer review/editing process)
5) refusing to link from the federal agency to the version of record on the publisher's website, creating potential confusion as to which is the version of record,
6) depriving publishers of the website "hits," and
7) allowing articles to be posted without ensuring that corrections/retractions made by the publishing journal also appear on the government website

*2. What characteristics of a public access policy would best accommodate the needs and interests of authors, primary and secondary publishers, libraries, universities, the federal government, users of scientific literature, and the public?*
A flexible and voluntary public access policy which fosters innovation by private sector publishers, enabling them to utilize their skill and resources to increase access to their entire journal content, would best accommodate the needs and interests of authors, primary and secondary publishers, libraries, universities, the federal government, users of scientific literature, and the public. It bears repeating that most scholarly, non-profit journals already had successful public access policies in place before the NIH Public Access Policy was implemented.
Most scholarly journals publish content that is 1) funded by federal agencies; 2) funded by state agencies; 3) funded by private foundations/other private sources, and 4) funded by some combination of numbers 1-3, above.

The NIH Public Access Policy requires authors to submit manuscripts resulting from research that is funded in whole or in part by the federal government. It does not require, nor could it require, the submission of state funded or privately funded research. Therefore, the archive created by NIH is inferior to the archive created by the publishing journal as it includes only federally funded research and not the entire body of research published by the journal. If federal agencies worked with scholarly journals to provide links back to the journal website, the public would have access to the entire body of work published by the journal.6 As these links would be

irrespective of funding source). This proposal provides the public with free access to all published articles funded by the NIH; provides access to the final, copy-edited article of record (and any related materials, including corrections); is cost effective, since the NIH would not have to create a new repository, educate grantees about compliance and copyright, or monitor for compliance; addresses publishers' copyright concerns; satisfies the 2008 law; and complies with copyright law by ensuring that an article cannot be posted before the journal's embargo period is over. In subsequent conversations with NIH about this Linking Proposal, publishers also offered to consider ways to satisfy NIH's desire for a repository of all NIH-funded works, *i.e.* to help NIH populate a "dark archive" for internal NIH use only.

Present on the federal site and invisible to any user, the government could serve as a portal to the content it believes the public seeks, while accommodating publishers and alleviating financial threats to them. Such a process is simpler for the author (who would then have to deal only with the publishing journal), addresses the concerns of publishers regarding the government-mandated loss of their content (see #1, above), makes more information available to readers (scientific and lay), and eliminates the need for the federal government to become the publisher of all manuscripts resulting from federally funded research.
A flexible and voluntary public access policy would also:
     ensure that publishers could protect their content as needed to preserve the revenue required for peer-reviewed publication, and
     be least likely to violate the principles of copyright law that have fueled innovation in science and technology since the founding of our nation.

*3. Who are the users of peer-reviewed publications arising from federal research? How do they access and use these papers now, and how might they if these papers were more accessible? Would others use these papers if they were more accessible, and for what purpose?*
The primary users of peer-reviewed publications arising from federal biomedical or other scientific research are research scientists. As the information published is of a highly specialized and technical nature, it is of little (if any) use to the lay public.
Research scientists currently access published manuscripts though subscriptions to the journal(s) of interest and relevance to them. Scientists have access to subscriptions in one of the following ways:
1.  they are members of a professional scientific society and receive print and/or online access to the journal(s) published by that society immediately after publication;
2.  their place of employment (medical school, research institution, agency, company) purchases a subscription enabling them to access the information immediately in print and/or online;
3.  they purchase individual subscriptions, enabling them to access the information immediately in print and/or online;
4.  they go to a public library which purchases a subscription and access the information immediately in print and/or online;
5.  they can usually purchase any article online, for costs that range by journal (*The JI* is available to the public immediately (on the date of publication) for a small fee (i.e., pay-per-view fees for *The JI* are $10 for a single article for 24 hours, and $40 for a 2-week pass to the entire journal content, which permits downloading and PDF printing); or

6.  they can use available open archives.

Scientists use these publications to advance their understanding of a given field, and to inform their own research. AAI does not believe that non-scientists (i.e., members of the general public) would, except in rare circumstances, use manuscripts published by *The JI* even if the entire journal were made freely available to the public immediately upon publication.

AAI wishes to point out that, although the general public would not benefit from immediate access to articles published in *The JI*, such articles are immediately available through the means listed above, and AAI has no intent or desire to limit distribution of the research results its articles report. To the contrary, AAI works vigorously to reduce the time from manuscript submission to publication and to increase the dissemination of *The JI* as part of its mission to advance the field of immunology and to maintain the journal's prominence in immunology.

*4. How best could federal agencies enhance public access to the peer-reviewed papers that arise from their research funds? What measures could agencies use to gauge whether there is increased return on federal investment gained by expanded access?*

Federal agencies could best enhance public access to the peer reviewed manuscripts that arise from their research funds by providing links back to the journal of record, thus allowing access to the journal's content. This is a simple, streamlined approach that causes no harm to publishers and yet enables the public to access not only federally funded content, but also the publisher's entire journal content.  AAI is not aware of any measures that agencies could use to gauge accurately whether there is an increased return on federal investment gained by expanded access.

*5. What features does a public access policy need to have to ensure compliance?*

Public access policies are at fundamental odds with our federal history of providing protection for creative works in order to foster innovation. To be forced by the federal government to make public one's work, even if that work was supported in whole or in part by federal funding, undermines the notion that while federal dollars support creativity and innovation, the result is owned by the creator, who is entitled to benefit from his/her work.

Ensuring compliance with public access policies would require, therefore, a fundamental change in the public's understanding of and relationship with copyright, patent, and similar legal concepts, all of which have their underpinnings in the U.S. Constitution, and therefore require changes in the law to enable the federal government to require the appropriation of privately owned manuscripts. Agencies would also have to enforce the policies against the very creators of the works which they funded.

*6. What version of the paper should be made public under a public access policy (e.g., the author's peer reviewed manuscript or the final published version)? What are the relative advantages and disadvantages to different versions of a scientific paper?*

Even if a journal publishes the author version of a manuscript at the "publish ahead of print" stage, the journal, which maintains control of the content, can ensure that any corrections are made.  AAI believes that the version of record, as published by the journal, is the only version that should be made available to the public. AAI does not believe that a government agency should post the version of record; rather, a government agency should provide links to the publishing journal, allowing the public to access the final article directly from the publisher's website. (See footnote 6) The existence of multiple versions is simply confusing; and the posting

on an agency website of an author's peer reviewed manuscript raises serious questions about the agency's ability to address the need for final edits, corrections, deletions, and withdrawals.

*7. At what point in time should peer-reviewed papers be made public via a public access policy relative to the date a publisher releases the final version? Are there empirical data to support an optimal length of time? Should the delay period be the same or vary for levels of access (e.g., final peer reviewed manuscript or final published article, access under fair use versus alternative license), for federal agencies and scientific disciplines?*

Within the biomedical research community, there are a variety of publishing models, all designed to foster the rapid dissemination of important scientific information while ensuring the quality of published papers, the archival needs of the discipline, and the long-term viability of the publishing journal. All *JI* content is available at no charge to the public immediately if visiting a subscribing library, and 12 months after publication if searching online. Other not-for-profit scholarly publishers make their content publicly available at no charge as their business models allow; some do so immediately, while others have varying embargo periods.

As stated above, it is essential that any public access policy adopted be flexible and voluntary, in order to allow individual publishers to select an embargo period that will enable them to preserve the revenue that helps to finance publication. If the limited revenue sources are eroded or lost (subscriptions, reprints, and advertising), authors will have to pay more - or all - of the cost of publication.

*8. How should peer-reviewed papers arising from federal investment be made publicly available? In what format should the data be submitted in order to make it easy to search, find, and retrieve and to make it easy for others to link to it? Are there existing digital standards for archiving and interoperability to maximize public benefit? How are these anticipated to change?*

Peer-reviewed papers arising from federal investment should be made publicly available via the publishing journal. The Internet makes searches for any kind of information rapid and simple; the question facing users is which information is reliable. Scientists already know which sources/journals are reliable; scholarly publishers are willing to identify for the public all articles which result from federally funded research.

*9. Access demands not only availability, but also meaningful usability. How can the federal government make its collections of peer-reviewed papers more useful to the American public? By what metrics (e.g., number of articles or visitors) should the Federal government measure success of its public access collections? What are the best examples of usability in the private sector (both domestic and international)? And, what makes them exceptional? Should those who access papers be given the opportunity to comment or provide feedback?*

"Meaningful usability" is a crucial concept. If increased public access does not result in a meaningful use of the articles by the general public, and yet could harm the very publishers who conduct the peer review and editing of the articles, then a cost-benefit analysis must be conducted to weigh any benefit to the public against any harm to the publisher. The federal government needs to exercise the Hippocratic Oath administered to all physicians: "First, do no harm." The federal government must determine whether it can accomplish the following critically important tasks through a public access policy, all of which are currently done by private sector publishers: make access simple to not only single articles but also an entire body of

work; ensure that there is only one, final version of record and that it has been edited, revised, or withdrawn as necessary; and protect the copyright and therefore the author's work.

There are – and will always be – many outstanding collections of scientific literature because of the nature of science. This diversity is a strength of the scientific publishing enterprise. Homogenizing the literature is neither necessary nor productive any more than a futile attempt to collect all artwork in the United States into one federal museum.

*Submitted for The American Association of Immunologists, Inc. (www.aai.org) by*
*M. Michele Hogan, Ph.D. Lauren G. Gross, J.D.*
*Executive Director Director of Public Policy and Government Affairs*

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The American Chemical Society (ACS) is the world's largest scientific society with more than 161,000 members. ACS advances knowledge and research through scholarly publishing, scientific conferences, information resources for education and business, and professional development efforts. The ACS also plays a leadership role in educating and communicating with public audiences—citizens, students, public leaders, and others—about the important role that chemistry plays in identifying new solutions, improving public health, protecting the environment, and contributing to the economy.

ACS Publications is a division of the American Chemical Society. The Publications Division strives to provide its members and the worldwide scientific community with a comprehensive collection, in any medium, of high-quality information products and services that advance the practice of the chemical and related sciences. Currently, 38 peer-reviewed journals and magazines are published or co-published by the Publications Division. Over 270,000 pages of research material are published annually both in print and on the Web, representing over 34,000 research papers. With the introduction of the ACS Journal Archives in 2002, we provide searchable access to over 450,000 original chemistry articles dating back to 1879. ACS Publications offers both sponsored and author-enabled open access to research through our ACS Author Choice and ACS Articles on Request programs. In addition, bibliographic information, including abstracts of research articles, are freely available on our website. Since the beginning of the transition to electronic publishing in the mid- to late-1990s, we have developed, and are continuing to develop, innovative and accessible business models, policies, and practices to support the scholarly communication process and broaden information access.

As a socially responsible organization deeply rooted in the scholarly community, we share the interest of the Office of Science and Technology Policy (OSTP) in maximizing the dissemination and discoverability of knowledge. ACS believes that success in this area will hinge on these efforts being sustainable for publishers over the long-term. We welcome for the opportunity to respond to the invitation to contribute to the Request for Information (RFI) on Public Access Policies published by OSTP in the *Federal Register* on December 9, 2009. Our response is in two parts: first a summary of our overall comments and recommendations, and second, answers to the specific questions posed in the RFI.

**I. Summary**

ACS supports the principles of transparency, participation and collaboration that President

Obama outlined in his January 2009 Transparency and Open Government Memorandum and December 2009 Open Government Directive, respectively.[1]1 Since 1879 ACS has promoted the maximum sustainable dissemination of the official scientific record through our peer-reviewed scientific journals that are globally accessible to the public in print and electronic media and showcase the world's finest research in chemistry and related sciences. Articles that appear in our journals are widely regarded having received recognition of excellence, and the visibility that content in ACS journals receives not only helps scholars achieve new scientific breakthroughs but also leads to practical applications that directly benefit human health and welfare and the world's economy.[2]

Collectively our peer-reviewed journals help create an informal but widely recognized hierarchy used by funding bodies and the academic community itself to assess research quality, impact, and priority—key factors used to allocate funding resources, evaluate levels of personal achievement, and determine professional advancement.  We believe that it is in the public interest to foster this beneficial publishing activity and toward that end we invest heavily in staff and technology resources required to be successful in this endeavor.

We invite the federal government to support our efforts in this area by funding or licensing free-access to the version of record in collaboration with us, in a manner similar to the Howard Hughes Medical Institute and the Wellcome Trust which are allowing researchers they fund to use a portion of their grant funds to facilitate immediate open access to their published research through the ACS AuthorChoice program (see http://pubs.acs.org/page/policy/authorchoice/index.html). Both organizations recognize the value added to manuscripts by publishers and the peer-review process. Similar federal arrangements with their researchers would respect our rights in these articles as well as allow us to recover the significant investments we have made in their development and dissemination – thereby promoting a sustainable scientific enterprise. Such arrangements could consist of direct financial sponsorship to make articles arising from federally funded research immediately publicly available or a licensing agreement through which users of public federal websites could access the published article from its source at the ACS. We encourage the federal government to pursue this strategy on a voluntary basis with other responsible publisher partners taking into account the various models under which they provide access to different research communities.

If the federal government wishes to enhance public access to the activities it funds, it should require the immediate public posting of the investigator's project reports and data that are funded and required by federal grants as well as the creation and posting of interpretive material designed to make those reports accessible to broad non-specialist audiences. These acts would provide the fastest and most broadly accessible material possible to the public.

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[1] Memorandum for the Heads of Executive Departments and Agencies on Transparency and Open Government (January 21, 2009), available at http://www.whitehouse.gov/the_press_office/TransparencyandOpenGovernment
[2] Memorandum for the Heads of Executive Departments and Agencies on Open Government Directive available at http://www.whitehouse.gov/open/documents/open-government-directive

Such materials could be linked (under license) to the published article at appropriate publisher websites. This would foster public access to the authoritative record of science; eliminate the need for building, maintaining, and modifying (when technology changes) redundant and costly repositories/infrastructures by the federal government; prevent any further diversion of government funds away from basic research; lessen the impact of government competition with the private sector; and protect the availability of this information from changes in Federal funding priorities. Policies that seek to go beyond these bounds should have the voluntary agreement of legitimate rightsholders.

## II. Responses to RFI Questions

1. *How do authors, primary and secondary publishers, libraries, universities, and the federal government contribute to the development and dissemination of peer reviewed papers arising from federal funds now, and how might this change under a public access policy?*
Today's scholarly communication system has resulted in more information being available to more people in more ways than at any other time in human history. Each of the key stakeholders has an important role. Private sector organizations and federal government institutions supply funds to support scholarly research activity. Scholars perform the research. Private and public sector institutions, such as universities and corporations, pay the salaries of researchers and provide the physical infrastructure (e.g. offices and equipment) in which research, and the creation of manuscripts describing that research and relating it to the work of others, can occur. Publishers, such as the ACS, fund the infrastructure that enables the discovery, registration, certification, finalization, dissemination, and (most recently) preservation of research articles through peer reviewed journals and the web platforms that host them.

Journals and web platforms that publishers underwrite and support are an integral part of the scholarly communication system because they foster the cross-fertilization of knowledge in global forums that both reflect, and help shape, the development of scientific fields to the benefit of human health and welfare and create an informal but widely recognized hierarchy used by funding bodies and the academic community itself to assess research quality, impact, and priority—key factors used to allocate funding resources, evaluate levels of personal achievement, and determine professional advancement. Libraries subscribe to journals to provide access to the content and value-added services that publishers like the ACS provide. We believe that it is in the public interest to foster the beneficial activities in which publishers like ACS engage and toward that end invest heavily in the staff and technological resources required to be successful in this endeavor. Federal public access policies should not change but rather foster the ability of publishers like ACS to continue partnering with the research community from which we were formed to provide high-quality information products and services that advance the practice of scholarship to the benefit of human health and welfare.

2. *What characteristics of a public access policy would best accommodate the needs and interests of authors, primary and secondary publishers, libraries, universities, the federal government, users of scientific literature, and the public?*
ACS believes that the policy which best accommodates the needs and interests of all stakeholders in sustainable public access to publications arising from federally funded research is one that would require the immediate public posting of the investigator's project reports and data that are funded and required by federal grants as well as the creation and

posting of interpretive material designed to make those reports accessible to broad nonspecialist audiences. Because ACS has promoted the maximum sustainable dissemination of the official scientific record since 1879 we invite the federal government to support our efforts in this area by funding or licensing the version of record in collaboration with us in a manner similar to the Howard Hughes Medical Institute and the Wellcome Trust. Both of these funding bodies allow researchers they support to use a portion of their grant funds to facilitate immediate open access to their published articles through the ACS AuthorChoice program (see http://pubs.acs.org/page/policy/authorchoice/index.html). Such a partnership would respect our rights in these articles as well as allow us to recover the significant investments we make in manuscript development and dissemination. Such arrangements could consist of direct financial sponsorship to make articles arising from federally funded research immediately publicly available or a licensing agreement through which users of public federal websites could access the published article from its source at the ACS. We encourage the federal government to pursue this strategy on a voluntary basis with other responsible publisher partners taking into account the various models under which they provide access to different research communities.

3. *Who are the users of peer-reviewed publications arising from federal research? How do they access and use these papers now, and how might they if these papers were more accessible? Would others use these papers if they were more accessible, and for what purpose?*
The overwhelming majority of users of ACS publications, whether the research described was federally funded or not, are specialists in the authors' discipline(s) who access our material from ACS' award-winning and globally accessible website to advance the practice of chemistry and related sciences and benefit human health and welfare. These specialists typically are, or have been employed in academia, industry, private labs, and the government. They include emeritus researchers, scholars, teachers and PhD students. The balance of users come from the general public. Members of the public have training and interests which vary with the individual and nature of the subject area. No matter what the discipline, it has been our experience that the highly-specialized and advanced research we publish has limited immediate accessibility to members of the general public unless it is accompanied by interpretive material which explains it significance and utility. There are a wealth of sustainable ways in which researchers and members of the general public can currently access ACS publications – e.g. via reasonably-priced personal or institutional subscriptions, via our free-access AuthorChoice (http://pubs.acs.org/page/policy/authorchoice/index.html) and Articles on Request programs (http://pubs.acs.org/page/policy/articlesonrequest/index.html), via interlibrary loan, via Articles on Command single article purchases, etc. All of the preceding methods work together to enable public access in sustainable ways that respect the legitimate rights we have acquired, recognize the significant value we have added, and enable us to continue to provide valuable services to the authors of tomorrow.

Finally, we note that over 95% of STM journals are online. 75% of researchers describe access to research as good or very good. One study showed that 94% of university and college based respondents found access to information very easy or fairly easy, and access to journals is 14th on their list of concerns (lack of funding is number one; too much

paperwork is number five).[3] We have found no systematic quantitative evidence to indicate that access is an issue for researchers or the public.

4. *How best could federal agencies enhance public access to the peer-reviewed papers that arise from their research funds? What measures could agencies use to gauge whether there is increased return on federal investment gained by expanded access?*
Peer reviewed manuscripts arise from the partnership of the research community with publishers like ACS. The federal government is not a partner in this process and provides neither funding, infrastructure, staff, nor services. Scholars contribute their manuscripts describing the research they have performed and relating it to the work of others as well as their services in the peer review process. Publishers like ACS fund the provision, maintenance, and upgrade of the advanced technology and highly skilled staff that are required to support and help manage the process; locate and maintain relationships with key reviewers; track manuscript status for editors, authors, and reviewers; monitor reviewer workloads and follow up; assess responses and communicate feedback and decisions to authors. If the federal government wishes to enhance public access to the activities it funds, it should require the immediate public posting of the investigator's project reports and data that are funded and required by federal grants as well as the creation and posting of interpretive material designed to make those reports accessible to broad non-specialist audiences. In order for the federal government to assess whether any benefit has been gained from this activity it must first establish a baseline of the level of public access to such materials today for researchers and the public, and what is spent to achieve those levels. Once baseline metrics have been established possible access enhancements can be evaluated. ACS also recommends that other measures important to our community be evaluated such as impact on researcher productivity, quality control, and cost-effectiveness.

5. *What features does a public access policy need to have to ensure compliance?*
ACS believes that in order for a public access policy to ensure compliance it must have two components: respect for the rights of stakeholders involved and realistic administrative requirements. This why we recommend that the government require the immediate public posting of the investigator's project reports and data that are funded and required by federal grants as well as the creation and posting of interpretive material designed to make those reports accessible to broad non-specialist audiences. These acts would provide the fastest and most broadly accessible material possible to the public. Policies that seek to go beyond these bounds would need the voluntary agreement of legitimate rightsholders.

6. *What version of the paper should be made public under a public access policy (e.g., the author's peer reviewed manuscript or the final published version)? What are the relative advantages and disadvantages to different versions of a scientific paper?*
ACS believes that the policy which best accommodates the needs and interests of all stakeholders in sustainable public access to publications arising from federally funded

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[3] Publishers Research Consortium (PRC) study, • Access by UK small and medium-sized enterprises to professional and academic information, (2009).

research is one that would require the immediate public posting of the investigator's project reports and data that are funded and required by federal grants as well as the creation and posting of interpretive material designed to make those reports accessible to broad nonspecialist audiences.  If the federal government wishes to provide public access to peer reviewed papers beyond that already provided by publishers like the ACS, they should negotiate with publishers to either provide the funds necessary to financially sponsor that access or license this right for specific public users in the U.S. and/or globally. Because ACS supports the maximum sustainable dissemination of the final published article as that version of a scholarly communication which benefits science and the public most, we encourage the federal government to accept our invitation to financially sponsor immediate free-access to those manuscripts.

7. *At what point in time should peer-reviewed papers be made public via a public access policy relative to the date a publisher releases the final version? Are there empirical data to support an optimal length of time? Should the delay period be the same or vary for levels of access (e.g., final peer reviewed manuscript or final published article, access under fair use versus alternative license), for federal agencies and scientific disciplines?*
As noted in other responses, ACS invites the federal government to financially sponsor the immediate free-access availability of final published articles that describe federally funded research. We believe that this solution would maximize the public good, respect the legitimate rights of ACS and other publishers, compensate ACS for the value we have added to the literature, and provide the necessary funding for us to continue to reinvest in the infrastructure that creates these highly-valued and highly-valuable works.  We caution the federal government against the use of overbroad and simplistic embargo periods. If embargo periods are to be used, they must take into account both the practices of the discipline and the frequency of the relevant journal publications − one-size will not fit all.  To date there is no data on the mid or long-term effects of large-scale archiving of peer reviewed manuscripts, under differing embargo periods, on the health, viability and sustainability of the scholarly communication system. Different disciplines use information at different rates and one-size-fits-all policies (i.e. a single uniform embargo period) will not work. In order to learn what the effect of such policies might be *before* they are implemented, the European Union is currently funding a study3 on the effects of the large-scale, systematic depositing of final peer reviewed manuscripts on reader access, author visibility, and journal viability, as well as on the broader research environment. ACS supports this evidence-based approach to policy-making and recommends a similar approach for the federal government.

8. *How should peer-reviewed papers arising from federal investment be made publicly available? In what format should the data be submitted in order to make it easy to search, find, and retrieve and to make it easy for others to link to it? Are there existing digital standards for archiving and interoperability to maximize public benefit? How are these anticipated to change?*
Peer reviewed papers that describe federally funded research should be made available by the federal government based on voluntary arrangements made between it and the publisher, recognizing the significant value-add that publisher contributions make to scholarly communication. Such arrangements could include federal financial sponsorship of immediate free-access to published articles or licensing arrangements that enable access from federal

websites to published articles hosted at publisher websites. In one example of the latter case, project reports and interpretive material for the broad public at federal websites could be linked (under license) to the published article at ACS. This would eliminate the need for building, maintaining, and modifying (when technology changes) redundant and costly repositories/infrastructures by the federal government; prevent any further diversion of government funds away from basic research; lessen the impact of government competition with the private sector; and protect the availability of this information from changes in Federal funding priorities.

Digital standards for archiving and interoperability are emerging from the private sector, through organizations like CrossRef, and we recommend that the federal government look to this area for guidance. Any display formats adopted should be flexible enough to account for the richness of the formats employed in different subject disciplines as well as accommodate foreseeable technological changes that will require a revision of the standards. If implemented, this should be an area of ongoing attention.[4]

9. *Access demands not only availability, but also meaningful usability. How can the federal government make its collections of peer- reviewed papers more useful to the American public? By what metrics (e.g., number of articles or visitors) should the Federal government measure success of its public access collections? What are the best examples of usability in the private sector (both domestic and international)? And, what makes them exceptional? Should those who access papers be given the opportunity to comment or provide feedback?* Free-access from government websites to any version of peer reviewed papers describing federally funded research should only be undertaken based on voluntary arrangements between the government and the publisher of that research – recognizing the publisher's legitimate rights and the significant value-add that publisher contributions make to scholarly communication. Because ACS has promoted the maximum sustainable dissemination of the official scientific record since 1879 we invite the federal government to support our efforts in this area by funding or licensing immediate free access to the published version of record in collaboration with us. As we have noted elsewhere, both the Howard Hughes Medical Institute and the Wellcome Trust allow researchers they support to use a portion of their grant funds to facilitate immediate open access to their published articles through the ACS AuthorChoice program (see http://pubs.acs.org/page/policy/authorchoice/index.html).
If the federal government elects to consider the public posting of peer reviewed manuscripts accepted for publication, they should negotiate with publishers to either provide the funds necessary to financially sponsor that access or license this right for specific public users in the U.S. and/or globally. In such case, we believe that the best way to maximize the usefulness of accepted, peer reviewed papers is by posting them on the publisher's web platform where existing tools and services would immediately enhance the usability of those materials to the public. These partially-finished manuscripts could then easily be linked to the authoritative

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[4] The PEER (Publishing and the Ecology of European Research) project currently funded under the European Commission's eContent*plus* program. The project is a collaboration between publishers, repositories and researchers and will last from 2008 to 2011. See http://www.peerproject.eu/reports for more information.

published article once it becomes available. Federal agencies could link their progress reports and interpretive material to the partially-complete manuscript and redirect those links to the final article when it becomes available.

Postscript: We note and commend the efforts of OSTP in collaboration with the United States House of Representatives Committee on Science and Technology to sponsor a roundtable – the Scholarly Publishing Roundtable -- where representatives from key stakeholder groups met to develop a consensus that would meet the twin goals of public access to outputs arising from research funded by agencies of the U.S. government and a viable and sustainable publishing community. At first review, the findings and recommendations of the Roundtable appear to be inconsistent with the approaches we have recommended above. Regardless, ACS strongly supports a process where representative groups engage in wide ranging discussions about the future of scholarly publishing and the role of government and other organizations in improving public accessibility to the results of research.

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Optical Society of America (OSA) response to the Office of Science and Technology Policy Request for Information on Public Access Policies for Science and Technology Funding Agencies Across the Federal Government.   OSA has been successfully active in providing authors various options to publish their peer reviewed work, which includes open access options. One example of how these options have been recognized within the scientific community is the recent honor by SPARC (Scholarly Publishing and Academic Resources Coalition) to OSA with its "Innovator" Award for Optics Express, which is considered to be one of the original of the Open Access journals when it was first published in 1997.  The history and effort related to Optics Express reflects that open access was accomplished within the framework of a science and engineering society's current mission and values. The high level of involvement of key stakeholders was a critical part of that success, which should be a major element in any public access plan. We ask that this same consideration be given by OSTP as it contemplates policies on the same.

OSA has continued to invest in new business models that add value to the global science community, and funds authors who do not have the resources to pay the open access model fees, so that even poorly funded scientists can participate in publishing their works while the general public benefit from those efforts. Redirecting resources for this effort may not always be possible, depending on which field of research the scientist is in.  OSA has invested considerable resources in the cost of peer review, staffing, archiving, and many other added values to the researcher and reader. These additional costs and services should be considered as well, as OSTP reviews its policies on public access.

Sincerely,
Elizabeth A. Rogan, CEO The Optical Society of America (OSA)

**Introduction**
The International Association for Dental Research (IADR) and its American Division, the American Association for Dental Research (AADR), are owners of the *Journal of Dental*

*Research (JDR)*, a specialized scientific journal that uniquely serves the craniofacial and dental research community. The IADR, with over 10,500 members worldwide, including 4,500 members in the AADR, is dedicated to advancing research to improve oral health and to facilitating the communication and application of research findings. One method of research communication is through our flagship journal, the *JDR,* which has the highest five-year Scientific Impact Factor (SIF) of any peer-reviewed dental journal. The main source of revenue to cover the expenses of the peer review infrastructure, print publication and online version comes from individual and institutional subscriptions. In a typical year, the *JDR* will have about 30% of its accepted research manuscripts with some NIH funding, although it has been as high as 57%.

The *Journal of Dental Research* supports the DC Principles Coalition for Free Access, and content is free of access controls, no matter the funding source, 12 months after publication. We have digitized our entire *Journal* content back to volume 1, issue 1, published in March of 1919. Scientists, dental practitioners, students, and the public can access all of our content free of charge from March 1919 to January 2009. The *Journal of Dental Research* fully complies with the mandatory NIH public access policy and submits to PubMed Central (PMC) accepted manuscripts on behalf of NIH-funded authors with an embargo period of 12 months from the original date of publication.

For a small professional association, we have invested significant resources to:
        establish an effective peer-review system
        develop in-house copyediting and production systems
        launch our *Journal* online in 2002, and
        digitize all of our volumes back to 1919

The only way for the Associations to recoup this investment – not make a profit – is to retain the copyrighted material and to offer individual and institutional subscriptions. However, a drop in subscriptions in recent years, subsequent to the 12 month embargo period, was a major contributing factor to our Association having to cease its in-house copyediting and production of the *JDR*. To be fair, it is impossible to know at this point whether the true decline in journal subscriptions was due to open access (OA) policies, the current economic crisis, or other mitigating factors. However, the decline in subscription revenue, without a corresponding drop in costs, required the Associations to move these operations to an outside publisher, where they can leverage their economies of scale to offset declining subscriptions. As a non-profit owner of a scholarly journal, we will use this opportunity to comment to discuss our experience of shifting our in-house publishing model to an outside model, and provide our insights on to how the OA policies have affected our business model in particular.

We appreciate the OSTP's opportunity for comment, as well as efforts by the Obama Administration to promote transparency throughout the process. The Obama Administration has also been a welcome and staunch champion of building an innovation economy through investments in biomedical research, and for this we are extremely grateful.
As mentioned above, we fully agree and comply with the DC Principles Coalition for Free Access. After all, the basic and clinical research that our members conduct is all for naught if it does not eventually result in new technologies, cures, or treatments. We recognize that diffusion

of knowledge is key to turning these discoveries into reality, and is why we have invested substantial sums over past few years to digitize all of our past volumes, and make them freely available to anyone after 12 months. However, the post-grant peer review process that publishers fund helps validate and filter the best science into one central repository – in our case the *JDR* – and help disseminate the highest quality of science as quickly as possible for utilization by researchers and doctorates.

Moreover, there are genuine legal and economic concerns with an OA model. In these comments, we hope to provide first-hand evidence as to why an OA policy may actually threaten and stifle innovation and U.S. competitiveness, and why the unintended consequences of an OA policy would have far reaching and dramatic effects on the viability and existence of many journal publications.

**IADR's Contribution to Scientific Review**
The IADR and AADR strongly support the concept of free access to scientific literature online and, in recent years, have taken significant steps toward that goal. We invested substantial resources in information and Web technologies so that the *JDR* was able to go full-text online in January, 2002. Since January 2005, all online *JDR* articles have been free to the scientific community and public at large 12 months after initial publication. Furthermore, we have digitized our entire *Journal* content back to volume 1, issue 1, published in March of 1919. The *Journal of Dental Research* also complies with the current NIH public access policy and submits to PubMed Central (PMC) accepted manuscripts on behalf of NIH-funded authors, with an embargo period of 12 months from publication. All of these digital innovations in our journal incurred significant costs, and were financed by those members and institutions that choose to subscribe to our journal. This business model has worked well for us for decades, allowing us to keep subscription costs commensurate with production costs and allowing us to determine the success of our journal by the rise and drop in subscriptions. Aside from making our journal more accessible in the digital age, we help further science and innovation by ensuring the integrity and veracity of the science in our field by managing the post-grant peer review process. NIH has acknowledged the value that is created through the post-grant peer review process by encouraging researchers to seek publication in a scholarly journal. NIH could have chosen to manage this process on their own at any point in time by providing the additional costs and infrastructure for post-grant peer review. However, the publishing process has been a well functioning and long-standing partnership between research agencies and publishers: agencies fund the application peer review that decides which grants are funded, as well as the research itself. Then, the scientific community relies on publishers to manage the post-grant peer review process to evaluate the merit and authenticity of the conclusions of the research. However, unlike the federal funding provided during the pre-grant peer review process, post-grant peer review is not funded by the agencies at all. There is no federal funding that goes into the publication process.

On a number of occasions, OA advocates have made the claim that with advances in information technology, the costs of the publisher's operations have been reduced, some claiming almost to nothing. We can assure you, the costs to produce a scholarly journal are real. Although the days of mailing unedited manuscripts around the world for review are gone, there still exists information technology (IT) infrastructure that is necessary to send manuscripts to reviewers in

numerous countries, while being able to capture and evaluate all of their comments. This is an exceptionally intensive and collaborative task, one that incurs real costs both in terms of IT, but also in human capital and labor.

We have also invested a substantial amount of funding to creating a user-friendly and innovative online platform for our journal. Our online platform provides extensive linkages to related research, references, the ISI Web of Science, Google Scholar, and PubMed. By giving the user the ability to cross reference and search other databases and programs, it dramatically cuts down the time that researchers spend analyzing information.

As the digital age has lowered our postage costs and increased efficiency of the manuscript peer review process, we have been able to reflect these lowered costs by giving free access to subscribers and non-subscribers 12 months after publication. Thus, as costs have decreased, we have invested the cost savings three ways: into digitizing our archives back to 1919, maintaining an efficient web platform, and by delivering historical content free of charge.  We are still evaluating how this change in business model affects the financial solvency of our journal, and fully anticipate a number of subscribers drop subscriptions. However, our articles are not meant, nor have a large demand from, communities outside those in oral health. We are wholly a niche industry, catering our journal articles to oral health.  In the NIH Grants Policy Statement, the NIH "encourages grantees to arrange for publication of NIH-supported original research in primary scientific journals." However, in the Grants Policy Statement, the NIH also informs the grantee that the NIH has irrevocable authority to take the article from the publisher and reproduce the results as it sees fit. This policy is not only delineated without regard to copyright law, but it also encourages grantees to seek peer review of their work so that publishers can assume all of the costs of peer review and publication, while the NIH can wait for the finished product and then claim ownership of it.  Most of our articles are written by authors in a manner only to be comprehended and evaluated by the best oral health researchers. This is done specifically with the goal of advancing scientific knowledge and diffusing the best information in one place, so scientists can spend less time searching for the highest-impact science by filtering it all in one journal.[5]

We respectfully submit that the layperson would derive very little value from our journal articles, and would gain a better understanding of the science being conducted at NIH by more user-friendly end-of-grant reports submitted to NIH by grantees. These reports are already required, but are for some reason not being looked at as a satisfactory means of disseminating scientific knowledge across public populations. We fully support working with the public sector to make these reports user friendly, freely accessible and interoperable with our articles.

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[5] "Quantifying the Value of Peer Review" available at: http://tscott.typepad.com/tsp/2009/06/quantifying-the-value-of-peer-review.html

**The Economics of an OA Policy**

T. Scott Plutchak, Director of the Lister Hill Library of the Health Sciences at the University of Alabama at Birmingham describes the background of the NIH-publishers' relationship over the years, and the inherent problems with an OA model2:

*Explicit in the NIH policy is that peer review has substantial value -- so much so, that NIH does not want any manuscripts deposited that have not gone through a rigorous peer review process and gotten the stamp of approval from a recognized peer review authority -- i.e., a publisher. In developing the policy, NIH could have come up with their own vetting mechanism, but instead they quite sensibly chose to rely on the experts in managing peer review.*

*In "the old days" (when everybody understood what the rules were), publishers gained control of copyright in exchange for managing the peer review process. They were then entitled to use that control to develop revenue streams that would compensate them for the value that they were adding to the system. Copyright gave them control of the distribution of the work to which they had added value. Under the terms of the NIH policy publishers are expected to give up that control...*

*It is argued that this is not an unfair "taking" since the publisher has the right to refuse to grant the license that allows the author to deposit with Pubmed Central. This is, no doubt, technically and legalistically true. But since when is a choice between complying with a policy and going out of business a real choice? "Dear publisher -- we respectfully ask that, for the benefit of the common good, you give up control of the most significant element of value that you add to the scholarly communication process. We don't actually have any way of compensating you for that, so you are perfectly free to refuse to do so -- in which case, you will, of course, be put out of business since you will no longer receive the manuscripts that are your bread and butter... Good luck."*

As we mentioned earlier, last year the IADR decided that it was in the best interest of the *Journal for Dental Research* to move the publications process from an in-house model to an outside partner. For nearly 90 years, the *JDR* had been edited, proofed, peer reviewed, typeset, designed and distributed all by employees at the IADR headquarters. However, due to a confluence of factors, not least of which being a government mandated public access policy, our Board of Directors decided that working with a private sector publisher could help ensure the ability to the *JDR* to grow more quickly and more cost effectively in the new digital age. Finding a partner that could help grow our journal was not exceptionally difficult for a number of reasons, not least of which is the quality of the science being conducted in our field, of which we are proud to be a supporter. The *JDR* is the number one journal in the field of oral health research. Our Journal, being heavily international and privately-funded and less subject to open access policies, maintains sufficient value-based pricing to offset the costs of production. For a large-scale publisher, using their economies of scale can actually result in a small profit that can be used to reinvest in new and innovative publishing technologies, ensuring that the *JDR* remains a leader in usability and accessibility.

However, the full effect of the public access policy has yet to hit other small non-profit publishers. If publishers are forced to surrender copyrighted material before they can recover the costs of producing the peer reviewed articles, society publications will be forced to adjust their business models. One of the first steps a struggling journal will take is to determine if they can

outsource their operations to a private sector publisher, which can use their economies of scale to offset the costs and absorb the increased losses of producing the journal. However, the ultimate result is the consolidation of scholarly journal publications in the hands of just a few publishers. Conversely, if a journal wishes to maintain their in-house journal operations, the inevitable result of a public access policy will be for editors to simply accept fewer federally funded articles. Journals that publish a majority of federally funded articles will likely see a steeper acceleration in the number of members and institutions dropping subscriptions, as compared to those that are predominately made up of articles not subject to strict public access polices – such as those from the international community or those that are privately funded (as noted above, the *JDR* normally has only about 30% wholly or partially-funded NIH articles). These federally funded articles will represent a liability to any journal, and a publisher or editor will have to manage the number of these articles to ensure sustainability of the subscriber base.

In essence, privately funded articles, which are not subject to an OA or public access policy, will have to subsidize the decreased readership from federally funded articles. A ratio of privately funded research versus less federally funded research will have to be maintained so that a journal can maintain readership. In short, a public access policy any more stringent that the current design greatly incentivizes publishers and editors to accept far more non-NIH funded articles over those subjected to a public access policy of 12 months of less in order to maintain subscriptions.

With an open access policy, there will be a number of small non-profit scholarly journals that have too high a ratio of articles about federally funded research, resulting in decreased subscriptions that will create an operating loss for the journal. As more and more of these journals outsource their negative-return operations, there will be less of an appetite from large publishers to take on these journals and publications, as the non-OA heavy journals are left to subsidize the heavily OA journals. Eventually, there will be no more outsourcing partners for these journals looking to outsource operations, and they will eventually have to cease operation. This is a terrible but inevitable side effect that will result from a public access model that is less than 12 months. Editors, with an intimate knowledge of a journal's financial viability and status, will tacitly favor non-public access articles in order to maintain an economically viable journal. Researchers will no doubt discover the new economic dynamic surrounding peer review of manuscripts, and those that have been denied publication of strong scientific articles will indignantly wonder if their submission was denied because the journal had already met its "quota" of public access articles. This is an unwanted economic dynamic to introduce to an otherwise fully scientific and meritorious peer review process.

Already U.S. scientists are falling behind other countries in terms of science funding, both from private and public sources. A strict public access or OA policy, in many instances, would force many publishers to further fuel this competitive disadvantage by lowering the citation rate and publication of U.S. scientists, key factors used to raise the profile of scientist and country at the global level.

Finally, public access and OA advocates have often mentioned that costs to produce the Journal could be offset by other means, including taking revenue from other society operations, moving to an author pays model, or raising member dues. In our view, the current system is the most

efficient and equitable – those that wish to utilize this particular service that the society provides, namely the journal, pay a small fee for access to it. Otherwise, members that only wish to be members of the society, and not subscribe to the Journal, are forced to subsidize those that would subscribe.  Moreover, author pays models create expensive (in our estimates $3500-$4500 per article) barriers to entry for journal publication, particularly for young researchers. And raising member dues in an already difficult economic period would certainly result in a decrease in members, which affects nearly all of our society operations. In short, all models represent a more inefficient allocation of scarce resources, and eliminate the necessary ability for us to judge the efficacy and quality of our journal by monitoring journal subscriptions.

**Next Steps: Gather Consensus, Identify Need, Address Copyright Principles**
In his Transparency and Open Government memorandum, President Obama notes that "Collaboration harnesses innovative tools, methods, and systems to promote cooperation across all levels of Government and with the private sector." We encourage this collaboration with industry and ask that the Government leverage the private sector's rapidly evolving expertise, technologies, products and services in order to improve the quality and scope of services available to the public.

When collaboration fails to occur, the results are duplicative systems, incompatible databases, and barriers to information dissemination. Recently, the NIH created a central repository for manuscript submissions, but did not work effectively with the publishing community to build their infrastructure or standardize their submission policies. In the end, the NIH system was incompatible with outside archiving systems, attempted to compete with an already functional and successful privately-funded system, and used scarce resources that could better have been used to conduct basic or clinical research.   As noted in the Scholarly Publishing Roundtable Report, OSTP should collaborate closely with publishers, universities and other research entities to "achieve the full potential of publicly accessible, interoperable databases." As such, OSTP should establish a public access advisory committee, made up of a comprehensive group of stakeholders, to provide a mechanism for periodic assessment of the rapidly changing scholarly publishing landscape.

*Identifying Need*
As owners of the *Journal for Dental Research*, we have never, to our recent knowledge, had a request for an article or volume from an interested party who simply could not afford it. However, if that were to happen, we would provide the requested article free to that patient. As a result, we fully consider that access is indeed "open" to our Journal. We simply ask interested parties to pay for the costs to produce the articles. This system is a true "user fee," whereby only those interested in the product offset the costs of production.  However, we do not consider "free" access to be a sustainable model for our journal, simply because there are significant costs to produce the journal. Unfortunately, advocates for free journal access equate "open" and "free" access to journals without acknowledging the costs associated with journal production.

Additionally, the end-users of our journal – mainly academics and oral health researchers – have never approached our society with the notion that subscriptions costs were a barrier to their access to knowledge, or hindered their research efforts. In fact, data show that researchers rank

access to information as one of their least[6] concerns, ranking it 13th out of 16 factors.[7]3 Funding for research was among their greatest concerns, however.  As a matter of policy development, and particularly in this case where the Federal Government proposes to take property that has established copyright protections, we believe that the questions proposed by OSTP in question 3 (*Who are the users of peer reviewed publications, and how might they use them if they are more accessible?*) should already have clearly defined answers, with accompanying goals associated with them. Had the NIH or any other federal agency identified a significant segment of the population that felt there were significant barriers to access of journal publications, then the government could work collaboratively with the private sector to address the needs of that population.

However, there has never been a segment of the population that has been identified as experiencing barriers to access for journals, or a study linking subscription fees with decreased productivity or innovation. Subscription costs have never been identified by our subscribers as a barrier to access, and in fact, as noted above, a poll of scientists reveals that most scientists are pleased with their ability to obtain scientific information.  Alternatively, the main OA advocates, particularly libraries, have made it known that a 12 month or less public access policy will help to reduce their own costs. Although proponents of a public access and OA never acknowledge the costs of producing a journal, and only refer to the "public benefit" without actually identifying to whom they are referring, they have gone on the record about some of the financial implications of an OA policy. When polled, only 43% of librarians said they would subscribe to a journal if more than 40% of a journal's articles were freely available at 12 months.  This number falls to just 27% when all of a journal's articles are OA at 12 months. Such a response leaves little guessing as to how many federally funded articles an editor would have to maintain to keep his journal appetizing enough for libraries to maintain subscription. Furthermore, with the anticipated decrease in journal purchases, perhaps the polling above can tell us what the real motivating factor is for OA advocates.

In short, as owners of a journal, we have never experienced a disenfranchised group of interested parties wishing to access our journal. In fact, we consider our journal to be freely accessible to anyone who wished to read it. We simply ask that if a person desires the latest content, that they pay a small fee to offset the costs of producing the peer reviewed articles. If a person wishes to access content older than 12 months, it is entirely free. However, there is a lack of identifiable "public need" by both the Administration and OA advocates, which we feel needs to be clearly established before dramatic changes to the copyright protection for journal articles is considered. To obtain concrete data on which to build a new OA policy, we strongly urge the OSTP to give consideration to the European PEER Project, which is a collaboration between government, researchers and publishers that will study the effects of "large-scale, systematic depositing of

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[6] 3 Access by UK Small and Medium-sized Enterprises to Professional and Academic Information, Mark Ware Consulting Ltd for Publishers Research Consortium, April 2009

[7] 4 Publishing Research Consortium Report "Self-Archiving and Journal Subscriptions: Co-existence or Competition" (July 2006). Accessible at http://www.publishingresearch.org.uk/documents/Self-archiving_report.pdf.

authors' final peer-reviewed manuscripts on reader access, author visibility, and journal viability, as well as on the broader ecology of European research." This study will yield empirical data to drive a goals-oriented policy. At this point, we respectfully submit that the OSTP and NIH's policy has been driven largely based on theory, and with disregard for the potential economic and scientific effects that will result from a stringent public access or OA policies. We ask OSTP to engage stakeholders in a similar evidence-based study to before agencies meld a policy that is not based on specific goals or disregards the larger impacts on the current post-grant review system.

*A Preferred Model*
We believe that the Government and the private sector could work together to better disseminate the results NIH-funded research to the public. This would not only provide taxpayers with a digestible final report of the research findings, but would also hopefully drive public traffic to the NIH's research results in order to increase public interest and support for the science being conducted. As stated earlier, we believe that the final progress reports that are required by NIH could be made more robust, being written for a public audience and housed on an interoperable and user-friendly IT infrastructure. This model would be similar to the one established under the America COMPETES Act, which required researchers funded through the National Science Foundation (NSF) to provide a final report that described their research findings, which is then deposited in a central and public repository.

This model can be adopted in a consistent manner with the President's Open Government initiatives, and will respect the long standing copyright protections that have financed the post-grant peer review process. Perhaps most of all, it is a model that makes a clear distinction that the articles contained in peer reviewed scholarly journals are not drafted for a public audience. They are written by world class researchers and doctorates seeking validation amongst their colleagues. This model validates and filters the best science into one repository for scientists, helping scientists to more efficiently review breakthroughs and innovations in their own field. While scholarly articles are not intended to be written for the layperson, we have an opportunity to create a better reporting system for the layperson by replicating the America COMPETES Act model at the NIH. Simply "taking" publishers peer reviewed articles as a surrogate for the lack of robust NIH public research reports will likely lead to a reduction in the number of scholarly journals, and leave editors with the undesirable economic incentive to maintain a sustainable low level of federally funded OA articles in their journals. Such a policy creates an environment that ultimately harms the U.S. researcher's ability to compete on the global stage, as our researchers are published and cited less than counterparts in other countries.

**Conclusion**
The IADR agrees with the broader scientific community that the results of federally funded research – particularly through the NIH – could be better disseminated. For years, there has been a relationship between NIH and the publishing community whereby the publishers were transferred control of copyright and distribution rights in exchange for funding the post-grant peer review and publication process. This relationship has been efficient and has fostered innovation since the dawn of the digital age. That relationship, which results in the best science being disseminated to the scientific community as efficiently as possible, is now at risk as a strict public access and OA advocates conflate end-of-grant reports with post-grant peer reviewed

journal articles. The two entities – final grant reports and journal articles – are meant for two different audiences, serve two different purposes, and have significantly different costs associated with them. In fact, final grant reports are funded exclusively by the taxpayer, whereas journal articles, and the infrastructure used to create, disseminate and house them, are funded wholly by subscribers in the scientific community.

In short, the lack of a post-grant reporting infrastructure at NIH should not lead to the taking of publisher's long held copyright as a surrogate for end-of-grant reports. If publishers' copyrights in journal articles continue to be undermined, simple economics will render this policy obsolete, as a number of journals will no longer be able to fund the cost of post-grant peer review. This "quick fix" would have a devastating impact on scientific integrity, and would leave U.S. scientists at a competitive disadvantage to their peers in other countries. Alternatively, the current debate presents a good opportunity to make NIH's post-grant reporting infrastructure similar to the NSF America COMPETES Act model, helping to drive a greater amount of public interest in the world class science being conducted by the NIH.

We look forward to helping consult with NIH and the Administration as the entire scientific community builds a better research reporting system for the public. We believe the private sector has learned a number of lessons about building an IT infrastructure and making central repositories fully compatible and user-friendly. With these insights from the private sector, NIH could quickly mimic NSF's approach under the America COMPETES Act. This would meet President Obama's goals of creating a more open and transparent government, borne through collaborations with the private sector, and with regard for existing and established copyright protections.

Sincerely,
Christopher H. Fox, DMD, DMSc
Executive Director

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**AAUP RESPONSE TO THE OSTP'S REQUEST FOR PUBLIC COMMENT**
I. Background to the AAUP Comments
The Association of American University Presses (AAUP) has 133 largely U.S.-based members, with representation in 42 states, the District of Columbia, and Puerto Rico. All are non-profit scholarly publishers who collectively publish more than 10,000 scholarly books and 800 journals each year. Most member presses are affiliated with research universities, but some are entities of scholarly societies and research institutes.  AAUP members publish on subjects and in fields covering the entire spectrum of scholarly research, not just science and technology; some of those journals contain articles based upon federally funded research. These publishers utilize a variety of business models including subscription sales and subsidized open access.  The AAUP supports the Administration's goal of increasing public access to the results of research funded by federal science and technology agencies, and we appreciate having been given this opportunity to comment. We would like to make two general comments before responding to the specific questions posed in the Federal Register Notice.

First, we endorse the shared principles and many of the recommendations in the January 2010 report of the Scholarly Publishing Roundtable appointed by the House Committee on Science and Technology. That report's principal recommendation, that "Each federal research funding agency should expeditiously but carefully develop and implement an explicit public access policy that brings about free public access to the results of the research that it funds as soon as possible after those results have been published in a peer-reviewed journal," is followed by eight further recommendations and five principles to be observed. These further recommendations are designed to ensure that the goal of free public access is met in a way that respects the interests of all stakeholders in the system of scholarly communication, and that maximizes the public good to be derived from meeting that goal.

The Roundtable report does an admirable job of explaining the importance of each of the further recommendations and so we list them here.
1. Agencies should work in full and open cooperation with all stakeholders, as well as with OSTP, to develop their public access policies.
2. Agencies should establish specific embargo periods between publication and public access.
3. Policies should be guided by the need to foster interoperability.
4. Every effort should be made to have the version of record (VoR) as the version to which free access is provided.
5. Government agencies should extend the reach of their public access policies through voluntary collaborations with nongovernmental stakeholders.
6. Policies should foster innovation in the research and educational use of scholarly publications.
7. Government public access policies should address the need to resolve the challenges of long-term digital preservation.
8. OSTP should establish a public access advisory committee.

We believe these further recommendations are part and parcel of the principal recommendation and must be considered along with it.

Second, we note that the Roundtable's principal recommendation is broader than the one posted in the OSTP Federal Register Notice. The Roundtable's recommendation applies to all federal funding agencies; the Federal Register Notice speaks only of research funded by federal science and technology agencies. As a practical matter, however, some science and technology agencies, like the Department of Agriculture, the Department of Energy, and the Department of Health and Human Services, also fund research in the social sciences and humanities that would be covered by either an allagency or a STM-specific public access policy. We are also aware that other federal agencies of the Executive Branch have started to develop public access policies of their own, often with no stakeholder consultation or involvement. Finally, although the explicit focus in discussions of public access to publications arising from federally funded research has focused on journal literature, we note that books and other texts may also sometimes result from federally funded research.

Given these circumstances, it would seem prudent and wise for all federal funding agencies to develop policies in accordance with a coherent set of guidelines. We believe the principles and recommendations of the Roundtable report provide such guidelines. The Roundtable report notes the variations in both funding patterns and scholarly practice within different fields in the

sciences. Those variations are even more extreme in the social sciences and humanities, which tend in general to be much more poorly funded than the sciences, may require substantially greater non-federal investment to publish, and may require much longer embargo periods, or alternative routes to free public access, if they are to recover their publishing costs from sales and subscriptions.

Therefore we think it vital that the Roundtable's further recommendations, with their emphasis on consultation, cooperation, interoperability, authority, preservation, and long-term sustainability be followed. AAUP members—university presses, scholarly associations, and research institutes—publish a significant number of the scholarly journals in the humanities and social sciences. Because of their stewardship responsibilities these publishers are particularly attuned to the costs to be managed in the exploration of options for expanding free public access. We believe that the AAUP community, many of whom have been experimenting with open access models, can be a valuable resource in future discussions of public access to journal articles based upon federally funded scholarly research.

II. Comments in Response to OSTP Questions:
**1. How do authors, primary and secondary publishers, libraries, universities, and the federal government contribute to the development and dissemination of peer reviewed papers arising from federal funds now, and how might this change under a public access policy?**
Participants now contribute to the development and dissemination of peer reviewed papers arising from scientific research as follows:
a. The US government funds some research costs (researcher time, lab costs).
b. Universities subsidize these and privately funded research efforts in kind through maintenance of infrastructure to support and oversee the researchers.
c. Researchers write, review, and edit papers prior to publication either on their own time, on grant-funded time, or on university time.
d. Publishers (commercial and not-for-profit) support journal editors and editorial boards to manage the editorial and peer-review processes through which the best of the papers are accepted for publication. Each journal has a specific subject area of focus, editorial approach, and reputation to uphold. The brand name of a journal, along with the names of the editors and the publisher, serve as markers or filters for consumers and researchers. These confirm that the research and scholarship are well-executed and worthy.
e. Publishers also design, edit, and produce online and print editions of the papers in journal form. They most often recoup costs through sales of journal subscriptions worldwide. Some publishers recoup their costs through a combination of advertising sales, institutional subsidies, and author fee structures.
e. Universities, some corporate and public libraries, and some individuals purchase subscriptions to the published journals and provide access to their affiliated researchers, faculty, students, and other patrons.

Under a free public access policy, the ability of publishers to recoup the costs of peer review, editing, design and composition of content, and publicizing the content to the audience for the work, could essentially disappear. It would be vital to find other means of covering the costs incurred in validating the quality of the author's work and making it

accessible. Some journal publishers have been experimenting with new models of funding (author fees, university fees, foundation funding, etc) but there has not yet emerged a model that is proven to be truly self-sustaining.

## 2. What characteristics of a public access policy would best accommodate the needs and interests of authors, primary and secondary publishers, libraries, universities, the federal government, users of scientific literature, and the public?

All participants would be well served by a framework of law, regulation, and collaboration that will encourage the greatest number of the high quality articles to be distributed to the widest audience at the lowest cost. The path for progressing to wider access to the science scholarship based on federally funded research will likely, and should, be evolutionary. We support the recommendations of the Scholarly Publishing Roundtable report of January 2010 for proposing to embrace the views of all stakeholders as we move toward improving access while upholding the quality, certification, and distribution aspects of the current scholarly publishing enterprise. Current copyright laws encourage creativity, innovation, and entrepreneurship that stimulate investments in dissemination and we believe these should be kept in place.

## 3. Who are the users of peer-reviewed publications arising from federal research? How do they access and use these papers now, and how might they if these papers were more accessible? Would others use these papers if they were more accessible, and for what purpose?

The users of peer-reviewed papers are primarily scholars and scientists affiliated with colleges and universities. Most of them now have online access to these journals through their libraries' subscriptions. Unaffiliated scholars and other readers can access peer-reviewed papers through libraries or through the journal publishers by subscribing or purchasing individual papers. Most journal subscriptions are available for sale at lower prices for individuals, or for per-article fees. The majority of researchers have the access that they require to further their own investigations and mentor their students. However, some independent users may not currently have access to research they may find useful, either because of cost-barriers that would be removed by free public-access policies, or because the scholarly articles are not written to be accessible to lay audiences.

It is impossible to predict the specific benefits that would accrue from expanded free public access to this literature. Many people believe there could be some benefits such as: better access to medical information, more innovation, improved public education, a better-informed electorate, etc. Each agency should research this question separately as the benefits and costs of free public access are likely to differ depending on the discipline, leading to different solutions to varying unmet needs.

## 4. How best could federal agencies enhance public access to the peer-reviewed papers that arise from their research funds? What measures could agencies use to gauge whether there is increased return on federal investment gained by expanded access?

The first question of how best the agencies might enhance public access to the peer-reviewed papers arising from their funding is likely to be answered differently in different fields. We recommend that federal agencies work with publishers, libraries, and scholars to research this question.

The second question here, of how agencies might gauge the value of their public access policies, is an important one. As a first step, we think it would be useful to learn from the PubMed Central experience. The NIH public access policy has been in place for nearly two years. Might the PubMed Central usage statistics be published? What has been the NIH federal investment in free public access, and what has been the return on this investment? The measurement tools in use at NIH may be helpful in framing the discussion within the other agencies.

**5. What features does a public access policy need to have to ensure compliance?**
All participants in the scholarly communications process are most likely to comply once there are clear rules. To help ensure compliance, any policy enacted should allow submission of the files in a format in which publishers already are creating and storing their content. Compliance will be easiest and most complete if file submission is an extension of a pre-existing process.

**6. What version of the paper should be made public under a public access policy (e.g., the author's peer-reviewed manuscript or the final published version)? What are the relative advantages and disadvantages to different versions of a scientific paper?**
The version of record—that is, the author's final published article—is considered by the overwhelming majority of users the most high-value version. However, there is certainly value in making data sets and technical and grant reports resulting from agency funded research freely available. A public access policy in which federal funding agencies and publishers collaborated, with the agency providing free access to reports and data sets and publishers providing links to paid or, after an appropriate length of time, free access to the finished article makes a great deal of sense and would have wide support. Such a policy is already in effect, with the active and enthusiastic participation of many publishers, at the National Science Foundation.

**7. At what point in time should peer-reviewed papers be made public via a public access policy relative to the date a publisher releases the final version? Are there empirical data to support an optimal length of time? Should the delay period be the same or vary for levels of access (e.g., final peer-reviewed manuscript or final published article, access under fair use versus alternative license), for federal agencies and scientific disciplines?**
There is no simple, one-size-fits-all solution to the embargo question; it varies, and varies widely, by discipline and specialty. In a few fast-moving fields in the sciences, research is outdated within six months; in some scientific fields, as in the humanities and social sciences, the citation half-life—that is, the length of time after publication in which half of an article's citations appear in other publications—can extend for years.

**8. How should peer-reviewed papers arising from federal investment be made publicly available? In what format should the data be submitted in order to make it easy to search, find, and retrieve and to make it easy for others to link to it? Are there existing digital standards for archiving and interoperability to maximize public benefit? How are these anticipated to change?**
Peer-reviewed articles arising from federal investment have been made publicly available by publishers, traditionally in paper and increasingly in electronic form. Publishers have invested and continue to invest in discovery, retrieval, and linking tools, and in electronic archiving, both on their own and with other enterprises. It would be fruitful to investigate questions about file formats and discoverability with researchers, publishers of various sizes, and librarians. As is

made clear in the Roundtable report, U.S. agencies should also pay mind to the great deal of work already being done within the broader international scholarly communications community to develop consistent standards. Finally, in developing standards for data and file submission, agencies should consider, along with archiving and interoperability requirements, that requirements should be simple and affordable to enable and encourage compliance. Individual researchers, or small non-profit publishers, are responsible for many of the journals in niche fields.

**9. Access demands not only availability, but also meaningful usability. How can the federal government make its collections of peer-reviewed papers more useful to the American public? By what metrics (e.g., number of articles or visitors) should the Federal government measure success of its public access collections? What are the best examples of usability in the private sector (both domestic and international)? And, what makes them exceptional? Should those who access papers be given the opportunity to comment or provide feedback?**
Measuring the degree to which public access is making a difference is an important question. An evaluation plan should be completed prior to starting the kind of massive project a public access database would entail. Detailing the mission, goals, and objectives of the database would serve as the foundation for any kind of metrics to determine whether or not free public access was meeting expectations. Output measures (e.g., number of visitors or number of downloads) will reveal only part of the picture. Outcomes, while considerably more difficult to measure, would reveal how the content is being used and whether or not it has made a difference in people's lives, whether it be that the discipline has advanced more rapidly than it would have without public access or that an individual, armed with new knowledge, was better able to contribute to the public good.

Providing a forum for feedback and comments may be expected by users of this prospective massive database (or interoperable databases). Monitoring and moderating such feedback and comments could, however, add to the costs of managing the database(s). We believe that the need for and purpose of this type of feature should be assessed by each agency, and the relevant community of researchers, publishers, and librarians, in order to ensure that any such tool is designed to meet the demonstrated need.

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Thank you for the opportunity to submit comments on Public Access to
Federally Funded Research, and many thanks to OSTP for its interest in
this topic and the time it is taking to explore all sides of the issue.
As a research librarian I personally support enhanced access to
federally funded research because such policies are integrally tied to
and support the mission of higher education and scholarly communication
in general, and more specifically the mission of the University of
Colorado at Boulder.  For the University, extending public access
policies to federally funded research to other science and technology
agencies enables scientist here and beyond, including citizen
scientists, to build upon existing information and research and to

approach research issues with new perspectives; particularly during these times of fiscal restraint, it allows our faculty and students to have access to essential resources previously unavailable, without regard to geography or fiscal wherewithal; and for the general public (whom we serve here at the University), such policies would guarantee equal access to information resources for personal and professional use (resources that have already been funded by the public).

 The policies under discussion here should be based on:

*       Retention of peer review as related to high impact scholarship and editorial integrity;

*       Adaptable and flexible business models for scholarly communication and public access;

*       Broad public access to scholarly publications;

*       A bias for archiving and preservation to ensure sustained publishing methods;

*       Interoperability among all access/delivery systems to ensure use and reuse of scholarly publications;
In order to move to a robust policy environment regarding enhanced access to federally funded research, I suggest that the Obama Administration should issue an Executive Order (while working with congressional leaders on a legislative approach), mandating that all grantees who receive federal funds from an agency be required to deposit the final published version of each peer-reviewed journal article (or electronic manuscript of the article) in a publicly accessible digital repository.  As a result of the Executive Order, all federal agencies would be expected to:

*       Work with OSTP to develop their public access policies;

*       Establish embargo periods  between 0 and 6 months from the date when articles are published, to the date when they are made publicly accessible (consistent with existing policies in Canada, the European Union and the United Kingdom);

*       Develop robust standards for the structure of full text (standard mark-up language, e.g. XML), metadata, navigation tools, etc. to achieve robust interoperability and reuse across the deposited scholarly record;

*       Address version control regarding deposited articles as

related to version-of-record;

\*      Establish protocols for interagency collaboration re public
access, and collaboration with publishers, universities (and their
libraries) and other entities that steward and provide access to the
results of funded research;

\*      Encourage innovative research on the use of scholarly
publications;

\*      Address long-term digital preservation of scholarly
publications as related to the agency's public access repository;

\*      Work with other agencies to share the cost of policy and
repository development;

\*      Work with OSTP to establish mechanisms to monitor and evaluate
agency policies, procedures and practices re public access to federally
funded research;

\*      Work with OSTP to develop a meaningful feed-back mechanism
with the scholarly community once policies are developed in order to
stay abreast of the changing nature of scholarly communication;

In closing, I would like to thank OSTP again for facilitating the
discussion on this timely and critical issue; moreover, here's hoping
that OSTP will follow-through on expanding the successful NIH public
access policy to cover all other federal science agencies.

Thank you for your consideration.
James F. Williams, II.
Dean of Libraries
Norlin Library - Room N210C
University of Colorado at Boulder

First of all I would like to wholeheartedly thank OSTP for taking such interest in this issue and
welcoming such broad input from all interested parties. In the past, I have written to NIH to
express our strong support for enhanced public access to NIH-funded research articles as a
balanced and necessary improvement to the scientific communication system.  We at the
University of Wisconsin-Milwaukee Library, the second largest research library in the state,
encourage OSTP to extend NIH's successful public access policy framework to all other science
and technology agencies.

Our researchers need the UWM Libraries to maintain a strong journal collection to conduct their

research but we can no longer afford many commercial journals such as those published by Wiley, Elsevier and Kluwer. From 1990 to 2008 the percentage of increase in journal prices rose 238% while consumer price index only went up 65%. This clearly signals the current system is not working  We have been forced to cancel 1000 subscriptions this past fall alone because of the ongoing increase in costs of these publications and little if no additional new funding.  Despite our best efforts, access to published research has diminished, not only for university students and faculty, but also for Wisconsin citizens, businesses and government agencies who use our facilities.  And these are the individuals who pay the taxes which in turn support the grants which generate research and resulting publications.  They pay for this research and deserve the right of access to the results.

As a campus, we have endorsed Open Access and championed it as a way of changing the current economic model which is bankrupting all libraries and hindering access to research and turn having negative impact on economic growth. We organized an Open Access Day and our faculty supported support for peer reviewed openly available research results and articles.  The rate of publications (papers per year) in the latter part of the 20$^{th}$ century was over 60 times greater than the previous century.  Needless to say, there is no library in the country (or the world I venture to say) that has seen anywhere near such growth in its budget. Yet it is vital for education and research to provide access to this wealth of information

With the expansion of the Internet and the advent of online journals, readers have the technology to gain access to the available journals---if, and here is the barrier—if they individually or if their libraries purchase these journals.  Most of the research being done is public property through dollars invested by the federal government and by states in various public research institutions but the data ends up copyrighted by commercial enterprises.  The government is in a position to reverse this consolidation and lack of access by public dissemination of scholarly research produced through federal subsidies in they follow through on expanding the NIH public access policy to cover all other federal science agencies.

We have seen improvement in access through the NIH initiatives and support that public access to the published results of federally funded research should be a requirement across all agencies. Articles that result from federal funding should be made freely accessible within three months of publication since timeliness is of essence in the scientific world. Our campus, in collaboration with other state universities in Wisconsin, supports an open access digital repository encouraging faculty to retain publication rights and to submit their articles.  However, this is at the back end of their publishing process and it would be more effective, efficient and a greater return on federal investment if the granting agencies mandated submissions to permanently shared digital archives.

Public access to federally funded research articles following publication offers the best prospect we have for improving research communication while preserving the strength and value of traditional publishing.  To reiterate my position, I urge you to expand the NIH public access policy to cover all other federal science agencies in order to improve research and the resulting benefits to society at large.

Sincerely,
Ewa Barczyk
Director of Libraries
University of Wisconsin-Milwaukee

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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 extending the opportunity to all stakeholders to comment on the development of public access policies intended to enhance access to scholarly publications resulting from federally funded research. The UIC University Library supports the NIH approach to ensuring public access and we strongly encourage you to expand a similar framework to all other science and technology agencies as soon as possible. Providing public access to tax payer funded research will help advance the public good by providing access to taxpayers, researchers, and research institutions, which in turn will drive discovery and advancement.

At UIC, librarians are making tough decisions about which journal subscriptions to keep and which to drop due to the continued inflation of journal prices. While we have had the opportunity over the last several years to increase our electronic journal offerings by canceling print, the current economic environment will force us to begin to cancel the electronic as well. And there will be no going back. With only one way to access the results of research funded by taxpayer dollars – to subscribe to journals—our faculty will increasingly lose ready access to research results. As a major health sciences campus in the country, our researchers now have access to federally-funded research through PubMed Central, NIH's public access repository (though I personally believe the embargo period is too long). Faculty in other disciplines are not that fortunate. As we cancel journals, along with other libraries around the country, research will suffer contributing to a decline in new discoveries. The federal government and the taxpayer will not be reaping the full rewards of its investment.

But costs are not the only nor perhaps most important driver in creating public access repositories. The ability to conduct machine searching and manipulation of a vast array of literature and datasets to detect possible relationships and areas of exploration is essential to reaping the benefits of the digital world. Silos that provide open access to articles in proprietary formats are not adequate to the task. Articles need to be accessible in a standard format (preferably XML) that allows robust use and granular-level linking in permanent, interoperable archives.

Public access to the published results of federally funded research should be a requirement across all agencies. Articles should be made freely accessible within six months of publication, if not immediately. Access may be either to the author's final manuscript or to the final published version, though our preference would be to include the final published version as it best represents the final published work. Implementation should be closely coordinated across all agencies to ensure seamless compliance. Multiple policies would introduce unnecessary overhead and costs.

Once again, we offer our thanks to OSTP for facilitating such a robust discussion of this important new opportunity. We encourage you to follow through on expanding the NIH public access policy (with a reduced embargo period) to cover all other federal science agencies.

Sincerely,
Mary M. Case
University Librarian
University of Illinois at Chicago

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 SPIE is a not-for-profit society serving the international optics and photonics community. Our primary mission is to foster knowledge transfer, education, and networking among researchers, educators, and students engaged in the disciplines we serve. To achieve this SPIE organizes and produces numerous conferences, courses, industry events, and publications that compile and widely disseminate research without prejudice. The Society places a high value on giving back to our community in the form of grants, scholarships, affordable access to scientific conferences and publications, and donations. Income generated through publishing is a critical part of the economic model that enables SPIE to serve our community.

SPIE has closely followed the issues pertaining to public access to federally funded research and appreciates the opportunity provided by OSTP for open dialogue about this important matter. In particular we would like to state our strong endorsement of the Shared Principles and the recommendations presented in the recent Scholarly Publishing Roundtable Report. We believe that a deliberate process that involves and takes into account the interests of the funding agencies, publishers, researchers, libraries, and the public is the desired approach and that these Recommendations offer a path to a temperate and collaborative solution that will best serve the long-term interests of all stakeholders.

I wish to express SPIE's interest in being an active participant in this dialogue and to contributing to a positive and sustainable solution.
Sincerely,
Ralph James
Brookhaven National Laboratory
2010 SPIE President

I am the publications director for the Society of Exploration Geophysicists and find the concerns of many not-for-profit publishers such as SEG underrepresented in the Public Access Policy Forum. My comments here are my own and do not represent any official position of SEG or any other geoscience organization. SEG exists to advance applied geophysics, and one of the ways it does so is by disseminating its publications as widely as it can but in a manner that attempts to secure its ability to continue publishing. It is hard to argue that U.S. taxpayers should have anything less than free access to reports of federally funded research they support; some of the benefits of open access to the advancement of science and quality of life are obvious. Yet policy implementation aimed at this outcome must be balanced with safeguards to systems of peer review and publications production that publishers typically fund. Few posts in the Public Access Policy Forum blog recognize the need to sustain publishers and ensure delivery of the key services they provide.

The Scholarly Publishing Roundtable Report issued last week is a welcome contribution to the dialog on this subject.
(<http://www.aau.edu/policy/scholarly_publishing_roundtable.aspx?id=6894>http://www.aau.edu/policy/scholarly_publishing_roundtable.aspx?id=6894)

Participants representing a wide range of perspectives on scholarly publishing and open access have chronicled a surprisingly expansive set of their shared principles that collectively form a common-sense approach to issues of public access. They share a conviction that scholarly publications should be more broadly accessible to a wider public and research community while giving focus to the need for sustainable business models.

One of the Roundtable's recommendations I would like to highlight is that federal research-funding agencies need not establish identical embargo periods between first publication of an article and the time when it is made freely available to the public. The Roundtable recommends variations in embargo periods by discipline. It is required that results of research funded by the National Institutes of Health requires be deposited in an open-access archive within one year of their publication in a peer-reviewed journal. But in some disciplines other than life sciences, longer embargo periods likely are needed to ensure the sustainability of publishing enterprises. There is a relatively long gestation period for articles submitted to SEG's journal Geophysics, in which few submissions are published without at least one revision. Geophysics also has a long cited half-life. For many geosciences disciplines, an embargo period of two or three years is necessary to ensure a journal's ability to recover the cost of publishing it and preserve and expand industry-government partnerships.

Publishers must adapt to the changing dynamics of scholarly publishing, but policymakers should recognize that changes incongruous with the publications culture of some disciplines could do serious harm to channels of scientific communication.

Ted Bakamjian
Director, Publications

Thank you for the opportunity to voice support for public access to publicly-funded research. It is imperative that anyone or any unit that receives tax payer money to fund basic or applied research, that scholarship emanating from these projects must be available in an open access environment to improve the public good. Tax payers have a right to expect benefits from research that they ultimately fund. Rapid dissemination and open access is essential, as research overall is time-sensitive for its research application(s) either directly and/or through synthesization of disparate data that can be connected for new discoveries. It is all for the greater good to make information/materials available.

Research data and findings should be made available within a month or less of publishing or dissemination.

Marianne Buehler

First, I would like to thank OSTP for looking into this issue.  As an academic librarian I have seen the erosion of access to federally funded research results as journal costs have skyrocketed and funding  has been reduced.  Access to this  research results is crucial for progress in the sciences, health sciences and technical disciplines.  Any impediment to free access will result in additional costs for researchers and delayed and/or inferior outcomes. Public access to journal articles based on federally-funded research should be a requirement for all agencies and made available within 3 months of publication.  This will maximize the use of taxpayer money and reduce the cost of new research.

Thanks again for initiating this discussion and eliciting comments from interested parties.

Thomas Deardorff

 The American Society for Cell Biology (ASCB) would like to thank the Office of Science and Technology Policy (OSTP) for bringing attention to the important issue of public access to the results of federally funded research. The ASCB is a nonprofit scientific society of over 9,000 members at leading research institutions, state colleges, undergraduate teaching institutions, and biotechnology companies. The Society's publications include the high-impact monthly research journal *Molecular Biology of the Cell* (*MBoC*).

The ASCB believes strongly that barriers to scientific communication slow scientific progress. The more widely scientific results are disseminated, the more readily they can be understood, applied, and built upon. The sooner findings are shared, the faster they will lead to new scientific insights and breakthroughs. This conviction has motivated the ASCB to provide free access to all of the research articles in *MBoC* two months after publication, which it has done since 2001. The

articles are available both on the journal's website and in the National Library of Medicine's online archive, PubMed Central.

The vast majority of the biomedical research conducted at American universities and colleges is funded by taxpayers. The ASCB believes that taxpayers are best served when all scientists, educators, physicians, and members of the public – including patients and their families – have access to publicly funded research results. So long as significant access barriers remain, taxpayers are not fully benefiting from the work that they fund. With the proliferation of networked technology, we have an unprecedented and cost-effective means to overcome such barriers. For the first time, it is possible and practical to offer free access to every potential user. It is incumbent upon us, as scientists and citizens, to take full advantage of this opportunity. Some publishers argue that providing free access to their journal's content will catastrophically erode their subscription revenue base. The experience of many successful research journals demonstrates otherwise; these journals make their online content freely available after a short embargo period that protects subscription revenue. For example, as noted above, the content of *MBoC* is free to all after only two months, yet the journal remains not only financially sound, but profitable. This is because academic and institutional libraries serve research scientists, who have a specific need to access research articles promptly after their publication; these researchers cannot wait months for free access. The time sensitivity of this information is clear from a recent analysis of content usage in *MBoC*.

Many scientific journals also offer "front matter," such as news features, announcements, and reviews in the same publication as research papers. Since this value-added content is typically not paid for by federal research dollars, publishers would not be required to deposit it for public access. This material is valuable to the reader, adding further to the incentive for institutions and individuals to maintain their subscriptions to scientific journals.

A comprehensive and searchable manuscript database will profoundly enhance scientists' research productivity. Currently, scientists must search multiple databases to access data and information. Central interoperable repositories that share common formats and standards will make the data and information more accessible and more readily integrated with related databases. They will also increase the efficiency and sophistication with which the stored articles can be searched for relevant information. These advantages will significantly increase the value of the information to the scientific community.

PubMed Central provides an efficient and cost-effective model for how such repositories might be structured and managed. The ASCB was one of the first publishers to participate in PubMed Central and we remain a Full Participant. We provide PubMed Central with full text articles from *MBoC* in XML and PDF formats, together with image files. The vendor that hosts *MBoC* online uses files in the same formats, so the files can simply be forwarded to PubMed Central after an issue is published. No additional effort is required on the part of authors or ASCB staff, and there is no additional expense apart from the small fee that the online host charges us to forward the files.

Approximately 400,000 unique users access the PubMed Central website every day, retrieving 600,000 - 700,000 articles; PubMed Central is clearly increasing public access to the biomedical literature and we are proud to be a partner in this effort.  Federally funded research articles

should be made freely available as soon as possible so that science and the public benefit from their expanded use and application. At the same time, it is important that nonprofit societies and other publishers generate sufficient revenues to sustain the costs of reviewing and publishing articles. We believe that a six-month embargo period represents a reasonable compromise between the financial requirements of supporting a journal and the need for access to current research.

For these reasons, the ASCB supports efforts to require that the results of federally funded research be made freely available to the public, no more than six months after they are published.

Sincerely,

Timothy J. Mitchison, PhD President

The American Society for Cell Biology

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On December 10, 2009 the White House Office of Science & Technology Policy (OSTP) launched a public consultation on the topic of access to federally funded research results, in particular findings that appear in scholarly journals.1 In response to this request for information, the Union of Concerned Scientists (UCS) is submitting the following recommendations. UCS is strongly supportive of the goal of universal, free, and user-friendly public access to research funded by taxpayer dollars. We believe that there is tremendous potential in expanding access to foster greater public understanding of science, greater researcher accountability, more widespread scientific collaboration, and the cross-pollination of diverse scientific fields. However, we are also mindful of the critical role played by peer-reviewers, journal editors and scientific societies in maintaining robust scientific research standards. Consequently, we believe that requirements for public access must be flexible and allow each agency and scientific community to develop a system that maintains the strengths of the current system.

To achieve this vision we recommend the following:

**Recommendation**: The president should require each funding agency to put forward a plan that will take significant steps toward universal, free, and user-friendly public access to taxpayer-funded research findings and scholarly publications. There are many reasons to believe that "one size does not fit all" when it comes to public access to scholarly publications. For example, taxpayer-funded scientific research appears in a variety of scientific journals that vary widely in the number papers published per year, in the number of paid subscriptions, and in the types of business models used to support the peer-review process. In addition, different fields of study require varying degrees of data privacy that may affect how quickly raw data and supplemental information can be made available. The consequence of this diversity is that some widely-read journals may have no difficulty coexisting with a policy that makes all content freely available online after 12 months, while other journals may require longer periods of time to prevent loss of library subscriptions critical to their sustainability.

In addition to flexibility in the embargo period, the various agencies, journals and scientific communities may also need differing amounts of time to transition to new models of publishing and to secure new funding streams, if necessary. However, flexibility should not obscure the underlying goal of universal public access. To this end we support the recommendation of the Scholarly Publishing Roundtable, a task force convened by the House Committee on Science and Technology, which states:

"Each federal research funding agency should expeditiously but carefully develop and implement an explicit public access policy that brings about free public access to the results of the research that it funds as soon as possible after those results have been published in a peer reviewed journal."

**Recommendation**: OSTP should convene an external advisory committee to provide stakeholder advice into this process.  To ensure the adoption of a functional system, each participating agency should gather and carefully weigh advice from the key scientific journals who publish the work of their grant recipients. In addition, OSTP should convene a committee of experts, scientists, editors, public interest groups, and other stakeholders to provide input and to oversee the progress of the system as a whole.

**Recommendation**: OSTP should commission a yearly report (perhaps conducted by the advisory committee or the Government Accountability Office) on the progress toward universal public access.  Such a report could identify areas where achieving public access has been especially difficult or where new policies or additional funding might make a difference.

**Recommendation**: Any additional funding from Congress to aid public access policies should not come at the expense of basic scientific research budgets.

Sincerely,
Francesca T. Grifo, Ph.D.
Director and Senior Scientist
Scientific Integrity Program
Union of Concerned Scientists

Timothy Q. Donaghy, Ph.D.
Analyst
Scientific Integrity Program
Union of Concerned Scientists

Endnotes:
Office of Science & Technology Policy (OSTP). 2009. Public Access Forum. Online at http://www.ostp.gov/cs/public_access/public_access_forum.
Scholarly Publishing Roundtable. 2010. Report and Recommendations from the Scholarly Publishing Roundtable. Online at http://www.aau.edu/policy/scholarly_publishing_roundtable.aspx?id=6894.
For further information contact tdonaghy@ucsusa.org.

On behalf of the more than 90 organizations that comprise the Alliance for Taxpayer Access, we would like to thank the Office of Science and Technology Policy for initiating this open public comment period to consider the very important issue of facilitating taxpayer access to the results of taxpayer-funded research.

**About the Alliance**
The Alliance for Taxpayer Access (ATA) is a coalition of advocacy, academic, research, and publishing organizations that supports open public access to the results of federally funded

research. The Alliance was formed in 2004 to urge that peer-reviewed articles stemming from taxpayer-funded research become fully accessible and available online at no additional cost to the American public.  The diverse members of the coalition are committed to the general principle that American taxpayers are entitled to open access on the Internet to the articles that result from research funded by the U.S. government, and that facilitating broad access to these articles is an essential, inseparable component of our nation's investment in science. ATA members firmly believe that this (and other scientific information) should be shared in cost-effective ways that take advantage of the Internet, stimulate further discovery and innovation, and advance the translation of this knowledge into public benefits. Enhanced  access and expanded sharing of information will lead to increased use of this information, and will deliver an accelerated return on the taxpayers' investment.

As 41 Nobel Prize-winning scientists recently wrote in an open letter to the U.S. Congress: "For America to obtain an optimal return on our investment in science, publicly funded research must be shared as broadly as possible… As the pursuit of science is increasingly conducted in a digital world, we need policies that ensure that the opportunities the Internet presents for new research tools and techniques to be employed can be fully exploited. The removal of access barriers and the enabling of expanded use of research findings has the potential to dramatically transform how we approach issues of vital importance to the public, such as biomedicine, climate change, and energy research."
(http://www.taxpayeraccess.org/supporters/scientists/nobelists_2009.shtml)
The Alliance supports the implementation of government-wide public access policies to facilitate the sharing of scientific results, and make this level of access a reality.

**The Alliance supports expanding the NIH policy to all other federal science agencies**
As a practical way forward, the Alliance for Taxpayer Access supports building upon the proven success of the public access policy implemented by the National Institutes of Health (NIH), which requires recipients of NIH funding to deposit articles resulting from their funded research into the agency's online repository, so that they may be made openly accessible to the public no later than 12 months after publication in a peer-reviewed journal.

Since its implementation in 2008, the NIH policy has resulted in over 4,500 new articles being made publicly available each month. Demand for this information is extremely high, with more than 450,000 unique users accessing material from this repository each day. As of today, the NIH database contains more than 81,000 articles on hypertension research, 103,000 on diabetes research, and more than 85,000 on heart disease research. As citizens whose tax dollars underwrite this research, we have a right to expect that details of the most recent advancements in these areas are made available not only to us, but also to doctors and caregivers whose responsibilities are the health of all Americans. Access to up-to-date, health-related information plays a crucial role in ensuring that patients are as educated as possible about their individual situations. Under an expanded policy, research results related to issues of equally critical importance – from climate change to renewable energy – will be just as readily accessible to the public.

Citizens routinely turn to the Internet – and resources such as the NIH's PubMed Central database – as a source of information. They expect that they will have access to the very latest

results generated by public agencies, and many are shocked to find out that this is simply not the case. Absent a policy that ensures public access across agencies, the only way to see the results of this crucial research is to pay to access it through journals whose subscription fees range from a few hundred to over $20,000 per year. Given the high price of these journals, U.S. taxpayers do not have comprehensive access to the results of our collective $60 billion annual investment in scientific research.

Expansion of the NIH Public Access Policy would ensure that these research results are made readily accessible to anyone who wants them. Expanded sharing of this material will stimulate further discovery and innovation in all scientific disciplines, and accelerate the translation of this knowledge into public benefits – which is the core reason the public supports funding research.

**Recommended components of an expanded public access policy**
The Alliance supports building on the successful framework of the NIH Public Access Policy, and recommends that an expanded policy include the following components:
• *Public access to the published results of federally funded research should be a mandatory requirement across all agencies.* As the experience of the NIH has shown, a voluntary policy is not enough. The NIH saw than 5% of eligible authors deposit their manuscripts under a voluntary policy. However, after the policy was made mandatory in April 2008, the percentage manuscripts deposited quickly rose to over 60%.
• *Articles that result from federal funding should be made freely accessible no later than six months after publication*. While the Alliance feels strongly that the results of taxpayer-funded research should be made available to the public immediately upon publication, we recognize that this is not always practical, and support an embargo period of up to six months as an acceptable compromise.
• *Articles should be housed in permanent, interoperable digital archives.* The results of federally funded research should be archived permanently, in interoperable repositories (maintained or approved by the agency) that allow this critical layer of information to be freely linked to the wealth of other publicly accessible databases.
• *Access may be either to the author's final manuscript or to the final published version*. The requirement for deposit of the author's raw final manuscript, rather than the final published article, allows publishers the opportunity to continue to market a product that contains value-added enhancements beyond what is available in the public repositories. Where the publisher allows, access to the final published version is also desirable.
• *Articles should be presented to the public in a standard digital format that allows them to be fully read and used*. The Alliance supports XML as the preferred standard. While we support the additional inclusion of PDF files, PDF alone is not an acceptable format, as is does not support robust enough linking and searching.
• *The archives must ensure permanent public search, retrieval, and full use rights.* Policies must ensure that the maximum use of this research is fully realized – enabling previously unobtainable connections and discoveries to be made.
• *Implementation should be closely coordinated across all agencies to ensure seamless compliance*. The Alliance strongly believes that public access policies must be as closely coordinated across agencies as possible, and that multiple policies with multiple implementation requirements would result in unnecessary overhead and costs.
**Conclusion**

The Alliance for Taxpayer Access, with its diverse membership of consumer groups, patient groups, universities, students, and library organizations – strongly supports the establishment of policies that ensure fast, free, public access to the results of research funded by our tax dollars. We believe that the NIH played an important leadership role in establishing a clear, successful blueprint for public accessibility to the results of its funded research. We note that many other research funders around the world – both public and private – have established policies that share many of the characteristics of the NIH Public Access Policy, and encourage the U.S. federal government to expand the NIH policy to all other federal science agencies in an expeditious manner.  On behalf of the Alliance, we look forward to working with you to help ensure that the public's investment in research is maximized to the fullest extent. If you have any questions or comments, please don't hesitate to contact us.

Sincerely,
Heather Joseph
Spokesperson
Alliance for Taxpayer Access

Jennifer McLennan
Spokesperson

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Scholarly Communication Working Group
Oregon State University Libraries

Members: Michael Boock, Faye A. Chadwell, Sue Kunda, Lee Sherman, Janet Webster, Andrea Wirth

We wish to express our gratitude to the Office of Science and Technology Policy for the opportunity to add our comments to the open discussion on broadening access to federally funded research in the United States.  As a member of the Scholarly Publishing and Academic Resources Coalition (SPARC), we endorse the comments that SPARC has already submitted to OSTP.  (See http://www.arl.org/sparc/bm~doc/rfi-sparc-response-final-10-0119.pdf).

As librarians, we have the distinction of supporting Oregon's only institution with the top Carnegie classification—very high research activity.  Oregon State University (OSU) is also one of only two institutions in the United States with a land, sea, space, and sun grant designation. We recognize that our campus generates a substantial amount of research that is publicly funded. Because OSU is involved in so many federally designated areas of research, we acknowledge that OSU, and in particular OSU Libraries, play a critical role in providing as much information as possible to the public who support that research through their tax dollars.

Historically our role as a library, or a central information provider, has meant that we have built carefully selected collections, established means to disseminate and archive those collections, and assisted library users in finding the information they required for their classroom use or their

research.  More recently, we have embraced the promise of the Internet to deliver information rapidly to users no matter where they might be physically located.  Many other research libraries have duplicated these efforts to provide information to their individual campuses and the broader public.  However, many have been frustrated or thwarted, as have we, when we were not able to achieve our mission of enhancing access to information and could not even afford to subscribe to all the journal titles that our own users require for their scholarship.

Since 2005, we began to maximize the potential of the Internet by hosting an institutional repository, which aims to serve as a public archive of the research generated by OSU faculty and students.  This repository, Scholars Archive, exploits the power of search engines like Google to help the public search and retrieve information they need.  We believe that as a component of a larger network of repositories, ScholarsArchive has enormous potential to help solve the issues of access to research results.  However, to truly advance science, maximize the potential of the Internet, and foster broader access to research results, especially federally funded results, we believe that all funding agencies should institute policies in support of broadening public access that simulate the current NIH Public Access Policy established in 2008.

Such policies for science and technology agencies would require researchers to deposit articles accepted for publication within at least six months after acceptance in a peer reviewed journal. Researchers should deposit their articles in a local (institutional) repository, which could then be harvested by a central or discipline-specific repository (such as PubMed).   Increasing numbers of faculty at U.S. institutions of higher education are already required to deposit articles in local (institutional) repositories.

Faculty may find a requirement to deposit in a central repository such as PubMed in addition to a local repository overly burdensome. With existing OAI-PMH technology, it is simple for a central repository, or Internet search engines for that matter, to "harvest" articles from the local repositories already in place. Ideally, we believe that researchers would need to release the final, published version of a peer-reviewed article to the public in order to comply.  As authors ourselves, we are familiar with the existing concerns about having to comply with mandates to deposit, but we count ourselves among an increasing population of faculty members across the United States who has adopted our deposit mandates to insure that our research results are available to other library and information scholars and the public at large.

With a public access policy in place, we believe we could maximize the use of the scarce public funds OSU Libraries receive.  We could seek to continue focusing our subscription dollars on journals and monographs that our usage analysis indicates are among the most crucial for our campus.  Meanwhile we could also participate in the ongoing development of a vital network of repositories directed at organizing, archiving, and delivering seamless and user-friendly access to research, especially research funded by taxpayer dollars.

There is a growing body of evidence demonstrating that when research is free to read, it not only augments the productivity of researchers like those we support at OSU but also it has a positive impact on the public, and especially important to us, the lives of our fellow Oregonians:

First a story that relates the possible implications of not having wide access:  Recently an OSU student struggled through a lab session in our marine science library as part of her course on field sampling.   The complexity of finding peer-reviewed information baffled her, and she began to despair about the relevancy of even looking for it.  Towards the end of the session, the librarian asked her what she was interested in for her final project.  She replied, "Cryptosporidium parvum," a parasite that almost killed her young daughter the previous summer.  With the librarian's assistance, she found one and then many more articles on the parasite.  She was eager to read through the pages of science to better understand what happened and how she could make sure it didn't happen again.  While we were fortunate to be able to provide this access for an OSU student, had she not been enrolled as a student, she might have spent more than $30 per article to read this peer-reviewed science, and thus gain the knowledge she obviously needed to become a more informed mother and citizen.

Next a story that exemplifies how wider access to research not only helps science to move forward but also can benefit the health and welfare of local communities.  Since 2006, U.S. Fish and Wildlife Service (USFWS) scientists have been concerned about the increased numbers of tui chub in Lemolo Lake. The recreation area, located in the Umpqua National Forest, is a favorite spot for weekend visitors and Oregon anglers hoping to land one of the lake's elusive brown trout.  According to USFWS biologists, an increased tui chub population had been threatening the lake's water quality, forcing health officials to issue health advisories, at least ten times in the past three years, for the recreation site.

In July of 2008 USFWS and Bureau of Land Management officials contacted OSU Libraries, inquiring about a 1975 OSU thesis, "Biology of the Blue and Tui Chubs in East and Paulina Lakes, Oregon." Biologists believed that the information in this older thesis could help them understand the tui chub and, in turn, come up with a solution for the problem.  As we discovered, the research upon which this thesis was based had been supported by matching grant funds from state and federal agencies, demonstrating that federally funded research can often prove relevant in the future.  Fortunately, OSU Libraries had recently begun digitizing, upon request, OSU theses and dissertations.  Within 24 hours USFWS and BLM officials had access to the information they needed. The grateful agencies emailed back, "Awesome! Healthy little trout, and we thank you!"

While these two stories do not relay statistics that help to measure the success of open access, we do believe that this is an important consideration in the development of any repository framework under consideration.   The framework also ought to respect privacy and confidentiality of users, encourage the creation of tools that help present relevant research to the applicable audience, and emphasize interoperability between repositories and other systems.

We believe all citizens have a right to gain access to timely research results from peer-reviewed science not just those who can afford it or those who are affiliated with a research institution like OSU.  In fact, we are concerned that every year after spending thousands of dollars in tuition, OSU alumni are cut off from access to research that might allow them to continue their education, improve their chances of getting a job, and contribute to a better society--simply

because they have graduated.  Without a viable public access policy we are not sharing the best available science for researchers and students at OSU, for community level decision making, and for the individual citizens faced with improving his or her daily existence.

Thank you again for allowing our participation in this forum.  For more information, contact Faye A. Chadwell, Associate University Librarian for Collections and Content Management, Oregon State University Libraries submitted a comment on Public Access to this address back on Jan. 18th, but it has not yet been posted.  I sent an email yesterday requesting confirmation that my comment had been received, but didn't hear back, which has me worried that it has somehow gotten lost.

While I would have preferred that my comment be entered in the Federal Register, with the deadline for comment fast approaching I decided a few minutes ago to post the same comment to the blog.  I apologize for the duplicate set of comments, but I wasn't sure how else to make sure that I had a chance to participate in the discussion of this important topic.

Thank you very much - sincerely,
Gary Ward
Dept. of Microbiology and Molecular Genetics
University of Vermont

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Thank you for this opportunity to provide comments and recommendations on the Office of Science and Technology Policy's proposed extension of public access to science and technology research supported by federal funds. On behalf of George Mason University Libraries' Scholarly Communications Team, we write in full support of the government's movement toward increased public access to scholarly publications resulting from federally funded research.
The Scholarly Communications Team helps Mason researchers derive maximum benefit from the revolutionary changes in scholarly communication. Like other universities, Mason has an established institutional digital repository, Mason Archival Repository Service (MARS), into which scholars may deposit their works. We strive to enhance the Mason community's online access to high-quality, peer-reviewed materials, to facilitate the scholarly communications process, and to broaden the audience served by this research.

Consequently, we encourage our university community to deposit its scholarly publications and data in MARS for the primary reason that it serves as a stable, well managed, permanent archive for works of enduring value produced by Mason faculty, staff, and students. Furthermore, we believe the University is responsible, as a state funded, public institution, for making its research available to the public in a timely manner. The federal government is equally obligated to provide the public with timely access to research funded by billions of taxpayer dollars in openly accessible, permanent online repositories. We fully support the National Institutes of Health's innovative efforts in this arena and subsequent extension of this successful framework.
We respectfully submit the following comments and recommendations in response to the questions proposed in the OSTP's Request for Information.

*1. How do authors, primary and secondary publishers, libraries, universities, and the federal*

*government contribute to the development and dissemination of peer-reviewed papers arising from federal funds now, and how might this change under a public access policy?*
Higher education faculty members and researchers are among the largest producers of scholarly publications resulting from federally funded research. In fact, the amount of research supported by federal dollars at universities is significant.
University Libraries / Copyright Resources Office
4400 University Drive, MS 1A6 / Fairfax, Virginia 22030
Phone: 703-993-2544 http://copyright.gmu.edu

With a total enrollment approaching 31,000 students, George Mason University is classified as a research university with high research activity. Many of our most respected programs—engineering, information technology, biotechnology, and health care—are heavily science and technology based. Summary statistics from the Office of Sponsored Programs illustrate the significant and growing amount of research supported by the federal government at Mason over the past four years.

| Sponsored Programs | FY 2006 | FY 2007 | FY 2008 | FY 2009 |
| --- | --- | --- | --- | --- |
| Expenditures from Federal Sources | $54,652,056 | $51,974,487 | $61,200,388 | $83,612,664 |
| Total Expenditures | $69,524,779 | $67,639,000 | $79,883,243 | $100,164,596 |
| Percentage of Expenditures from Federal Sources | 79% | 77% | 77% | 83% |
| Number of Federal Awards | 383 | 408 | 488 | 517 |
| Total Number of Awards | 591 | 624 | 715 | 772 |
| Percentage of Federal Awards | 65% | 65% | 68% | 67% |
| Expenditures from NIH Awards | NA | NA | NA | $20,434,023* |
| Number of NIH Awards | NA | NA | NA | 42 |

* This number includes $14,554,048 from NIH-sponsored construction grant for Regional Biocontainment Lab (RBL)

Over half of the sponsored research conducted at Mason has been funded by the federal government. Although not all of the expenditures and awards represented above resulted in scholarly publications, undoubtedly a majority of these publications would be openly available online, if access were federally mandated. This is likely true of many public research institutions across the country. Therefore, the ensuing benefits of such a policy for Mason faculty, the wider academic community, the general public, and the government would be substantial.
With the majority of the academy's scholarly publications made openly available online, the entire process of scholarly communication undoubtedly would become more efficient and successful. Students and faculty members would have vastly increased access to works crucial to their own projects. Researchers would more easily identify others who are active in their fields and form collaborative partnerships for discussion and study. Authors would realize a direct impact on the public served by their work as well as in their disciplines. Members of the general public would quickly find scholarly research on any topic for personal use and education.

*2. What characteristics of a public access policy would best accommodate the needs and interests of authors, primary and secondary publishers, libraries, universities, the federal government, users of scientific literature, and the public?*

The following characteristics, each of which is discussed more fully below, are essential to a successful public access policy:

• Mandatory for each agency included
• Standardized requirements across all agencies
• Papers posted in stable, interoperable, and permanent digital archives
• Papers submitted as final published versions (Version of Record) or final peer-reviewed manuscripts (Accepted Manuscript)
• A limited (six month maximum) or no embargo period
• Papers submitted with full use rights (i.e., data mining, ability to search and link to articles—not just the ability to access and read them)
• Compliance policies, including an education component outlining copyright and submission procedures, as well as succinct consequences for failure to comply.

*3. Who are the users of peer-reviewed publications arising from federal research? How do they access and use these papers now, and how might they if these papers were more accessible? Would others use these papers if they were more accessible, and for what purpose?*

Users range from lay people to experts in academic, medical, scientific, technological, and business communities, to name a few. Some scholarly articles and data currently may be freely accessed via government web sites and government databases (e.g., PubMed Central), in addition to other open source web sites. However, commercial databases are often expensive, thereby limited to those who can afford to purchase them outright or via subscription to libraries, large businesses, or the occasional individual.

Given the statistics presented above about federal dollars funding over half of George Mason faculty research, it is ironic that our library allocates around 50% of its over $8 million collections budget to electronic and print serial publications that may contain articles the American public have already paid for via taxes. Consequently, purchasing published research that was originally paid for with tax dollars may be construed as government sanctioned "doubledipping," yet still does not allow the general public ready access to government sponsored research findings.

In light of the fluctuating funding formulae for higher education, public schools, and public libraries, a public access policy would allow some monies normally allocated for expensive resources to be diverted to other critical needs, such as jobs. This broad approach to public information access could affect every American family, especially those for whom such resources are currently limited or nonexistent. Envision small businesses accessing data and research critical to their efficiency and competition, researchers finding timely scholarly publications key to their scientific interpretations, students—from home-schooled to college—tapping into cutting edge science papers, and retirees continuing to explore topics to which they have devoted their lives.

*4. How best could federal agencies enhance public access to the peer-reviewed papers that arise*

*from their research funds? What measures could agencies use to gauge whether there is increased return on federal investment by expanded access?*

Public access can best be enhanced through open access digital repositories. Rather than creating a single repository to house papers resulting from federally funded research by specific agencies, consider development of a system of repositories that supports searching across multiple platforms. With multiple repositories in play, policies and procedures for posting papers must be standardized across agencies to facilitate both author compliance and ease of searching by researchers and other users.

The public access model piloted by the NIH offers a successful foundation on which to expand this effort. When the NIH implemented its policy, the major medical database PubMed Central already existed. Other federal agencies could form similar partnerships with public or private institutions that currently have subject-based expertise and cyber-infrastructure in place. Partnering with universities may decrease implementation costs and provide a mechanism for sharing the ongoing costs of a digital repository, including library professionals and support staff who are trained in and dedicated to the long-term preservation and stewardship of such material. Universities whose faculty members are not required to deposit digital copies of their articles in their institution's digital repository report slow growth in IR holdings. Faculty support for compulsory deposit, with an opt-out provision, is controversial and time-consuming to achieve. In the U.S., the groundbreaking open access mandate in Harvard's College of Arts and Sciences took about three years to accomplish. Presumably, many universities with underutilized IRs would welcome the opportunity to negotiate a partnership with the federal government to enhance their digital holdings and support the public access endeavor. This is a promising approach that is already being explored by the National Science Foundation, John Hopkins University, and the University of Michigan.

Explicit performance measures, for example, the number of times an article is downloaded and citation impact factors, can and should be recorded by the IR partner. These and other measures will reflect the standing of the repository in terms of ease of access to materials, recordation of metadata, support of the institution, and more. Standardization of performance measure instruments across repositories will be essential to compare participating repositories fairly. The best way to understand the increased return on federal investment resulting from a public access policy is to consider the opportunity cost of not having one. Under the current subscription-based publishing model, many colleges and universities are unable to provide students and faculty with the resources they need to conduct their research. Individuals outside the academy for the most part simply cannot afford such resources. Lack of access to current, high quality peer-reviewed research is a real issue today, one that further expansion of a public access policy will only improve.

*5. What features does a public access policy need to have to ensure compliance?*

As mentioned, submission of scholarly publications to a digital repository must be mandatory, with common standards across all agencies and repercussions for failing to comply. As the NIH policy has shown, mandatory compliance is crucial to the success of a public access policy; when submission was voluntary from 2005 to 2008, participation rates were quite low. This trend mimics the slow growth of most academic digital repositories that rely on voluntary deposits (see OpenDOAR statistics ). Therefore, mechanisms to ensure and verify compliance must be

promulgated in contracts.

Standardization of submission policies across agencies is essential to avoid multiple, potentially disparate and confusing requirements. Agency contracts should specify the repository to be used and a deadline for digital submission, which may be influenced by publisher requirements. Authors negotiate with publishers to determine the paper version that can be submitted into an online repository. This version must include full use rights—data mining, linking, text searching, etc.—to maximize the usability of the work. A workflow must be developed to enable the funding agency and/or funded institution to verify compliance and facilitate accountability.  And finally, consequences must be spelled out for noncompliance; future funding from a federal agency should hinge in part on compliance.

An educational component must be developed in tandem with the policy, particularly for a mandatory policy. University partnerships will offer resources to authors about copyright, submission, and other procedures, thus facilitating compliance.  According to Mike Laskofski, Director of the Office of Sponsored Programs (OSP) at George Mason University, faculty members working with NIH have transitioned easily in complying with the mandated public access policy. This success stems, in part, from policy updates provided by the OSP via e-mails, newsletters, and information on proposal forms. Consequently, compliance to a broadened public access policy may not be as problematic as some might expect.

*6. What version of the paper should be made public under a public access policy (e.g. the author's peer-reviewed manuscript or the final published version)? What are the relative advantages and disadvantages to different versions of a scientific paper?*
See # 8 answer

*7. At what point in time should peer-reviewed papers be made public via a public access policy relative to the date a publisher releases the final version? Are there empirical data to support an optimal length of time? Should the delay period be the same or vary for levels of access (e.g., final peer-reviewed manuscript or final published article, access under fair use versus alternative license), for federal agencies and scientific disciplines?*
Ideally, peer-reviewed papers should be made available immediately after publication. Immediate release is in the best interest of science and offers the greatest benefit to the public. However, some publishers are concerned that immediate availability of published papers would interfere with their business model. Embargos offer a reasonable compromise, but we recommend limiting embargoes to no more than six months after publication. Six months is a widely accepted standard for embargo periods among research-funding organizations and high quality journal publishers around the world. Detailed lists of publishing policies by funding organization and journal are available at http://www.sherpa.ac.uk/juliet/ and http://highwire.stanford.edu/lists/freeart.dtl, respectively.

High quality peer-reviewed journals publish research generated from a variety of sources. A public access policy is not likely to cause libraries to cancel the majority of their current subscriptions; rather, it would serve as a vital supplement to services already offered by increasing access to a specific and highly significant resource—articles stemming from federal funding. In fact, studies have predicted that public access to publications using a six-month

embargo period would not significantly impact library subscriptions. See, for instance, a study conducted by the ALPSP, http://www.alpsp.org/ngen_public/article.asp?id=200&did=47&aid=157&st=&oaid=-1

*8. How should peer-reviewed papers arising from federal investment be made publicly available? In what format should the data be submitted in order to make it easy to search, find, and retrieve and to make it easy for others to link to it? Are there existing digital standards for archiving and interoperability to maximize public benefit? How are these anticipated to change?*
Although the the digital final publication or Version of Record (VoR) is preferred, the Accepted Manuscript (AM) or author's peer-reviewed, final manuscript in XML format is certainly acceptable. XML is the current standard in scientific publishing, and documents may be easily converted to html and pdf versions, as needed, XML allows for rich searching, linking, and text mining. PDF, although in common use, is not an acceptable format because it does not have these capabilities.

Peer-reviewed papers are best made available in stable, interoperable, and permanent digital archives that meet open access standards. The Open Archives Initiative, for example, can be referred to as a resource for interoperability standards (http://openarchives.org). These protocols are supported by users and regularly updated. Again, standardization is crucial, particularly if multiple repositories and databases are used.

*9. Access demands not only availability, but also meaningful usability. How can the federal government make its collections of peer-reviewed papers more useful to the American public? By what metrics (e.g., number of articles or visitors) should the Federal government measure success of its public access collections? What are the best examples of usability in the private sector (both domestic and international)? And, what makes them exceptional? Should those who access papers to be given the opportunity to comment or provide feedback?*
Existing open access repositories and databases, such as PubMed Central and PLoS One, provide examples of metrics proven useful to measuring the usability and success of public access collections. PubMed Central enhances usability by including full-text links within articles to other sources of data, images linked to other articles, and search results that include relevant articles in other open access databases. PLoS One offers article-level metrics tracking citation information, number of views, social bookmarks, blog coverage, and user ratings, all of which help authors learn more about how and to what extent their articles are being used.

PLoS One also provides an excellent model for comment functionality and user commenting guidelines. Feedback enriches scholarly papers by allowing clarifications, corrections, reference to other research, additional citations, and more. Implementation of a feedback process in the proposed public access policy would underscore the goals of open government. Admittedly moderation of comments for appropriateness and relevance would incur some costs; therefore, the added workload that comment moderation entails may best be offered as an added-value service provided by an outside contractor.

We deeply appreciate the invitation to contribute to this crucial discussion on public access initiated by the OSTP.

Sincerely,
Claudia C. Holland Michelle Lecuyer
Head, Copyright Resources Office Assistant, Copyright Resources Office
Chair, Scholarly Communications Team George Mason University
George Mason University University Libraries
University Libraries

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Thank you very much for this opportunity to comment on public access to Federally funded research.

I fully support the Federal Research Public Access Act of 2009 which is currently pending in Congress. There are many arguments to be made for such a policy, and some implementation details that need to be addressed, but the reasons to provide timely access to the results of scientific research are really quite simple:

- A democracy rests on the free flow of information. Therefore, policies and activities that support the free flow of information must be preferred over those that impede the free flow of information.

- New discoveries build on previous research results. Delays in access to research results impede the research process, and, therefore, are a detriment to the public good.

- When taxpayer dollars are used to fund research, it follows that taxpayers have a right to the results of that research. The existing NIH Public Access Policy has begun to make this a reality in the biomedical field.

Any Federal Public Access Policy should be mandatory and apply equally to all Federal agencies to ensure that the public has ready access to the results of research in all scientific fields of knowledge. Immediate access to published results of Federally funded research should be the ultimate goal, but a policy that allows a short delay of no longer than six months may be a necessary compromise while other aspects of the scholarly communication process, including rights retention, are addressed and ameliorated.

Thank you again for the opportunity to comment.

Alexa T. McCray, PhD
Harvard Medical School

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I am pleased to submit comments on increasing public access to the results of federally funded research on behalf of the Association of American Universities (AAU). AAU is an association of 60 U.S. and 2 Canadian universities distinguished by strong programs of research and graduate education. AAU's U.S. universities conduct 57 percent of federally funded research and award 53 percent of the nation's PhDs. AAU universities are thus major contributors to the international scholarly publishing system as well as primary consumers of the products of that

system. As noted in the RFI, increasing public access to federally funded research can increase the return on that investment in a number of ways including expanding access to the results of research for the taxpayers who funded that research and providing a richer, more interconnected foundation of research results to support future scholarship.

The comments below on specific questions draw heavily on the report of the Scholarly Publishing Roundtable. The Roundtable was created last June by the House Science and Technology Committee in cooperation with the Office of Science and Technology Policy (OSTP) to develop consensus recommendations for expanding public access to the journal articles arising from research funded by agencies of the U.S. government. AAU strongly supports the recommendations of the Roundtable report, which are the product of extensive deliberations by individuals from the diverse stakeholders in the scholarly publishing system. A copy of the report may be found at http://www.aau.edu/policy/scholarly_publishing_roundtable.aspx?id=6894 .

1. *How do authors, primary and secondary publishers, libraries, universities, and the federal government contribute to the development and dissemination of peer reviewed papers arising from federal funds now, and how might this change under a public access policy?*

In the current interdependent system of scholarly publishing, the federal government plays a critical role in the funding of research. Researchers and scholars conduct research and then as authors report the results of that research to other scholars. Publishers play an essential role in managing the peer review of those research reports and producing the final journal articles. Universities provide the infrastructure for much of the basic research conducted in the nation and provide significant funding for that research as well, and university libraries play an essential role in the acquisition, dissemination, archiving and preservation of scholarly literature. All of these roles will need to continue in the future, but the allocation of responsibility across the sectors of the scholarly publishing system may change. For example, university libraries may play a greater role in the dissemination of research results in the future through the creation of publically accessible university repositories, and the federal government may play an increased role in the dissemination of research results through the creation of public access databases such as NIH's PubMed Central. Publishers will continue to play an essential role in the management of much of the peer review processes, copy editing and other aspects of operation of the scholarly publishing system, though their business models will no doubt continue to evolve over time.

2. *What characteristics of a public access policy would best accommodate the needs and interests of authors, primary and secondary publishers, libraries, universities, the federal government, users of scientific literature, and the public?*

The critical interests of researchers/authors are timely access to high-quality research results. Much of that access will continue to be provided through subscriptions to journals, while government public access policies will provide broader free public access to journal articles after some necessary delay following the publication of those articles in a subscription-based journal. Over time, if the scholarly publishing system is able to evolve from the subscription-based system that currently dominates scholarly publishing to an open access system where the costs of

publishing are paid up front, a public access policy could meet the interests of scholars and the broader public in the same system by providing virtually free, immediate access to the results of federally funded research once they have been peer reviewed and put into final form by publishers. Although a number of successful open access journals now exist, it is not clear how widely these methods of scholarly publishing will be adopted. A broadening of the federal role in supporting the research enterprise from funding the conduct of research to supporting also its dissemination through funding the publishing fees for open access publishing would greatly assist a transition from subscription-based to open-access publishing, simultaneously advancing the interests of scholars and the public.

3. *Who are the users of peer-reviewed publications arising from federal research? How do they access and use these papers now, and how might they if these papers were more accessible? Would others use these papers if they were more accessible, and for what purpose?*

The primary users of peer-reviewed publications are research scholars, and those scholars access those publications primarily through journal subscriptions. As the volume and cost of the scholarly literature increases, a broad government public access policy has great potential to expand access to scholarly publications for those sectors that would use but cannot afford access to the full corpus of the scholarly literature. In particular, a government public access policy that provides free public access to journal articles would allow non-research-intensive colleges and universities which cannot afford the growing costs of journal subscriptions to gain access to the results of federally funded research. A government public access policy could expand opportunities for students to draw on scholarly publishing for educational purposes as well.

4. *How best could Federal agencies enhance public access to the peer-reviewed papers that arise from their research funds? What measures could agencies use to gauge whether there is increased return on federal investment gained by expanded access?*

A broad, multi-agency public access program providing free public access to the results of federally funded research after some period of delay following the publication of those results in peer-reviewed journals could provide an effective means of greatly expanding access to journal articles while sustaining the existing scholarly publishing system as it evolves in the future. NIH's PubMed Central provides one model for such a public access policy. Other agencies may choose to develop variations on that model, for example, by collaborating with research libraries or publishers to create public access databases of the results of research funded by those agencies. Such a multi-agency public access program should have a set of basic common properties across agencies that support ease of submission by universities and their faculties and interoperability across agency databases, while at the same time permitting sufficient flexibility for each agency to match its public access policy to its mission and clientele. The success of such public access policies in promoting broad public access could be measured by number of visits to the databases over time; the success of access policies in providing improved support of scholarship would be more difficult to measure but could be gauged by surveys of researchers concerning their access practices.

5. *What features does a public access policy need to have to ensure compliance?*

In the long run, compliance will be promoted most effectively by procedures ensuring ease of submission and by interoperability and reuse capabilities that support the needs of scholars and the interests of the public. More immediately, a multi-agency public access program will no doubt require legislation or regulation that specifies coherent common submission practices. OSTP could play an important role in coordinating the development of such a multi-agency program and its interface with external stakeholders.

6. *What version of the paper should be made public under a public access policy (e.g., the author's peer reviewed manuscript or the final published version)? What are the relative advantages and disadvantages to different versions of a scientific paper?*

It is highly desirable to have the Version of Record (the final published article and any subsequent updates or modifications of that article) as the version of a journal article circulating in public databases. However, copyright law limits the extent to which the Version of Record can be required to serve as the public access version of the paper. Thus, government agencies may only be able to require submission of the final accepted manuscript. Because there will be cases of disparities between these two versions of a journal article, public access policies will benefit greatly from cooperation between government agencies and nongovernmental publishers that result in mutually acceptable procedures for making the Version of Record the public access version of the article.

7. *At what point in time should peer-reviewed papers be made public via a public access policy relative to the date a publisher releases the final version? Are there empirical data to support an optimal length of time? Should the delay period be the same or vary for levels of access (e.g. final peer reviewed manuscript or final published article, access under fair use versus alternative license), for federal agencies and scientific disciplines?*

Peer-reviewed papers should be made public through a public access policy as soon as possible after those papers have been published in peer-reviewed journals. For subscription-based publications the "embargo" period must be long enough that the public access policy does not threaten the viability of the publisher through loss of subscription revenue. For open access publishers, because the revenue to meet publication costs is provided up front, the embargo period can be zero. The embargo period will also vary by discipline. For example, the period can be shorter in fast-moving disciplines like many of the life sciences; however, the embargo period would need to be longer in the humanities and social sciences, where the useful life of articles extends much further out in time. For practical considerations, seeking a commonality across disciplines and across agencies in the embargo period will be important for the administration of a broad, multi-agency public access policy. For most of the sciences, an embargo period of no more than 12 months currently seems to be a workable period, preserving the revenue stream of publishers while providing as rapid public access as possible. Thus, a 12-month embargo period with the option for publishers where feasible to specify a shorter period and the ability where necessary for a publisher to appeal for a longer period seems to be a workable standard.

8. *How should peer-reviewed papers arising from federal investment be made publicly available? In what format should the data be submitted in order to make it easy to search,*

*find, and retrieve and to make it easy for others to link to it? Are there existing digital standards for archiving and interoperability to maximize public benefit? How are these anticipated to change?*

NIH's PubMed Central is the major federal public access program to date. Many of PubMed Central's policies and procedures are proving highly effective in supporting access, searchability and use. PubMed Central's document type definition (DTD) is becoming a widely accepted standard architecture for online journal articles in the life sciences. However, some aspects of the submission process to PubMed Central require duplication of effort by publishers or authors. In addition, NIH's DTD standard still has some limitations in inter-database interoperability. It would be very much in the interest of scholarship and public access for the federal government to substantially increase its investment in cyber-infrastructure programs in pursuit of a long-range goal of an interconnected international network of public access databases with the capacity for interoperability and reuse across databases comparable to that which currently exists within databases such as NIH's PubMed Central.

9. *Access demands not only availability, but also meaningful usability. How can the Federal government make its collections of peer-reviewed papers more useful to the American public? By what metrics (e.g. number of articles or visitors) should the Federal government measure success of its public access collections? What are the best examples of usability in the private sector (both domestic and international)? And, what makes them exceptional? Should those who access papers be given the opportunity to comment or provide feedback?*

The utility of a multi-agency public access program will be most effectively advanced by having clear, consistent procedures for submission of articles, an easily understood common method of accessibility, and an interconnection across databases that allows a user to move easily within and across their contents. A great deal of work is underway, both in this country and in other countries, within government agencies as well as nongovernmental entities including both commercial and noncommercial publishers, universities and others. The federal government, perhaps under the leadership of OSTP, should seek to connect to these various initiatives with the goal of developing common procedures that bring the results of international scholarship under a common functional umbrella of a network of interconnected public access databases.

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Much of the development of a multi-agency public access program can and should be developed under structurally simple, clear legislation or regulation that provides common properties across agencies while still supporting flexibility among agencies. However, to achieve the full potential of a network of international public access databases, federal agencies will have to reach beyond their statutory and regulatory boundaries to collaborate voluntarily with nongovernmental stakeholders in this country and others. This combination of developing a core government public access program through legislation or regulation and expanding that program through voluntary collaboration with other stakeholders will advance the support of scholarship and public access to that scholarship along a continued upward trajectory.

Sincerely,

John C. Vaughn

As a librarian at Eastern Kentucky University, I am deeply concerned about the future access of tax payer funded research for the students and faculty at my institution. The budget EKU spends for library journals is not meeting the information needs of our campus community, and we are not alone. As state funding dwindles and the economy struggles, all libraries are learning to get by on less. We're purchasing fewer books and journals, and considering the consequences of reduced services. I urge you to consider the consequences of not making open access to federally funded research a priority. The students enrolled at regional comprehensive universities will be at a disadvantage, and so will all citizens who aren't privy to higher education.

The internet provides a unique opportunity to interact with research results in new ways. Every tax payer deserves access to the results of the research that they have helped fund. I support the NIH approach that requires researchers to deposit articles accepted for publication within zero to six months of publication. This requirement would deliver the best return on the governments investment in research.

Subscribing to research journals is an unrealistic expectation for most citizens. In the past, Libraries have played the role of access provider. Today's reality is changed because the internet makes it possible to share information with citizens in rural communities, and those outside of higher education. I urge you to do the right thing, and work to expand access to tax payer funded research for all. Kentucky will benefit. Medical professionals in rural communities across America will benefit. All citizens will benefit.

Thank you for the opportunity to share my strong belief in expanding open access for all citizens to tax payer funded research.

Carrie Cooper
Eastern Kentucky University

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Genetic Alliance thanks OSTP for taking a deep interest in the very important issue of public access. Genetic Alliance's network has more than 1000 disease organizations that strive to empower their members with quality, current, accessible information. Millions of Americans are in need of information that allows them to make informed decisions about their healthcare and potential participation in biomedical research. As you are well aware, we are in the midst of an information revolution. It remains an intense challenge how best to systematically access and analyze this information. Yet, Genetic Alliance firmly believes that extending NIH's successful public access policy framework to all other science and technology agencies is a necessary step in providing better care to individuals, families and communities.

Other industries have been revolutionized by the open systems that are being created. While materials were once our greatest resource, information is now our greatest resource. It is therefore imperative that information be widely accessible. We are in a time of openness and abundance and must take advantage of the current influx of information. Genetic Alliance does not support the limitation of information to an elite subset, and while we are pleased that NIH

has moved to a 12-month embargo with mandatory release thereafter, we support striving toward a system that allows immediate release. We understand that publishers must find innovative ways to shift to open paradigms such as those discovered by other industries.

The exploding age of information is upon us and not making this information as accessible as possible would hinder the advancement of health care in our country. The research that is conducted to drive discovery and development is currently inaccessible to the taxpayers who fund it, which seems both illogical and an impediment to their care. The government spends billions of taxpayer dollars to fund research, and the public has a right to access and use those results. This research is conducted to drive discovery and development that advance the public good. The public as a whole is concerned with ensuring that the process of research dissemination and use is as efficient as possible, so that it delivers the best return on our investment. Genetic Alliance operates several open access repositories and understands the power of free information (resourcerepository.org, wikiadvocacy.org, wikigenetics.org, diseaseinfosearch.org).

In short, a successful national public access policy should make information accessible in order to transform research into services and individualized decision-making. These are the attributes of such a system:

· Public access to the published results of federally funded research should be a requirement across all agencies.

· Articles that result from federal funding should be made freely accessible at the time of publication.

· Articles should be housed in permanent, interoperable digital archives.

· Access may be either to the author's final manuscript or to the final published version.

· Articles should be presented to the public in a standard digital format that allows them to be fully read and used. XML is the current preferred standard. PDF is not sufficient as it is proprietary and does support not granular-level linking, semantic indexing on the level of individual words, etc.

· The archives must ensure permanent public search, retrieval, and full use rights – such as the rights to data and text mining, etc.

· Implementation should be closely coordinated across all agencies to ensure seamless compliance. Multiple policies would introduce unnecessary overhead and costs.

Genetic Alliance is committed to expanding access in order to promote an environment of openness centered on the health of individuals, families, and communities. We have found that revolutionizing access to information in this manner will enable transformation of research into services and individualized decision-making.

As a scientific and scholarly society committed to knowledge dissemination, building cumulative knowledge, and promoting data access and data sharing, the American Educational Research Association (AERA) applauds the principles leading OSTP and the President to think through policy issues supporting the scientific enterprise and public access to knowledge. There are complexities, however, to consider in contemplating the role of the federal government and scholarly societies in these endeavors. The comments below seek to foster further examination of this issue, including the appropriate role of the federal government, from the vantage of sound research policy and optimal business models. We speak from the vantage of a research society committed to affordable, sustainable publishing and maximizing opportunities for publishing research of the highest merit irrespective of the source of its funding.

*1. How do authors, primary and secondary publishers, libraries, universities, and the federal government contribute to the development and dissemination of peer reviewed papers arising from federal funds now, and how might this change under a public access policy?*
AERA: Authors contribute a significant share of the work, and their work is vetted and significantly refined as the result of the requirements of editors and reviewers, via primarily the publisher's peer-review process. In the social and behavioral sciences, including education research, that process is highly selective and costly, as indicated by the 2009 report *The Future of Scholarly Journals Publishing among Social Science and Humanities Associations* (http://www.nhalliance.org/news/humanities-social-sciencescholarly-journal-publis.shtml).

The American Educational Research Association (AERA) is the national scientific and scholarly society for approximately 25,000 education researchers and graduate students from across research fields and disciplines. AERA members undertake education research to address fundamental problems and inform policy and practice that relate to education across the life span and contexts of learning. Researchers in this field address all aspects of education from the processes of teaching and learning, curriculum development, and the social organization of schools to the effects of education on cognitive and social capacity, human development, workforce skills and attainment, and health and at-risk behaviors.

AERA supports the advancement of knowledge through five high-quality refereed journals and other publications, an annual meeting with approximately 14,000 attendees, and substantial professional development and training programs, among other initiatives.  Throughout its programs, AERA emphasizes advancement of knowledge, high standards for well-warranted research, and translation of research to policy and practice. AERA provides free online access to its flagship peer-reviewed journal *Educational Researcher* via the AERA website. AERA's *Research Points* links education research knowledge to the community of policy makers and is also disseminated freely in print and online.

AERA invests heavily in the selection, training, and support of its journal editors, including arranging for state-of-the-art web-based peer-review software that allows careful review of large numbers of submitting manuscripts. Like many social science journals, AERA journals accept only 5 to 10% of what is submitted to them, and typically that is only after multiple revisions.

This highly selective process results in high-quality published research in our journals. Out of 105 education and education research journals, ours are ranked 1, 7, 9, 14, and 42 by *Journal Citation Reports.*

This high-quality published research is funded by the subscription fees paid by research libraries, which in turn make the research available to all their constituents. Through our publisher, we offer libraries and other subscribers a range of options to access our content, including online-only options that utilize the state-of-the-art web platform at Stanford University's HighWire Press. This platform includes tollfree reference linking within the platform and reference linking with other platforms' journals via the CrossRef consortium.

In 2007, we shifted from self publishing to an arrangement with a professional publisher (to execute the production functions on our behalf) in order to facilitate worldwide electronic access to our journal content. In subsequent years, AERA and our publisher put the decades of back content from our five journals online, a process that required significant investment. As a result of this investment, our tables of contents and abstracts are now freely accessible to anyone with Internet access, and our full-text content is searchable by anyone. In the past three years, the number of institutions worldwide with subscription access to our journals increased almost 8-fold (780%). Through our online portal, about 1,300 U.S. research institutions provide access to millions of faculty, students, and employees through market-based subscription fees.

We recognize the stake that the federal government and other grant-funding organizations hold in facilitating access to federally-funded research, and we support exploring a range of direct and indirect mechanisms for the Federal government to consider aligned with this interest. Yet, a policy that results in duplicating publishers' full-text online hosting will deplete the revenues needed to support high-quality peer review and dependable archiving, and may not be the best mechanism to maximize access. Below we propose how the federal government and publishers, including scholarly societies such as AERA, might cooperate to meet their respective goals.

*2. What characteristics of a public access policy would best accommodate the needs and interests of authors, primary and secondary publishers, libraries, universities, the federal government, users of scientific literature, and the public?*

AERA: A public access policy that duplicates scholarly society publishers' full-text online hosting will erode their ability to sustain the high-quality peer review that validates the research. A policy that requires authors to deposit full text will tend to create confusion about which manuscript is the authoritative version. Also, a policy that requires deposit of published social science research within 1 year of publication, while perhaps feasible for biomedical and some other research, would likely deprive social science publishers of the revenues needed to support high-quality peer review. (See http://www.publishingresearch.org.uk/documents/Self-archiving_report.pdf.)

Nevertheless, we value the principle of early access to knowledge and below recommend an alternative open access model that involves government-publisher cooperation, as suggested in the recent *Report and Recommendations from the Scholarly Publishing Roundtable* (http://science.house.gov/press/PRArticle.aspx?NewsID=2712).  In order to achieve the goals of

wider access to research publications, we propose an alternative model that avoids the negative effects on peer review. We propose that any federal policy allows deposit of tollfree hyperlinks leading to the authoritative version of record (VoR) on the publisher's website. As a publisher, we would be willing to provide such tollfree hyperlinks, which would take any user to the VoR without barrier. To facilitate searching on any external web platform designated by federal policy, we would also be willing to provide full-text of the article, but we would seek it to remain dark to Google and to all users, including government agencies. The full text would be live to the platform's search function, but users would be directed to the VoR. Keeping the full text dark, yet linking tollfree to the publisher website would give the both government and the public access and also support and preserve the scholarly society's model for sustaining high-quality peer review.

*3. Who are the users of peer-reviewed publications arising from federal research? How do they access and use these papers now, and how might they if these papers were more accessible? Would others use these papers if they were more accessible, and for what purpose?*
AERA: The users of the research published in our journals are generally researchers, faculty, other scientists and scholars, policy analysts, and students. They access the content either via their institution's subscription or via their membership in our organization. We believe that our published content is fully accessible to interested persons now, discoverable via Google, Bing, and other search engines, searchable on our journal websites at HighWire, and accessible via institutional and membership subscriptions, as well as pay-per-view options. We also offer each of our authors a tollfree hyperlink to their article, to be placed on the author's or their institution's website; thus, users may access our content through these free links. As stated before, our flagship journal *Educational Researcher* is openly accessible via our website.
It is unclear what other users would access our research if it were freely available to all. We and our publisher attempt to price access to our journals in a market-based way that is affordable to all who value the content. Our publisher offers pay-per-view as an option to others. We welcome broader access to our content in such a way that does not endanger our ability to sustain peer review and reliable archiving.

*4. How best could Federal agencies enhance public access to the peer-reviewed papers that arise from their research funds? What measures could agencies use to gauge whether there is increased return on federal investment gained by expanded access?*
AERA: The best way for Federal agencies to enhance public access is to do so in a way that does not endanger the peer-review process that serves as a quality marker for those papers and that does not erode the capacity of societies such as AERA to support that process. Accepting tollfree hyperlink deposits in any online system mandated by federal policy would give the public increased access to research funded by the agencies but without endangering the peer-review process that validates that research. Measures to gauge increased return on federal investment might include usage statistics on any online system that hosts the tollfree hyperlinks. Yet, web accesses do not adequately describe the return on investment; published research might be better measured by how much it contributes to future research and applications. Current citation metrics include the *Journal Citation Report* impact factor and the eigenfactor (www.eigenfactor.org).

*5. What features does a public access policy need to have to ensure compliance?*

AERA: The best way to ensure compliance is to enlist the cooperation of research societies and scholarly publishers. NIH's compliance rate was quite low until PubMed Central developed channels of cooperation with publishers, such as the NIH Portfolio Project, whereby the publisher supplies the VoR to NIH on behalf of NIH-funded authors and NIH keeps the VoR dark until a designated date of no more than 1 year after publication. NIH has not yet accepted publisher offers of tollfree hyperlinks, but we believe that sustaining the business model of social science publishing requires a different approach, one that involves closer cooperation between government and publishers. It is well established that an embargo period of 1 year would endanger social science publishing, but keeping material dark also causes a delay in public access to published research. Tollfree hyperlinks would circumvent the difficulties of adhering to an embargo period: They could become live at publication and would obviate the need to enforce either an embargo or a deposit.

*6. What version of the paper should be made public under a public access policy (e.g., the author's peer reviewed manuscript or the final published version)? What are the relative advantages and disadvantages to different versions of a scientific paper?*
AERA: We support distribution of only the version of record. As recommended by the Scholarly Publishing Roundtable, "access should be to ... the VoR produced and stewarded by the publisher" (page 9). Multiple versions can create confusion, among all types of readers including the lay public. The publisher is best positioned to attest to the final authoritative version.

*7. At what point in time should peer-reviewed papers be made public via a public access policy relative to the date a publisher releases the final version? Are there empirical data to support an optimal length of time? Should the delay period be the same or vary for levels of access (e.g. final peer reviewed manuscript or final published article, access under fair use versus alternative license), for federal agencies and scientific disciplines?*
AERA: We support dissemination at the earliest possible date of final reports submitted by grantees to the federal government, and we also support access to published research immediately upon publication via tollfree hyperlinks leading to the VoR. Were there to be a mandate for full-text deposit, the deposit timeframe must be appropriate for the social sciences. The median age of cited AERA journal articles (aka, citation half life) is well over 10 years, and the business model of social science publishers, encumbered by high publishing costs per article, is predicated on this half life. A 5-year timeframe could be one that allows financial sustainability in social science. We would prefer, however, to provide tollfree hyperlinks immediately.

*8. How should peer-reviewed papers arising from federal investment be made publicly available? In what format should the data be submitted in order to make it easy to search, find, and retrieve and to make it easy for others to link to it? Are there existing digital standards for archiving and interoperability to maximize public benefit? How are these anticipated to change?*
AERA: To the extent that this question refers to peer-reviewed articles, the highly structured and searchable format of XML (eg, NLM XML DTD) allows for the most robust searching of published articles, even if the full-text XML remains dark to users. Accepting full-text XML into an online system would serve as a backup if tollfree hyperlinks became inoperative. Making metadata such as article abstracts available in an online system would inform public access without endangering market-based publishing endeavors.

To the extent that this question relates to federally funded data collected or analyzed that leads to scholarly publications, AERA values data sharing and supports access to these data (through a variety of mechanisms) that permit scholars to verify findings, test rival hypotheses, or explore interrelated questions or issues. The social science community, including education research, and federal agencies have developed procedures for doing so consonant with confidentiality and data protection. In our online journal articles, we are expanding the use of links to such data.

*9. Access demands not only availability, but also meaningful usability. How can the Federal government make its collections of peer-reviewed papers more useful to the American public? By what metrics (e.g. number of articles or visitors) should the Federal government measure success of its public access collections? What are the best examples of usability in the private sector (both domestic and international)? And, what makes them exceptional? Should those who access papers be given the opportunity to comment or provide feedback?*

AERA: Usage statistics that are granular enough to distinguish abstract usage from fulltext/hyperlink usage would reveal the depth of use to a certain extent. Scholarly impact metrics such as the impact factor and the eigenfactor are useful within fields and disciplines but not to the public endeavor. Commenting/feedback features are not utilized very frequently or reliably now within social science publishing but could be useful to the government as a measure of public engagement. Such features would require additional editorial and technical oversight. Any online system interested in usability by the lay public may wish to include technical provision for authors to upload an executive summary, lay summary, or author commentary on its site. The ability to generate usage statistics on such a summary could help measure the lay utility of federally funded research.

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As a librarian with over 30 years' experience at large state-supported research universities in Ohio and Washington state, I was very excited to see the public comment period announced by the White House OSTP a month ago, since I feel strongly that a broad "access mandate" would have extremely important benefits for the conduct of research and for the general public. While it is generally known and appreciated that access to federally-funded biomedical research results has been and can be of broad benefit, free and easy access to the whole gamut of other federally-funded research publications has the potential for just as significant multiplier benefits.

Rather than try to restate a number of points on particular details that have been made quite well by many of my colleagues and by professional associations like the American Library Association, the Association of College and Research Libraries, and the Assocation of Research Libraries (though I *would* like to say that I favor requiring deposit of any such research articles in XML format for ease of discovery, reuse and manipulation within 3 months of publication in an appropriate "repository"), I would like to focus my comments on the increasingly difficult state of access to the results of research. As is well known in academe, and especially to librarians like myself who are responsible for managing budgets for book, journal and database purchasing, the prices of the scholarly journals in which research articles most commonly appear have been increasing much more rapidly than the CPI (and library budgets!) for years and years, with the result that few academic libraries can afford to subscribe to anywhere near the number of journals that their faculty and students need and would use.

That is even more true of individuals outside colleges and universities, of public libraries, libraries that serve state governments and agencies, and startup scitech companies in my state (though some might incorrectly imagine that any such organizations can afford to buy access to what they need). And the current financial crisis has brought this problem home in a very big way at my university, where we expect to lose access literally to two to three thousand journals because of funding problems. Lost, too, will be access to any articles detailing the results of federally-funded research that might appear in them. That simply makes no sense!

While a broad mandate to make the results of federally funded research available will not fix that very big problem, it seems eminently fair and reasonable that taxpayers have free and easy access to what they have paid for, which simply won't happen if the existing journal publishing system is relied upon exclusively. Software for "Institutional Repositories" is widely available and implemented by many universities (including my own), and we have now the example of the highly successful PubMed Central to serve as a template for additional "disciplinary" repositories.

This really is an opportunity and a moment not to be missed by this administration, higher education, and the public. So please, take action!

Thank you.
Tim Jewell

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I want to begin by expressing appreciation to the Office of Science and Technology Policy (OSTP) for giving consideration to developing policies to provide public access to the published results of taxpayer-funded research. I am grateful that OSTP is taking the time to seek comments from stakeholders. I share the view of the Administration that increasing access to the results of taxpayer-supported research will support new scientific discoveries, advance the creation of new knowledge, and promote learning around the world.

In my position as Librarian of Bowdoin College, a highly selective liberal arts college in Maine which enrolls 1,730 students, I work to support the academic program and the research efforts of our faculty members and students. Our library's official mission is to "advance the pursuit of knowledge and offer a gateway to the world of information and ideas." To fulfill this mission, our librarians work to develop collections and provide optimal access to information resources.

Part of our work as librarians is to help our students and faculty members access the latest research findings and reports, in support of their own scholarship. The information they seek often is found in scholarly journal articles that report the results of federally supported research. However, it has become prohibitively expensive for libraries to provide much of this information because the prices of many academic journals, particularly in science, technology and medical or "STM" fields have been rising at rates far higher than the cost of living, for several decades. Today our library subscribes to 1,000 fewer journal titles than we did 15 years ago. Research libraries throughout the country recount similar stories of being forced to cancel less costly

journals, often in the humanities and social sciences, to continue subscriptions to expensive science titles so that faculty may have access to the most up-to-date research results in an increasingly select and smaller number of journals. Due to the economic downturn, our library and others have diminishing materials budgets and fewer dollars to purchase the increasingly expensive information resources needed by our faculty members and students.

The irony—and injustice—of this situation is that the researchers who seek to read the research reports of others are taxpayers themselves, yet they often have difficulty obtaining articles that report taxpayer-supported research discoveries. And of course there are tens of thousands of average citizens who lack access to research libraries yet also have information needs, whether to learn about illnesses of a family member, or as background to starting a business, or for their own educational or leisure interests.

The U.S. government spends several billion dollars of taxpayer money each year to support research. The public—whether at our small college or sitting at home using the Internet—has a right to have access to the research results of this research, to ensure the best return on this investment. Our faculty members have a mandate to engage in scholarship for promotion and tenure. Our students come to Bowdoin offering unusual academic promise and our faculty present them with challenging research assignments. Both our professors and our undergraduates require access to the results of federally supported research to inform their own efforts to make new discoveries and create new knowledge. But as journal prices continue to rise and our materials budgets shrink, it becomes increasingly complicated and time-consuming for our library staff to meet the information needs of the Bowdoin community. And we all seek information whether related to our health, to the issues facing our nature and the world, or for our personal enrichment, which often may be found in the results of federally funded research.

Our librarians support the NIH policy that requires researchers to deposit in an open access archive copies of articles accepted for publication. We encourage OSTP to extend the NIH's successful policy structure to all other science and technology agencies. This would capitalize on the promise of the Internet to bring information on any topic to citizens worldwide. It also would enhance the important work of librarians to provide the information resources needed to support the academic enterprise and the personal and professional needs of our citizens. At Bowdoin College, we speak continuously about the importance about holding a commitment to "the common good." Ensuring open access to reports of federally funded research will drive discovery and advance the common good.

In conclusion, I want to reiterate my appreciation to OSTP for encouraging broad discussion of the important benefits to academicians and to citizens if the NIH public access policy is extended to other federal science agencies.

Respectfully submitted,
Sherrie S. Bergman
Librarian, Bowdoin College

Thank you for the initiative you have shown to bring the members of the American public closer to the research that they fund.  Thank you also for this opportunity to comment.  I write as a scholar who studies copyright law and its role on the Internet.  The issue of open access to federally funded research articles is at bottom about correcting copyright practices that have become misaligned with the interests of authors and readers in the Internet age.  I wish to underline that this is a Teddy Roosevelt moment.  Just as President Roosevelt acted to preserve the shared and unique natural resources of the United States for the good of the American public, this is a time when it is imperative to provide free access to the digital equivalent of our national parks and forests - the intellectual resources produced with federal funds.

**QUESTION 1:  How do authors, primary and secondary publishers, libraries, universities, and the federal government contribute to the development and dissemination of peer reviewed papers arising from federal funds now, and how might this change under a public access policy?**

Copyright is the principal constraint on widespread public access to peer reviewed papers arising from federal funds.  The owners of copyright in the peer reviewed papers arising from federal funds rely on their exclusive rights to require payment for access to publicly funded research.

Copyright is an author's right.  Within the currently dominant publishing practices, the authors of peer reviewed papers arising from federal funds do not sufficiently value the copyrights they receive automatically by operation of law and readily transfer them to journal publishers without regard to the consequences for public access to the publicly funded research reported in such articles.

The principal necessary change under a public access policy is to ensure proper management of the copyrights that arise in connection with research articles, and in some cases, research data.  Systematic public access to journal articles written with federal assistance must be provided consistent with copyright law.

It is longstanding federal procurement policy that the Government obtains a copyright license from the author to use, reproduce, and publish copyrighted works arising from federal funding.  This license is granted at the moment copyright vests in the work, and any subsequent transfer of the author's rights under copyright is subject to the Government's license.  A public access policy must clarify that this existing license is the legal basis for the public distribution of federally-funded research articles or must ensure that authors grant a second license to the Government - preferably also at the time that copyright vests - in order to provide systematic public access to such articles.

 To date, journal publishers routinely accept manuscripts for publication understanding that their rights to control dissemination of these are subject to the Government's license.  This is their business decision.  A public access policy should continue to ensure that the government's right to provide public access is provided by the author(s) as a term and condition of the funding agreement.

**QUESTION 3: Who are the users of peer-reviewed publications arising from federal research? How do they access and use these papers now, and how might they if these papers were more accessible? Would others use these papers if they were more accessible, and for what purpose?**

These are interesting questions, but, with all due respect, they reflect a flawed premise about open government. These questions seek data about those who currently are closed out of the knowledge exchange enabled by federally funded research and data about the benefits from allowing them in. Identifying the losers in such a system is notoriously difficult because they are widely distributed and have no ready means of signaling their presence. But, as other commenters have demonstrated in more detail, experience with freely available knowledge resources, whether they be MIT's open courses, Wikipedia, or open access journal articles, shows that interest in, and demand for, these resources usually is significantly larger than their producers expected and that this demand comes from widely distributed, and often unexpected quarters.

Particularly troublesome is the suggestion in the comments from the Royal Chemical Society that the readers who count currently have access to the research literature in chemistry and therefore a policy to provide public access would be of negligible value. In a society that values freedom of expression, it is generally considered unacceptable for the government to base policy upon its own view that information has been parceled out to the readers who count.

An open government starts with the premise that widespread public access to government-funded information will be given absent compelling reasons to deny such access. The Internet provides a uniquely powerful and economical means to provide such widespread public access. The policy of an open government would therefore start with the premise that federally funded research will be freely available over the Internet immediately upon publication, and the burden to show why this should not be so is on the shoulders of those who would limit public access to federally funded research.

To sharpen the point. My 12-grade daughter, who is an aspiring doctor, recently was given an assignment in her AP Chemistry class to research a topic of choice and to present a 10-minute oral report supplemented by citations to the articles from chemistry journals that the students read to support the assertions in their reports. When the students raised the point that their high school library was unable to provide access to the journal literature, the teacher advised them essentially to go on the black market by persuading parents, relatives, or friends with access to the literature through a university or hospital library to share that access with them. (Sharing access in this way may well be fair use under copyright law, but undoubtedly contractual restrictions on use would be violated by such sharing.)

In my daughter's case, I was able to show her how to navigate PubMed Central and how to use Google Scholar to find open access articles sufficient for her needs. But her research was limited to that portion of the literature that currently is made openly accessible. With a more far-reaching public access policy, her options would have been greater.

My daughter and her generation does not bear the burden of showing why she should have the right to read chemistry journal articles reporting the results of research funded by their parents. It is not their burden to show that they are readers who count. Instead, the burden is on those who seek to sustain current restrictions on public access to show why the government should continue to deny access to these readers. The proponents of these restrictions have failed to meet their burden to justify such restrictions.

**QUESTION 4: How best could Federal agencies enhance public access to the peer-reviewed papers that arise from their research funds? What measures could agencies use to gauge whether there is increased return on federal investment gained by expanded access?**
See the response to Question 3.

**QUESTION 5: What features does a public access policy need to have to ensure compliance?**
A public access policy must require federally funded researchers to (1) supply a digital copy of an article at the earliest feasible moment, and (2) to supply the funding agency with the necessary copyright license to provide public access at the moment copyright arises in the article.

**QUESTION 6: What version of the paper should be made public under a public access policy (e.g., the author's peer reviewed manuscript or the final published version)? What are the relative advantages and disadvantages to different versions of a scientific paper?**

Both versions should be subject to a public access policy. It is acceptable to grant a longer embargo period on the final published version than on the author's final manuscript, but there is no convincing evidence that would support denying public access to the published version until it enters the public domain in roughly a century or more.

**QUESTION 7: At what point in time should peer-reviewed papers be made public via a public access policy relative to the date a publisher releases the final version? Are there empirical data to support an optimal length of time? Should the delay period be the same or vary for levels of access (e.g., final peer reviewed manuscript or final published article, access under fair use versus alternative license), for federal agencies and scientific disciplines?**

The burden to justify any embargo and its length is on the publishers, who always have the option not to publish articles subject to a federal public access policy if they find the terms of the copyright agreement between authors and their funding agency not to the publishers' liking.

The embargo period is the compensation that the government offers to publishers in exchange for their willingness invest in the costs of publication. The government should ensure that the public pays no more than necessary in the length of delay by requiring evidence to support claims about economic harms that might follow from shorter embargo periods. This is especially important because the market for articles and the market for journal subscriptions are quite distinct and unsupported assertions about the effects of access to some articles on the market for subscriptions should not be credited.

Michael W. Carroll
Professor of Law and Director,
Program on Information Justice and Intellectual Property
American University, Washington College of Law

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COMMENTS BY KNOWLEDGE ECOLOGY INTERNATIONAL

Knowledge Ecology International appreciates the opportunity to submit the following reply comments in connection with the Notice of Inquiry regarding enhancing public access to archived publications resulting from research funded by Federal science and technology agencies published in the Federal Register on December 31, 2009.

Knowledge Ecology International is an international organization that searches for better outcomes, including new solutions, to the management of knowledge resources. KEI undertakes and publishes research and new ideas, engages in global public interest advocacy, provides technical advice to governments, NGOs and firms, enhances transparency of policy making, monitors actions of key actors, and provides forums for interested persons to discuss and debate knowledge ecology topics.

We would like to thank the OSTP for its serious interest on this issue and for giving all stakeholders the opportunities to contribute to this debate.

To reply to specific questions from the OSTP, we offer the following comments in response to the nine questions:

Q1. How do authors, primary and secondary publishers, libraries, universities, and the federal government contribute to the development and dissemination of peer reviewed papers arising from federal funds now, and how might this change under a public access policy?

A1. Today there is little coordinated effort to support the funding of open access journals, and considerable resources being spent to support the costs of subscriptions to proprietary journals. If one would total the costs of subscriptions to biomedical journals, for example, and compare this to the support for open access journals, there would be a huge disparity, in favor of the subscription access journals. The challenge is to change this.

Q2. What characteristics of a public access policy would best accommodate the needs and interests of authors, primary and secondary publishers, libraries, universities, the federal government, users of

scientific literature, and the public?

A2.  Aside from eliminating subscription fees for access, there has to be an increase in the resources available to edit and management open access journals.  Something has to replace subscription fees in providing a decentralized system of support for quality journals.

Q3.  Who are the users of peer-reviewed publications arising from federal research? How do they access and use these papers now, and how might they if these papers were more accessible? Would others use these papers if they were more accessible, and for what purpose?

A3.  One benefit of open access journals is an increase in cross-disciplinary use of journals.  Today it is unfortunately the case that persons in some fields fail to read journals outside of their core specialization.  But often important ideas and data can be found in the scholarly work from a different discipline.  This is also a major issue for policy relevant work.  With lower barriers to access, not only will journals be read by persons outside of the core specialization, but by a much wider audience, including younger students considering a field of study, and policy makers, businesses, consumers and other elements of civil society that are trying to glean practical knowledge from scholarly research.

Q4. How best could Federal agencies enhance public access to the peer-reviewed papers that arise from their research funds? What measures could agencies use to gauge whether there is increased return on federal investment gained by expanded access?

A4.  We are skeptical of a particular metric being useful to drive a centralized funding mechanism.  What we think are more promising are new mechanisms to resource research institutions to support open access journals in a decentralized way, using their own criteria to select journals they find worthy of financial support.  This decentralized approach to valuation is what currently drives the subscription funding model.  But rather than have institutions paying for subscriptions to support the access to their own staff or students, the research institutes would support access for everyone.  Several different mechanisms should be evaluated, with input from research institutions and publishers of open journals.  One would be to require a certain fraction of research grants to any institution be spent to resource open journals, chosen by the research institution, or by consortiums of research institutions that the institution voluntarily joined.  This is one way to create a system of competitive intermediaries to fund on a decentralized basis the work of open journals.

In such a system of competitive funding consortiums, research institutions would be required to allocate a portion of their research budgets to one of the open access funding consortiums, but they could choose which one.  The competing funding consortiums would have different tastes and strategies for funding open journals, including preferences for particular journals and topics.  The research institution would resource the consortium that it believed was best supporting its research needs.

We also recommend consideration of the open source dividend approach, to reward and stimulate open access publishing.  This innovative policy has been described in academic papers and in recent proposals to the World Health Organization by Bangladesh, Barbados, Bolivia and Suriname, and in a proposal for TB prize for diagnostics that has been supported by many public health groups.   See James Love and Tim Hubbard, "Prizes for Innovation of New Medicines and Vaccines," Annals of Health Law, Vol. 18, No 2, pages 155-186, Summer 2009.
http://keionline.org/sites/default/files/prizes_new_medicines_annals_healthlaw.pdf

Q5.  What features does a public access policy need to have to ensure compliance?

A5.  A system of mandated funding of open access journals, as a condition of funding research, would require a workable definition of a qualifying project.  Given the fact that funding was involved, there would be no need to delay open access.   Requirements for archiving copies of articles, and making them available in open document formats would be important.

Q6. What version of the paper should be made public under a public access policy (e.g., the author's peer reviewed manuscript or the final published version)? What are the relative advantages and disadvantages to different versions of a scientific paper?

A6.  In the long run, you want to support, financially, true open access journals.  Even in the short run, a reader should have access to the actual text of the published article, with interior citiations (such as page numbers of paragraph numbers).

Q7. At what point in time should peer-reviewed papers be made public via a public access policy relative to the date a publisher releases the final version? Are there empirical data to support an optimal length of time? Should the delay period be the same or vary for levels of access (e.g., final peer reviewed manuscript or final published article, access under fair use versus alternative license), for federal agencies and scientific disciplines?

A7.  If there is no system of mandated funding of open access journals, it may be necessary to accept a delay in open access, such as 6 months after first publication.

Q8. How should peer-reviewed papers arising from federal investment be made publicly available? In what format should the data be submitted in order to make it easy to search, find, and retrieve and to make it easy for others to link to it? Are there existing digital standards for archiving and interoperability to maximize public benefit? How are these anticipated to change?

A8.  It should be manageable to identify a list of formats for the text or graphics of articles that would be acceptable for open access journals.  What will be more difficult are the formats for data and databases that are referenced or part of the research paper.  The development of multiple standards of presenting different types of data will be important to address the special requirements of different types of data.  For example, some economic time series data may have one solution, while certain geographic data systems have another, or medical research data yet another.  Even if it is not yet possible to have overarching solutions that cover all data, it should be possible to develop more common approaches to storing and sharing data of particular types, when the use of such standards will facilitate the aggregation or use of the data with other relevant datasets to provide additional analysis, or to lower the overall costs of data collection.

Q9. Access demands not only availability, but also meaningful usability. How can the Federal government make its collections of peer-reviewed papers more useful to the American public? By what metrics (e.g., number of articles or visitors) should the Federal government measure success of its public access collections? What are the best examples of usability in the private sector (both domestic and international)? And, what makes them exceptional? Should those who access papers be given the opportunity to comment or provide feedback?

A9.  Text should be digital, searchable, and indexed by search engines. The development of better standards for database data formats would make data more useful, as will a wider use of systems of annotation and comment by readers.  It may be useful to have better disclosures of conflicts of interest.  Better implementation of technologies to track and report links to an article would be useful.

We would like to thank the OSTP for facilitating discussions on policies regarding the expansion of the NIH public access policy to cover all federal agencies.

Respectfully submitted,
Manon Ress and James Love
Knowledge Ecology International

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Thank you for your consideration of this important issue.  I support the NIH approach to ensuring public access to taxpayer-funded research through a policy requiring researchers to deposit  articles accepted for publication in an accessible digital repository.  I encourage OSTP to extend this successful policy framework and approach to all other science and technology agencies.  I am a librarian, a library administrator, and a concerned citizen. I  strongly support full public access to all taxpayer-funded research. I manage a biomedical research library at a major public research university. My university is the largest public recipient of NIH research funds in the U.S. and yet we just went through a 12% state budget reduction. This means that we had to cancel 12% of our library materials, in addition to an average 9% price increase in journals. As a flagship biomedical research institution, we just lost one-fifth of our purchasing power for information resources to support and further the research enterprise. This will hinder the progress of research.  Public access could ameliorate this negative effect. I think a national public access policy should include the following  elements:

- Be a requirement across all agencies.
- Articles resulting from federal funding should be made freely available within zero to six months of publication.
- Articles should be housed in permanent, interoperable digital archives.
- Access may be either to the author's final manuscript or to the final published version.
- Articles should be presented to the public in a standard digital format that allows them to be fully read and used. XML is the current preferred standard.
- The archives must ensure permanent public research, retrieval, and full use rights, such as rights to data and text mining.
- Implementation should be coordinated across all agencies to ensure full compliance. Unnecessary overhead and costs should be minimized.
Thank you, again, for fostering this discussion of possibilities to improve access to taxpayer-funded research and to leverage the  public's investment in advancing knowledge and improving health.
Best,
Neil Rambo

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Based on consultations with stakeholders throughout the University, the University of California supports providing increased public access to federally-funded research results via open access policies. As a large, multi-campus research University and recipient of numerous federal grants , UC (the administration and faculty) believes that unfettered access to scholarly work is critical to the University's mission to advance scholarship and the public good. The faculty of the University expressed their support for open access in a letter from the Academic Council to Universit y President Mark Yudof on June 16,2009.

While the practical implementation of open access policies is not easy or straightforward, there is no question that the current journal publishing models have become increasingly unsustainable, and that they do not tap the full potential of digital technology to support the aspirations and obligations of the University and the faculty to disseminate research and scholarship widely and broadly. UC has been a leader in experimentation with alternative models of publishing and scholarly communication, and supports innovative solutions and initiatives on the campuses and systemwide (see http://www.escholarship.org/,for example).

*Who should enact public access policies?*
Any research made possible by federal funding , aside from classified information, should be subject to the public access law/regulations/directive. Therefore, all federal agencies should promulgate public access policies as part of their funding. UC agrees with the recommendation of the Scholarly Publishing Roundtable in its final report (http://www.aau.edu/policy/scholarly publishingroundtable.aspx?id=6894) that "Each federal funding agency should expeditiously but carefully develop and implement an explicit public access policy…"

*How should* a *public access policy be designed?*
*1. Timing*
The NIH Policy calls for submission of articles in PMC within 12 months. While more immediate access is desirable in many fields, we understand that other fields where there are lengthier delays between publications may demand a full year embargo period. According to the Scholarly Publishing Roundtable report, embargo periods currently vary between fields, and have changed over time according to changing circumstance s. The 12-month delay adopted by the NIH has proven effective, and should be adopted as a recommended standard for other federal agencies. If necessary, individual agencies could be given latitude to evaluate shorter or longer embargo periods during a development and implementation period.

**Version**
Ideally, the final, peer-reviewed, published article should be available (also known as the "Version of Record"). Right now, it is generally the author's peer-reviewed manuscript that is deposited to open access repositories, and is acceptable within the NIH policy. Problems with version control that arise when different versions of an article are deposited in different repositories, or when an article is edited or corrected before or after publication, would be minimized by requiring that the Version of Record be made publicly accessible.

*3.* **Mandatory v. Voluntary**
The policy needs to be mandatory. As the NIH experience showed, requesting voluntary compliance will have little impact.

*4.* **Other - implementation**
We have two primary concerns about implementation. The first is that inconsistency between policies and repositories at federal agencies could lead to additional staffing time and costs for researchers and especially for research administration , which would be a financial burden on the University. Agencies should work together to ensure consistency in how public access plans are developed so that there is consistency in implementation and to minimize administrative burden . The second concern is that federal agencies are sufficiently funded to pay for the start-up costs

associated with establishing and implementing the public access policies and mechanisms. Research funding should not be diverted to pay for this expense.

Thank you for this opportunity to respond to this important issue . We are pleased to see discussion of open access to federally funded research in both the legislative and executive branches of government, and look forward to seeing positive results.
Sincerely,
Lawrence H. Pitts
Interim Provost and Executive Vice President
Academic Affairs
Cc: President Mark G. Yudof
Vice Provost Daniel Greenstein

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I. Background to the AAUP Comments
The Association of American University Presses (AAUP) has 133 largely U.S.-based members, with representation in 42 states, the District of Columbia, and Puerto Rico. All are non-profit scholarly publishers who collectively publish more than 10,000 scholarly books and 800 journals each year. Most member presses are affiliated with research universities, but some are entities of scholarly societies and research institutes.  AAUP members publish on subjects and in fields covering the entire spectrum of scholarly research, not just science and technology; some of those journals contain articles based upon federally funded research. These publishers utilize a variety of business models including subscription sales and subsidized open access.  The AAUP supports the Administration's goal of increasing public access to the results of research funded by federal science and technology agencies, and we appreciate having been given this opportunity to comment. We would like to make two general comments before responding to the specific questions posed in the Federal Register Notice.

First, we endorse the shared principles and many of the recommendations in the January 2010 report of the Scholarly Publishing Roundtable appointed by the House Committee on Science and Technology. That report's principal recommendation, that "Each federal research funding agency should expeditiously but carefully develop and implement an explicit public access policy that brings about free public access to the results of the research that it funds as soon as possible after those results have been published in a peer-reviewed journal," is followed by eight further recommendations and five principles to be observed. These further recommendations are designed to ensure that the goal of free public access is met in a way that respects the interests of all stakeholders in the system of scholarly communication, and that maximizes the public good to be derived from meeting that goal.

The Roundtable report does an admirable job of explaining the importance of each of the further recommendations and so we list them here.
1. Agencies should work in full and open cooperation with all stakeholders, as well as with OSTP, to develop their public access policies.
2. Agencies should establish specific embargo periods between publication and public access.
3. Policies should be guided by the need to foster interoperability.

4. Every effort should be made to have the version of record (VoR) as the version to which free access is provided.
5. Government agencies should extend the reach of their public access policies through voluntary collaborations with nongovernmental stakeholders.
6. Policies should foster innovation in the research and educational use of scholarly publications.
7. Government public access policies should address the need to resolve the challenges of long-term digital preservation.
8. OSTP should establish a public access advisory committee.

We believe these further recommendations are part and parcel of the principal recommendation and must be considered along with it. Second, we note that the Roundtable's principal recommendation is broader than the one posted in the OSTP Federal Register Notice. The Roundtable's recommendation applies to all federal funding agencies; the Federal Register Notice speaks only of research funded by federal science and technology agencies. As a practical matter, however, some science and technology agencies, like the Department of Agriculture, the Department of Energy, and the Department of Health and Human Services, also fund research in the social sciences and humanities that would be covered by either an all agency or a STM-specific public access policy. We are also aware that other federal agencies of the Executive Branch have started to develop public access policies of their own, often with no stakeholder consultation or involvement.

Finally, although the explicit focus in discussions of public access to publications arising from federally funded research has focused on journal literature, we note that books and other texts may also sometimes result from federally funded research.

Given these circumstances, it would seem prudent and wise for all federal funding agencies to develop policies in accordance with a coherent set of guidelines. We believe the principles and recommendations of the Roundtable report provide such guidelines. The Roundtable report notes the variations in both funding patterns and scholarly practice within different fields in the sciences. Those variations are even more extreme in the social sciences and humanities, which tend in general to be much more poorly funded than the sciences, may require substantially greater non-federal investment to publish, and may require much longer embargo periods, or alternative routes to free public access, if they are to recover their publishing costs from sales and subscriptions. Therefore we think it vital that the Roundtable's further recommendations, with their emphasis on consultation, cooperation, interoperability, authority, preservation, and long-term sustainability be followed. AAUP members—university presses, scholarly associations, and research institutes—publish a significant number of the scholarly journals in the humanities and social sciences. Because of their stewardship responsibilities these publishers are particularly attuned to the costs to be managed in the exploration of options for expanding free public access. We believe that the AAUP community, many of whom have been experimenting with open access models, can be a valuable resource in future discussions of public access to journal articles based upon federally funded scholarly research.

II. Comments in Response to OSTP Questions:
**1. How do authors, primary and secondary publishers, libraries, universities, and the federal government contribute to the development and dissemination of peer reviewed**

**papers arising from federal funds now, and how might this change under a public access policy?**

Participants now contribute to the development and dissemination of peer reviewed papers arising from scientific research as follows:

a. The US government funds some research costs (researcher time, lab costs).
b. Universities subsidize these and privately funded research efforts in kind through maintenance of infrastructure to support and oversee the researchers.
c. Researchers write, review, and edit papers prior to publication either on their own time, on grant-funded time, or on university time.
d. Publishers (commercial and not-for-profit) support journal editors and editorial boards to manage the editorial and peer-review processes through which the best of the papers are accepted for publication. Each journal has a specific subject area of focus, editorial approach, and reputation to uphold. The brand name of a journal, along with the names of the editors and the publisher, serve as markers or filters for consumers and researchers. These confirm that the research and scholarship are well-executed and worthy.
e. Publishers also design, edit, and produce online and print editions of the papers in journal form. They most often recoup costs through sales of journal subscriptions worldwide. Some publishers recoup their costs through a combination of advertising sales, institutional subsidies, and author fee structures.
e. Universities, some corporate and public libraries, and some individuals purchase subscriptions to the published journals and provide access to their affiliated researchers, faculty, students, and other patrons.

Under a free public access policy, the ability of publishers to recoup the costs of peer review, editing, design and composition of content, and publicizing the content to the audience for the work, could essentially disappear. It would be vital to find other means of covering the costs incurred in validating the quality of the author's work and making it accessible. Some journal publishers have been experimenting with new models of funding (author fees, university fees, foundation funding, etc) but there has not yet emerged a model that is proven to be truly self-sustaining.

**2. What characteristics of a public access policy would best accommodate the needs and interests of authors, primary and secondary publishers, libraries, universities, the federal government, users of scientific literature, and the public?**

All participants would be well served by a framework of law, regulation, and collaboration that will encourage the greatest number of the high quality articles to be distributed to the widest audience at the lowest cost. The path for progressing to wider access to the science scholarship based on federally funded research will likely, and should, be evolutionary. We support the recommendations of the Scholarly Publishing Roundtable report of January 2010 for proposing to embrace the views of all stakeholders as we move toward improving access while upholding the quality, certification, and distribution aspects of the current scholarly publishing enterprise. Current copyright laws encourage creativity, innovation, and entrepreneurship that stimulate investments in dissemination and we believe these should be kept in place.

**3. Who are the users of peer-reviewed publications arising from federal research? How do they access and use these papers now, and how might they if these papers were more accessible? Would others use these papers if they were more accessible, and for what purpose?**

The users of peer-reviewed papers are primarily scholars and scientists affiliated with colleges and universities. Most of them now have online access to these journals through their libraries' subscriptions. Unaffiliated scholars and other readers can access peer-reviewed papers through libraries or through the journal publishers by subscribing or purchasing individual papers. Most journal subscriptions are available for sale at lower prices for individuals, or for per-article fees.

The majority of researchers have the access that they require to further their own investigations and mentor their students. However, some independent users may not currently have access to research they may find useful, either because of cost-barriers that would be removed by free public-access policies, or because the scholarly articles are not written to be accessible to lay audiences. It is impossible to predict the specific benefits that would accrue from expanded free public access to this literature. Many people believe there could be some benefits such as: better access to medical information, more innovation, improved public education, a better-informed electorate, etc. Each agency should research this question separately as the benefits and costs of free public access are likely to differ depending on the discipline, leading to different solutions to varying unmet needs.

**4. How best could federal agencies enhance public access to the peer-reviewed papers that arise from their research funds? What measures could agencies use to gauge whether there is increased return on federal investment gained by expanded access?**

The first question of how best the agencies might enhance public access to the peer-reviewed papers arising from their funding is likely to be answered differently in different fields. We recommend that federal agencies work with publishers, libraries, and scholars to research this question.

The second question here, of how agencies might gauge the value of their public access policies, is an important one. As a first step, we think it would be useful to learn from the PubMed Central experience. The NIH public access policy has been in place for nearly two years. Might the PubMed Central usage statistics be published? What has been the NIH federal investment in free public access, and what has been the return on this investment? The measurement tools in use at NIH may be helpful in framing the discussion within the other agencies.

**5. What features does a public access policy need to have to ensure compliance?**

All participants in the scholarly communications process are most likely to comply once there are clear rules. To help ensure compliance, any policy enacted should allow submission of the files in a format in which publishers already are creating and storing their content. Compliance will be easiest and most complete if file submission is an extension of a pre-existing process.

**6. What version of the paper should be made public under a public access policy (e.g., the author's peer-reviewed manuscript or the final published version)? What are the relative advantages and disadvantages to different versions of a scientific paper?**

The version of record—that is, the author's final published article—is considered by the overwhelming majority of users the most high-value version. However, there is certainly value in making data sets and technical and grant reports resulting from agency funded research freely available. A public access policy in which federal funding agencies and publishers collaborated, with the agency providing free access to reports and data sets and publishers providing links to paid or, after an appropriate length of time, free access to the finished article makes a great deal of sense and would have wide support. Such a policy is already in effect, with the active and enthusiastic participation of many publishers, at the National Science Foundation.

**7. At what point in time should peer-reviewed papers be made public via a public access policy relative to the date a publisher releases the final version? Are there empirical data to support an optimal length of time? Should the delay period be the same or vary for levels of access (e.g., final peer-reviewed manuscript or final published article, access under fair use versus alternative license), for federal agencies and scientific disciplines?**
There is no simple, one-size-fits-all solution to the embargo question; it varies, and varies widely, by discipline and specialty. In a few fast-moving fields in the sciences, research is outdated within six months; in some scientific fields, as in the humanities and social sciences, the citation half-life—that is, the length of time after publication in which half of an article's citations appear in other publications—can extend for years.

**8. How should peer-reviewed papers arising from federal investment be made publicly available? In what format should the data be submitted in order to make it easy to search, find, and retrieve and to make it easy for others to link to it? Are there existing digital standards for archiving and interoperability to maximize public benefit? How are these anticipated to change?**
Peer-reviewed articles arising from federal investment have been made publicly available by publishers, traditionally in paper and increasingly in electronic form. Publishers have invested and continue to invest in discovery, retrieval, and linking tools, and in electronic archiving, both on their own and with other enterprises. It would be fruitful to investigate questions about file formats and discoverability with researchers, publishers of various sizes, and librarians. As is made clear in the Roundtable report, U.S. agencies should also pay mind to the great deal of work already being done within the broader international scholarly communications community to develop consistent standards. Finally, in developing standards for data and file submission, agencies should consider, along with archiving and interoperability requirements, that require-ments should be simple and affordable to enable and encourage compliance. Individual researchers, or small non-profit publishers, are responsible for many of the journals in niche fields.

**9. Access demands not only availability, but also meaningful usability. How can the federal government make its collections of peer-reviewed papers more useful to the American public? By what metrics (e.g., number of articles or visitors) should the Federal government measure success of its public access collections? What are the best examples of usability in the private sector (both domestic and international)? And, what makes them exceptional? Should those who access papers be given the opportunity to comment or provide feedback?**

Measuring the degree to which public access is making a difference is an important question. An evaluation plan should be completed prior to starting the kind of massive project a public access database would entail. Detailing the mission, goals, and objectives of the database would serve as the foundation for any kind of metrics to determine whether or not free public access was meeting expectations. Output measures (e.g., number of visitors or number of downloads) will reveal only part of the picture. Outcomes, while considerably more difficult to measure, would reveal how the content is being used and whether or not it has made a difference in people's lives, whether it be that the discipline has advanced more rapidly than it would have without public access or that an individual, armed with new knowledge, was better able to contribute to the public good.

Providing a forum for feedback and comments may be expected by users of this prospective massive database (or interoperable databases). Monitoring and moderating such feedback and comments could, however, add to the costs of managing the database(s). We believe that the need for and purpose of this type of feature should be assessed by each agency, and the relevant community of researchers, publishers, and librarians, in order to ensure that any such tool is designed to meet the demonstrated need.

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It is absurd that the public does not currently have access to the fruits of the research that it has chosen to fund. I wholeheartedly support the notion of open access. Of course, policy should reflect the fact that the publication process is expensive and publishers need to be remunerated adequately, even if they are non-profit. This is difficult but not impossible.

It is ridiculous to assert, however, that the current system is in the interests of scientists, let alone citizens. Let me assure you that my own scientific research has been severely hampered by my lack of access to the very same journal articles that my tax dollars have helped make possible through NSF/NASA/DOE grants. This has happened to me in graduate school, as a postdoc, and in industry.

To pile irony on irony, as a US scientist I am more restricted in benefiting from taxpayer-funded research than if I were a scientist in a country that had less respect for IP rights. There are several countries where there is no meaningful threat of lawsuit for copyright violation. Scientists at non-profit and for-profit institutions in those countries arguably benefit more from US-taxpayer funded research than scientists in the US, because they are not beholden by copyright restrictions.

It is time to reform a system which is fundamentally at odds with basic principles of scientific inquiry. Entrenched interests, including the good-old-boys at the top of the scientific elite, are the only winners in the current system. Scientific progress and the public at large come out the losers.

Sincerely,
Peter Todd Williams, Ph.D.

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The Federation of American Societies for Experimental Biology (FASEB) is comprised of 23 independent scientific organizations, which represent over 90,000 scientists, and strongly supports the goal of increasing access to information that stimulates scientific and technological innovation. FASEB and its member societies are actively engaged in the process of disseminating scientific information, including the publication of nearly 60 journals. Moreover, FASEB and its member societies are leaders in broadening access to peer reviewed scientific literature, having pioneered many innovations in the use of online publication and the development of electronic archives of print publications. However, FASEB recommends against adopting a "one size fits all" program in this complex area and urges the Office of Science and Technology Policy (OSTP) to consider carefully both the issues raised below and the views of our member societies, many of which will be submitting comments based on their individual publishing experience.

One of the most vital contributions of scholarly journals is the coordination of the peer review process. Peer review has helped to establish standards of excellence respected by readers around the globe. The overwhelming majority of the manuscripts submitted to a given scientific journal are not published by that journal. Therefore, journals must finance the collection and review of several times as many manuscripts as they will ever publish, effectively acting as guardians for the integrity of scientific literature. The review process is an essential quality control mechanism that helps to ensure the veracity of published research reports in addition to facilitating communication through enhanced readability. We oppose publication of multiple versions of the same manuscript, as this will confuse and, in some cases, may even corrupt the scientific record. We urge the government to work with publishers to provide public access directly from the article of record in the journal by providing links back to the content.

A diversity of business models are employed to finance the coordination of peer review and the many other value-adding services rendered by scientific publishers. These models include "author-pays all immediate open access" and hybrid "author-pays and subscription-based" approaches. At this time, however, it is not certain which business models will be viable over the long-term, and therefore we strongly urge that the federal government refrain from mandating public access requirements for articles published in peer reviewed journals. Such regulation is unnecessary, costly, and will limit innovation by mandating a single set of practices in a rapidly changing field.

There are many ways by which the federal government can help to ensure public access to information. Change in the system of scientific publication, a system that adds great value to the scientific record, needs to be derived from a careful analysis of the potential costs and benefits. Since the NIH policy is being considered for expansion to other federal research-funding departments, agencies, and offices, it would be critical to have an impartial analysis (e.g. national Academies) of the policy's impact. This is not the time to establish regulations in this rapidly evolving field, and we strongly urge that OSTP refrain from mandating how not-for-profit scientific publishers disseminate a rigorously peer reviewed scientific literature.
Sincerely,
Mark O. Lively, Ph.D.
FASEB President