Policy Forum on Public Access to Federally Funded Research: Implementation

By Diane DiEuliis and Robynn Sturm

Yesterday we announced the launch of the Public Access Forum, sponsored by the White House Office of Science and Technology Policy. Beginning with today's post, we look forward to a productive online discussion.

One of our nation's most important assets is the trove of data produced by federally funded scientists and published in scholarly journals. The question that this Forum will address is: To what extent and under what circumstances should such research articles—funded by taxpayers but with value added by scholarly publishers—be made freely available on the Internet?
The Forum is set to run through Jan. 7, 2010, during which time we will focus sequentially on three broad themes (you can access the full schedule here). In the first phase of this forum (Dec. 10th-20th) we want to focus on the topic of Implementation. Among the questions we'd like to have you, the public and various stakeholders, consider are:

- Who should enact public access policies? Many agencies fund research the results of which ultimately appear in scholarly journals. The National Institutes of Health requires that research funded by its grants be made available to the public online at no charge within 12 months after publication. Which other Federal agencies may be good candidates to adopt public access policies? Are there objective reasons why some should promulgate public access policies and others not? What criteria are appropriate to consider when an agency weighs the potential costs (including administrative and management burdens) and benefits of increased public access?
- How should a public access policy be designed?
    1. Timing. 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? Different fields of science advance at different rates—a factor that can influence the short- and long-term value of new findings to scientists, publishers and others. Should the delay period be the same or vary across disciplines? If it should vary, what should be the minimum or maximum length of time between publication and public release for various disciplines? 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)?
    2. Version. 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 of different versions of a scientific paper?
    3. Mandatory v. Voluntary. The NIH mandatory policy was enacted after a voluntary policy at the agency failed to generate high levels of participation. Are there other approaches to increasing participation that would have advantages over mandatory participation?
    4. Other. What other structural characteristics of a public access policy ought to be taken into account to best accommodate the needs and interests of authors, primary and secondary publishers, libraries, universities, the federal government, users of scientific literature and the public?

We invite your comments and in particular encourage you to be specific in your thoughts and proposals, providing empirical data and specific supporting examples whenever possible so this discussion can generate maximum practical value. You may want to start by reading a more complete description of this issue as it appeared in the Federal Register.

Importantly, this is a community-moderated blog. That means we count on you to keep the forum focused and on-topic—something you can do by "voting" on comments. Voting is an expression of how germane to the topic a comment is. Voting up a comment expresses approval of the relevance. If enough people vote down a comment, the comment in question "collapses" into a link so that it doesn't interrupt the flow of discussion. Please read the complete Terms of Participation, where you can also learn how to "flag" comments such as spam or obscenities that violate the Terms.

We welcome your thoughtful comments in this open and participatory forum.

Diane DiEuliis, Assistant Director, Life Sciences, Office of Science and Technology Policy
Robynn Sturm, U.S. Assistant Deputy Chief Technology Officer, Office of Science and Technology Policy

This entry was posted on Thursday, December 10th, 2009 at 7:25 pm and is filed under News, Public Access Policy, Requests for Comment. You can follow any responses to this entry through the RSS 2.0 feed.

Responses to "Policy Forum on Public Access to Federally Funded Research: Implementation"

+3 Robert Garisto said on December 11, 2009 at 12:19 am:

In physics, we already have a scheme which works very well, and it would be a shame to mandate something which would cause this system to fail.
Researchers can post their paper, including changes suggested by referees, on the e-print arXiv: http://xxx.lanl.gov/form/. Journals publish a version of the paper which includes whatever copyedits, links, headers, etc., which they add to the paper. The e-print version of the paper represents the author's work, and it makes sense to require federally funded research to be made available on such an e-print server. But the value added by the journals beyond that (copyedits, links, headers, etc.) was not paid for by the government, so it does not seem fair to require journals

to make that version of the paper public. If there is a valuable difference between the author's e-print and the journal's version of the paper, it is due to employees at journals, and it does not seem fair to require those efforts to be free. Further, the peer review system, which involves efforts of author and referees as well as the journals, is paid for by charging for that final journal product.
So, in physics at least, have authors post their e-prints right away on something like the arXiv, but do not force publishers to post their final versions free of charge. This way the public has access to the thing it paid for, namely the research, and the journals can conduct peer review and still stay in business.

+7 Stevan Harnad said on December 11, 2009 at 1:53 am:

The difference in value between the unrefereed preprint and the peer-reviewed postprint is due to peer review, which peers do for free. The journal is paid in full, through its subscription revenues, for implementing peer review. If subscriptions ever become unsustainable, institutions can pay journals for peer review out of their windfall subscription cancellation savings. But till then, there is certainly no reason to deny access to the peer-reviewed postprint to all those would-be whose institution cannot afford subscription access.
Physicists have found it useful to share their unrefereed preprints since even before the Internet. Most other disciplines prefer to wait till after refereeing before making their papers public. But physicists have also been depositing later, peer-reviewed versions after depositing earlier preprints, from the very outset of Arxiv in 1991; Arxiv has never been exclusively for unrefereed preprints. It is just a repository where one can make unrefereed preprints publicly accessible even earlier than the published version. Now all authors can deposit either preprints or postprints in their own institutional repositories.
http://eprints.ecs.soton.ac.uk/15753/
http://www.nature.com/nature/debates/e-access/Articles/harnad.html#B1
http://www.publications.parliament.uk/pa/cm200304/cmselect/cmsctech/399/399we152.htm

Robert Garisto said on December 14, 2009 at 11:38 am:

Stevan: Please note that I said eprints should be posted "including changes suggested by referees". But it _does_ make a difference who posts the eprint for journal viability. Further, although peer review involves efforts of researchers, it also involves efforts of editors conducting the peer review (disclosure: this is my job), programmers, copyeditors, and others. Analogy: Trials involve the efforts of one's peers on a jury, but there are others involved to make the process work. Since people value peer review, it is important that mandated changes do not have the effect of killing it.
Thus I think there should be two goals:
1) Make peer reviewed research available to all
2) Preserve the viability of peer review.
Goal 2 should be obvious, since it is a prerequisite for goal 1. We should allow a lot of flexibility in how these goals are achieved. For example, both
A) mandating publishers to make their content freely available
B) mandating researchers to make their post-peer-review eprints freely available
meet goal 1, but (A) might not meet goal 2. Further, even if (A) is done in such a way as to meet goal 2, it will almost certainly involve a delay (e.g. publishers make content free after a year). Wouldn't it be better to allow a scheme like (B), where peer reviewed research is available immediately? And it is actually working now, since there are areas of physics where 99% of all published work is on the arXiv and yet journals still publish a copyedited version (potentially with other content such as editor-written summaries) for their subscribers. Perhaps this will not work in every field, but is that a reason to mandate it not continue in physics?
Finally, the conversation here is about US research, understandably, since the US government has funding control over it. But journals publish papers from all over the world, so again, care must be taken in how things are mandated. For example, if different countries ended up mandating different types of solutions for papers from their countries (already problematic: what counts, location of first author? corresponding author (which can change through the process)? trace the funding for every paper?), that could prove untenable for goal 2.
In summary, we should achieve the primary goal 1, making peer-reviewed research available, but be flexible in how each area achieves it so as to meet goal 2, preserving the viability of peer review. I suggest anyone who proposes specific legislation have a thorough understanding of how peer review is currently conducted throughout science, and what the likely effects of various mandates might be.

Stevan Harnad said on December 14, 2009 at 2:06 pm:

1) "Make peer reviewed research available to all": Mandate the OA self-archiving of peer-reviewed draft.
2) "Preserve the viability of peer review": It is being preserved, as now, as long as institutional subscriptions are paying the costs. If Mandated OA eventually causes institutional subscription collapse, convert to the OA publication-fee model then, paid for, by the article, out of the institutional subscription cancellation savings.
A) "mandating publishers to make their content freely available": No one is proposing (or able) to mandate journal publishers to do or not do anything. Federal funders can only mandate federal fundees.
B) "mandating researchers to make their post-peer-review eprints freely available": that's exactly what needs to be done now — and the *only* thing that needs to be done now (and it's already long overdue).

+10 Stevan Harnad said on December 11, 2009 at 1:30 am:

All federal agencies that fund scientific, technical and scholarly research should require fundees to make the resulting peer-reviewed articles to be made freely accessible online ("Open Access").
There is no objective reason why any publicly funded research that is published in peer-revewed journals should be accessible only to subscribers.
The costs of providing free online access are minimal. Fundees should be required to make their articles publicly accessible by depositing them in their own institutions' OAI-compliant Open Access Repository.
The deposit should be made immediately upon acceptance for publication. For the minority of publishers who do not yet endorse making the deposit Open Access immediately, an embargo of 6 months can be allowed during which only the deposit's metadata are openly accessible but

the author can provide individual eprints for researcher purposes in response to individual user email requests mediated by the institutional repository software.
http://romeo.eprints.org/stats.php
All empirical data indicate that the optimal embargo is no embargo. If there is any access embargo at all, the result is needlessly lost research usage and impact. There is no field of science or scholarship, fast or slow, that benefits — or fails to lose — from denying access to peer-reviewed, published results once they have been accepted for publication.
The only version of a paper that needs to be made freely accessible to all users online is the author's peer-reviewed final draft, immediately upon acceptance for publication. There are no advantages at all to later versions of the paper, only disadvantages, because fewer publishers endorse making their proprietary PDF freely accessible. Eventually the author's final draft can be in XML format, but for now any format (doc, docx, html, pdf, etc.) will do.
Only mandatory deposit is successful and effective. All other alternatives fail to generate deposits above the spontaneous unmandated level of about 15%. See Arthur Sale's studies: http://bit.ly/6kJCs2
The only relevant structural characteristics of a public access policy are the ones already mentioned: mandate deposit of the fundee's peer-reviewed final draft in the fundee's institutional repository immediately upon acceptance for publication. (Preferable format, but not obligatory: XML.) Compliance should be monitored by the fundee's institution, as part of the grant's fulfillment condition. Maximum permissible embargo before making the deposit Open Access: 6 months (but preferably no embargo). Deposits can be harvested to central collections and services like PubMed Central, but deposit should be institutional and not central, in order to reinforce and facilitate complementary institutional mandates to deposit unfunded research.
http://openaccess.eprints.org/index.php?/archives/136-guid.html
http://openaccess.eprints.org/index.php?/archives/369-guid.html
http://openaccess.eprints.org/index.php?/archives/494-guid.html

+1 Michael Smith said on December 12, 2009 at 6:19 pm:

I agree completely with Stevan Harnad's ideas. The best course of action would be to allow him to design the policy and its implementation!

Khürt Williams said on December 11, 2009 at 9:08 am:

I am also concerned that others (large corporations) will get access to information and data before everyone else or that I will only get access to a subset of the information. The rules should be the same for all.

+17 Benjamin Geer said on December 11, 2009 at 10:44 am:

All Federal agencies that fund research should enact open access policies. Ensuring open access to all research can only help increase its impact and thus its usefulness. A number of studies have indicated that open-access articles are more likely to be cited:
http://opcit.eprints.org/oacitation-biblio.html
It is particularly unjust for taxpayers to be required to pay to read the results of taxpayer-funded research.
Embargoes on open access only serve to slow down science. It would be simplest to require the publisher to provide immediate open access to the final published version, but this is not absolutely necessary, as long as there is immediate open access to the author's final peer-reviewed draft (or "postprint"). This can be accomplished by requiring the author to deposit the postprint in an open-access repository as soon as it is accepted, as Stevan Harnad argues above.
Open access policies must be mandatory. As noted in the blog post above, experience has shown that most researchers have not complied with voluntary policies. To the best of my knowledge, mandatory policies are the only approach that has been shown to work in practice. At the same time, there should be efforts to educate academics about open access, since misconceptions about open access seem to be widespread among university faculty in some disciplines.

+4 david thompson said on December 11, 2009 at 4:35 pm:

maybe worth repeating:
It is particularly unjust for taxpayers to be required to pay to read the results of taxpayer-funded research.

+6 Christopher said on December 11, 2009 at 5:25 pm:

I heartily agree that all publicly funded research should be available under open access parameters.
As an undergraduate biology student (soon to be a graduate student) I have personally experienced the frustration of being unable to access a paper containing critical information without paying $30 or more.
I do think that journals should be allowed to make money on the article over a period of exclusivity, but no more than 12 months.
This strikes a good balance between permitting journals to earn money (many of them are private business enterprises after all) while allowing the public to have access to this information.

Christopher said on December 11, 2009 at 5:30 pm:

Sorry to double post, but I would like to make another comment.
Some posts further down are arguing for immediate open access.
One way to do this might be to require journals to offer immediate open access options, permitting them to charge a reasonable fee for this service.
On the government side, a portion of the funding can be set aside (or added) to pay this charge.
Obviously, the definition of "reasonable" will have to be very clear.
I think this would benefit all sides of the equation.

+2 Stevan Harnad said on December 11, 2009 at 1:41 pm:

Martin Frank is Executive Director of the American Physiological Society, which publishes 18 journals that are among the 5% of journals that endorse neither preprint nor postprint Open Access self-archiving.
http://romeo.eprints.org/stats.php
http://romeo.eprints.org/publishers/11.html
Public discussion of the questions under consideration in this OSTP Forum has been ongoing for over 5 years now, but Martin Frank never tires of stating that there has not been enough time: http://bit.ly/69MmXG

Martin Frank said on December 11, 2009 at 2:31 pm:

Steven
Thank you for your reply. APS makes its content freely available within 12 months of publication, distributes its content freely to institutions in developing countries through HINARI and AGORA, and offers articles directly to patients on an request basis. We have also joined DeepDyve to enable readers to access our articles for $0.99.
Not-for-profit publishers were making content freely available well before NIH mandated it and without the unnecessary expenditure of Federal dollars to create PubMed Central, dollars that NIH could have used to fund biomedical research.
Let me also say that I have been commenting on this topic for as long as you have been defending public access and institutional repositories.
Let me also say that it is my intent to respond to the questions in the future without commenting on the comments of other responders. Steven, this in not your blog and there is no need for you to do that here.

Stevan Harnad said on December 14, 2009 at 2:07 am:

Martin, it is not my blog and it is not your blog. We are both free to comment. And as I, like you, have been following this discussion for years, I am committed — when I see the all-too-familiar prima facie FUD http://www.nature.com/nature/journal/v445/n7126/full/445347a.html and filibuster attempts from (some) publishers appearing yet again in this Forum — to make sure that the public also hears the prima facie replies to the FUD http://bit.ly/4mPqVP .
(As I mentioned, 63% of journals http://romeo.eprints.org/stats.php — but not including the APS's 16, http://romeo.eprints.org/publishers/11.html — are already on the side of the angels insofar as the OSTP and FRPAA public-access proposals are concerned: Those 6500+ Green journals from 260+ Green publishers have already given their official blessing to their authors' self-archiving their peer-reviewed drafts immediately upon acceptance for publication. So the opposition to the proposed open access mandates is shrinking. But the FUD is still flying, so the FUD-busting is still needed…)
(Apologies for mistyping the 16 APS journals as 18 in my earlier comment.)

+1 Anton-Scott Goustin said on December 11, 2009 at 1:56 pm:

Citizens who fund science ("The Public") will establish a better bond with scientists and the Universities if there is more "transparency" to establish an affable relationship between The Public and The Ivory Tower. At private universities such as University of Cambridge and Harvard University, there has been an historical tension between town and gown. This tension is counterproductive to the aims of science in a democracy. Open Access journals help to bring town and gown into a less tense relationship where dialogue can flow. This tradition is old in the US, dating back at least to Thomas Jefferson (1743-1826), who conceived the University of Virginia (UVa) in 1800 as a PUBLIC university, near his home at Monticello (VA). Jefferson's ideas arose out of personal discussion with the British chemist Joseph Priestley (1733-1804), co-discoverer of oxygen (with the Swedish chemist Carl Wilhelm Scheele). The rapid rise of the United States in the 19th century was no accident, but the result of policy–guided by visionaries such as Jefferson, father of the Patent Act of 1790, and founded of UVa.
The tension between science and The Public fomented by the Bush-Cheney administration not only crippled science in the US, but the relationship between universities (the wellspring of invention) and The Public. Economic growth and progress requires cooperation between scientists and the public. People like Jefferson and Nathaniel Bowditch (1773-1838) understood the need for public support of Universities. They would like favor Open Access in today's debate.

+1 Jerome Helffrich said on December 11, 2009 at 2:19 pm:

Some thought must be given to the treatment of the results of work that was funded partially by government and partially by industry, a large-scale example of that being Sematech. It does not seem appropriate to make all of that research publicly available, but defining what part of it should be is difficult. Similar considerations exist with work that is funded by a combination of say NIH and private foundations. Perhaps some form of documentation throughout the research process can signify what is public and what is not.

bob crangle said on December 11, 2009 at 11:00 pm:

This is especially true for the innovation arena, where fundamental work engages societal needs. STTR, SBIR, "Centers" and many agency programs that require industry involvment are examples. Research managers and principal investigators create elaborate (perhaps artificial) systems to segregate public from private funds in such efforts. Agencies could instead require submittal of a specific Public Access Map to be reviewed and judged as part of each research proposal. That Map, created in the context of the research itself by the stakeholders, with review by the funders, could include ownership of intellectual property, nondisclosure agreements and exceptions, intended publication channels and timetables, availability of source codes used to process research data, protection of graduate student thesis development, and so forth. It would be a mistake to try to devise a single uniform rule to govern everything from frontier work in number theory to development of advanced high-density batteries for commercial applications.

Stevan Harnad said on December 12, 2009 at 10:25 pm:

The OSTP proposal is only to mandate making already *published* research publicly accessible to all users online, not just to subscribers. The OSTP proposal is not to mandate making *unpublished* research publicly accessible. The industrial support for research comes from industrial R & D. It has nothing to do with the publishing industry and has no more interest than any other part of the research community, public or private, commercial or nonprofit, in restricting access to its published findings only to journal subscribers.

+5 Thomas Lackner said on December 11, 2009 at 2:29 pm:

A six-month lag between peer-reviewed publication and Open Access publication doesn't seem unreasonable. I am unlikely to give up my subscriptions to filters like Nature, Science, Ecology, or Evolution just because I could read it for free (if I could find it) in PLoS or another web source if I waited six months. Having said that, as a taxpayer I find it outrageous that I have to pay twice for research, once to fund it and a second time to read the results.
It also seems to me that the best way to foster an interest in science and to improve science education in the United States is to make the results of scientific research freely and widely available. To cloak our work in an aura of mystery makes it more, not less, subject to unwarranted criticism. We need to promote free access not just because the taxpayers have paid for it but because one of our goals as scientists should be to promote an understanding of the process of science; part of that process is dissemination of the results of research.

+10 Melanie Styers said on December 11, 2009 at 3:38 pm:

Please note that in small undergraduate institutions (which are often located in rural areas), many journals are neither available on the internet or in bound copies. In these cases, university libraries may be located one to two hours away. This problem makes undergraduate education problematic, as not all undergraduates have cars!!

+3 Stevan Harnad said on December 12, 2009 at 10:33 pm:

Open access does not mean the library print access that has been there since long before the online era. Open access means free online access to all research articles, for all would-be users, not just those at institutions with library subscriptions to the journal in which it was published. Nor does it mean free online access to unrefereed preprints. It means free online access to the peer-reviewed, final drafts, immediately upon acceptance for publication.

+8 RAY ONEAL said on December 11, 2009 at 3:16 pm:

Any results (data) that are not sensitive in a national security, public security or other defense / military context should be made public.
The results of federally funded research appearing in refereed journals should be available to US taxpayers at no or reduced cost. Many smaller educational institutions, many of which service primarily members of populations already at social and economic disadvantage, do not have the financial resources to pay for access to journals that many of us in the scientific and technical professions working in the private sector, for national labs, or well endowed private institutions take for granted. These barriers should be eliminated wherever possible.

+3 David Klassen said on December 11, 2009 at 5:15 pm:

I would agree, but add that "sensitivity" ought be be something that must be proven. That is, the default position for any research is open and public.

+1 Stevan Harnad said on December 12, 2009 at 10:36 pm:

Please let's distinguish the issue at hand — mandating free online access to peer-reviewed, published research — from the entirely distinct matter of mandating publication of unpublished research. Conflating the two helps neither.

+6 Erica Dahl said on December 11, 2009 at 3:20 pm:

I absolutely support free open access to all US government funded research that has been peer reviewed and published.
As a toxicologist I cringe daily at the scientific misinformation that is freely available to the public. The public needs free access to credible scientific studies so they can protect themselves from bogus claims. The PLOS model seems to be working quite well as far as I can tell.
I have never gotten paid for peer reviewing manuscripts…claiming that as part of the cost of publishing really isn't fair.

+9 Melanie Styers said on December 11, 2009 at 3:30 pm:

As a professor at a primarily undergraduate institution, I would find it extremely helpful if all publicly funded research were freely available within at least one year after publication. We encourage our students to reference the primary literature in papers and to present the primary literature in our classes. However, the lack of access in undergraduate institutions is a significant inhibitor in this process. In order to progress beyond the textbook in our classrooms, we need access to the primary literature. Universal access to publicly funded research can help us to better prepare our students for careers and for graduate or professional schools. It would also provide a more equal playing field for small undergraduate institutions.
I believe that the NSF could be very helpful in this situation, by standing for the release of publicly funded research for the purpose of scientific education.

+7 Michael Boland said on December 11, 2009 at 3:42 pm:

I fully support the concept that all publications derived from publicly funded research should be openly available. Whether this is via open access publishers (PLoS, BMC) or via government-sponsored repositories (PubMed Central) is probably not critical. It should be the final version of the manuscript that is available, however, and not a pre-peer review draft.

If public funds are used to sponsor a project, it should be mandatory for any published results to be made available back to the same public that provided those funds. Either each public funding agency should be expected to enforce open access policies or a single agency should be charged with this responsibility for all public funding agencies.
The timing of the release of the open access version should ideally be immediate but it seems reasonable to allow the 6 month embargo for commercial publishers.
The argument that commercial publishers are somehow adding significant value to the work seems overstated. Remember that public money is used to generate the data, the publicly funded investigator then writes up those results and other (usually publicly funded) investigators spend time reviewing the manuscript without compensation. The contribution of the journal publisher may therefore include editorial oversight, administrative effort to coordinate the peer review and format the manuscript for publication, and the cost of printing. In exchange for these costs (currently recovered by subscription and advertising fees), it seems reasonable to grant the 6 month embargo to the publisher. Alternatively, it might be reasonable to include publication charges in public grants to help cover these expenses (either at a commercial publisher or one of the growing number of open access publisher). Note that most research libraries receive their funding from grant overhead (indirect) charges so these costs are already being paid by the funding agencies.
I will disagree with the comment above that the current model is “open access”. University libraries are not universally open to the public so not everyone can access paper copies of journals. Furthermore, fewer and fewer journals are retained as paper now so electronic access is essential. This does not make public access any easier as computer terminals in research libraries are not open to all and require authentication of users.

+8 Tom Boellstorff said on December 11, 2009 at 3:51 pm:

As Editor-in-Chief of American Anthropologist, the flagship journal of the American Anthropological Association, I strongly support the idea of open access. My concern is that my association must find a way to fund my journal and the other journals they publish. It does take money to publish a journal, and the process of peer review, editorial commentary, copy editing, distribution, and the other work of the journal does add significant value. If American Anthropologist (or a substantial number of the articles published in American Anthropologist) are available for free on an open-access basis, then the fear is that our subscription base will decrease to the point where the journal is no longer viable.
Thus, one idea that I’d provisionally set out (and this is very provisional, as my high workload means I must write this comment quickly) is that if scholarly journals received more federal support, then it would be easy to make them open access for all. This is the model in many countries. It would not be that expensive, comparatively speaking, to fund the annual expenses of a whole series of scholarly publications (the equivalent of a single mid-to-large size lab-research grant could fund the yearly expenses of the more than 20 journals published by the American Anthropological Association, for instance).
I’m sorry that I don’t have the time to discuss this idea further, but I wanted to briefly note that this discussion of open access could (and, I would argue, should) include discussions about federal support for the publishing of scholarly research, in addition to the research itself. It would make publishing more democratic in some cases (some researchers must write into their grants funds to support publishing, depending on discipline) and would make open access much more feasible.
Sincerely yours, Tom Boellstorff
Professor of Anthropology, University of California, Irvine
Editor-in-Chief, American Anthropologist

+1 Stevan Harnad said on December 12, 2009 at 10:49 pm:

What is urgently needed today is free online access to federally funded research findings, for all would-be users who cannot afford subscription access to the journals in which they are published. This can be provided by mandating that all fundees make all their final, peer-reviewed drafts freely accessible online in their institutional repositories. It does not require funding journals over and above the subscriptions that are already paying their costs. If free online access should ever make institutional journal subscriptions unsustainable as a means of paying publication costs, then institutions can use their windfall subscription cancellation savings to pay for their researchers’ publication costs by the article. But there’s certainly no need for that today, when we have the subscription costs, paying in full for publication, but we do not have the free free online access. http://www.publications.parliament.uk/pa/cm200304/cmselect/cmsctech/399/399we152.htm

+1 Michael McCoy said on December 18, 2009 at 1:48 pm:

While I support open-access, the suggestion that the government should take an active role in supporting scientific publications could very well lead to the (increased) politicization of the journal’s content. Subsidies would allow congress and the executive branch to exert influence on journals through the power of the purse. Can we really trust that the government remain agnostic in its view of journals?
A good example is the current (almost completely political) controversy over global warming science; non-mainstream journals could get increased funding if the research they publish supports a political view. Conversely, journals covering an emerging or unpopular field could be ignored in the federal funding game.
Let me anticipate a comment: how is funding a journal any different than funding the science that gets published in them? Well, when the government funds research, it can induce a funding bias towards projects that further political goals, like funding green technology or making stems cells from adult cells. However, the results of the research are unpredictable (”wow! adult stem cells just aren’t that good!”); funding journals would allow de facto censorship on the results of research, effectively politicizing both ends of the scientific process.
So what’s an agnostic solution? We could require open access for federally funded research, but also require grant agencies pay a journal when an open-access paper is viewed, or better, cited. This would further encourage journals to publish quality papers and disseminate them widely; moreover, this policy could be implemented on a (voluntary) retroactive basis. Classic papers could be opened up and the original funding agency would be responsible for future “citation royalties”. This policy could also set a precedent for any published research; the funding agency or affiliated institution will be required to pick up the tab, governmental or not. Indeed, this is a policy that journals themselves could pursue, though I’ll admit that a federal mandate will make the system more universal.
Recalling how politically unpopular science has been since its inception should cause scientists to be skeptical of an increased political role in the scientific process. Let’s find a way other than direct government subsidies to journals.
Sincerely,
Michael McCoy
PhD Student

The California Institute of Technology

+11 Evans Boney said on December 11, 2009 at 4:39 pm:

As a 4th year PhD student, I can attest that publishers add nothing to the scientific process. PhD students at my school, Caltech, are proud to support the student statement at http://righttoresearch.org/ .
Here's an overview of what happens in peer-reviewed research:
1- SCIENTISTS spend weeks preparing a grant proposal and sometimes get a grant, likely paid for by citizens of the USA.
2- SCIENTISTS do the research.
3- SCIENTISTS submit a paper to their peers
4- these other SCIENTISTS review these papers and send back comments.
5- PUBLISHERS claim a copyright on the result of the SCIENTISTS work and make the money that should rightly belong to the people who did the research. This money comes from subscriptions paid by libraries which, at public universities, are ALSO paid for by citizens. PUBLISHERS add two extra costs to the public at large, and are entirely worthless and burdensome to today's scientific structure.
Here is an example. I am currently rapidly pursuing a new idea in evolutionary biology. I've been reading papers day and night, and my iPhone has made it particularly easy to read any paper I want, whenever I want. However, since PUBLISHERS do not act in the interest of the SCIENTISTS, I do not have access to old, influential science papers, for which they prefer to charge $60 and not put online. I've been waiting over a week for a paper copy of one of the most influential theses of all time. It's the only hangup in my research (opportunity cost), and it's created by the selfish motives of the publishers to squeeze every living cent out of both scientists and the public in general.
Bold action like that taken by the NIH is necessary across all scientific disciplines. Peer-review has not been undermined in medical research by the requirement of disclosure, and the argument against free disclosure of results is almost laughable. Unless something is classified, why shouldn't the public have a right to read what they paid for? How can we expect them to educate themselves, in high school, college, or life without this ability?
Please, let everyone teach and learn science without having to pay a useless middleman.
Evans T. D. Boney
4th year PhD Candidate
Noyes Laboratory of Chemical Physics
California Institute of Technology

T Scott Plutchak said on December 11, 2009 at 7:21 pm:

The logical outcome of this line of thought is that scientists should quit submitting their papers to journals, but should organize their own peer review process outside the publishing stream. The way you describe the process, that should be quite simple, no? If publishers are "useless middlemen" why bother using them?

Stevan Harnad said on December 12, 2009 at 10:55 pm:

Let's just mandate providing free online access to published, peer-reviewed research, such as it is, today, before we go on to putative logical consequences. Public access to publicly funded research online is already long overdue; more radical speculations and proposals can stand to wait…

+2 Evans Boney said on December 15, 2009 at 3:36 pm:

"The logical outcome of this line of thought is that scientists should quit submitting their papers to journals, but should organize their own peer review process outside the publishing stream. The way you describe the process, that should be quite simple, no? If publishers are "useless middlemen" why bother using them?"
As I may have mentioned, I've lobbied my school extensively and (almost) all grad student organizations have signed onto the statement above. i.e. … we don't want to use them anymore. That's why this issue has come up, there is bipartisan support for the outcome. We're funded by the government, so… this is the place to do it.
Also, let me admit I didn't see exactly how detailed the office was in asking for comments. That is very encouraging, and I applaud them for their good work. Glad they are taking this seriously, here are my specific points:
Who should enact public access policies?
All federal funding agencies, after the manner of the NIH. This is a matter of good financial stewardship, just like keeping track of what happened with TARP money. If you don't get the results of the research in exchange for the money… what are you really getting?
Timing.
The 6 month embargo has caused no problems in the NIH, no reason to enact a weaker policy now. A stronger policy, however, may actually cause problems for publishers who do, after all, have some overhead. 6 months was a good compromise which has the added advantage of experience. A year is an unnecessarily weak compromise that adds nothing except dollars to publisher's pockets.
Version.
The version must be peer-reviewed, but can lack any copy editing done by the publishers. This will encourage them to quantify exactly what their "contribution" to the article is, and will specify exactly what they are copyrighting (the specific presentation, not the content). Indeed, this would be a way to leverage the profit-motive that should be causing journals to compete for the betterment of scientific presentation. As the paucity of journal articles available online would suggest… this profit motive is not currently being leveraged.
Mandatory v. Voluntary.
Any policy must be mandatory to receive any sort of participation from scientists, who generally eschew non-science activities. However, university librarians on many campuses have started to be forced to cut journal subscriptions as a result of rising costs, and we scientists are starting to notice. I'm not happy about it. Additionally, I would note that I have used PubMed many times over the years and, additionally, the benefit to research that comes from scientific content being indexed by google scholar (or the like) cannot be overstated.
Other.

I would encourage the government, perhaps through a coalition with the NAS, to work on developing open-source peer-review processing software. The role of editor as peer-referral guru is a detriment to science when a quantitative metric could be used to determine the right "peer" for a paper given a set of keywords. This is not to suggest eliminating the editor by any sort of mandate, but rather offering an open-source "best-practices" software to make the editor's job easier.
Additionally, I would support higher disclosure requirements for publishers as well as frequent audits of their books, so that the public can gauge what portion of their costs truly go to "overhead", and what percent has been wasted. Indeed, not every publisher should survive in the future, just as not every one has survived in the past. But the rules of science should be drawn up by scientists, with capitalists only making money as a matter of necessity.
As is, the rules are a mish-mash of traditions and lax oversight that result in an oligopolistic price-setting by a few journals with inordinate clout that lead to unlimited pricing power. Elsevier is an example of a publisher whose pricing practices should be examined by a federal agency for signs of fraud.

+1 Evans Boney said on December 15, 2009 at 5:42 pm:

PS - community moderated comments normally sort by community-rating. Without that, the good ideas are presented in many different ways with lower positive scores than could be gotten by emulating the community-rating system of, for instance, digg.com (which instantaneously re-orders them). Perhaps a daily re-ordering is sufficient and easier to program but…
In general… the alternative is a preferable comment system to the current one.

Julio Medrano said on December 11, 2009 at 5:04 pm:

The scientific community at large (Global Research) would benefit from any scientific advancement cited in an 'Open Access' Federal Funded research paper. Hence if we do this, we should also require any developed countries that also fund research, to do the same, so U.S. scientists can benefit from those publications as well –i.e., a mutual benefit!

+3 Jason Morton said on December 11, 2009 at 5:08 pm:

All federally-funded research should be made freely available to researchers and the public, either at time of submission (as many use the arXiv), acceptance, or publication. Requiring recipients of federal funds to post the paper on their website or deposit it with their institution would work. Merely ensuring scientists always have the right to distribute their work through one of these channels may even be sufficient.
Researchers prefer their work to be as widely read as possible and would generally never choose to have it behind a pay wall. We sometimes agree only because of the historical importance of certain journals which are able to maintain the restriction, but it is never in our interest. This is merely a coordination problem, as it is difficult for single researchers to refuse to publish in top journals because of their restrictive access policies. A mandate would neatly solve this coordination problem.
Embargos and restrictions only slow the progress of science, which should not be our goal. Taxpayers and educators should not have to pay often exorbitant fees for work they have already funded.
Jason Morton
Assistant Professor of Mathematics and Statistics
The Pennsylvania State University

+3 Beth Robelia said on December 11, 2009 at 5:09 pm:

I am a cognitive scientist. Many educational research studies are federally funded but teachers cannot access the results because they are published in journals that are not open access. I strongly support open access to all federally funded studies (that do not jeopordize national security) including those funded by the IES and the NSF.
1. Timing
There should be no embargo. Let teachers and administrators start using research results in classroom as soon as possible.
2. Version
Scientists (including myself) are not paid for their services to review papers. Peer review is part of the scientific process. As scrutiny by colleagues improves interpretation of results, I believe results should be public after peer review. I am not opposed to having papers posted prior to peer review as well.
3. Mandatory
As we have seen that voluntary does not work, I support mandatory public access in an easy to use search engine designed by a professional information architect.
4. Other
Access to the information should be made easy for people who are not scientists or even college graduates. Information makes us all more powerful. In this democracy, let us make our information a part of the power we give to all.
A citizen that supports democratic information distribution,
Beth Robelia, Ph.D.
Kitchen Table Learning

Stanley Penkala said on December 11, 2009 at 5:16 pm:

I see a need to incorporate archives of the raw data generated and/or utilized in the development of the scientific papers submitted for publication under this OSTP. At present, it is the policy of some journals to require authors to provide the raw data of their research, so this request is not unusual or unprecedented.
However, there are numerous examples of Federally funded research and the resulting papers being published without any submission of the underpinning raw data. In fact, some authors explicitly refuse to provide the raw data that they gathered using Federal research funding. Furthermore, some authors stonewall and/or introduce unreasonable delays in responding to requests for data filed under the current FOIA laws.

With the current technology available for storage and dissemination of vast quantities of data with little or no cost except for transmission time, this retention of raw data is not warranted.
As further evidence of the generalized ease in data access, I would note the OSTP's Tweetoid of the Day:
"What's the average American's data diet? About 34 gigabytes per day!"

+3 Gerrell Drawhorn said on December 11, 2009 at 5:26 pm:

There are a few areas of concern that I can see in making available data and articles before peer-review has occurred, and the comments of peer-reviewers.
The first may occur where the author neglects to encode or protect the identities of sources, informants or patients adequately and this is "caught" in the peer review process before publication. In anthropological, sociological or clinical studies the database can sometimes allow identification of confidential sourcing simply by associating the site and demographics of the subject. I recall that in the 1950-690's this was the means the CIA was enabled to identify potential allies or political opponents in a number of Rand Corporation funded studies. Peer reviewers may suggest that the investigator provide better encoding to their data to protect their informants, but the original submission may clearly identify the subject.
As well, peer-reviewers have generally been graced with some degree of confidentiality in some journals. This allows more candid reviews of the work and anonymity. If comments are now to be made more public such remarks about the quality of the work or errors might actually NOT be presented. Or the critical comments might be made through informal routes.
Lastly, a submitted paper is, in a very real sense, still a work in process. It is not a final "published" paper and may contain errors, miscalculations, a dropped reference, or any number of other glitches. The peer review process is the system used to improve and correct papers before release to the public and other peers. By releasing "pre-publication" papers there is the very real possibility that the information may be used to harm individuals careers, make accusations of "efforts" at data distortion (even though the error might be based on the selection of an improper statistical method or typographical error).
While Federal agencies certainly have a responsibility to provide an accurate product UPON publication there is a risk that publication of deliberative information can be distorted if made accessible to nefarious individuals.

Stevan Harnad said on December 12, 2009 at 10:58 pm:

The proposal is not to mandate public access to unrefereed, unpublished research, but to peer-reviewed, published research.

+1 charles holden said on December 11, 2009 at 5:46 pm:

When taxpayers support research, published results should be freely available to the taxpayers. The $20-$35 access fee is a high barrier to the advancement of technology. Accordingly, the federally supported author(s) should submit his final text to "FEDOX" to facilitate public access. FEDOX would be the national repository of all publicly funded research work product.It would repose in servers and be accessible online. The published information would be available to anyone with a valid social security number and a current password and a credit card. Presently the information generated by the federal support is not circulated equitably. The publishers could receive a reasonable fee say 1 cent per page for information downloaded that is printed. A firm such as Google could manage this task because it has done a great service making the Patent Office records available.
A condition of continuing funding to author(s)would be proof that all funded reasearch work product has been incorporated in FEDOX data base. Like the PTO records, the database would be search-able to ascertain that the research being paid for advances rather than repeats past work. Legislation will have to be drafted and passed to accomplish this important objective.

Jeffrey Ryan said on December 12, 2009 at 8:12 am:

Federal agencies already require that all datasets (these are the work products of funded research) be made available to the public as a condition of future funding, and quite a lot of Federal money has been spent setting up these databases and making them both accessible to the public and user-friendly in their application. If there is an obstacle in this effort it's that information technologies have leaped ahead of the funded database projects, and current funding rules at NSF and other agencies make it difficult to refurbish and update these resources.

Mooseke Girl said on December 12, 2009 at 1:01 pm:

I agree that more should be done to make these results freely available to the public and that these access fees are a big barrier. However, use of a social security number or credit card number is also a big barrier. Keep in mind that some of the members of the public who should have access are students. Also, in the current economic times, many people are choosing not to have credit cards.

Stevan Harnad said on December 12, 2009 at 11:07 pm:

What is lacking is not (yet another) federal repository to deposit it in, but a federal mandate to deposit — in fundees' own institutional repositories, whence it can be searched via central harvesters (including google), without the need to pay anyone an extra penny. (Publishers are already amply paid by subscriptions.)

+4 Garrett Moffitt said on December 11, 2009 at 5:56 pm:

The data should be made available immediately. All papers should be made available no latter the 12 months after publication.
All the papers should be maintained in digital form on a wiki that has public content additions turned off.
In order to maintain a transparency that is consistent and fair, the rules must be mandatory.
There needs to be a forum anyone can read, but only the authors of the paper can add content to in order to rebut misinformation about a study that appears in the media.

+4 reed gann said on December 11, 2009 at 6:30 pm:

Publicly funded research should be made available under open access regulations immediately upon publication. Not allowing access to anyone but subscribers for any length of time is double-taxing the citizens of this country. Not to mention that some scientists use public funds to help pay for subscriptions, which is an ever grosser fleecing of americans. In this way americans pay twice for something that they still can't even get access to!
Enforcement could be brought about via legislation that requires it, with penalties attached for violations, including the exclusion of all a publishers content from internet search engines. Science does not exist without the ability to learn what has been done and move forward from there.

+7 Patrick Brown said on December 11, 2009 at 6:59 pm:

I suggest that the natural, direct approach to improving access to the fruits of research funded by US taxpayers is already provided by the US Code: Title 17 (Copyrights) , Chapter 1, Section 105, which reads: "Copyright protection under this title is not available for any work of the United States Government"
What makes this route so appealing is that the legal path is already clear:
In the 1976 House of Representatives report (HOUSE REPORT NO. 94-1476), in the paragraphs clarifying the intent of Section 105, is the following:
"The effect of section 105 is intended to place all works of the United States Government, published or unpublished, in the public domain. "
And particularly relevant to work funded by grants or contracts from the US government:
"Although the wording of the definition of "work of the United States Government" differs somewhat from that of the definition of "work made for hire," the concepts are intended to be construed in the same way. A more difficult and far-reaching problem is whether the definition should be broadened to prohibit copyright in works prepared under U.S. Government contract or grant. As the bill is written, the Government agency concerned could determine in each case whether to allow an independent contractor or grantee, to secure copyright in works prepared in whole or in part with the use of Government funds."
There is therefore already a clear path for the executive branch to simply make a determination that it is generally not in the public interest for independent contractors or grantees, particularly recipients of grants in support of non-classified research, to secure copyright in works prepared in whole or in part with the use of Government funds.
The advantage of this approach is that it achieves the intended goal in a very direct way, requiring no new legislation, and no need for elaborate new rules.
It also avoids forcing authors of research articles to negotiate with publishers for the right to provide public access to the published results of US-funded research - if the authors don't own the copyright to begin with, there is nothing to negotiate.
Authors of US government-funded research articles would have no difficulty finding rigorously peer-reviewed jourals willing to publish their work under these terms. Indeed there are already many highly successful, highly reputed, rigorously peer-reviewed scientific and medical journals (for example, those published by the Public Library of Science) that are flourishing as open-access publications that essentially place published works immediately in the public domain.

+1 Patrick Brown said on December 12, 2009 at 3:33 pm:

Addendum in response to Robynn Sturm's request that comments specify the specific implementation questions they address:
My suggestion was in response to the following questions posed to the forum:
1. Are there other approaches to increasing participation that would have advantages over mandatory participation?
- Extending the Section 105 prohibition on copyright for works funded by US government to work funding by US govt research grants would insure universal participation yet sidestep the need for a mandate - "participation" would be passive and automatic.
2. What other structural characteristics of a public access policy ought to be taken into account to 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 seems to me that the "Section 105• policy would be virtually transparent to authors and would provide the simplest possible framework for other stakeholders to adapt to.

+3 lilivava said on December 11, 2009 at 7:33 pm:

The IOP archive and the IOP generally have good policies towards the promotion of scholarly reviews in physics. We are dealing with global data that transcends political boundaries, and there should be some agreement or one time fee to acquire at least the IOP archive for the sake of everyone interested in physics in the united states.
A free ebook called "The Fourth Paradigm" outlines the concerns for making scholarly articles accessible.
The fact of the matter is that there are amazingly bright and deeply interested children that are being locked out of the world of information because they have to put up with Thompson's Gale Science when they could be getting crucial text and language necessary to invent and compete. The fault of education and textbooks is that they do not encompass the most logical and full repositories, which are left to those who have the money to buy an article or live in a country with higher standards.
I suggest a World Athenaeum Archive in which curators of data would participate in cooperative fashion, so that the great texts would be brought to internet inquirers. The explosion of data makes it inevitable that the value is with the reader and not the writer. The quality of the reader is only as good as the archive he has free access to.

+2 nasrola ned edalatpour said on December 11, 2009 at 8:10 pm:

It is a privilege and is heartening to read what these good bloggers all write in the cause of open and 'free' access to scientific publications funded out of taxpayers mostly hard-earned monies.

I support ‘free’ access for all, even anywhere in the world, since we in this country benefit immensely from the brain drain of the volunteer, enticed, or invited or even exiled scientists, technologists, doctors and all manner of intellectually trained folks from many places in the world, even poor countries.
It is more becoming of our economic and governing and the good parts of our ethical systems to encourage and facilitate lifelong learning for all, rather than putting money barriers of any amount before them as amply stated in the above blogs.
Out of many who are inquisitive and inquiring only a few emerge as discoverers, and the more populated this segment gets the more that one chance gets better, ‘out of many, a unique one” e pluribus unum holds here too.
Let us not delay the needed access by debating every minute detail, forever: pass the rule of universal access, then debate to change the details afterwards forever.

+1 Peter Stanton said on December 11, 2009 at 8:20 pm:

I suggest legally requiring all biomedical research that is funded by public funds be opened to the public for free immediately after publication. All biomedical research that is not publicly funded should be required to make itself available for free within 6 months, or at the very least be required to make an avenue available for researchers and health professionals to access it. This is because medical and biological research, while a valuable intellectual property, needs to have the rights of ownership balanced against the possibility that keeping it private is allowing people to die or live a lower standard of life which could be prevented by making this research public.
I believe that all research done under the auspices of the government, such as astronomical research funded by NASA should immediately be made available to the public, only delaying to give the original research team the opportunity to claim due credit for their work by publishing their research under their own names in a peer-reviewed research periodical. After this has happened, the raw data should be made available for public perusal.

+5 Josh Perfetto said on December 11, 2009 at 8:39 pm:

Publicly funded research should be made freely available to the public online the minute it is published, including both papers and data sets. There is no reason the public, after paying for the research, should be forced to pay again to obtain the results.
Journals simply do not provide any value in this day and age when information can be so easily shared online. The high fees they charge and their rejection of quality papers only serve to hinder progress, not advance it. Because many journals are in turn purchased by publicly funded institutions, the net is a taxpayer giveaway to publishers for which the taxpayer gets nothing in return.
Government agencies sponsoring research should use be using their power to shape a healthier ecosystem that furthers scientific progress & technological advancement, and more efficiently uses taxpayer money.

Jeffrey Ryan said on December 12, 2009 at 8:05 am:

The problem with this argument is that public funds from Federal granting agencies don’t support the entire research process - only the data collection part of it, and often only part of that. Colleges, universities, and other institutions pay the salaries of those researchers, all or most of the stipends of the graduate and undergraduate students who do the data collection ss part of their degree programs, and provide the physical infrastructure to do the research, and thus have rights to the fruits of those labors. As well, the researchers themselves are the ones who think up the ideas, posit the testable hypotheses, and make the interpretations of the data (Federally supported or not) that lead to advances in knowledge and arguments that journals are willing to pay to publish. All of these entities have rights to the fruits of these efforts, just as if the outcome of the work was a specific product that one markets.
Existing patent law as applied to academic products is a good model to start with for looking toward appropriate public access - the researcher and the institution get their share of the proceeds, and the Federal government may freely use the product if it is deemed to afford a clear public benefit.
The problem with the end-member public access position is the contention that using tax monies trump everything for any reason. The same argument justifies the following: since public funds pay for roads and highways, and we drive on those roads and highways to go to work every day, then the proceeds of our work (i.e., our salaries) are by definition public property and should be redistributed accordingly.

+2 Pavak Shah said on December 12, 2009 at 12:25 pm:

I believe Josh was making his argument regarding published results from the data collection part of the research which, after being published, should be made freely available to the public. Typically any IP that would be filed would happen before this publication, although US patent law allows for a 1 year grace period after public disclosure.
I personally agree with him that private journals no longer contribute real value to the scientific community except as an easy (and often flawed) mechanism for judging a papers quality or impact. Ultimately, a PLoS-like model would be better for the scientific community and society as a whole by allowing researchers, industry and the general public to easily and freely access all publicly funded published data. Such a system could be subsidized by ad revenue and by restricting free access to the general public and non-profit institutions while charging nominal access fees for commercial usage. This could be done in a way that would actually increase the availability of published science to industry since the cost of journal access is already beyond the range that the vast majority of early-stage companies could afford.
While I agree with your argument regarding the fact that often the institutions themselves carry many of the other costs associated with research (salaries, facilities, etc) I do personally believe that public institutions at least still have a responsibility to carefully weight whether a particular innovation should be patented or opened to the public domain. Public institutions still receive much of their funding from State governments and have a mandate to work toward the betterment of the people of the that State and of the United States. When our citizens and public health institutions face difficulty in providing essential services to our communities because of the inflated costs of patented publicly funded research that was done at a public institution (examples: BRCA1 for cancer detection, primers for detection of TB by PCR)I believe we have a problem. In the case of the PCR diagnostic for tuberculosis, the State of NC’s TB lab is currently looking at systems developed by FIND and the Gates Foundation for use in the developing country because they cannot afford proprietary PCR assays currently being marketed in the US!

While I do believe some institutional changes are necessary, I don't think the issue is so black-and-white. There are some good arguments to be made about the value of the revenue that public institutions can generate off of patents and the good that revenue can do in the long run. I personally don't entirely buy that argument, but it is one which is widely made. At least for now, it is up to us as scientists to recognize that these are our labs and it is ultimately our responsibility to to ensure that our work can benefit society as widely as possible.

+2 Josh Perfetto said on December 12, 2009 at 8:49 pm:

I don't think it makes sense to break down costs in the manner you are, and say that only the payers of the human costs are entitled to the fruits of the labor, and the payers of the inanimate costs are not, because the inanimate things just sat there and didn't help interpret the data. These are all components of a collective effort.
Most grants are awarded to support investigative research. The results of that research are dependent on the data, which is dependent on the hypothesis. All of these components are at some point the results of human work. Even in your case where an institution paid the salary of the investigator, the investigator would not have had the chance to interpret the results if it were not for someone else paying for the parts of the investigation that the institution did not cover.
I don't think the highway analogy holds - the highway is a public good, meaning the public has provided it for the public to make use of. Because it is a public good, there is no expectation of something in return each time it is used. Your research funds are not a public good, as the public is not entitled to use of these funds. That doesn't mean that the public is not entitled to something in return though, which is what this discussion is about.
As Pavak said I was not talking about IP, but I agree with you that for both IP and papers, the solution needs to be fair to all of the parties that helped fund the research. I just don't see a whole lot of monetary value coming from the published papers for anyone but the journal publishers, including the investigator. The value the investigator gets from a published paper is mostly indirect in terms of recognition, and this wouldn't be lessened by free access to the paper.
Investigators focusing their research on "arguments that journals are willing to pay to publish" is precisely one of the things I'd rather avoid.

+1 Stevan Harnad said on December 12, 2009 at 11:16 pm:

Can we agree to mandate public access to peer-reviewed research publications first, and then worry about making unpublished data accessible? All authors already want maximal usage and access for their peer-reviewed research, but they are not yet unanimous on how long they want to mine their hard-earned data before declaring open season on it.

-2 Jeffrey Ryan said on December 13, 2009 at 1:48 pm:

Part of the problem in discussions about open access is that there is a poor understanding of the economics of academic research, which leads to a devaluing of what it is that researchers and academic institutions contribute to the process
It is worth clarifying that Federal grants are not sought to "do" research; they are sought to pay for the parts of a given research project that institutions can't support out of their own resources. Really it's a marketing exercise on the part of Federal granting agencies, who solicit proposals to support the conduct of research on a wide range of topics. There have long been private research institutions, like the Carnegie Institution of Washington, who support research primarily out of their own resources, and "Research 1 • class universities (both State and privately funded) that explicitly list research (usually with some particular foci) as an institutional mission, list various measures of research productivity as evaluative criteria for their employees,dd and provide at least partial financial support for the effort. There are no colleges or universities that don't provide some level of in-house research support, because as a matter of practice Federal granting agencies won't support research grants to places that don't. So all the academic "players" have paid a significant ante to be in this game.
If the research an academic researcher is doing requires little or no extramural support, then they do so without support. Often, however, there is a requirement for extra financial support, generally to facilitate data collection or to "buy" the services of student research assistants who do said data collection. It may also "buy" the time of a nine-month appointed faculty member during the Summer to do research, when they would otherwise be teaching - though it should be noted that Federal rules don't permit faculty to pay for their time through the entire summer, and the fiscal realities of granting agencies constrain this further, so in fact most faculty who are "working" on Federally-supported research are actually being paid by their institutions to do something else during that time. This is obviously the case during their nine-month academic appointments also. So, Federal dollars don't "pay" for research - they provide partial assistance with some expenses, with institutions picking up the lion's share.
The metric of academic research productivity on which faculty at such institutions are measured is peer-reviewed journal publications. The journals are run by both academic societies and by for-profit publishers, and in either case there are real costs associated with their production (interestingly, the movement to Web-based digital publication has not led to big cost reductions (although it's saved bunches of trees), because the real costs of journals are people costs - someone has to edit, set copy, maintain servers, etc. The review process in most academic journals is a volunteer process, but maintaining the infrastructure to manage and facilitate the process (i.e., securing reviewers, getting reviews to editors, etc.). These days it's automated, but the automation is itself a commercial product that is "rented" to journals for a price.
So, real money is spent to maintain even a non-profit academic journal, and this money is recovered two ways: 1) subscriptions, both to individuals and to libraries, with the library subscriptions being the biggest revenue producer, and 2) through page charges to researchers who submit articles which pass muster in peer-review and are accepted, which are sometimes paid for by Federal grants, but often are not, which usually means the researcher has to pay them him/herself - which they do because their tenure/promotion/raise depends on them getting published.
Open access to journal articles essentially removes the value-add to having academic journals. If there is a public repository where any or all Federally funded research goes, then there's no need for maintaining the electronic journal subscription. Libraries then start cancelling those journal subscriptions (this is already a problem), which puts the journals out of business, meaning peer review of research results and publication goes out the door, which removes the motivations for research faculty and for research institutions to support research faculty, which means we don't train the next generation of research scholars, etc.
The academic "economy" is like any other economic system - it's interconnected, and doing harm to a key piece of that system (i.e., removing the economic "value" of journals by making their product available for free) ravages the whole system. Federal agencies had these very thoughts when they came up with their policies on patenting discoveries based on Federally-funded research (and it should note that most patents at

academic institutions ARE based on work funded by Federal grants). Research publications are as much the fruits of academic scholarship as patents, and need to be treated as such.

+2 Mike Serfas said on December 14, 2009 at 11:15 pm:

Note that institutions receive what is often around 50-60% extra grant money for facilities and administrative costs, in addition to the direct funding that pays the postdoctoral fellows, technicians, major equipment purchases, routine supplies and so on. Put it this way: have you ever heard of a university complaining that it couldn't afford to pull in any more research grants?
Also note what peer reviewers are typically paid for their work: nothing. Also consider what authors submitting to prestigious copyrighted journals are paid: less than nothing! (yes, there are actually page charges)
The game is really very simple: certain journals have a long-standing reputation as "good journals". Scientists who would like to be funded in the future feel compelled to publish in them. A cost of the transaction has been the copyright on the resulting paper. Note that this exchanges a public asset (access to the research results) for a private reward (a nice publication on the CV). Though the practice has been systematic throughout the scientific community, it is still in its essence a form of corruption. That is why the government has been called in to intervene.
Our goal should not be to put journals out of business, but we need to adapt their business model to fit a new century. The number of copies they can press is no longer limited, and in the end that should not really be a hardship for them. We simply need to find ways of ensuring that they receive fair value for work done, without an enforced inefficiency of restricted access.

+5 Anna Thomas said on December 11, 2009 at 8:55 pm:

I am a science fair participant, and I can tell you from direct experience that having full length studies open to the public would make science fair a thousand times easier. Instead of having to guess by the snippets that Google shows, I would be able to have access to research protocols often not accessible elsewhere on the web. If these studies are taxpayer funded, we should most definitely be able to see it. With the incredibly high fees ($30 for one day usually), I seriously doubt that these journals have a whole lot of customers lining up to buy these articles.
Bottom line: if we paid for the research, why should we have to pay again to see the results?

-2 Nick D. Polimeni said on December 11, 2009 at 11:24 pm:

The question is framed as if the research had already been approved, and when papers on results should be published, etc.
Project being considered for funding should be known before funding is granted, and there should be public input as to whether it should or not be funded.
Regardless of the agencies which are now able to issue rules or policy concerning access, there should be a coordinating agency or office to make sure there's uniformity of policy where such uniformity is important or necessary, specifically the general concepts or philosophical statements which will guide the rulings.
There should be several levels of accessibility from "general public" to "top secret." And users should be able to apply online for these clearances.
In general, all "raw scientific discoveries" should be available to "general public." However, when the research is intended for military use, the applications may require "top secret" clearance. The level of clearance required should be first generated by the research leader, on scientific basis.
Unfortunately, there maybe a tendency to make everything secret, so rules concerning this may require an independent panel to approve the classification. We are aware that research on one topic may yield potential military applications. While the raw science should be available to all, it maybe important NOT to disclose any military applications except to the appropriate clearance level; therefore each item of research would have to be classified individually.
The information should be available in perpetuity and accessible through the same system. Announcements should be send-able to interested parties to meet whatever deadlines the research team deems necessary.
Summary: In general, I'm in favor of total disclosure, with restrictions to military applications.

Stevan Harnad said on December 12, 2009 at 11:19 pm:

Misses the point. This is not about freedom of information, it is about freedom of access to published, federally funded research.

harold lee said on December 11, 2009 at 11:42 pm:

Public access to scientific research is most desirable. However, many if not all research projects are specialized and only a small proportion of the scientific community will understand. For example, environmental biologists will find it difficult, if not impossible, to understand high energy physics with pages of formula and calculation. Therefore, interpretations are needed for laypersons including scientists not in that field of specialization.
To have public access is to make public understand what is going on with government supported research. To do so, I think it is economical to publish a monthly synopsis of published research papers supported by government agencies, NIH, NSF, Arm forces etc. And these synopsis should be in forms that are understood by laypersons, i.e. no scientific jargons.
How to do it ? Author for that particular research paper should submit along with his or her scientific report an abstract for the laypersons on the subject. And that layperson abstract will be published monthly in a web site.

Stevan Harnad said on December 12, 2009 at 11:23 pm:

The primary public benefit of making publicly funded research publicly accessible online is that all the researchers for whom the research was primarily written — not just those with subscription access — will all be able to access, use, apply and build upon it, to the benefit of the public that funded it.

Mike Serfas said on December 20, 2009 at 5:40 am:

The number of scientific publications from the U.S. is truly staggering - no one really knows how many in total, but the Web of Science indexing service tracked 340,000 in 2008. (http://researchanalytics.thomsonreuters.com/m/pdfs/grr-china-nov09.pdf) Writing a meaningful summary for the layperson for each of them would require at least several hours, and a full day of total work might be put in by the time these are submitted, reviewed and hosted online for public view. That could mean that writing these summaries would take up close to one thousand man-years of highly specialized labor - for salary of $40,000 per year, it would cost 40 million dollars' worth of labor each year.
The public access initiative offers a less comprehensive but much cheaper alternative. Students, interested amateurs and sometimes the original authors are willing to put in time and effort for free to build the knowledge base on Wikipedia. The main limit to these efforts is the inability of many to access the original papers, and legal restrictions on copying photographs and illustrations also limit Wikipedia development. Wikipedia editors bring many of the more interesting recent developments to the attention of readers, and can help them to make more sense of basic concepts and technical jargon. They also provide links and information regarding political organizations that may help voters to bring about more research on a topic through Congressional earmarking of funds. (Such earmarking is often a bad idea, as it is difficult even for experts to predict the success of a line of research, but people have the right to demand action on important questions) The yearly cost of operating all of Wikipedia, paid by donations, is only $6 million.

+4 Patrick Brown said on December 12, 2009 at 3:18 am:

If a US government grant is awarded for a proposal to generate data and nothing else - no interpretation or analysis of that data - then I would agree that the data should not be subject to copyright, while the interpretation and analysis might be.
But researchers are rarely awarded grants just to spew data - if a researcher proposes not only to generate data but to synthesize it into insight and understanding, or use it to generate new ideas, and the grant is awarded on that basis, then he/she can hardly claim that the original ideas were not part of the grant-funded research.
Of course, any researcher who does not want to be obligated to share the results and interpretations of their grant-funded research with the people who ultimately pay the bills should be free to seek research funding from other sources.

Josh Perfetto said on December 12, 2009 at 7:09 am:

Well said.

Stevan Harnad said on December 12, 2009 at 11:28 pm:

We are talking about research articles that fundees publish in refereed journals. No researcher has any interest at all in restricting access to paying subscribers. Researchers all want to maximize the uptake and impact of their findings. No one is proposing to take away their intellectual property; just to maximize its intended usage.

Mike Serfas said on December 12, 2009 at 2:03 am:

[Re: (4) Other: Structural characteristics]
In the early 1980s, as a high school student, I could wander into the local college library to find references for a term paper. I could leaf through the card catalog, dig into the five-year indices for Chemical Abstracts, and read any journal on the shelves.
But if you were to try the same thing today, as an outsider to a campus, you may find that even access to the online card catalog requires a university affiliation. Access to proprietary online search resources is usually out of reach, and many of the journals from after the year 2000 are no longer available on paper but can only be accessed from a terminal by those who have been issued username and password.
This is a disheartening shift in philosophy. It changes the campus from an educational resource for the community into a privileged reserve that views knowledge as an asset to be locked away. It further alienates a general public that was never very eager to become involved in science. I don't believe that university librarians have any desire to send this message, but rather they are forced into it by copyright holders for what is really very little economic advantage.
Solution: When considering publication requirements for individual researchers receiving direct grant funding, I think you should consider requiring reasonable access policies for university libraries that receive indirect costs from these grants — specifically, that visitors who physically enter the university library during business hours should be granted the same access as university students and staff.

-1 T Scott Plutchak said on December 12, 2009 at 2:48 pm:

It is pretty standard these days to include such clauses when negotiating licenses, and there are very, very few publishers who do not allow access to their resources to be given to anyone who is authorized to enter the library building. Most public universities provide at least some measure of such access. Private universities may be more restrictive, but that has always been the case.

Stevan Harnad said on December 12, 2009 at 11:38 pm:

The problem is not that of getting public access to the articles in the refereed research journals to which institutional libraries can afford to subscribe. The problem is getting any access at all to the articles in the refereed research journals to which institutional libraries cannot afford to subscribe — for no institution can afford to subscribe to more than a fraction of the planet's refereed journals.

Mike Serfas said on December 13, 2009 at 5:40 pm:

I should provide a little more background. When an individual researcher obtains a research grant, the university at which he works receives additional money according to a negotiated agreement with HHS. This is called “overhead”, “indirect costs”, or properly “Facilities and administrative costs”, and it is substantial. For example, the rate is 50 percent for the University of Kansas Medical Center (http://www.kumc.edu/news/publish/General_Information_9/New_Facilities_and_Administrative_Rate_for_Federal_Grants_and_Contracts.shtml) or 61 percent for Princeton (http://www.princeton.edu/orpa/ratesheet.pdf). Only a few percent of this money goes to fund campus libraries, but even so it can be a substantial sum.
Because libraries from both public and private universities receive this public grant money, I think it is reasonable to require them to allow access for the general public whose taxes have paid for the journal subscriptions. This is in the same spirit as the open access requirement for individual researchers, which I also approve, but applies to the other pool of grant-associated funds. This would complement the open access initiative, allowing members of the community some access to papers predating the policy.

+1 Stevan Harnad said on December 14, 2009 at 1:30 am:

To repeat: If I get a federal grant to do some research, and I publish my findings in a peer reviewed journal article, the problem is not whether my own institution makes its own subscribed holdings accessible to the general public (over and above institutional users). The public can come in and read our institution’s print holdings; perhaps they can even be given a temporary login so they can come in and read our institution’s online subscription holdings. But that’s not the problem, nor the point. The point is the (online) accessibility of my article to a public that is distributed all over the US (in the first instance) and the entire planet (once you give it some thought). So local accessibility to my own institution’s subscription holdings, online and on-paper, when they happen to be in town, is not a solution for all these potential users. The solution is to mandate that the peer-reviewed final draft is deposited in my institutional open access repository immediately upon acceptance for publication, making it freely accessible online to all potential users planet-wide.

Mike Serfas said on December 14, 2009 at 10:30 pm:

Stevan, your proposal does not create any improved access for the old literature that predates the open access initiative. A policy for assured library access is well justifiable as a requirement for obtaining facilities and administrative costs, and as pointed out it might not pose any burden at all on some universities with community-friendly policies. I’d just like to take the “perhaps” out of your statement about public access to library holdings.

+1 Stevan Harnad said on December 15, 2009 at 1:05 am:

The urgent, indeed long overdue, immediate priority is to provide free online access to currently funded research, henceforward. Once we have that, globally, the legacy literature will easily follow — by a variety of potential means, none of them linked to the fulfillment conditions on the current fundees of current federal research grants or their local institutional libraries. The present proposal has to be kept feasible and focussed on its natural, immediate target. Over-reaching will just continue to keep us deprived of what is already within our grasp.

+3 Ryan Young said on December 12, 2009 at 6:29 am:

All published taxpayer funded research results should be made available to the taxpayer. Simply put, we cannot justify ourselves as a society who values the education of its citizens without providing public access to the materials which would educate them.

+1 Anil Cashikar said on December 12, 2009 at 9:14 am:

Publicly funded research should be publicly available. I suggest the following new system which may require a radical change in current thinking about research papers and publishing. With present day internet and IT, there is no need to have non-open access publishing.
First, research by registered research grantees would be placed in a repository instead of sending it for review to a journal. The format of the uploade manuscript can be a simple and universal format. Here the worth of the paper (impact factor?) will become obvious by reader ratings. Good and reliable research findings will automatically find their way to the top of the ratings scale (and vice versa). The rating method will provide an unbiased ‘peer review’ that is likely to be far superior to any present-day peer review system.
This system would also coupled with a strong search function to facilitate full text based searches.
This system will also eliminate the unnecessary waste of endless hours that government grantees spend in writing/rewriting manuscripts. This extra time can lead to greater productivity by the grantees. Moreover, most of the hard work is already done by the authors (preparing figures to requirements and sometimes even formatting the paper for the journal).
Most researchers are all too familiar about the lack of a clear correlation between high impact research and high impact journals. The open-access system presented here will also solve problems with present-day publishing. Of course there is plenty of room for improvement - so comments are welcome.

+1 Stevan Harnad said on December 12, 2009 at 11:42 pm:

Can we please first free peer-reviewed research, such as it is, from access restrictions online, before we go on to speculative proposals about freeing it from peer review?

Anil Cashikar said on December 14, 2009 at 12:38 pm:

We cannot change the past but future we can.

Matthew Truch said on December 12, 2009 at 10:54 am:

For those of us in fields which already make most of our research available at the arXiv (http://www.arxiv.org/), a free and open repository of papers (primarily the fields of physics, mathematics, non-linear science, computer science, quantitative biology and statistics), please make it such that posting to the arXiv would fulfill any public access requirement so that we don't have to post our papers twice. The arXiv is funded in part by the National Science Foundation, is very popular within the community, "accepted" by the journals, and works within the current system. We already know the importance of free, open, and quick access to our research.
It would be a shame to legislate a similar, but incompatible, system which only duplicates the cost and effort already put forth by the community.

Stevan Harnad said on December 12, 2009 at 11:54 pm:

Yes, having to do multiple deposit is to be avoided at all costs. But the right way to do that is to mandate convergent deposit in all cases, in the fundee's own institutional repository, and to implement an automatic export function, such as SWORD, to export to central collections like Arxiv or PubMedCentral where desired. (Yes, physicists have been doing it the other way round for nearly 20 years now, but that's no reason not to update, optimize and integrate the practice. A familiar, Arxiv-like deposit interface could easily be designed to accommodate those who are accustomed to depositing directly in Arxiv. But to insist that everyone do it that way is the tail wagging the dog — and rather like insisting on depositing directly in Google, rather than depositing locally and letting Google harvest.)
http://openaccess.eprints.org/index.php?/archives/369-guid.html

-1 Aaron Guerami said on December 12, 2009 at 12:17 pm:

President Obama is allowing the science community to develop a system to manage publicly funded science. This transformation will revolutionize education, research and implementation.
Most comments on the forum are in favor of secure open access to public information. I did not realize that students, undergrad and grad students have the same problem as I do. Access. They have to pay up to $30.00 for a paper. Students should never have to pay for information. They are our next thinkers.
This new system will require greater discussion on implementation of the system.
1) the new system must be a secure system.
a) The system must identify the user.
b) The system must know the hardware of the user.
c) The system must have levels of security.
d) The system must not be open. America's work is to profit America.
2) The system must have moderators.
a) Moderators must deal with emotions
b) Moderators must build the closed wiki
c) Moderators should be psychologists. The trained moderator can transform an angry person into a useful tool through conversation.
d) Moderators can be of assistance in finding resources for users.
e) Moderators should have input in funding.
f) Moderators should prod users into expanding their thoughts.
g) Moderators should have the power to remove users through a open compliance system. Overseen by a judge.
3) Voting and comments are the new arguing.
a) Poor thinking will be handled by the users through discussion.
4) Forums must have links to relevant papers, data, videos and tools.
a) Tools like Matlab, Mathematica, and WMaxima must be supported at no cost to the user.
1) Tools should be built into the forum
2) IDEs and APIs should be built into the forum.
b) If a topic needs access to a supercomputer, the moderators should be the ones who arrange this resource.
1) Moderators submit equations and data to the Labs and they optimize the code and return the results.
Metric. Base 10 is much better the base hodgepodge.
This system needs testing. Start small and fix bugs. Then expand to new topics and fix bugs, then fix more bugs…
The system needs to be built and secured by the NSA. I do not want our research and hard work going to the Chinese or other countries.
There needs to be a way for businesses to buy work created here. For example, Every school in the nation should have an advanced weather lab. Bids are taken and work is produced in the USA. Now we have hundreds of thousands of data points at every instant.

-2 Aaron Guerami said on December 12, 2009 at 12:23 pm:

We cannot build an effective Electronic Medical Records system until this is complete.
Aaron Guerami
http://aaronsreality.blogspot.com

+1 Robynn Sturm said on December 12, 2009 at 3:09 pm:

Thanks, Aaron. While this posting is focused on “Implementation,” the Public Access Policy Forum will turn to questions of “Features and Technology” on December 21st. I would encourage you to engage on these questions once that posting is live.

Stevan Harnad said on December 12, 2009 at 11:59 pm:

The proposal is just to provide public access to federally funded research. That just requires the deposit of the final, peer-reviewed drafts of research journal articles in the fundee’s institutional repository immediately upon acceptance for publication. The repositories and repository software already exist (EPrints, DSpace) and have some of the capabilities you mention — but not all, because not all are needed it even relevant. The only thing that is missing the the federal mandate to deposit.

-2 Aaron Guerami said on December 14, 2009 at 11:28 am:

The listed proposal is designed to provide money and jobs to people to manage this massive system. We need to evaluate the next system, not the current one.
The implementation of the new system is going to require the support of current tools. We loose many important thinkers because we cannot afford to support the developers. Since we are the most important consumers of advanced thinking, we need to think of a way to make sure that they are funded. It is not just about the papers. It is about making sure the advanced thinkers are paid reasonably over the long term.
We are about to lose Sun Microsystems. They fired 6000 thinkers. We cannot afford to lose these thinkers to the ‘free market’. They open sourced their products and Sun crashed. It is important to think of this while we are discussing implementation. We cannot afford to lose research centers like Sun or the Labs.
The damage that access to information will cause upon the ‘free market’ needs to be assessed.
Aaron Guerami
http://aaronsreality.blogspot.com

-2 Aaron Guerami said on December 14, 2009 at 1:22 pm:

I have written about the prediction and impact of open source on Sun Microsystems.
http://aaronsjava.blogspot.com
Aaron Guerami

Paul Fernhout said on December 12, 2009 at 12:59 pm:

Two related items I’ve written on this:
“An Open Letter to All Grantmakers and Donors On Copyright And Patent Policy In a Post-Scarcity Society ”
http://www.pdfernhout.net/open-letter-to-grantmakers-and-donors-on-copyright-policy.html
“On Funding Digital Public Works ”
http://www.pdfernhout.net/on-funding-digital-public-works.html
The executive summary from the first (the second is a longer version of the first):
“”"
Foundations, other grantmaking agencies handling public tax-exempt dollars, and charitable donors need to consider the implications for their grantmaking or donation policies if they use a now obsolete charitable model of subsidizing proprietary publishing and proprietary research. In order to improve the effectiveness and collaborativeness of the non-profit sector overall, it is suggested these grantmaking organizations and donors move to requiring grantees to make any resulting copyrighted digital materials freely available on the internet, including free licenses granting the right for others to make and redistribute new derivative works without further permission. It is also suggested patents resulting from charitably subsidized research research also be made freely available for general use. The alternative of allowing charitable dollars to result in proprietary copyrights and proprietary patents is corrupting the non-profit sector as it results in a conflict of interest between a non-profit’s primary mission of helping humanity through freely sharing knowledge (made possible at little cost by the internet) and a desire to maximize short term revenues through charging licensing fees for access to patents and copyrights. In essence, with the change of publishing and communication economics made possible by the wide spread use of the internet, tax-exempt non-profits have become, perhaps unwittingly, caught up in a new form of “self-dealing”, and it is up to donors and grantmakers (and eventually lawmakers) to prevent this by requiring free licensing of results as a condition of their grants and donations.
“”"

+2 Michelle Stinson said on December 12, 2009 at 1:02 pm:

As a scientist, I think that all research articles should be available to the public. Most fields of science can be intellectually accessible to the average person and there’s no reason to limit any person’s access to information. Having public access to research articles can become a spring board into science for children and people who normally might not have access to the scientific community. Freedom of information is an important part of a free nation because knowledge can help people to improve their situation and the situation of others. It has been shown by Amartya Sen, Greg Mortenson, CHEC (an organization in Cambodia), and many others that the well-being of an individual is drastically improved through education. Free access to information allows people to educate themselves.

Robert Hebner said on December 12, 2009 at 1:11 pm:

Obviously there is widespread support for open access to technical information whose creation was funded by the public. The key issue is in implementation. An early attempt in this direction was the National Technical Information Service, NTIS, which had chronic funding and management issues as it was a government agency under constant budget pressure. It must be recognized that while there will possibly be funding to start good ideas, sustainability is problematic as the amount of information continues to grow.
My modest proposal is rather than establish and fund a government program to provide the information, simply use the existing dissemination mechanisms, particularly those established and maintained by not-for-profit organizations. The one with which I am most familiar is IEEExplore. This system has more than four million entries that are accessible worldwide. It began life as a dissemination mechanism for engineering publications but has agreements with parts of the physics community and private entity to distribute their publications also.
Let's be clear that there is a cost associated with the free dissemination of information. The information has to be generated, vetted, and entered into the data base. The search function must be maintained and updated as the technology changes. Redundancy is required for reliability. Security is critical. Populating the database with older relevant publications is important. Accounting for costs is critical to fairly allocate costs among users. Today the IEEE's cost for maintaining the systems is largely paid by users, with the preponderance likely borne by university libraries who subscribe to the electronic systems to provide critical research information. But all of this, as well as the infrastructure for continuous improvement, already exists, at least within the IEEE.
Most approaches envision open access as a new Federal program that inevitably will face the challenges that were faced by NTIA. It is likely that a better approach would be for the Federal government to team with not-for-profits, like the IEEE, who are in the business of making certain that technical information is available to everyone.
The government could then provide the incremental cost of providing the information it wishes for free and the existing, experienced, established, not-for-profit dissemination systems would continue to grow and thrive with the government as a partner not a competitor. In addition, to being the fastest and least expensive way to establish a system, this would likely reduce the expenses of university libraries which would also benefit scholarly pursuits.
Note: This is a private suggestion that has not been discussed with , vetted by, or endorsed by the IEEE. Te IEEE was listed as a specific example as one of the leaders in providing access to technical information. It is not the sole example.

Stevan Harnad said on December 13, 2009 at 12:04 am:

There is no need of a new dissemination system. The system already exists: peer reviewed journals plus institutional repositories. All that is needed is a mandate that the final, peer-reviewed draft of all federally funded research articles must be deposited in the fundee's institutional repository immediately upon acceptance for publication.

- +3 James Marusek said on December 12, 2009 at 1:34 pm:

Which other Federal agencies may be good candidates to adopt public access policies?
NASA, NOAA, EPA
Are there objective reasons why some should promulgate public access policies and others not? National Security should have an influence. Classified programs should not be included under public access provisions.
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)?
Both - the author's peer-reviewed manuscript prior to publication and the final published version after publication. The heart of science is the testability of hypothesis. To this end all raw data should be included with the manuscript. The goals of open government should support the objective of keeping the science honest and testable. Research included under the public access policies should include any research in which the U.S. government is a stakeholder by contributing at minimum 5% of the funding. Research funded by the U.S. government either internally or through grants should be made available to the public online at no charge within 12 months after publication.

+1 Robynn Sturm said on December 12, 2009 at 3:04 pm:

Many thanks for your thoughtful comment, James. Can you say more about the criteria by which you've put forth NASA, NOAA, and EPA as strong candidates?

Robynn Sturm said on December 12, 2009 at 3:02 pm:

Thank you to everyone who has taken the time to share your time and thoughts with us through the Public Access Policy Forum. It is great to see such a vibrant conversation develop so quickly.
While it's been fascinating to read through the first 24 hours of comments, I would like to refocus the conversation on the specific questions articulated in the blog. In fact, it would be great if participants would begin your posting the question to which you are responding.
Also, it would be incredibly valuable for participants to provide detailed support for your positions. For example, Garrett Moffitt argued that scholarly publications flowing from federal funding should be made available no later than 12 months after publication. Why? In what ways does the value of public access diminish after the 12 month mark? What are the factors that argue against immediate publication? What empirical data or research can you link to in order to support your position?

+2 Stevan Harnad said on December 13, 2009 at 12:12 am:

Please see Michael Kurtz's papers on the "Early Access Advantage" in astrophysics. The sooner a research finding is made freely accessible online, the greater its citation impact. In astrophysics, this is chiefly a prepublication effect, for not-yet-refereed preprints. But the very same effect translates into an "Open Access Advantage" in other fields, most of which don't want to make their unrefereed results publicly accessible, but do want to maximize the uptake, usage and impact of their published results, beyond just those users who have subscription access:

http://opcit.eprints.org/oacitation-biblio.html

+4 Evan Bullock said on December 12, 2009 at 3:17 pm:

From an implementation point of view, there is an incredibly cheap and easy solution:
Simply amend copyright law so that any paper which is (or has ever been) the product of federally funded research is no longer covered by copyright at all (just as documents produced by the federal government itself are not subject to copyright).
The publishing lobby wouldn't exactly be happy with this, but from the point of view of the public, it is by far the best solution: private companies such as Google, Microsoft, etc. will quickly create far better tools than the government would have created to allow the public access to federally funded research.
The best part is that the implementation costs for the government are essentially zero: all the government has to do is pass a short and simple bill and private businesses will take care of the rest.
Even the journal publishing industry won't be in as much trouble from this as you might think (or they might pretend). They would still have monopoly control over each individual journal and all the prestige associated with its trademark, and the editing and typesetting services that they provide will still have great value. As in the aftermath of the NIH's open access policy, they will find ways to continue to profit.

+6 Patrick Brown said on December 12, 2009 at 4:31 pm:

Turns out it's even easier - there's no need for any new legislation to amend copyright law.
Existing copyright law (Title 17 of the US code) gives the executive branch the power to determine whether work funded by US government grants or contracts can be subject to copyright. All that's required is an executive decision that any research work funded by a federal grant or contract is to be considered a work of the US government under Title 17, section 105 of the US code.

+1 Stevan Harnad said on December 13, 2009 at 12:16 am:

Or easier still: You don't have to amend copyright law, or defend a particular construal of it, or require fundees to bargain with publishers they'd dearly love to be published by: Just mandate that they deposit their peer-reviewed final draft in their institutional repository immediately upon acceptance for publication. The rest will all take care of itself, quite naturally, of its own accord. Only the (immediate, institutional) deposit mandate is crucial, to set it all in motion.

+1 Evan Bullock said on December 13, 2009 at 1:22 am:

Yes, I think this would accomplish the same thing, but at a much greater cost: forcing each university or institute to maintain its own repository seems like a huge waste of resources.
That being said, it may well be far more politically viable, and a more expensive implementation would be far better than no implementation.

Steve Ediger said on December 15, 2009 at 1:43 am:

I requested a government repository, but Evan's idea of a copyright law change is much more to the point. I still think that the government should take responsibility for archiving the documents to keep them in the public domain.

Stevan Harnad said on December 15, 2009 at 9:40 am:

The government can harvest centrally from institutional repositories, which is where funders should mandate direct deposit.
No change in copyright law is required for universal free access online: universal institutional deposit mandates are sufficient.
(Change in copyright law would be welcome, but there is no need to wait: deposit mandates are already feasible, much simpler and faster, fully within reach, and already long overdue, as open access itself is.)

+1 Bob Payne said on December 12, 2009 at 3:59 pm:

All tax supported research, save "classified" should be available promptly and if final review occurs it should be updated to be finally accurate.
Submissions should be to a Wikipedia type database with corrections and comments allowed like Wikipedia does now
I like the idea of "no copyright" for tax supported research mentioned by Bullock 12/12/09
publication in the wiki should be done immediately with notes as to the version and whether or not it has been reviewed, commented, or disputed

+1 Stevan Harnad said on December 13, 2009 at 12:18 am:

Can we just mandate that refereed articles are made freely accessible online, such as they are, before trying to persuade our fundees to allow their writings to be wikified willy-nilly? First things first.

+1 john Brohan said on December 12, 2009 at 4:21 pm:

I too have been put off by the $25 $30 per view. How much money do the journal companies make from this? Or is it just to chase away people like me?

+3 Jorge Contreras said on December 12, 2009 at 6:18 pm:

I support open access publishing and believe that all Federally-funded research should be made available via open access means (possibly after some short embargo period).
Being a law professor and avid science policy observer, I am gratified to see so many scientists who also support the idea of open access. However, this discussion has been limited to the public distribution of scientific results AFTER publication. Far more interesting is the notion of open access to scientific data BEFORE it is published. This is the path that NIH/NHGRI-funded large-scale genomic science has taken. Beginning with the so-called Bermuda Accord in 1996, developed during the Human Genome Project, genomic data reads are required to be released to public databases within 24 hours of generation. To my knowledge, no other scientific discipline even comes close to that level of openness, and in fact scientists in many other disciplines are extremely uncomfortable with the prospect of "losing" their data so soon after it is generated (i.e., before they have a chance to analyze and publish on it).
Nevertheless, the same principles favoring open access to publications that are espoused by other posters in this forum would tend to favor rapid pre-publication data release as well. To wit: the taxpayers should have access to the data they paid to generate. Slower release of data results in slower progress of science. Etc. The problem, of course, is that, like publishers, scientists must also watch out for their self-interest. Unlike publishers, however, the currency of science is publication and recognition, a currency that could be severely debased by the rapid release of data before it is published. Scientists and policy-makers in the genome sciences have wrestled with these policy issues for over a decade now, and have developed some innovative approaches that seem to keep things moving forward. Here is an article in which I discuss the history of these data release policies in some detail:
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1501280
Before sweeping statements are made or adopted, however, regarding open access to publications, scientists and policy makers should consider the logical extension of these policies to points in time prior to publication.
Jorge Contreras
Senior Visiting Scholar
Washington University School of Law

Stevan Harnad said on December 13, 2009 at 12:28 am:

First things first. Mandate providing free online access to the output for which all researchers already desire immediate, maximal access — peer-reviewed journal articles — and only then move on to the more controversial and far less consensual area of research-data-sharing ("how soon after data-gathering must I allow open-season on my hard-earned data, if most of the incentive and the creativity are in the data-mining, -analysis and -synthesis that follows, rather than just the act of gathering the data?") or the publicizing of unrefereed results.
Do the doable; it will already do a great deal of good and is long overdue. Don't conflate it now with things that are not nearly so clearcut yet, and will only generate resistance and discord.

+1 Jorge Contreras said on December 17, 2009 at 1:36 pm:

I certainly wouldn't want to create discord, but I also think that policies should be developed and discussed with all options visible and understood. NIH and its institutes have instituted pre-publication data release policies already, so this is not something new. In fact, they have been doing so for the past decade. Though some may find this practice uncomfortable, I feel that it should not be sidelined in the current debate.

Oliver Manuel said on December 12, 2009 at 11:09 pm:

I strongly endorse the concept of open Access to Federally Funded Research.
But such action now is like "closing the barn door long after the horse escaped". Scientific integrity in federal research projects has steadily eroded away over my own research career, 1960-present.
Far greater reforms are needed immediately.
Former US President Dwight D. Eisenhower warned of an unholy alliance developing between greedy scientists and unscrupulous politicians in his farewell address to the nation in January of 1961.
That is exactly what brought us the recent fraudulent reports of CO2-induced global climate change.
Since 1960 the National Academy of Sciences (NAS) has trained scientists with research grants the way Pavlov's dogs were trained with dog biscuits.
For a candid look at the causes of global climate change, see "EARTH'S HEAT SOURCE - THE SUN",
Energy and Environment, volume 20, pages 131-144 (2009) http://arxiv.org/pdf/0905.0704
With kind regards,
Oliver K. Manuel
Emeritus Professor,
Nuclear & Space Science,
Former NASA PI for Apollo

Paul Fernhout said on December 13, 2009 at 11:16 pm:

Oliver-
This essay by Dr. David Goodstein, formerly vice-provost of Caltech, helps explain some of that loss in scientific integrity you have seen since the 1960s, in relation to the ending of the exponential growth of academia in the 1970s and consequential problems as the production of PhDs remained at high levels. From:
"The Big Crunch" by Dr. David Goodstein
http://www.its.caltech.edu/~dg/crunch_art.html
""

The crises that face science are not limited to jobs and research funds. Those are bad enough, but they are just the beginning. Under stress from those problems, other parts of the scientific enterprise have started showing signs of distress. One of the most essential is the matter of honesty and ethical behavior among scientists.
The public and the scientific community have both been shocked in recent years by an increasing number of cases of fraud committed by scientists. There is little doubt that the perpetrators in these cases felt themselves under intense pressure to compete for scarce resources, even by cheating if necessary. As the pressure increases, this kind of dishonesty is almost sure to become more common.
Other kinds of dishonesty will also become more common. For example, peer review, one of the crucial pillars of the whole edifice, is in critical danger. Peer review is used by scientific journals to decide what papers to publish, and by granting agencies such as the National Science Foundation to decide what research to support. Journals in most cases, and agencies in some cases operate by sending manuscripts or research proposals to referees who are recognized experts on the scientific issues in question, and whose identity will not be revealed to the authors of the papers or proposals. Obviously, good decisions on what research should be supported and what results should be published are crucial to the proper functioning of science.
Peer review is usually quite a good way to identify valid science. Of course, a referee will occasionally fail to appreciate a truly visionary or revolutionary idea, but by and large, peer review works pretty well so long as scientific validity is the only issue at stake. However, it is not at all suited to arbitrate an intense competition for research funds or for editorial space in prestigious journals. There are many reasons for this, not the least being the fact that the referees have an obvious conflict of interest, since they are themselves competitors for the same resources. This point seems to be another one of those relativistic anomalies, obvious to any outside observer, but invisible to those of us who are falling into the black hole. It would take impossibly high ethical standards for referees to avoid taking advantage of their privileged anonymity to advance their own interests, but as time goes on, more and more referees have their ethical standards eroded as a consequence of having themselves been victimized by unfair reviews when they were authors. Peer review is thus one among many examples of practices that were well suited to the time of exponential expansion, but will become increasingly dysfunctional in the difficult future we face.
We must find a radically different social structure to organize research and education in science after The Big Crunch. That is not meant to be an exhortation. It is meant simply to be a statement of a fact known to be true with mathematical certainty, if science is to survive at all. The new structure will come about by evolution rather than design, because, for one thing, neither I nor anyone else has the faintest idea of what it will turn out to be, and for another, even if we did know where we are going to end up, we scientists have never been very good at guiding our own destiny. Only this much is sure: the era of exponential expansion will be replaced by an era of constraint. Because it will be unplanned, the transition is likely to be messy and painful for the participants. In fact, as we have seen, it already is. Ignoring the pain for the moment, however, I would like to look ahead and speculate on some conditions that must be met if science is to have a future as well as a past.
""

David Goodstein also testified to Congress on this issue:
"Attracting and Graduating Scientists and Engineers Prepared to Succeed in Acadamia and Industry"
http://web.archive.org/web/20060509161315/http://www.house.gov/science/goodstein_04-01.htm
""

The problem with all this is that the institutions of science evolved into their present form during the long period of exponential growth before 1970. They are not adapted for the very different future we must face. There are many examples, but the most important is the way we educate our young. …
To solve this problem will take nothing less than a reform of both education and society. We must have as our goal a nation in which solid scientific education will form the basis of realistic career opportunities at all levels, in industry, government and in education itself, from kindergarten to graduate school. As long as we train a tiny scientific elite that cares not at all about anyone else, and everyone else wears ignorance of science and mathematics as a badge of honor, we are putting our future as a nation and as a culture in deep peril.
""

Is there not, as you and David Goodstein raise, a much deeper issue here of the value of any science publications (open or not) that is built on such currently problematical social processes? Or that any such publications have much less value to a scientifically illiterate populace? Freeman Dyson raises related issue too, and he has long protested the corrosive effect of too much bureaucracy and credentialism on the scientific process, and he comments about that in connection with global climate change science, even before "Climategate", which regardless of the merits of Global Climate Change science, is a perfect example of business as usual these days in too much of academia:
http://www.edge.org/3rd_culture/dysonf07/dysonf07_index.html
""

In the modern world, science and society often interact in a perverse way. We live in a technological society, and technology causes political problems. The politicians and the public expect science to provide answers to the problems. Scientific experts are paid and encouraged to provide answers. The public does not have much use for a scientist who says, "Sorry, but we don't know". The public prefers to listen to scientists who give confident answers to questions and make confident predictions of what will happen as a result of human activities. So it happens that the experts who talk publicly about politically contentious questions tend to speak more clearly than they think. They make confident predictions about the future, and end up believing their own predictions. Their predictions become dogmas which they do not question. The public is led to believe that the fashionable scientific dogmas are true, and it may sometimes happen that they are wrong. That is why heretics who question the dogmas are needed.

As a scientist I do not have much faith in predictions. Science is organized unpredictability. The best scientists like to arrange things in an experiment to be as unpredictable as possible, and then they do the experiment to see what will happen. You might say that if something is predictable then it is not science. When I make predictions, I am not speaking as a scientist. I am speaking as a story-teller, and my predictions are science-fiction rather than science. The predictions of science-fiction writers are notoriously inaccurate. Their purpose is to imagine what might happen rather than to describe what will happen. I will be telling stories that challenge the prevailing dogmas of today. The prevailing dogmas may be right, but they still need to be challenged. I am proud to be a heretic. The world always needs heretics to challenge the prevailing

orthodoxies. Since I am heretic, I am accustomed to being in the minority. If I could persuade everyone to agree with me, I would not be a heretic.
We are lucky that we can be heretics today without any danger of being burned at the stake. But unfortunately I am an old heretic. Old heretics do not cut much ice. When you hear an old heretic talking, you can always say, “Too bad he has lost his marbles”, and pass on. What the world needs is young heretics. I am hoping that one or two of the people who read this piece may fill that role.
“”"
Thanks for your work on Apollo, helping turn that dream of interplanetary travel into a reality, as well as your more recent work improving our understanding of how changes in the sun’s output affect changes in the Earth’s climate. Whether you are right on that or not (I know little about solar science), you are right to be challenging the climate orthodoxy as the “loyal opposition”, like Freeman Dyson suggests.
We really need, as you suggest, far greater reforms to lead to better social processes for science and technology for the 21st century than just patching up ones we’ve got from the late 20th that are built around the “artificial scarcity” of selling exclusive access to the results of publicly funded research when it would cost almost nothing (relatively speaking) to create internet services to support open structured arguments about science and technology. SRI has done some related research (as have many other groups — Doug Engelbart was a pioneer in this sort of thing with “Augment” around the time of Apollo):
“Angler: A Thinking Tool”
http://www.ai.sri.com/~angler/
“Structured Evidential Argumentation System”
http://www.ai.sri.com/~seas/

-2 Jean Gatch said on December 13, 2009 at 12:42 am:

A Completely Different Direction to Solve the Problem…
It sounds to me that the basic problem we are looking at is that:
1) We want scientists, students, and many different people being easily able to use and share information so that our general knowledge may grow.
2) Scientific journals are a very useful way of sharing this knowledge and have worked in the past. We (think) want to keep these journals, and making too many articles available free would undermine these journals.
3) We are struggling with copyright, ideas, and who gets the money for the ideas.
This may be a very different idea for a solution, but we need everyone’s ideas to make the scientific community happen. What about building up the libraries? If each government grant requires a section in which money is allotted to buy a year’s journal subscription to the affiliated library of the recipient, then the journals are kept happy as libraries are buying their subscriptions, scientists are kept happy as they have journals available to them at their affiliated library, and students are also kept happy as they have journals available to work with.
The down sides I see are that this would add the yearly price of a journal subscription to each government grant, and there are some details that should be worked out as to which subscriptions should be bought (each library doesn’t need multiple subscriptions of the same journal) and when. (Should the subscription be once the article is accepted for the year, to the journal it is accepted?) Then, after one year, the article can become available, free, for the small universities that do not get many grants and, thus, many journal subscriptions added to their library.
Again, this may be a very odd solution to the problem, or it may be a very good one. I admit, my perspective is from a rather simpler side — I teach science… to middle school students, in a small school with very little resources. Growing knowledge, and wide accessibility to knowledge is very important to me… I am training the coming generation of scientists.

Stevan Harnad said on December 13, 2009 at 1:10 am:

Research is already underfunded, whereas publishers’ subscriptions are (reputedly) overpaid. Diverting more federal research money toward spending more on institutional library subscriptions does not seem a very effective use of either federal money or federal influence (if the objective is to maximize the accessibility, uptake, usage and impact of federally funded research). Mandating that fundees must deposit all their peer-reviewed research in their instititutional open-access repositories, in contrast, is virtually cost-free and highly effectiv.

+3 Evan Bullock said on December 13, 2009 at 1:59 am:

“3) We are struggling with copyright, ideas, and who gets the money for the ideas.”
Actually, we’re not struggling with this question at all.
The answer is (and has been for a long time) that authors of scientific articles are not paid directly for their work at all by publishers. They are paid (and awarded grants) based on the impact of their work in the scientific community. They want their ideas to be known to as many as possible, and any restrictions on the flow of their published ideas will only hurt their careers.
This makes the publishing of academic research very different from more or less everything else covered by copyright (including other publishing).
Referees and even editors are not typically paid (or not paid much) for their work: assisting in the peer review process is simply part of the profession.
This is not to say that journals are not important or that they don’t have costs. Journals have administrative expenses associated with the many submissions they receive and provide services such as copy editing, typesetting (though modern technology has recently passed most of this burden on to the authors), and physical printing onto paper.
Non-profit open access journals seem to be able to perform all of these services well without collecting exorbitant monopoly rents from university libraries and without relying on copyright. A government bailout of the private academic publishing industry is certainly not needed.

-1 Aaron Guerami said on December 14, 2009 at 4:51 pm:

There is nothing wrong with this persons idea. It should not have been removed.
Aaron Guerami

-2 Oliver Manuel said on December 13, 2009 at 12:57 pm:

I endorse this OSTP initiative.
I also agree that the trove of data produced by federally funded scientists could become one of our nation's most important assets, if opened to public access.
This could be an important first step toward restoring scientific integrity in our federal research agencies and end the constant requests for more measurements instead of studying the information contained in existing data.
For example, experimental data has already demonstrated and confirmed many facts that are still unpopular and/or unrecognized in the scientific community:
1. The Sun is NOT a ball of hydrogen.
2. The Sun is mostly iron, covering a central neutron star.
3. Neutron interactions are repulsive, NOT attractive.
4. The Sun is heated by neutron repulsion, NOT by hydrogen-fusion.
5. Solar neutrinos do NOT oscillate away. Etc, etc.
Scientific integrity in federal research projects has steadily eroded away over my own 50-year research career, 1960-present.
Since 1960 the National Academy of Sciences (NAS) has trained scientists with research grants the way Pavlov's dogs were trained with dog biscuits.
Neither President Obama, members of Congress, nor members of the general public can trust the validity of any report issued by an agency whose budget has been subjected to review by NAS.
Former US President Dwight D. Eisenhower warned of an unholy alliance developing between greedy scientists and unscrupulous politicians in his farewell address to the nation in January of 1961.
That is exactly what brought us the recent fraudulent reports of CO2-induced global climate change.
For a candid look at the causes of global climate change, see "EARTH'S HEAT SOURCE - THE SUN",
Energy and Environment, volume 20, pages 131-144 (2009) http://arxiv.org/pdf/0905.0704
With kind regards,
Oliver K. Manuel
Emeritus Professor,
Nuclear & Space Science,
Former NASA PI for Apollo

+1 Lee Wright said on December 13, 2009 at 3:36 pm:

While raising this issue is progress, it will only matter if and when something is implemented. Rather than cautious small measures made after lengthy deliberation and implemented over a period of years, why not take a revolutionary, innovative approach and do something simply, cheaply now.
Starting January 1:
- Grant applications are made public upon submission.
- Progress and results reports are made public upon submission.
- All research that includes Federal funding of any sort must disclose the amount of the funding and the agency giving the grant when the research is published or presented in any medium.
This requires no cost and only a few minutes of time. Use existing documents, which means the cost of creation is zero, and existing publishing infrastructure, such as scribd.com, which is free to all and already used widely by the SEC and other Federal organizations.
The excellent search (full-text, author, keywords, tags) will take care of discovery. Free tools enable embedding documents in web pages and blog posts.
Implementation is as simple as requiring all grant requests going forward to include a standard compliance line that places the burden on those submitting grant requests. And for those individuals, their only cost would be uploading already-created documents, which takes less than 5 min./document.
Finally, if instituting this in a few days seems unfathomable, make it January 1, 2011. Either way, let's make it incredibly simple and straightforward to understand, very cheap/free to implement, and comprehensive in scope.

-1 Leonid Korogodski said on December 13, 2009 at 4:31 pm:

Publication *means* public release, unless you separate the article (or what have you) from the data it describes. But, when taken on its own, the text is merely an unsubstantiated announcement. The supporting data should be made accessible immediately for this to be considered a publication.

Stevan Harnad said on December 13, 2009 at 5:46 pm:

The text in question is the peer-reviewed article, accepted for publication.

Leonid Korogodski said on December 14, 2009 at 1:25 am:

I'm well aware of that. And I maintain that it cannot possibly be considered published if the data that the article is based upon is not made public too, immediately and unconditionally.

Stevan Harnad said on December 14, 2009 at 11:07 am:

Except that scientists and scholars are not merely data-gatherers. They gather data in order to do something with it, and that something may take time. They decide when and where to publish what, and it is to their benefit as well as to the benefit of research itself, and of the public that funds it, to mandate that what federally funded researchers publish should be made freely accessible online. But this does not mean co-opting their right to decide where and when to publish what.
(I am not referring here to the complicated case of federally funded confidential, proprietary or patent research; I am referring to the much more general fact that gathering data is not researchers' primary calling; it is an investment, from which researchers must be allowed the time to gather their fair return, in terms of the opportunity to mine the data they have laboriously gathered, exclusively if necessary, for long enough to have made the effort worthwhile. To put it another way, please let us not conflate the call for free online access to published research findings — a clear-cut, exception-free benefit for all — with the call for free online access to unpublished data, which can indeed be a great benefit, but has a lot of special cases and timing parameters to work out before it can be made into a general policy. The two domains should not be treated as one and the same, and the immediate, straightforward solution for published research should neither be imposed on the much more complicated case of data, nor should the extra complications of unpublished data be imposed as a needless handicap on the straightforward case of published research.)

+1 Reigh Simuzoshya said on December 13, 2009 at 5:19 pm:

Science and medicine are some of the areas of study that exemplify the physical, social and biological phenomena significant for promotion of human health and survival. Any research related to these areas is of fundamental importance to the researcher and to other stakeholders. Advances in scientific innovation are dependent, largely, on information sharing. Other researchers could be motivated by individual research study findings to replicate the previous study and build on its findings. Research studies related to the welfare of humanity in general should be readily accessible to stakeholders. Exceptions could be made in cases where the research study deals with sensitive data associated with national security. It would be prudent to carefully study and analyze the Bermuda Principles governing the release of genomic data in order to develop practical and workable accessibility practices.
One can also take a leaf from the Wellcome Trust of United Kingdom, a research charity that practices an open access policy to scientific research findings. Wellcome Trust's argument is that open access is consistent with their mission "to foster and promote research with the aim of improving human and animal research." Website: http://www.wellcome.ac.uk/About-us/Policy/Spotlight-issues/Open-access/Policy/index.htm
Reigh Simuzoshya, PhD
Public Health

+4 Mike Serfas said on December 13, 2009 at 6:18 pm:

[Re (3) Mandatory v. Voluntary]
I think that you should consider ways to encourage voluntary participation in the program by journals for articles before 1970. These old issues are generally not digitized, not online, not for sale, and not uncommonly belong to journals which are altogether defunct. Some of them might accept a deal in which you fund the digitization and online storage of their old issues in exchange for public access to them. In addition to standard PubMed Central style access, you could also accommodate the repackaging of this content by the journal to appear seamlessly as part of its own site, which should provide a small incentive for them to participate.
A somewhat similar initiative was undertaken by JSTOR, a non-profit organization, but its content is not freely available. Also, some of the articles are scans rather than searchable text and could not be integrated into a modern electronic journal interface. I hope you will discuss with them what you would need to do to bring their content into the public system.
Though I'm not optimistic about the chances of amending copyright law to promote public access, a drive to amend the 1996 Copyright Term Extension Act to exclude results of publicly funded research might be a useful tool to encourage serious negotiation.

-1 Susan Eustis said on December 14, 2009 at 12:40 am:

I am most interested in the public access forum as a way to comment as a senior analyst on some of the thinking in the government that is in need of more constructive direction. I believe that the streingth of the country is in nanotechnology. The auto industry drives the economy, pure and simple. We are on the verge of wild automotive growth as everyone starts to won 2 or 3 cars, all electric vehicles. These will be powered by solar panels on the roof. Thin film batteries will store the solar energy. We are at the cusp of dramatic growth in solar energy.
All of these depend on investment in solar eneregy, nanotechnology, and thin film batteries. We have to stop wasting $ on trying to save jobs. The jobs will come with the new technologies. We need to concentrate on running healthcare and the auto industry more efficiently with robots and automated process. This will cost jobs.
re health care initiatives we believe the following:
Healthcare Reform Vision and Strategy
WinterGreen Research has formalized a vision of the evolution of healthcare economic models. It is looking towards the transformation of the healthcare delivery systems in response to increasing responsibility of systems administrators to deliver quality care efficiently. C-healthcare 2020® looks toward cost containment trends. These are playing out in the context of industry and professional efforts to improve the quality of care delivery:
1. Leverage automated process in the same way other industries have. Leverage cloud computing and System z mainframe computing to lower costs.
2. Consolidate health care delivery systems in a manner that is able to achieve effective, efficient communication between caregivers.

3. Stop rewarding hospitals and physicians for over delivery of care and change. Move to care delivery systems that allow treatment of patients by the numbers combined with intelligent caring care. This is particularly true with the high cost profit center emergency room, get those costs way down.
4. Support the extended health care delivery systems that support healthy behaviors, including the acupuncture practitioners, chiropractors, and sports clubs.
5. Support homecare and specialized intelligent support systems that permit leaving people in their own homes even if they cannot take care of every aspect of their life. Help old people take out the trash, sand the driveway when it snows, help with the simple stuff.
6. Reward families for providing care support to extended family members, these do not need to be financial rewards in every instance, maybe they are special recognition banquets and letters of commendation.
7. Implement systems that stimulate and reward patients for exercising and taking care of themselves in every way.
8. Implement computer assisted coding in a manner that allows automated transcription of physician and clinician notes into the electronic patient record; utilize the clinician notes, blood work, and diagnostic test results to provide tracking and reminding of conditions that need follow-up after a specified length of time.
9. Use patient systems that are efficient.

Phil Davis said on December 14, 2009 at 12:37 pm:

Dear OSTP,
The community-moderated nature of this blog has allowed a single individual to dominate this forum. In addition, those with unpopular positions are marginalized through the voting feature, a feature which collapses their comments and makes them unreadable without readers actively seeking them out.
If you wish to see a diversity of comments by a diversity of individuals, I encourage you to adopt some practices adhered to in public in-person meetings:
1. Don't allow single individuals to dominate the discussion (enact an upper limit on number of comments).
2. Stop allowing individuals to "vote" on comments they don't like.

Stevan Harnad said on December 14, 2009 at 12:44 pm:

Better idea. Read, think about and then address the substance of what is being said, rather than counting noses…

Aaron Guerami said on December 14, 2009 at 6:06 pm:

This is why moderators are necessary. A user should not have the power to remove another users comment. *flag as off-topic should send a note to the moderators, that is plural. Off topic comments tend to kill a forum.
If a user is obnoxious or vulgar, they should only be remove by a Judge.

Diane DiEuliis said on December 14, 2009 at 12:41 pm:

Thanks for these comments - it is evident that there is a need for creative business models within the context of Public Access that include the complexity of those participating. Libraries, journals, and scientists, etc…we are interested in hearing dialogue about creative models that may work for public access.

-1 Howard Harper said on December 14, 2009 at 2:12 pm:

There is no free lunch and there is no free publication.
There is, I think, one simple solution to this idea of open public access to federally subsidized research that would not greatly disrupt the existing scholarly publishing world and not add great costs of creating duplicate archives of published articles. One of the beauties of the world wide web is that a file can reside in a single place and be accessed by many. The idea to create duplicate archives (whether at universities or at government facilities) is quite frankly a waste of money. Varying access can be programmed into the publishers' archives that actually exist today where most scholarly archives have some instant open public access, some subscription only access and some pay-per-view access. Since most scholarly publishers offer an option for authors to pay the basic publishing costs and make their article open access within the existing journals website, simply add that fee as part of the grant and require each grantee to request and pay for the open access option. The average cost to publish our journals over the last five years has ranged from $250 to $375 per page. Thus an average sized research article (~10 pages) would have cost from $2,500 to $3,500. This option would save the large cost of developing, creating, updating and maintaining a duplicative archive, paid for and operated by the federal government. It also would be possible to rebate to libraries a prorated portion of a subscription based on the proportion of "open access - paid" content and thus reduce the cost to them appropriately.

Stevan Harnad said on December 14, 2009 at 4:19 pm:

The OSTP and FRPAA proposals are to free access research, to double-pay publishers for products and services that are already being paid for in full by subscriptions. On such double-dip proposals please see: http://bit.ly/7215Pr

+1 Keith Yehle said on December 14, 2009 at 1:32 pm:

The University of Kansas adopted its own internal open access policy earlier this year. Our faculty and administration are willing to provide their insights as to how a federal program should support and not encumber our internal program.
http://www.oread.ku.edu/~oread/2009/november/16/stories/openaccess.shtml
However, the Jan. 7, 2010 forum deadline makes it difficult for KU to participate as faculty are busy with finals this week and the upcoming holiday break. I'm sure other university campuses are under the same situation.
I recommend extending the comment period to ensure faculty and administrators are able to share their recommendations.

Stevan Harnad said on December 14, 2009 at 2:28 pm:

On how funder mandates "should support and not encumber" institutional mandates, see:
"How To Integrate University and Funder Open Access Mandates"
http://openaccess.eprints.org/index.php?/archives/369-guid.html
"NIH Open to Closer Collaboration With Institutional Repositories"
http://openaccess.eprints.org/index.php?/archives/532-guid.html
"Which Green OA Mandate Is Optimal?"
http://openaccess.eprints.org/index.php?/archives/494-guid.html
"Optimizing OA Self-Archiving Mandates: What? Where? When? Why? How?"
http://openaccess.eprints.org/index.php?/archives/136-guid.html
"The Immediate-Deposit/Optional-Access (ID/OA) Mandate: Rationale and Model"
http://openaccess.eprints.org/index.php?/archives/71-guid.html
"Where to Mandate Deposit: Proxy Deposit and the 'Denominator Fallacy'"
http://openaccess.eprints.org/index.php?/archives/667-guid.html
"On the Wellcome Trust OA Mandate and Central vs. Institutional Deposit"
http://openaccess.eprints.org/index.php?/archives/667-guid.html
"Batch Deposits in Institutional Repositories (the SWORD protocol)"
http://openaccess.eprints.org/index.php?/archives/431-guid.html
"Authors Lacking OA Institutional Repository: Deposit In DEPOT International"
http://openaccess.eprints.org/index.php?/archives/646-guid.html
"A Physicist's Challenge to Duplicate Arxiv's Functionality Over Distributed Institutional Repositories"
http://openaccess.eprints.org/index.php?/archives/504-guid.html
"Upgrading NIH to a Deposit Mandate Even If the Conyers Bill Fails"
http://openaccess.eprints.org/index.php?/archives/462-guid.html
"Plan B for NIH Public Access Mandate: A Deposit Mandate"
http://openaccess.eprints.org/index.php?/archives/461-guid.html

-1 Bernard Rous said on December 14, 2009 at 2:16 pm:

In a very real sense, free/open access to all research – whether federally funded or otherwise – is already a reality in the computing community served by ACM. That there is both free access to the content we publish and a successful publishing program stems from the fact that there is a fundamental balance or compromise in how ACM and the community have approached this issue – a balance that serves both.
The essence of this balance is based on two principles: 1) restricting what is posted to the author's version of their accepted, peer-reviewed papers; and 2) restricting where authors can post their papers to either individual or institutional sites. This approach allows researchers to find and read each other's work and to do so immediately (or even prior to formal publication so no embargo applies). Moreover, this approach makes the results of research freely available without duplicating the formal publications themselves, something that would undermine the unique value of the digital collection and services maintained by ACM in the ACM Digital Library.
We think it is imperative that any federally mandated open access policy maintain a similar balance.
ACM is an educational and scientific computing society of 96,000 members worldwide that publishes over 45 peer-reviewed journals in computing and computer science as well as the peer-reviewed proceedings of 170 conferences annually. The ACM publishing program has been shaped by the computing community and aims to provide that community high-quality journals and conference proceedings at a very affordable price.
ACM was one of the first societies to modify its copyright policy to allow authors of accepted papers to post the peer-reviewed, accepted version of their paper on either their personal or institutional website. This policy of allowing authors to post accepted version of their papers has been in place for many years. As a result, essentially everything ACM publishes is freely available somewhere on the Web. At the same time ACM has sustained a successful, subscription-based publishing program – largely because of very low-cost individual and institutional subscriptions to the ACM Digital Library.
We note that Stevan Harnad's first post on this blog proposed exactly the approach taken by ACM years ago, and we support that.
So with respect to the key questions regarding "Implementation" …
• Timing – we believe that if what is being posted is the author's version of accepted papers, then these posts can be done immediately, whenever the author is ready. There is no need for an embargo.
• Version – We believe it is important that what is posted for open access is the author's version of papers. This approach does not restrict the community in immediately tracking research results and enables some additional value to be added by non-profit scholarly publishers.
• Mandatory v. Voluntary – In our community, as in others, voluntary posting is working.
• Other Issues – We think it is imperative that deposits be made in institutional repositories vs. a centralized repository like PMC. This approach does not result in the duplication of formal publications and is, therefore, a key aspect of reaching the balance described earlier; and as pointed out by Stevan Harnad, has several other advantages.

There is an approach to open access that allows the community immediate access to research results but also allows scholarly publishers like ACM to sustain their publishing programs. It is all about balance.
Bernie Rous
Director of Publications
Association for Computing Machinery (ACM)
New York, NY
Holly Rushmeier
Co-Chair, ACM Publications Board
Depart of Computer Science
Yale University, New Haven, CT

Stevan Harnad said on December 14, 2009 at 4:07 pm:

It would be downright churlish (if not Cretan) of me to respond to Bernie Rous's and Holly Rushmeier's comment in any way but positively!
Let me add only that computer scientists were the first, and wisest, about open access self-archiving, starting way back in the '70s and '80s to pratise it, spontaneously, unmandated, immediately recognizing its benefits to research progress.
(It was also a computer scientist — Steve Lawrence at NEC [now at google] who first discovered that open access significantly increases research impact http://www.nature.com/nature/debates/e-access/Articles/lawrence.html)
With the birth of the web, physicists followed suit in the early '90s and economists soon thereafter.
But in the decade and a half since then, none of the other disciplines have taken up the practise beyond the 15% baseline level. At least 38 worries (all groundless, all easily answered, but relentlessly recurring year after year, as they keep recurring in this OSTP Forum too) held researchers back — http://www.eprints.org/openaccess/self-faq/#38-worries
That is why the only cure for this "Zeno's Paralysis" in the disciplines other than the pioneering three — computer science, physics and economics — is to mandate open access self-archiving, beginning with federally funded research (and then continuing with institutional mandates for all research, funded and unfunded, across all disciplines). http://eprints.ecs.soton.ac.uk/12094/
Self-archiving mandates are necessary so that all areas of science and scholarship (and the tax-paying public that funds their research) can reap the benefits of the enhanced research uptake, usage and impact that open access provides.
Mandates work: 95% of researchers across all disciplines and countries report in surveys that they will self-archive if mandated by their funders and/or institutions — but not if not. http://eprints.ecs.soton.ac.uk/11006/
And mandate outcome studies have confirmed that researchers do indeed do as they say they would, if mandated:
http://fcms.its.utas.edu.au/scieng/comp/project.asp?lProjectId=1830
So whereas, as Rous & Rushmeier correctly point out, computer scientists didn't need mandates to self-archive, most other disciplines do.

+4 Naty Hoffman said on December 18, 2009 at 2:22 am:

The comment from the ACM Publications Board most certainly does not reflect the opinions of all (or even most) ACM members. Central repositories are far more useful than self-archiving (as ACM themselves well know, otherwise why would they have bothered to create the ACM Digital Library?). Similarly, open repositories are far more useful than those locked behind a paywall (as the ACM Digital Library unfortunately is). Let us not put the means (specific publishing programs) above the ends (efficient dissemination of research results).
The author's version of papers stemming from all publicly-funded research should be required to be deposited into an open, central government repository immediately upon acceptance. Furthermore, ACM would best serve its mission if in lieu of the Digital Library it simply submitted all papers, publicly funded or not, into such a repository. ACM could (and should) do this without any government mandate.

-1 Stevan Harnad said on December 18, 2009 at 8:30 am:

(1) Institutional Repository deposit metadata can be and are being harvested to central repositories for search and access.
http://citeseerx.ist.psu.edu/
(2) The locus of mandated author deposit (institutional) is a separate matter from the locus of user search and access (central).
http://bit.ly/4M9sOY
The objective is to require only one deposit from authors and to ensure that its locus is institutional so as to facilitate and reinforce complementary mandates from institutions, covering all research output, funded and unfunded, across all disciplines.

(3) For a funder mandate it is crucial to the coherence of compliance conditions — and to monitoring their timely fulfillment — that the fundee should be the depositor, not 3rd parties that are not bound by the mandate.
http://openaccess.eprints.org/index.php?/archives/369-guid.html

+3 Jonathan Hartley said on December 18, 2009 at 12:52 pm:

Please note that Bernie Rous of the ACM does not speak representatively for the body of Computer Scientists his station would suggest. Indeed, he appears to put forward a position that is flagrantly in opposition to the interests of the ACM's own members.

The ACM has no legitimate interest in opposing open-access. The ACM's charter and purpose is to serve the interests of its members. Its members interests (not to mention those of all computer scientists and scholars in every field) are clearly and unambiguously best served in this instance by the creation of free and open access to the greatest extent possible.

That such open access would form a free competitor to the ACM's attempts to generate revenue by putting academic papers behind a paywall is neither here nor there. The ACM is not a profit-making entitiy. It exists soley to promote learning and education amongst its own members, and ought, by the terms of its own charter and code of ethics, to stand four-square for the support and promotion of open access.
I would urge anyone studying these comments as part of the public feedback process to examine the analysis of my view point on these two pages:
http://www.realtimerendering.com/blog/us-gov-requests-feedback-on-open-access-acm-gets-it-wrong-again/
http://tartley.com/?p=940
Sincerely,
Jonathan Hartley
Software Engineer

Eric Haines said on December 19, 2009 at 8:11 pm:

On "balance": I do understand the desire for profit by the ACM, to support its other activities. The ACM's mission statement: "ACM, the world's largest educational and scientific computing society, delivers resources that advance computing as a science and a profession." The ACM is a non-profit entity ostensibly run for the benefit of its members. It should therefore not need to worry about balance, as researchers who contribute to its publications are not paid and so would incur no loss of income by wider distribution of their results.
A few quick points:
1. As has been said many times: the basic principle is that taxpayers paid, so they should have free access to the results.
2. ACM's Digital Library is for pay: $10/article or $100/year for an individual. Cost clearly limits distribution of research.
3. Individuals can put their papers on their websites, it's true. The ACM disapproves of direct, deep links to these papers (even though this practice is legal). Why is this a problem for the ACM, if their goal is dissemination of members' research? I believe the answer is that their Digital Library is then less competitive. See http://www.realtimerendering.com/blog/things-i-learned-from-the-acm/
4. Why should there be this limitation of the papers being on just an author's/institution's website? If the paper is not being sold for profit at a site, who cares what the IP address is of this site, as long as it has the author's permission? The advantage of having government funded work in a central repository is clear.
5. A few papers are not available outside the ACM's Digital Library (not due to willingness so much as due to problems for the individuals to host the works) and cannot be hosted elsewhere by the ACM's current copyright rules.
6. If an author retires or dies (or simply changes jobs), it's unclear whether his work can still be hosted by the institution. In this way older papers fall out of public access and become sole property of the ACM.
7. If you were to poll researchers (government funded or not) as to whether they would want wider and more reliable distribution of their work, I expect you would get a 98+% positive response.
8. Finally, the ACM should not consider a free central repository of only government-funded research results to be a true competitor to the Digital Library. By its nature, such a repository will be incomplete. Serious researchers will still subscribe to the Digital Library; other users that simply want to access a few articles a year will have a reasonable alternative.

Helene Bosc said on December 14, 2009 at 3:30 pm:

In 1997, the US government gave a fabulous gift to all the biologists of the world : The database Medline (NIH) became free for all online. Thank you again for this!
Today it would be a great boon to research progress in the US and in the world if the US government made all federally funded research results free for all online too.
President Obama's principles and actions are congruent with the universal ones that we in France have expressed as three:
Liberté,
On the web, science and scholarship know no borders. When the US frees access to its own publicly funded research online, that is a gift not only to US taxpayers but to the entire world.
Egalité
Research, freed not only in biomedical science but in all scholarly and scientific fields, and not only for researchers, but for all of humankind.
Fraternité
Nor is freeing access to research only a one-way act of charity: The rest of the world, developed and developing, will reciprocate, not only by freeing their own research too, but by building upon one another's research in the global, collaborative growth of human knowledge.

-4 Aaron Guerami said on December 14, 2009 at 4:03 pm:

(click to show comment)

+2 Helene Bosc said on December 15, 2009 at 11:01 am:

I am afraid you havn't understood what I wrote and you are absolutly unaware of what is happening outside the US. I said :
"The rest of the world, developed and developing, will reciprocate, not only by freeing their own research too, but by building upon one another's research in the global, collaborative growth of human knowledge"
Please, for your information, have a look at what China is preparing for Open Access for the Berlin8 conference in 2010, in Beijing.
http://www.berlin7.org/spip.php?article88
They are 4 million researchers in China and Zhang Xiaoling's PPT (the organizer of Berlin8 conference) clearly shows the increase of Chinese R&D. They don't need your charity!

Probably in one or two years, all the Chinese research output will be free online(it could be an annual output of 4M of articles of quality) and American researchers will be glad to exchange their knowledge with Chinese and French scientists.

-4 Aaron Guerami said on December 15, 2009 at 1:29 pm:

(click to show comment)

+2 Jorge Contreras said on December 17, 2009 at 1:42 pm:

Responding to AG's comment "we have seen what open source has done to business".
What has open source done to business? You imply that business has been affected negatively, but many would argue quite the contrary. The availability of powerful open source software tools such as Linux, Apache, MySQL and others have drastically reduced corporate IT costs, making businesses more profitable and effective. They have also enabled the training of thousands of software engineers and fueled the launch of many successful companies.

-1 Aaron Guerami said on December 18, 2009 at 12:32 pm:

JC, "What has open source done to business? You imply that business has been affected negatively, but many would argue quite the contrary. The availability of powerful open source software tools such as Linux, Apache, MySQL and others have drastically reduced corporate IT costs, making businesses more profitable and effective. They have also enabled the training of thousands of software engineers and fueled the launch of many successful companies."
————
I am trying to show that the developers and programmers are getting less and less return for their work.
2 of the 3 listed products are now owned by Sun Microsystems. Why they spent billions of dollars to buy these free systems is beyond me? They are now owned. It looks like Sun will go to Oracle. So these two are now Not Open Sourced.
I think the reason MySQL and Apache are now part of the Sun product line up was an attempt at paying the developers of these products. This was compassion. Yes these developers need to get paid. It is satisfying to work on open projects. You can modify the project to your needs. But satisfying does not pay the bills.
It is discouraging to see open work supporting trillions of dollars in transactions and the developers are struggling. As the tools became more mature there was less of a need for developers to help end users. Developers get less and less for a product that more and more powerful.
When something is free, it means it has no value. It can create value, but on its own it has no value.
I do not want to suggest that Open Source is a bad model. It is a model that has not thought about paying developers and programmers. Open Source is about solving a problem quickly and effectively. Open Source needs to be incorporated into a secure model.

Donation is not a business model. What is the ratio of donations to downloads for something so amazing like Apache or MySQL.
Aaron Guerami

-2 Aaron Guerami said on December 19, 2009 at 2:03 am:

Since my posting was so off topic, lets use current events to elaborate my position. If that does not work, then there is the First Amendment. The government does not have the right to suppress freedom of speech.
We give hundreds of billions of dollars in research to everybody in the world.
Today the French Courts refused to allow Google to help archive by scanning old French books. No they forced Google to stop. Google was providing the tools and talent to digitize Voltaire and other old French paper books.
Helene, "The rest of the world, developed and developing, will reciprocate, not only by freeing their own research too, but by building upon one another's research in the global, collaborative growth of human knowledge"
It does not seem that this is the case. I don't see any reciprocal behavior.
So the Senate is required to ratify treaties. This includes passing information to other countries. Sorry, but that is Constitutional.
I know the Chinese do not need American research. They are about to expand beyond our capacity. But their science is built upon our gifts.
Also, why are non-citizens even participating in this conversation?
If we want to gift ideas to the world then we will do this at symposiums or through collaborative treaties. Treaties that are thought out as to the impact of the data and ideas upon Americans.
Americans should have open access to American research. If you have a SSN then welcome. If you do not have a Social Security Number then you should wait for the press release.
Aaron Guerami

+2 Matt Levinson said on December 14, 2009 at 4:08 pm:

I would support as short a time period as possible. I don't have trouble with this because of course my university pays the massive costs of subscribing to every scholarly journal, but it seems absurd that someone not associated with a university has to pay $20 for every single article they want to see when the work that produced that scholarly work was almost surely supported largely or entirely by the federal government, and hence by that person's own tax dollars.
I'd go further, and legally require that all data (with some restrictions for privacy concerns on human subject data) and all computer code used in the analysis be published and publicly available.

Peter Guttorp said on December 14, 2009 at 7:58 pm:

It really is not quite this simple. In human subject data (which is a very large portion of federally funded data) no data that can possibly identify the individual are allowed to be made available. And the “possibly” is defined in a very broad sense. For example, if the combination of symptoms, air quality measurements, and hospital admissions could reduce the number of possible individuals to some hundreds, most human subject reviews would consider this a data set which cannot be made public.
In other contexts things are of course quite different. If I remember correctly there is a three year window for data from the Hubble space telescope to be used for publications. After that the data are automatically made available.

- Phillip Larson said on December 14, 2009 at 6:29 pm:

As one of the moderators of the OSTP blog, I would like to emphasize that we are interested in fleshing out the strongest arguments on all sides of this policy question. Along those lines, I want to remind the community that the most appropriate way to express your disagreement with an idea is to articulate the alternative point of view in a compelling way—not to vote against it.
As spelled out in our Terms of Participation, voting up and down is NOT about expressing your support or lack of support for someone’s statement or position. It is a system for sidelining comments that are not germane to the discussion. When a comment gets a sufficient number of “down” votes, it collapses into a link (which, in the interest of openness, can still be expanded and viewed) so as not to interfere with the discussion. To vote down an idea just because you disagree with it undermines the goal of a robust debate. So do make your case, but please don’t vote ideas down unless you feel they are truly irrelevant to the discussion.

-1 Aaron Guerami said on December 14, 2009 at 7:55 pm:

I am sorry, but that does not make sense. We should be able to voice our opinion on others writings easily.
We should flag as off-topic if the comment is not relevant. Then moderators are notified. Moderators determine the relevance of the comment.
Also it should show how many + and - were voted and not added or subtracted from the count. 50 pluses and 50 minuses show as 0. But this actually shows that there are many opinions on this comment. The topic should be continued.
I should not be able to vote on my own comments. I should not be able to vote more than once on each comment.

Peter Guttorp said on December 14, 2009 at 8:09 pm:

What is the point of voting on people’s comments?

Aaron Guerami said on December 20, 2009 at 12:22 pm:

Peter, I agree with you, voting allows a person to make a comment with justification. This is dangerous. A persons remark should be the position that s/he taking in the discussion.
After being the receiver of many - votes, I still don’t understand the principle the the negative voters are supporting.
Sometimes new thought are met with irrational opposition. This voting system allows for these new ideas to be swept aside without remarks.
Several of my ideas have been removed. Yet there is no written reason as to why they were removed.
Thanks for making me think on the voting system.
Aaron Guerami

+3 Andrew Whitman said on December 14, 2009 at 8:03 pm:

On:
Timing: within 6-10 months of publication
Version: the on-line journal version
It should be mandatory.
Generally, if taxpayers paid for it then we should have access to it.

+3 Steve Ediger said on December 15, 2009 at 1:29 am:

Timing: within one month of publication, collapse the information float.
Version: online in a government provided, searchable repository of all government-sponsored research results.
It should definitely be mandatory, as we, the taxpayers, paid for it.

+1 Stevan Harnad said on December 15, 2009 at 9:31 am:

ON (1) VERSIONS (PUBLISHER’S VS AUTHOR’S) AND (2) LOCUS (INSTITUTIONAL VS CENTRAL)
For those who have been voting to require fundees to deposit the publisher’s version and to deposit it in a central repository, please consider this:

(1) VERSION: The author's final peer-reviewed draft not only contains exactly the same information, but has far fewer restrictions on it currently: 63% of journals (including most of the top journals) already endorse their authors providing immediate open access to their peer-reviewed final drafts. http://romeo.eprints.org/stats.php
Far fewer publishers endorse using their proprietary drafts — and with good reason: That would put their revenues needlessly and unfairly at risk *without providing any further benefit at all*, to either users or authors, over and above what the peer-reviewed final draft already provides (and is all that open access requires).
So insisting on the publisher's version is not only unnecessary, and would cause a needless hardship for publishers, but it would also place a needless burden on federal fundees, for it is the fundees that are subject to the mandate, not the publishers. Hence insisting on more than necessary from the fundee means the fundee must ask for more from the publisher; and some publishers may well refuse (and with justification, if they already endorse making the final peer-reviewed draft open access). This in turn means an extra, needless constraint on fundees, in their choice of journal for their work: Instead of continuing to be able to choose the journal that is most relevant and has the highest quality standards for their work, they most instead choose the journal that endorses deositing the publisher's proprietary PDF instead of just the author's peer-reviewed final draft.
http://bit.ly/6CfbAa
The OSTP question about which version you would prefer should have been accompanied by a clear statement of these contingencies; otherwise it does not make it clear what is really at stake.
(NOTE: The very same kind of issues will surely arise again in this Forum, when the question of "re-use rights" is inevitably raised. The contingencies are much the same: Free online access to the author's peer-reviewed final draft is what is urgently needed by users today; that is also what has been so prominently missing all these years, hence so overdue. Once that draft is immediately and permanently accessible online, free for all, anyone can access it, link to it, read it, download it, store it, print a hard copy, data-crunch their stored version, quote from it, cite it, link to it, put the link in course packs, and send the link to any interested user. Harvesters like google and citeseerx and citebase will also index it and make it all searchable. There is no real reason at this time to insist also on the blanket "right" to re-publish the text, or the right to create "derivative works" out of the text (e.g., a free-for-all wikification). Just free online access is enough. Not even the right to machine-harvest and data-mine the text, with a view to providing a secondary service on it — like google's, but for scientific purposes — justifies further pressuring publishers and handicapping fundees with having to negotiate these extra rights. Where needed, they will evolve with time, after universal free online access prevails globally, if only we don't keep complicating and thereby delaying the free online access that is already fully and fairly within reach by insisting on over-reaching for things that are not needed, or not needed anywhere nearly as urgently as free online access itself — and that will eventually come with the territory anyway, once free online access mandates have become universal. http://bit.ly/4A592q)
(2) LOCUS: The second issue is locus of deposit: institutional or central. Please bear in mind that the universal providers of all research output, whether funded or unfunded, in all fields, are the researchers and their institutions. If we are to have universal open access to research, funder mandates will not be enough: The institutions will have to mandate open access too. Hence it is extremely important that funder mandates should facilitate and reinforce institutional mandates, rather than complicate and compete with them, and especially when the complication/competition is completely unnecessary and brings no added benefits, just delays and deterrents.
http://openaccess.eprints.org/index.php?/archives/369-guid.html
The locus of deposit — whether it is mandated by funders or institutions — should always be *institutional*. That way funder and institution mandates converge and reinforce one another. If the fundee is instead required to deposit institution-externally, in a central repository, then this requires researchers (most of whom are not now depositing at all) to deposit the same document more than once if their institution is to adopt a mandate too — a burden that will surely generate author resistance, especially to reaching consensus and compliance on the adoption of the universal institutional mandates that funder mandates should be encouraging rather than needlessly handicapping.
All OAI-compliant repositories, whether institutional or central, are equivalent and interoperable. That means their metadata or even their texts can be automatically harvested in either direction. But researchers have one institution and they may have several funders (and several disciplines and subdisciplines). The central funder or disciplinary repositories can harvest institutional deposits automatically; but it makes about as much sense for researchers to (a) deposit, willy-nilly, institutional-externally in central repositories, instead of depositing institutionally — and then (b) having to back-harvest those deposits institutionally — as it would make for people to deposit directly in google and yahoo instead of locally, and then having to back-harvest their own contents locally.
So please consider the alternatives — and especially the positive, synergistic effect funder mandates can have on encouraging the adoption of universal institutional mandates for the balance of unfunded institutional research — if funders mandate convergent institutional deposit (from which there can then be central harvesting) rather than mandating divergent central deposit. Not only is there no extra benefit at all from requiring direct central deposit, only a deterrent to institutional mandate adoption and compliane, but it also loses the institution as a potential ally in monitoring and ensuring compliance with the funder mandate (as institutions would happily do, if the deposit locus were institutional rather than central). http://bit.ly/7w9HRB
Again, don't over-reach needlessly, and thereby reduce the chances of getting what is within your immediate grasp.

Naty Hoffman said on December 18, 2009 at 1:55 pm:

I don't think it matters much whether the publisher's or author's version is used, since the differences between the two are trivial. However, a central locus is important. Some papers are written by people working in industry, and their employers don't have institutional research pages as academics do. Also, some smaller academic institutions (especially in developing countries) have no repository, or a poorly-organized one, or even unreliable internet access (judging from my own experience trying to download preprints).
I don't think there is any issue of "competition" between institutional repositories and a central one. In fact, ideally the central repository would also have a link to the appropriate paper web page at the institutional repository. Storing a paper in two different places is not really wasteful - storage is cheap and getting more so all the time.
A central repository is crucial as a reliable baseline. Any institution that wants to also manage its own is more than welcome to. I suspect that over time, the presence of a good central repository will cause fewer institutions to bother with having their own.

+4 Steven LEach said on December 15, 2009 at 12:59 pm:

As a research scientist for 13 Years at SRI International, and the co-author of a dozen patents,a reader of Techdirt.com. I advocate that all publically funded research should be available to all who want to view that research. The idea that I have to pay over 1500 per year just to read the incomplete journal articles of research that tax dollars have funded, or the feeling I receive when some special computer program that is described in NASA Tech Briefs has been kept by the company that developed to software, using government funds is especially irksome. This system just stifles innovation in the technical sector, when the company that started the research already has a 1 year to 18 month lead simply by virtue of having conducted teh research in the first place. I have been a coauthor on many peer reviewed journals, and I can tell you that the time frame for publication is often 4 - 8 months from first submital of the actual article. Often I was told as a junior member of the team when writing or reviewing an article that vital information is often left out just so others would not be able to fully replicate the work in a timely fashion. Requiring that research companies, and scientists provide full details on their process as well as results would increase innovation, and speed competition, and since the research was funded with federal funds from tax payers money the tax paying citizens of the USA should benefit from the results. This would also allow tax paying citizens to see where their money is being used, and would engender more accountability for those individuals who have entrusted to disburse the funds in an equitable and timely manner.

Jake Swanson said on December 18, 2009 at 6:56 am:

You, good sir, have received an upvote from a CS undergraduate curious about all this commotion, because yours was an especially enlightening & well-written post.

+2 Michael Smith said on December 15, 2009 at 7:46 pm:

Which federal agencies: All federal agencies that fund research should have mandatory deposit policies.
Timing and Version:
• For the author's final peer-reviewed manuscript: Deposit this immediately upon publication. As Stevan Harnad has pointed out many times, this version has the fewest legal barriers and will thus be the easiest to implement quickly.
• The publisher's pdf: Deposit this after the publisher's embargo period. Pressure should be brought to bear on publishers to reduce, or eliminate, embargos. But it is much more important to get a policy implemented quickly, and to have papers deposited in a timely fashion, than to get the pdf filed.
Locus: Deposit should be in the institutional repository of the author's home institution. There are too many disciplines to use central repositories (particularly for the social sciences and humanities), and not all research is federally funded.
Mandatory: Yes, deposit should be mandatory, by both the funder and also by each university or sponsoring institution.

+2 Patrick Brown said on December 15, 2009 at 8:52 pm:

This "too many disciplines" or "too many funders" for central repositories… argument for prescribing institutional repositories seems completely illogical to me. Ironic, actually. There are a lot more institutions out there than there are disciplines or funders, so even if there were a reason to have separate repositories for each discipline, there would be less duplication of effort setting them up and managing them and far less overall cost. Moreover, there is no good reason for having separate repositories for each discipline (whatever that means) or each funder. PubMed Central and arXiv have worked very well as multi-disciplinary, multi-funder, multi-institutional repositories and they are both agnostic as to funding source.

+2 Ray English said on December 15, 2009 at 11:44 pm:

I would like to thank OSTP for creating the opportunity for public comment on this very important issue. SPARC, a membership organization representing more than 200 academic and research libraries in North America, has a keen interest in exploring mechanisms to expand access to the results of scholarly and scientific research. We fully support the principle that the results of research conducted with taxpayer dollars should be fully accessible and useable by all members of the public. This research is funded to facilitate scientific discovery, and ultimately, to improve the public good. It should be accessible on the campuses that we serve, in the communities in which we live, and indeed to all Americans.
The Public Access Policy currently employed by the NIH provides an excellent blueprint for a carefully balanced and successful approach to ensuring expanded, permanent access to articles resulting from an agency's funded research. It seems practical to consider using the established framework of the NIH as a starting point for expanding such policies to other Federal agencies.
I'd like to respond to the first two questions you posed:
Which other Federal agencies may be good candidates to adopt public access policies?
Agencies that sponsor research on behalf of the public should be required to ensure that all articles reporting on the results of that research (with the exception of classified research) be made available online for the public to access and to use in a timely manner. This is particularly urgent in scientific disciplines, where new research can have an immediate and dramatic impact on the public good, such as in biomedicine, environmental sciences, agriculture, energy, economics, and education.
One potential criterion for determining which agencies are good candidates to enact public access requirements could be the level of scientific research that they invest in on an annual basis. Agencies that fund a significant amount of research could be required to enact such policies. Legislation currently before the Senate suggests $100m or more as one benchmark to define what a significant level might be. (http://thomas.loc.gov/cgi-bin/bdquery/z?d111:s.01373:)
What criteria are appropriate to consider when an agency weighs the potential costs and benefits of increased public access?
Certainly the cost of providing permanent, expanded access is (and should be) a consideration. While the Internet has made it possible to deliver information to a much wider audience at almost no marginal cost, the library community knows well that other costs associated with ensuring enduring access remain. The NIH has provided good information on cost of establishing and running PubMed Central (PMC), which archives and provides access to articles resulting from its funded research.

The NIH has reported that the cost to run PMC at 100% capacity is estimated to be approximately $4.5 million year – an amount dwarfed by its annual $30 billion operating budget. This means NIH leverages a tiny fraction of its budget to ensure broad public access to all of the published results of its funded research. NIH's investment in this resource has created an opportunity for other agencies to adopt, incorporate elements of, or learn from the NIH's implementation of their Public Access Policy. For report on NIH costs, see:
(http://publicaccess.nih.gov/analysis_of_comments_nih_public_access_policy.pdf)
Different agencies will have different levels of article output to consider. NIH generates by far the largest number of research articles published as a result of Federal agency funding – an estimated 80,000 articles per year. Agencies with a smaller aggregate output may want to consider alternatives to establishing their own repositories. These could include: using PubMed Central as a shared repository, using the freely available source code for PMC and customizing it for their agency, or partnering with one of the many academic and research institutions that have already established robust online digital repositories.
To help control costs of implementation, it is crucial that policy requirements be closely coordinated to ensure that academic institutions (who will largely bear the responsibility of ensuring compliance) are not overburdened by multiple polices with multiple implementation requirements.
The potential return on an agency's investment in ensuring broad public access can be measured in both social and economic benefits. Models and metrics for gauging the relative return from opening up access to the results of national R&D investments are currently in use, and should be considered. Some examples include:
• Houghton, J.W. Steele, C. and Sheehan, P.J. (2006) Research Communication Costs in Australia, Emerging Opportunities and Benefits, Department of Education, Science and Training, Canberra.
• Department of Trade and Industry (DTI) (2007) Measuring economic impacts of investment in the research base and innovation: a new framework for measurement, Department of Trade and Industry, London.
One other important aspect to consider is the opportunity cost of the current system, where access to the results of publicly funded research is not maximized. We know that access to research information is seriously limited at less-wealthy research universities and at smaller universities and liberal arts colleges. What are we currently losing – in both the advancement of scientific knowledge and tangible benefits to the public – because we *don't* have this broader public access enabled?
Thanks once again for the opportunity to contribute to this important conversation.
Dr. Ray English, Chair, The Scholarly Publishing and Academic Resources Coalition (SPARC), Azariah Smith Root Director of Libraries, Oberlin College

+1 Heather Joseph said on December 17, 2009 at 3:38 pm:

Earlier this year, the UK's Joint Information Systems Committee (JISC) published a very useful study exploring both the costs and benefits of three alternative models for scholarly publishing - subscription publishing, open access publishing and self-archiving. One of the chief aims of the study was to inform policy discussions and help stakeholders understand the institutional, budgetary and wider economic implications of opening up access to the results of funded research.
The study consisted of two parts, both relevant to the discussion on this blog. The first focused on describing each of the three models noted above; identifying all the dimensions of cost and benefit for each; and examining which of the current players in the scholarly communication system would be affected and how.
The second part of the study focused on identifying and quantifying the cost and benefit implications for each of the main players in the scholarly communication system; and, where possible, compare the costs and benefits of the three models.
The authors of the study also modeled the impacts that opening up access to the results of funded research might have on returns to R&D investments over a 20 year period. And while the conclusions of the study are of great interest (finding that the benefits to open access generally greatly outweigh the cost, of even greater interest might be that the authors of the study have created a very useful online model available to those interested in further exploring their results or wanting to explore institutional, sectoral or even national costs and benefits.
The citation for study is:
HOUGHTON, J. … et al, 2009. Economic implications of alternative scholarly publishing models : exploring the costs and benefits. JISC EI-ASPM Project. A report to the Joint Information Systems Committee (JISC). London : JISC
A link to the online model and information about the study can be found at: http://www.cfses.com/EI-ASPM/
Heather Joseph
Executive Director, The Scholarly Publishing and Academic Resources Coalition

Steven Hall said on December 19, 2009 at 7:04 am:

Heather Joseph refers to the study of the costs and benefits of three scholarly publishing models published by the JISC in January 2009 (Houghton et al, Economic Implications of Alternative Scholarly Publishing Models) without mentioning the strong criticisms of it that have been made. The authors set out three benefits of the two open access publishing models over the current subscription model, in terms of (i) the direct savings that would be achieved in publishing costs; (ii) the indirect savings that would be made in library costs and the performance of research; and (iii) the gains that would be achieved in the returns to investment in R&D. All the savings and benefits that the authors of the study identify are based on a mass of assumptions and estimates which do not stand up to scrutiny.
For example, in looking at publishing costs the authors suggest that 50% of the costs of online hosting of journal content would be saved under an open access model. They appear to believe that all traditional publishers build their own proprietary platforms, which is not true, and that 50% of costs would be saved by not requiring authentication tools. This is a flawed assumption, as the research literature requires equally robust online hosting regardless of the business model under which it is published. They suggest that the annual collection of publication fees from nearly 100,000 UK authors would cost just 20% of the annual collection of subscription payments from a few hundred UK institutional customers, another totally flawed assumption; the opposite would likely be case. There isn't the room here to set out all the misconceptions and flawed assumptions, but overall they estimate that under a self-archiving model UK higher education institutions would have saved 116 million pounds in journal costs in 2007 without any subscription cancellations, when they actually spent just 113 million pounds; and would have saved 102 million pounds on books when they actually spent only 56 million pounds. You can't save more than you are spending.
When they looked at library costs they estimated savings of 45 million pounds in handling costs, though most of these come in the move to e-only publishing, not the move to open access, which the study often fails to make clear. Their understanding of the current library landscape also

appears flawed, for example in claiming that little attention is being paid to the long-term preservation of electronic content, ignoring the excellent work that has been going on for several years on the parts of Portico, the LOCKSS/CLOCKSS partnership, the Koninklijke Bibliotheek in the Netherlands, the British Library and the JISC itself.
Even bigger assumptions and estimates are made in attempting to calculate the savings in research performance and the gains to the returns on investment in R&D. Both these sets of benefits are based on an assumption that open access would increase the speed and efficiency of research by making available to researchers vast amounts of literature to which they have no easy access today. This is based partly on a flawed assumption about access to the research literature. The authors calculate that researchers in the UK have access to only 50% of journals and therefore only 50% of articles. They ignore the fact that 50% of journals account for 90% of articles. Academic researchers already have access to the vast bulk of the literature, at least partly as a result of the much criticised 'Big Deal'. In fact, if the marginal additional access that open access might provide could produce the enormous benefits that the authors identify – a total of 437 million pounds in savings and gains for the UK in research performance and efficiency – then one must ask what savings and benefits the Big Deal has provided, as it has more than doubled the numbers of journals to which UK academic researchers have access. The Big Deal is real and its effects could presumably be measured.
For the response of the UK Publishers Association, ALPSP and the International Association of STM Publishers, see http://www.publishers.org.uk/download.cfm?docid=ACC3B424-C9DF-429A-AED6CAB7BD8998F2. But it's not just publishers who have criticised the study. Phil Davis of Cornell University wrote "While I am truly impressed with the magnitude and detail that went into this report, accepting the results on face value means accepting a myriad of inaccurate and invalid assumptions" (see http://scholarlykitchen.sspnet.org/2009/07/16/challenging-assumptions-on-open-access-cost-savings/ for the full article).
Perhaps the single best example of the one-sided nature of the Houghton study is its partial coverage of access to research in the developing world. The authors provide three pieces of purely anecdotal evidence of poor access in the developing world. They omit to mention at all the public-private partnership of Research4 Life (www.Research4Life.org) between various UN organisations and scientific publishers, with the participation of Microsoft, which is providing free or very low-priced access to more than 7,500 peer-reviewed journals to more than 4,500 institutions in the developing world. While no-one would claim that this has bridged the knowledge gap between the industrialised world and the developing world, Research4Life is making a very real difference and shows what can be achieved with broad participation and goodwill.
A more balanced and reliable study would have been produced with the participation of publishers, but the JISC decided that the report should be 'independent'. Fortunately, projects are now underway which involve all participants in the scholarly communication chain. These include the recent joint initiative (http://www.rin.ac.uk/news/new-projects-transitions-scholarly-communications-launched) in the UK between a dozen or more bodies representing funding organisation, libraries, researchers, publishers and open access proponents, which will look at the barriers to moving to e-only, the gaps in access to research literature and how those gaps might be filled through different publishing models; the European PEER project; and the Chicago Collaborative and the Scholarly Publishing Roundtable in the US. These collaborative efforts are more likely to provide the evidence that is needed to ensure that any changes to the current scholarly publishing models are sustainable, scalable and of real benefit to the research community. The Houghton study does not provide the evidence that we need and should not be quoted as though it does.

+2 Bob Mayo said on December 16, 2009 at 12:26 pm:

Despite the interoperability of OAI-compliant repositories, it seems to me the time has arrived for a one-stop centralized portal/repository for all publicly funded research. Institutional repositories can link or harvest from this source, but how can it not be more efficient and ensure standards are adhered to? Such a centralized approach could take advantage of best practices and infrastructures (e.g. PubMed). My impression of the current landscape of institutional repositories is that there is too much costly reinventing of the wheel. A more centralized approach should better serve the American taxpayer. Such an approach could also serve as the "gold standard" for repositories, implementing government sponsored advancements in web technologies.
Bob Mayo
Acting Director, Rensselaer Libraries
Rensselaer Polytechnic Institute
Troy, NY

William Morris said on December 16, 2009 at 12:56 pm:

Who should enact public access policies? :: Rather than have multiple agencies implementing different access policies, a more coherent and less costly route would be to have an existing office that is already networked to the funding agencies, the private sector, and the science and higher education communities, such as the OSTP or a division thereof, enact policy.
What criteria are appropriate to consider when an agency weighs the potential costs (including administrative and management burdens) and benefits of increased public access? :: The benefit of increased public access is increased public knowledge.
How should a public access policy be designed? Timing: 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? :: Roughly speaking, studies indicate that the relevance of research, as indicated by citation number, is inversely proportional to the age of paper. Also seen is a significant increase in the number of citations a paper garners when published under open access (OA) compared to those made available for a fee (NOA). This is true across all disciplines. In this case, the principle investigator, science, and, ideally, all of mankind benefit. Access should be mandated as soon as legally possible.
Are there empirical data to support an optimal length of time? Should the delay period be the same or vary across disciplines? :: Currently, different disciplines have different access postures but all show an increase in the number of citations with ease of access. The greatest benefit arising from early access occurs within the first 3 years of publication (OA impact ratio for Physics 1992-2001)[3]. This appears to hold across all disciplines [see ref: 1,2,3 for more detail]. Thus, the delay period should be the legal minimum and the same across all disciplines.
Ref:
(1) Hajjem C., Harnad S., Gingras Y.(2005) Ten-Year Cross-Disciplinary Comparison of the Growth of Open Access and How it Increases Research Citation Impact
(2) Steffen Bernius, Matthias Hanauske (2008): Open Access to Scientific Literature – Increasing Citations as an Incentive for Authors to Make their Publications Freely Accessible
(3): Harnad, S. & Brody, T. (2004) Comparing the Impact of Open Access (OA) vs. Non-OA Articles in the Same Journals, D-Lib Magazine 10 (6) June.http://www.dlib.org/dlib/june04/harnad/06harnad.html

+2 Kathleen Nickel said on December 16, 2009 at 1:04 pm:

I have long been uncomfortable with current publication practices and support free distribution of publically-funded research; however, this issue needs to be address in tandem with a restructuring the reward and advancement criteria for researchers.
The use of subscription-based journals for the dissemination and review of scholarly research is outdated in this age of electronic dissemination and wiki technology. The journals, who's historic function was to promote the distribution of information and facilitate academic discourse, have become the gatekeepers of information charging for what could easily be provided free or nearly free of charge.
Public access platforms (such as wikis) could be used in place of subscription-based journals to both disseminate federally funded research and to encourage critical evaluation and debate. Currently, however, researcher advancement is largely based on their rate of journal publication and which journals accept their work for publication. A switch to free access publication will require that institutions reward researchers for participating in free access platforms.
A move to free access publication and changes in researcher reward structures could improve the quality of science. Today's researchers are not well reworded for participating in the critical evaluation of other's work. Peer review is sometimes performed as a courtesy with questionable rigor. A move to free access publication will be successful in both making research freely accessible to a larger audience, and increasing the rigor of review if institutions evaluate researcher performance based on 1) contributions to free access platforms, 2) response of the scientific community to these contributions, and 3) the rate and rigor of researchers' review of work (other than their own) posted to the free access platforms.
James Moore
Research Chemist
Sun Chemical, Inc

+1 Rick Weiss said on December 16, 2009 at 2:16 pm:

As one of the moderators on this blog, I want to chime in and thank everyone who has weighed in so far. We obviously have a robust discussion going. I also want to encourage participants to provide more details whenever possible. I appreciate, for example, the citations posted by Ray English yesterday for articles that address the question of how best to measure the impacts/benefits of open access to federal R&D information. Are there other empirical data out there that readers can refer us to? Similarly, it would be very useful to have some real data or tested metrics applicable to James Moore's post, above, referencing such presumed/perceived advantages as "improved quality of science" and faster and more rigorous reviews of published work. Meanwhile, please spread the word about this forum to your colleagues. Keep it coming!
Rick Weiss
Director of Strategic Communications and
Senior Policy Analyst
OSTP

+2 Stevan Harnad said on December 16, 2009 at 5:02 pm:

The effect of open access and downloads ('hits') on citation impact: a bibliography of studies:
http://opcit.eprints.org/oacitation-biblio.html

+2 Kathleen Nickel said on December 16, 2009 at 11:33 pm:

It's difficult to provide hard data for a recommendation that's not been implemented, but let me provide an additional observation and analogy that will, hopefully, make the benefits of my recommendation intuitive. First, it appears, from my experience, that much scientific work is critically evaluated by very few. Since researchers receive their "carrots" from publishing, not evaluating the work of others, the most rigorous evaluation come prior to publication, and is performed by the journal's representatives in determining if a work is of high enough caliber for their publication.
Once published there's usually little discourse other than private conversation between reader and author, or between colleagues at a pub on a Friday evening. I suggest that the latter does not qualify as rigorous evaluation. Thus, any change that provokes more critical evaluation of a paper and public (i.e. documented) discussion should lead to improvements in the quality of science. Key to implementing this change is to incentivize federally funded researchers to not only publish, but to evaluate each other's work by basing promotion and tenure as much on participation in scientific dialogue as on publishing their own work.
As for the analogy, consider EPA rulemaking. EPA publishes proposed rules in a free, publically accessible platform: the Federal Register. There's incentive for many to rigorously evaluate proposed rules. Small business owners evaluated proposed rules because new rules could impact their ability to conduct business, or impact their profit margins. Larger industries employ regulatory specialists who are incentivized (i.e. paid) to evaluate the impact of new regulations on the industry. Environmental groups pay or have knowledgeable volunteers who evaluate new rules to ensure their interests are considered.
It's difficult to envision that the rulemaking process would be improved if each proposed rule is published in just one of many possible publications. Interested parties must find where the proposed rule is published than subscribe to, or pay per view for a proposed rule. Perhaps a few rule makers would favor this approach, as it would reduce the number of pesky comments to be addressed, but this approach is not within the spirit of transparent and fair governance. Yet, this is exactly how we manage scientific literature. It's a system that discourages wide review and certainly discourages interdisciplinary evaluation as most researchers read only journals related to their specific fields.
Government needs to lead rather than ask "is it proven" before embracing innovation.

+1 Kate Benson said on December 16, 2009 at 2:27 pm:

One of the questions asks which versions should be available. I believe both the original manuscript as well as the final peer-reviewed version should be available. I would suggest even taking it a step further and say that peer review commentary should also accompany both versions. Transparency makes it more likely that a high level of scientific integrity is maintained and adhered to.
Although readers of some journals could get the idea that the only conflicts of interest worthy of mention are those that directly connect the financial interests of business with the research being done, there are many other valid concerns. Ideological differences, peer competition and other forms of financial ties such as peer review of colleagues who fund the reviewers own work may also be part of the mix.
Transparency, open access and open peer review remedy many of these issues at little or no cost. Thank you for your consideration on this particular point of interest.
Stevan Harnad, "The Invisible Hand of Peer Review", Exploit Interactive, issue 5, April 2000
Policy Statement: Conflict of Interest in Peer-Reviewed Medical Journals
Prepared by the WAME Editorial Policy and Publication Ethics Committees. Posted March 27, 2009; updated July 25, 2009.
http://www.wame.org/conflict-of-interest-in-peer-reviewed-medical-journals

Peter Guttorp said on December 16, 2009 at 7:14 pm:

I am not sure what the original manuscript means. Most scientific papers are being continuously edited, and I would doubt that any original version can be made available. I, for one, do not have enough disk space to keep all versions of manuscripts around.
As to the idea of making peer review commentary available to the public, I strongly suspect that this will make the reviewing process less productive. In particular this may make it harder to get reviewers for papers, in particular papers that are somewhat controversial.

Kate Benson said on December 17, 2009 at 11:06 am:

By original manuscript I am referring to the first submission. There are already many examples of open-access journals making peer review publicly available. If they can do it, I'm sure the government can manage. I will try to see if I can find data on the productivity of such an approach.
Although it would not be fully transparent, some journals do make peer review documentation available masking the reviewers identity.
If the work is controversial that should be a red flag that it is even more important that the process be fully transparent.
And yes I know idealism is not always practical, but sometimes you have to do what is necessary. Walking the talk as it were.

Reigh Simuzoshya said on December 16, 2009 at 4:50 pm:

Swan et al. (2005) have proposed the following three models for open access to research studies and findings:
1. Centralized Model: This model proposes that authors deposit their research findings in a central archive. A service provision component would be installed to provide the interface through which users of the materials would have open-access to them, and search, access, browse and retrieve whatever materials they would be looking for. The agency running this model would oversee article deposition, select appropriate software and standardize the protocol necessary to run it. The agency would also determine the formatting of the articles to be deposited and maintain the smooth-running of the program.
2. Distributed Model: In this model, all the research materials would remain in their source archives (in research-based institutions) around the nation. Users would be able to access and retrieve the materials in all available archives serving as depositories of research studies. The agencies running this model would be required to ensure that materials are consistent and current.
3. Harvesting Model: This is a hybrid of the centralized and distributed models in which research materials are harvested into a central open-access searchable archive but also remain distributed among the original archives in research-based institutions. This way, users would be able to search and retrieve articles. Most of the harvesting can be conducted automatically to minimize the need for human intervention.
The above models can be studied and modified through R & D to suit our specific needs.
Website: http://cogprints.org/4120
Reigh Simuzoshya, PhD
Public Health

+1 Alma Swan said on December 17, 2009 at 7:54 am:

Yes, these were the models we envisaged. Our task at the time was to develop a national model for handling Open Access research outputs in the UK. We developed those three possible models, but we endorsed (recommended) the third one - the harvesting model.
This was because it is optimal in two ways. First in a cultural sense, encouraging universities to develop digital archives and take on the responsibility of collecting the content (they alone can develop sufficiently robust policies to ensure the collection of outputs across all disciplines in a timely manner) and to be custodians of the outputs from their activities, contributing to a nation's intellectual wealth in so doing.
Second, in a technical sense, the harvesting model was preferred because it asks the author to provide the output in the simplest possible native format (e.g. Word): then technical services work upon the distributed collections located in universities, harvesting the content into central (national or international) services that can enhance the metadata and mark-up content as required to provide a good service to users.
The imposition of consistency belongs at this stage rather than at local deposit (i.e. university) level because that is the simplest way to go about things. It also means that technical standards can be used that suit particular disciplines, rather than trying to impose a one-size-fits-all approach across the board. The local deposit-level standard need only be OAI-PMH, but services can then harvest content and provide suitable 'views' of that content according to disciplinary needs. Text-mining-intensive disciplines, for example, require particular kinds of mark-up of articles to facilitate those technologies.
I discussed the issue of where to deposit at greater length 18 months ago here: http://optimalscholarship.blogspot.com/2008/07/here-there-or-even-everywhere-where.html

+1 Stevan Harnad said on December 16, 2009 at 6:57 pm:

Please also read and sign the EU's Open Access Petition. Non-EU citizens are explicitly welcome. Deadline is close (December 22): http://bit.ly/4FoI3p

+1 Ben Webster said on December 17, 2009 at 12:51 pm:

Let me first speak from my person experience as a mathematician. Physics, and later mathematics have gradually adopted an informal open access policy, which is generally agreed to be a huge success. Every month about 5,000 articles in theoretical physics and mathematics are posted on the site arXiv.org, voluntarily by their authors. At this point, it is almost unheard of to publish an article in mathematics without first posting it on this preprint server.
This site is now used almost daily by all mathematicians I know, and has been a huge advance in the communication of mathematical results. I really think it is a shame that other fields have mostly failed to pick up on such a successful model, and I certainly hope the federal government can give them a nudge in the right direction.
I'll also note that this site has not caused many of the problems detractors of open-access policies have predicted; it hasn't undermined peer review, it hasn't caused wide-scale thieving of results. There were many skeptics in the mathematics community when the site was first implemented, but none of the downsides they predicted came to pass.
In terms of timing, this makes results publicly available sometimes years *before* they are published. My personal preference would be to require research done with federal money to be posted online when it is submitted to a journal, not after it has appeared.
The version which should appear is the most recent and correct version of the paper, no matter what is in the journal.
Such a policy should certainly be mandatory.

+1 Scott Carter said on December 18, 2009 at 11:30 am:

I agree with Ben Webster's assessment and would like to add some personal comments. Not only do the arXiv and newer forums such as mathoverflow not lead to priority battles, they seem to lessen them to a great degree. Articles and questions posted have time-stamps. The forums are public. While the entire mathematical enterprise is tacitly dependent upon the good will of fellow mathematicians, the community at large seems to be quite good at policing unsavory behavior. For example, if a mathematician were to claim a result as her own, she would certainly be challenged by an audience member who was familiar with similar work that had been posted.
In many ways, the posting of pre-prints has considerably sped-up the refereeing process in our field which is extremely rigorous.
Let me also remark that I serve as a managing editor for a scientific journal that is part of a commercial enterprise. In my editorial capacity, I can spot articles that are particularly interesting, have likely large impacts, and solicit the author(s) to submit to the journal that I edit. My journal does not compensate me financially for my work as an editor, nor in general do mathematical journals compensate referees and reviewers. Yet the prestige of the journal reflects positively on my scientific career.
From our mathematical perspective, open access to scientific results is the system that makes the most sense.

Diane DiEuliis said on December 17, 2009 at 2:15 pm:

Thanks for these comments regarding manuscript version. Would you be able to speak a little more to what additional information is useful by having both the submitted, and the edited versions? Of what use can scientists make of having both (or other users)? It would be helpful if you could describe in a little more detail. Thanks again - great discussion.

+3 Arthur Smith said on December 17, 2009 at 2:46 pm:

First, by way of disclosure, I work in the IT department of a scholarly publisher, and have participated in these debates on open access off and on for roughly 15 years. My thoughts here are my own as a citizen and former scientist, and in no way intended to represent the interests of my employer.
In a world awash with information, peer-reviewed scientific articles provide a bastion of rational evidence-based thinking. Individual articles can be critically important building blocks for understanding past and present, for predicting the future; they are the bedrock of the edifice of science that tells us as far as possible what "is", and help guide decision making on what we "ought" to do to make things better, whether at the personal, corporate, or national level.
They are also under threat. No, not from "open access". Open access may be a very good thing, but the important question is whether it helps the real battle: over the integrity and trustworthiness of science itself. This is not a new battle, but as with many extended wars, with time has come greater and greater capability on the opposing side, and it is critically important for science to build sufficient defenses against attacks that have already occurred, and those which can be anticipated to come. Examples of this new order of battle are quite widespread (and some several decades old):
* Tobacco industry manipulation of research on the effects of smoking
* Pharmaceutical company sponsorship of distorted research
* Other major corporation-sponsored or ideological attacks on environmental and health-related science
* The creation of entire apparently peer-reviewed journals whose purpose was advertising for a particular company's products
* A plethora of small journals with extremely dubious review practices - for example the "Open Information Science Journal" case.
* Even relatively established journals somehow publishing "crank" papers on such things as creationism or denying the greenhouse effect in its entirety.

* Many much smaller examples of ideology, corruption, or simply pressure from uncomprehending media or public, apparently allowing papers with dubious conclusions into the literature, or suppressing papers with contrary conclusions
* And all this is happening while a very large fraction of professional science journalists have lost their jobs with major newspapers and media companies in the last few years.

The questions raised here by OSTP regarding open access may help: exposure to sunlight is often cleansing. But there is also a danger: with so much information freely available, how do we avoid Borges' "Library of Babel", where you simply cannot tell what information is reliable - when the information sources you regard as stamps of authority may themselves have become corrupted in some way? Who do we, finally, trust? Barring conspiracy theories, what seems to prove most trustworthy in the world at large is having a large number of independent entities provide, or even better compete over, essentially duplicated information sources. We must absolutely avoid single points of failure in the system, where any one entity could (or could be accused of acting to) distort this fundamental bedrock of science. Mirrors of a single site are not enough. Even settling on a single standard for article content or data storage may not be a good idea, if that standard itself can be controlled or attacked (for example with software viruses). Diversity is important.

There remains considerable diversity in the current peer-reviewed journal system, though some of that has been reduced in recent years through corporate mergers and consolidations; the journals we have now do compete for researchers' attention based on the quality of what they publish, and that is an important factor in maintaining their integrity.

With that context out of the way - the first question in the OSTP Federal Register article is on how this might change under an open access policy. To the extent a unified open access service becomes the primary means for researchers to find scientific articles, it would inevitably reduce the association of articles with the journals they are published in, and this in turn would reduce that competitive incentive that ensures quality in the journals. Furthermore, if authors become less interested in getting their articles into the highest-quality journals, the quality of the articles themselves will suffer, again from a loss of competitive motivation on the part of the scientists this time.

Rather than a giant bin of undifferentiated (except by subject) articles, as the current examples of open-access archives seem to be, a more structured collection that fosters real competition - among journals and/or among the authors themselves - could resolve this problem. With the ongoing revolutions in social networking software there are surely ways to harness human motivations to make the best articles, and journals, stand out clearly from the rest.

Moreover, rather than having the federal government sponsor a single archive of this sort, it would almost certainly be better to encourage multiple independent entities to compete in creating such archives, with largely duplicated information from the primary publishers. To some extent this is what secondary publishers do now - but their information is proprietary and not public. The issue then becomes one of funding models: perhaps we should require institutions receiving federal funds for research to include payment for the secondary publisher of their choice in overhead costs, but then require all the secondary publishers to make at least a minimal collection of their data available freely. Regulation of this sort over secondary publishers might be a very quick way to open all the literature while preserving the competitive incentives that ensure quality.

On question 3 from the Register article, the benefits of opening the literature have already been well discussed here, and I fully agree - having more people able to read the best scientific papers and understand current issues in science is surely a good thing. The resulting innovation and better decision-making all around will be a great benefit to the country.

On question 5 - to ensure compliance you will need to recruit either primary or secondary publishers somehow or other. On question 6 - for the integrity of the literature there needs to be only one version clearly identified as the "final published" one, with a clear mechanism for handling later corrections or "errata". It may be fine to include other versions and supplementary data etc. along with it. Perhaps we'll figure out new modes of communication that parse scientific articles into their logical statements and claims and those will be the more fundamental entities of interest, but for now the "final published" article needs to be a fixed immutable object essentially in perpetuity.

On question 7 - if funding etc. were not an issue, there should be absolutely no delay between publication and having the article open. A scientific article is almost always of greatest interest when it is news, the day it is published. Other work can then build on it. Delayed by months or years, and that other work is itself delayed, building unnecessary friction into innovation.

On question 9 - usability is indeed key, and is essentially the guarantor of quality I discussed in addressing question 1. Community participation, as suggested in the question, will also be important. That will require intelligent moderation to avoid wasting legitimate researchers time with crank/troll activity. All of these are things that need to be paid for.

Open access will cost the taxpayer money one way or another. But it will be worth it, especially if it can help address the central issues in the larger battle over the integrity of science itself.

Helene Bosc said on December 17, 2009 at 2:48 pm:

Alma Swan has given the good reasons to favorise institutional repositories with harvesting. To reinforce her developped arguments, here is what is happening in France, with the centralized multidisciplinary national repository HAL, created in 2001.

HAL was created with the idea to provide good standards for a national repository. French institutions are supposed to deposit directly in it. The different institutional research output appear via different portals.

Some universities agreed to deposit directly, but a lot of institutional repositories are also flourishing beside, today. Why?

In fact, this centralized system lacks of flexibility: all the French research institutions and universities are supposed to follow the same technic and the same policy decided by the centralized system. It is difficult to find a general agreement.

Moreover, the kind of pale picture given by portals seems to erase the true "store window" of institutions and their particularities.

And finally if the repository is really inside the institution all kind of the control are easier.

All the responsables are aware of the necessity of a national repository with good standards, they are willing to contribute in filling HAL and they signed a "protocole d'accord" in 2006. But HAL doesn't harvest and therefore there is a real technical problem to transfer from the institution to the central repository .

As Alma Swan said it, it is better to harvest the simplest format in an institutional repository and to improve it after, in a centralized repository.

(Please note that inspite of the "protocole d'accord" signed in 2006 by the majority of French universities and research institutions, Hal receives only about 20% of the French annual research output. We need a mandate in France!)

+4 Julia Mortyakova said on December 17, 2009 at 4:22 pm:

The National Association of Graduate-Professional Students strongly supports a mandatory policy to require public access to the results of research funded by all federal science agencies. We believe such a policy would yield tremendous benefits for the public as a whole, and for graduate and professional students in particular.

As the President of an organization representing over a half-million graduate and professional students, I can attest to the fact that students' access to scholarly literature is artificially limited by the size of their academic institution's library budget. Rather than gaining access to an entire scholarly record, a large portion of which is underwritten with taxpayer dollars, students must only rely on a fraction of material that their library can afford. This current situation prevents students from obtaining information that could lead to innovative research or even a dissertation. When research is paid for by the public, the public—including students—has a right to access, use, and build upon its results.

We believe that any federal public access policy should require immediate access to the results of publicly-funded research in order for students to have the results of research when they are the most relevant, and thus the most useful. However, we understand that the experience of funders around the world has shown that an embargo period may be necessary to ensure publishers remain financially viable while providing students, and the public, access to federally-funded research within a reasonable time frame. We believe that this time frame should be as short as possible, and that a six-month embargo would provide a reasonable compromise.

The policy should cover all agencies that distribute federal funds for research, except that which is classified. Each federal agency has related academic disciplines—and therefore students—who would directly benefit from having access to the relevant research that the agency produces.

As the NIH has demonstrated, we believe a public access policy must be mandatory. Compliance data from the NIH clearly shows that voluntary policies suffer from anemic compliance rates, while mandatory ones have much more complete deposition rates.

While we recognize that agencies may incur some costs in implementing public access policies, if they track with the experience of the NIH and other funders, those costs will be significantly outweighed by their benefit to students. The NIH reported to Congress that running their public access policy requires approximately $4.5 million of their annual $30 billion operating budget, the former being less than .002% of their total budget. This seems a small price to pay for making all NIH-funded articles available to students and anyone else who might find them useful.

We also believe that we incur a significant cost every day that a public access policy is not in place, because students (and other potential users of federally-funded research) are denied access to information valuable to their education, and potentially relevant to their daily lives.

A public access policy is extremely important to students; research, and the access to it, is inextricably linked to one's education. Not being able to acquire an article is an everyday experience for many students, whether they are graduate or undergraduate students. One does not need to look far to find examples of frustrated students who have made the decision to forgo reading or using an article because of a price or access barrier.

Although we agree that the publishers and the peer-review system that they help to facilitate are important, we believe a strong public access policy will allow students to obtain the research they need while allowing publishers to remain viable—creating a system that equitably balances the needs of the community for which this research is intended to benefit, the public.

Julia Mortyakova, D.M.A.
President & CEO
National Association of Graduate-Professional Students (NAGPS)

+8 Peter Jerram said on December 20, 2009 at 1:10 pm:

Background

The Public Library of Science (PLoS) is a leading non-profit open-access publisher. Open access means immediate, free access and unrestricted reuse and distribution of content. Over the past seven years PLoS has established a successful and innovative publishing operation and now publishes thousands of open-access peer-reviewed articles each year from leading researchers across the life and health sciences. All of the content that we publish is freely and publicly accessible on the day that it is published, and is permanently archived in National Library of Medicine's public archive, PubMed Central. More information on PLoS can be found in the 2009 PLoS Progress Report (available at http://www.plos.org/downloads/progress_report.pdf).

We strongly support the efforts of the OSTP to increase public access to research literature that is funded with taxpayer dollars. PLoS (and other open access publishers) are showing that immediate public access can be achieved in the STM (science, technical and medical) fields by using alternative mechanisms to fund the process of publication. However, open-access publishers still represent only a minority of the publishing landscape, which is dominated by business models which require that access to research be restricted. To encourage further improvements in public access, we therefore believe that policies such as those of the NIH in the US and the Wellcome Trust in the UK are essential next steps towards the goal of comprehensive, immediate public access to research.

Who should enact public access policies?

The NIH policy requires public access to all peer-reviewed research funded by the NIH within 12 months of initial publication. In the UK, similar policies have been implemented by all major biomedical funding agencies, including the Medical Research Council and Cancer Research UK (see http://ukpmc.ac.uk/funders/). The European Research Council has also mandated public access to the research it funds within six months of publication (http://erc.europa.eu/pdf/ScC_Guidelines_Open_Access_revised_Dec07_FINAL.pdf). A useful listing that highlights the extent of funder policies

internationally is available at http://www.sherpa.ac.uk/juliet/.
We believe that all federal agencies in the US should implement public access policies along the same lines as many other public funders have already done, internationally. Mandated access after 6-12 months is emerging as a global standard, and is a reasonable compromise between increasing public access to publicly-funded research and minimizing any risks to the business models of subscription-based publishers.
How should a public access policy be designed?
Timing. In the STM fields, a substantial minority of journals make their articles publicly available within 6 or 12 months of publication (a partial listing is available at http://highwire.stanford.edu/lists/freeart.dtl). Given that many funding agencies are mandating access after 6 months, PLoS encourages STM funding agencies to mandate access certainly no longer than 12 months after publication, and ideally within 6 months of publication, particularly in areas such as biomedicine where research tends to move very rapidly.
Version. Funder policies should mandate public access to the final published version of the article wherever possible. The final versions of research articles constitute the formal scientific record, and provide the foundation upon which future research is built. Although access to the version of record should be the goal, deposition of the author-accepted manuscript is an acceptable alternative if access to the published version cannot be mandated.
Mandatory versus voluntary. The experience of the NIH indicates very clearly that a mandatory public access policy leads to much more widespread compliance than a voluntary policy. Such a policy ensures public access within the embargo period. By contrast, policies should strongly encourage, but not require, publication in open-access journals. Such a voluntary component to the policy (supported by provision of mechanisms to cover the payment of publication fees) will encourage moves towards immediate public access.
Other. To drive the transition towards immediate open access, we also believe that funding agency policies should include provision for the payment of fees that support publication in some open-access journals, as exemplified by the policy of the Wellcome Trust in the UK (http://www.wellcome.ac.uk/About-us/Policy/Policy-and-position-statements/WTD002766.htm). Standardized and liberal licensing policies should also be included. PLoS and many other publishers use the Creative Commons licences, in particular the Attribution License (http://creativecommons.org/licenses/by/3.0/), which encourages the broadest possible reuse and distribution of content, thereby maximizing the potential impact of published articles for research and education. Some subscription journals, for example those of the Rockefeller University Press, also release their content after six months under the terms of a Creative Commons license (http://creativecommons.org/weblog/entry/8262). It would be highly desirable to see funder policies developed along similar lines - not only would content be made publicly accessible (after the shortest possible embargo period), but the content would also be released from unnecessary restrictions regarding reuse and distribution.
Peter Jerram
Chief Executive Officer, Public Library of Science.

+3 Hope Leman said on December 20, 2009 at 1:33 pm:

I have read the comments posted here and would like to second the comments of those who argue that publications resulting from Federally funded research should be Open Access. Many of the comments made so far have made a moving, persuasive case that such a policy would be in best interests of scientists and other scholars and of the taxpayer. I would just add that an Open Access policy would be in the best interests of patients.
I will borrow from John Nickerson's comments to make the point that with the rise of the E-patient and Participatory Medicine movements and as technology advances, thereby facilitating the development of personalized medicine and the use of personal genomics in patient care, there are ever more compelling reasons for such an Open Access Policy. Patients are no longer passive actors in their own medical care. Rather, they are engaged and empowered and are working in concert with their healthcare care providers and managing their own health data in ever more sophisticated ways. The current and antiquated system is manifestly unjust to taxpayers and blocks both scientific and technological progress. Take the case of a single periodical, that of the leading journal in the field of amyotrophic lateral sclerosis (Lou Gehrig's disease). An individual subscription (not even one of an institution) is now more than $1,000 for six issues a year. Thus, those who care for a family member with that illness but who have limited incomes cannot gain access to the results of the latest research and useful information on how to address quality of life issues for their loved ones. And some journals are far more expensive.

Given the increasing importance of such fascinating developments as patient-initiated clinical trials and the growing numbers of venues for finding such trials, it is imperative that patients have access to the latest research on their conditions so that both patients and researchers can capitalize on the unprecedented opportunities Web 2.0 offers to streamline and galvanize the clinical trials recruitment process. Open Access is vital for the welfare of the seriously ill and for the standing of the US vis-à-vis medical research infrastructure and intellectual capital. And as the saying goes, "We will all be patients someday." An Open Access policy is in the personal interest of every one of us and for the US as a contributor to the body of scientific knowledge worldwide and for the economic, scientific, technological and physical health of our nation.
Again, I borrow from John Nickerson and second some of his key points:
• Taxpayers pay for most basic and translational research in biology and medicine and pay to have the work published as a part of Federally funded research grants.
• Scientists write the grant applications and if funded, conduct the research.
• Scientists write the papers as part of the Federal funding.
• Even the wealthiest university research libraries can afford to subscribe to only one-fifth of all journals published in the world today, making it difficult for scholars to get access to the scholarly literature.
• The Taxpayer who paid for the research in the first place has no (zero) access to the scientific work, unless the works are placed onto Open Access Repositories.
• No one else in the world has access to the published works unless they pay for a subscription or other fee.
When I started in the field of medical librarianship in 2004, I was shocked that because of current copyright laws information that could have directly benefited patients was so tightly restricted by rules encumbering its dissemination and that the rules benefited no one but the publishers, who had done so little to actually produce the information. As many of the commentators here have pointed out, the patients studied, the taxpayers who have funded the research, the scientists who conducted the research, the research institutions that employ those researchers and the libraries that curate it are the productive actors and yet they are the one who are prevented from accessing that research unless they pay exorbitant fees—fees that add to the ever spiraling cost of healthcare in the US.
And let's bring this down to the personal level. Think of someone you love who is ill. There is an article that contains information you and your doctor need to alleviate that person's suffering. Instead of being able to obtain it by simply downloading it via whatever Web-enabled device you use, you have to hope that you live in a town with a medical library that may be able to get it for you (and either that library has to pay the cost or charge you) or you could try to obtain it for a fee. And this is research you have paid for as a taxpayer already. Think of the time lost and the needless extra suffering for your brother or daughter. This is the situation we are now in. This is not what we as a nation should tolerate any longer.
This is neither a left-right issue nor one of knee-jerk anti-corporation passion. Open Access to Federally funded research is a matter of good patient care. It would be responsible public policy. It is an idea whose time has come.

+4 William Cohen said on December 20, 2009 at 1:41 pm:

I am an Associate Research Professor and CMU, and have been working for some time on extracting information from text. One particularly interesting application of these techniques is extracting information from scientific publications, an area which is entirely reliant on open access to these publications. For instance, in the SLIF project (http://murphylab.web.cmu.edu/services/SLIF2/), a joint project with Robert Murphy in CMU's Biology Department, we were able to create a large database of fluorescent microscope images, annotated with information about likely subcellular location of the particular proteins being visualized in the images.
This was a substantive research project in its own right - an NIH R01 paid for the bulk of the work - and helped to push forward science in image processing and text extraction, leading to nine refereed publications in these areas. The arguments for funding it, however, were ones of practical impact - simply put, scientists have complex information needs, and building good tools to access this information will improve science as a whole. This is an argument that NIH clearly believes in - my current work is largely funded by followup grants from NIH and NSF (http://www-2.cs.cmu.edu/~wcohen/querendipity/)
I strongly believe that NIH is correct - that science and society as a whole will benefit hugely from more and better access to scientific results. There is no reason at all that this argument is limited to biomedicine and NIH-funded work - it applies equally well to computer science (my own field), sociology, and so on. I would like to see a requirement that ALL federally-funded scientific work be published promptly in an PLOS-like Open Access setting, so that everyone has as much access as possible.
William Cohen
Machine Learning Department
Carnegie Mellon University

+1 James Till said on December 20, 2009 at 2:44 pm:

Thanks for the opportunity to post a comment. OSTP has provided innovative leadership in it's initiation of this Policy Forum.
Who should enact public access policies?:
• Agencies that fund a significant amount of research should enact mandatory policies. Some differences in policies across agencies may be necessary at this time, but researchers (and their institutions) should not be overburdened by too many differing implementation requirements.
Version and Timing:
• The author's final version, after peer review, of papers stemming from all publicly-funded research should be required to be deposited into an open, central repository immediately upon acceptance for publication. The author(s) should retain copyright to this version.
Mandatory:
• Deposit should be mandatory, by funders and also by each sponsoring institution. Persistent failure by authors to comply with such a policy should lead to appropriate penalties (such as ineligibility for further funding).
• Deposit should be in a central repository. There are already two successful central repositories, arXiv and PMC. (What's missing is a successful one for all of the social sciences and humanities). Harvesting from the central repository into the sponsoring institution's repository should be feasible, if desired by the sponsoring institution (to reduce the burden on researchers and their sponsoring institutions).
Other:

• From an international perspective, there should be harmonization of policies by those agencies in different countries that support similar kinds of research. For example, the requirements for deposition in PMC, UKPMC and PMC Canada should not differ.
• The value-added services offered by these repositories could differ. For example, an ideal value-added service would be the provision, for each article in a repository, of credible article-level metrics (ALMs). The Public Library of Science (PLoS) has already done pioneering developmental work on such ALMs (http://www.plos.org/cms/node/485). The repositories of sponsoring institutions could also provide value-added services not already available via the central repositories.

+2 Kevin McComber said on December 20, 2009 at 8:27 pm:

I'm a graduate student at MIT in Cambridge, MA, which, in March of 2009, enacted its own faculty open access policy. MIT strongly supports open access to research, and thus supports public access to federally-funded research.
MIT's experience has been that the cost of journal subscriptions has risen much faster than that of inflation, and the MIT libraries are now going to have to cut a number of subscriptions, thus damaging students' abilities to do research and learn efficiently; for a graphic illustration of the costs from a recent publication about MIT's OA policy, please see http://www.tinyurl.com/mitoastats.
To reply to the specific questions for this phase of the forum:
1. Who should enact - all government agencies that fund research. True, the overhead of administering the policies may be costly, but it should be possible for several agencies to band together and have a central repository for all of them. I don't see a reason why NSF and NIH can't host their material on the same site, as long as it's easily searchable.
2. Timing - the most preferable for researchers is immediately upon publication. My fellow grad students need to be able to access material as soon as it's released; otherwise, it may be considered old news. Your question asks what the "optimal" time for research to be made publicly accessible, and I would ask "optimal for whom?" For researchers, earlier is better. For publishers, this might not be the case, but the point of research is not to fund the publishers - it is to be disseminated and used for the betterment of mankind.
I don't think that saying one discipline should have a different embargo than another is reasonable or fair. What discipline of study would prefer that their research results are held back from others? How would we decide whose work should be held back for longer? The policy needs to be uniform across disciplines to avoid a complete quagmire. It may be possible, however, to make the final manuscript available immediately, and the final article available later. At least that way there is no judgment call being made about one discipline over another. It may also placate the publishers.
3. Version - it would be nice to have the final article, but an author's peer-reviewed manuscript would do, as long as it's in a legible format.
4. Mandatory vs. voluntary - it must be mandatory. As has been said elsewhere, voluntary OA sees very low submission rates. This has been true with MIT's OA policy, so much so that most graduate students and faculty don't even know there is such a policy.

+5 Victoria Stodden said on December 20, 2009 at 8:57 pm:

Open access to our body of federally funded research, including not only published papers but also any supporting data and code, is imperative, not just for scientific progress but for the integrity of the research itself. We list below nine focus areas and recommendations for action.
[1] Each Funding Agency Must Address Open Access: The disparate nature of research discourages the use of blanket mandates in favor of an approach, at least initially, tailored to the research environment at the level of the funding agency. For example, the initiative shown by the National Institutes for Health regarding Open Access derives from the established norms of openness emerging from the Human Genome Project which may not be directly applicable to each agency. Awards from agencies may be currently subject to data sharing agreements that must be reconciled with Open Access. We recommend advising the funding agencies to develop plans to implement Open Access within a six month time frame before turning to the powers vested in the Executive Branch. We discuss issues for consideration in the enactment of an Open Access policy for federally funded research.
[2] Public Access to Federally Funded Research: It is imperative to provide public access to tax-payer funded scientific output, not only the final published paper but also the supporting data and code necessary for the reproducibility and skepticism fundamental to scientific communication and progress.
[3] Exceptions to Open Access: These must be minimized. The goal of transparency in research must accommodate exceptions, such as research used for national security purposes or those with privacy or confidentiality concerns. Research relevant to national security interests falls outside the mandate of these recommendations. Confidentiality must be circumscribed to apply to data with individual subjects for which anonymization techniques are ineffective.
[4] Timeliness and Embargo Periods: Funding agencies should require the deposit of agency-funded final peer-reviewed manuscripts. The NIH requires that papers that arise from NIH funds comply with their public access policy: final peer-reviewed journal manuscripts are submitted to PubMed Central upon acceptance for publication, and become accessible to the public no longer than 12 months after publication. Ideally the closer the research is made public to the date of publication the better, but 12 months should be the maximum embargo period for federally funded research.
[5] Digital Archiving: Careful consideration must be given to the locus of the digital archiving. The creation of agency-specific repositories does not facilitate interdisciplinary communication and thwarts scripted search and API usage; a national research repository should be established to house released agency funded manuscripts including supporting digital materials such and data and code, and provide links to research housed elsewhere. Many institutions do not have repositories, nor do they have the resources to maintain them. For computational work, supporting data and code must accompany article release creating additional demands on a repository. For papers whose results can be replicated from short scripts and small datasets, many computational scientists who do engage in reproducible research are able to host their research compendia (paper, data, and code) on their institutional webpages or using hosting resources their institution is willing to provide. These individual contributions, however, may not conform to standardized formats that facilitate scripted search, and nor display transparent versioning and crucial time-stamping of edits and revisions, and may not be labeled with unique object identifiers as required by the NIH Open Access policy. These desiderata could be implemented in a straightforward manner by a neutral third-party site such as one coordinated among multiple funding agencies. Not all computational research involves small amounts of supplemental data and code and an inter-agency repository could host very large datasets or complex bodies of code in cases where institutional support is not available to the researcher. Such a repository could extend the

capabilities of arxiv.org or PubMed Central for all federally funded research (data, code, and manuscripts; perhaps renaming PubMed Central the more representative “PubSci” or “PubCentral”).
[6] Copyright and Ownership Issues: The NIH further requires that copyright be lawfully addressed. Many journals require authors to assign copyright to the journal as a condition of publication, but will allow an earlier version to be posted publicly. The NIH has made publication in journals that permit the article — or a version thereof — to be posted in PubMed Central a requirement for funding; this strategy is an option for all funding agencies to consider, as well as a generalization to include data and code deposit (for computational research).
Current complex ownership issues must be clarified between the public, the researcher, the institution at which the researcher works, and publishing entities. OSTP’s current RFI could be viewed as a step in untangling ownership in favor of the taxpayer. Since the passage of the Bayh-Dole Act in 1980, universities have taken a strong interest in maintaining a proprietary interest in research produced at their institutions. Patenting and other forms of intellectual property limit the ability of other researchers to reuse and build upon the research, and thus work against scientific norms and hinder scientific progress.
[7] Incentives to Open Science — Citation and Future Grants: The final requirement the NIH makes of grant recipients is use of the PubMed Central identifier at the end of citations. Encouraging the use of unique identifiers of papers, as well as of data and code, can encourage the release and hence citation of all forms of computational research. Such a unique identifier would indicate compliance with agency open access policies.
Tagging of research compendia is an important issue for communicating work, facilitating topical web searches, and aggregating a researcher’s contributions, including their data and code. Development of a standard RDFa vocabulary for HTML tags for agency funded research would enable search for data, code, and research as well as facilitating the transmission of licensing information, authorship, and sources. Enabling search by author would allow a more granular understanding of a researcher’s contributions, beyond citations. This would provide an incentive to release data and code, and give others — such as funders, award committees, and university hiring and promotion committees — access to a more representative assessment of the researcher’s contributions to the community than mere publication-counting. Such a tagging vocabulary could include unique identifiers for data and code, ideally the same as those required for repository deposit as discussed in the previous section, and thus facilitate and encourage their citation.
It is important that these requirements be tied to grant funding and a mechanism established that allows compliance to be reflected in future grant determinations. Strategies for release of data and code arising from a particular grant should be subject to peer review in the grant evaluation process.
[8] Posted Guidelines and Recommended Best Practices: A “best practices” document should be publicly available at a stable URL, be updated with versions, and provide clarity regarding the above issues, either at the agency level or at the OSTP. It should be framed to suggest ideal recommendations, rather than list a series of requirements. Some points such a document may wish to address follow.
Reproducibility is a goal of computational science, and practicing reproducible research means:
* Uploading the final peer-reviewed journal manuscripts that arise from federally funded research to a digital archive upon acceptance of publication,
* Making the data and code required to reproduce results from federally funded works publicly available online upon acceptance of publication,
* Utilizing appropriate licensing structures for federally funded research, such as the Reproducible Research Standard (see IJCLP Webdoc 1-13-2009 at http://www.ijclp.net/issue_13.html),
* Utilizing tagging structures for agency funded compendia release, as part of inclusion in repositories or posting in institutional repositories, in order to facilitate search of research results.
[9] References: These issues were discussed at a roundtable on research sharing issues held at Yale Law School on November 21. The webpage, along with thought pieces and research materials on the subject, is located at http://www.stanford.edu/~vcs/Conferences/RoundtableNov212209/ .
A possibly useful reference discussing the communication of research and scientific progress, “Reproducible Research in Computational Harmonic Analysis” is available at http://www.computer.org/portal/web/csdl/doi/10.1109/MCSE.2009.15 .
Victoria Stodden
Yale Law School, New Haven, CT, 06511
Science Commons, Cambridge, MA 02138
http://www.stanford.edu/~vcs
Chris Wiggins
Department of Applied Physics and Applied Mathematics, Columbia University, New York, NY
http://www.columbia.edu/~chw2/

+2 Clement Cole said on December 20, 2009 at 10:44 pm:

The USENIX Association strongly supports the open and free dissemination of federally funded research, without regard to funding agency. In addition to supporting authors’ ability to make their own work available through institutional repositories, the USENIX Association is also in favor of a centralized, public repository of such research results.
Since 1975, the USENIX Association has brought together the community of engineers, system administrators, scientists, and technicians working on the cutting edge of the computing world. Unlike our colleagues at ACM and IEEE, USENIX has made all of its conference proceedings available free of charge to the general public, as of March 18, 2008. In making this move we demonstrated our commitment to the open access to information, which we believe is an essential and fundamental part of our mission. We hope that our example will serve as a model to our sibling organizations that also sponsor conferences, journals, and other publication venues.
This significant decision allows universal access to some of the most important technical research in advanced computing. USENIX has delivered innumerable industry “firsts” at past conferences, including ONYX, the first attempt at UNIX hardware; the launch of the first UNIX product by Digital Equipment Corporation; the first paper on Sendmail by Eric Allman; the first Perl presentation by Tom Christiansen; and the first report by James Gosling on Oak, which later became Java. These and other results appearing in our conferences have had extraordinary impact, and the free and open dissemination of these results is important to USENIX and the broader research community.
As to the specific questions posed: 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?
The USENIX Association believes that peer-reviewed papers should be made publicly available on of the date of publication. This is particularly important in fields such as computer science and engineering, when the state of the art is under constant flux.

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)?
The USENIX Association believes that the final published version should be made publicly available. The USENIX Association does not believe that the peer-reviewed manuscript should be mandated to be accessible—often, errors or inconsistencies are found during review that are corrected in the final published version.
The NIH mandatory policy was enacted after a voluntary policy at the agency failed to generate high levels of participation. Are there other approaches to increasing participation that would have advantages over mandatory participation?
The USENIX Association supports mandatory public release of peer-reviewed research publications that are federally funded, regardless of agency.
What other structural characteristics of a public access policy ought to be taken into account to 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 USENIX Association believes that public, free, and open dissemination of federally sponsored, peer-reviewed research is of paramount importance, and that charging for access to the publications themselves is not necessary for an organization such as ours. This choice may mean that we lose some of our previous publication revenue. As with all "not for profits" in these difficult financial times, we understand any loss of income is significant. However, as we examine our larger role in the community, we believe that such revenue is balanced by the good will and continued loyalty to our community that freely available access to all engenders. The USENIX Association's membership has been strongly supportive of this stance, both in feedback to the Association and in continued membership renewals.
Clement T. Cole for the Board of Directors of the USENIX Association
President

Chris Hays said on December 31, 2009 at 1:13 pm:

I am a particle physics researcher working at the Fermilab Tevatron in
Illinois and the Large Hadron Collider in Geneva. While open access to the data has been a long-term goal in our field, there are numerous complications that typically make it prohibitive at the time of publication. Publications continually occur while the accelerators are running, with understanding of the large quantities of data requiring the efforts of a few thousand people. It is most feasible to open access to the data after the data-taking has completed, the data are understood, and a simple format can be provided to the public.

+1 Cable Green said on December 31, 2009 at 7:32 pm:

I am writing to strongly support open, public access to the Federal Register so all students and faculty can access all data and research that is funded by the US Federal Government.
I am the eLearning Director for the Washington State Board for Community and Technical Colleges. Our 470,000+ students don't currently have access to all the scholarly research they need in pursing both their education and their research. Our library budgets have been cut dramatically during this economic downturn and they can no longer afford to purchase critical scholarly materials.
President Obama has called for significantly increasing the number of college graduates in the United States … and how Community and Technical Colleges will play a major role in that push. If we are to answer that call, we need open access to the country's digital knowledge assets.
Most important is… when public (state or federal) tax dollars are used to create digital knowledge, those digital goods should be made freely and immediately available to those that paid for it.
All agencies that conduct research on the public's behalf should be included in sharing digital knowledge that is created with public funding regardless of the agency budget or size of grant operations.
Please contact me anytime if I can be of assistance in this important conversation.
Sincerely,
Cable
Dr. Cable Green
eLearning Director
State Board for Community and Technical Colleges
360-704-4334
cgreen@sbctc.edu

-1 Lifestyle said on December 31, 2009 at 8:11 pm:

hi all, very long article
thanks for this..
but i cant click the links? why?

Alexander Downer said on January 1, 2010 at 12:54 am:

which one you can't click? since I can click all the links. have you check your setting? maybe there is firewall that block the site being opened from yours.
Regards,
Alexander Downer
Research Site for 'pppggg': http://www.keyr.com/analysis/pppggg.html

-3 Michael Pyshnov said on January 5, 2010 at 1:41 am:

(click to show comment)

-2 Andrew Vickers said on January 5, 2010 at 5:20 pm:

I am a biostatistician at Memorial Sloan-Kettering Cancer Center. I have written extensively about sharing of raw data from clinical trials both in the academic literature (http://www.trialsjournal.com/content/7/1/15) and in the lay press (http://www.nytimes.com/2008/01/22/health/views/22essa.html). I have argued that sharing of raw data has huge benefits for science and medicine (see below). Researchers' careers do need to be protected – something which feeds back to improving science by providing an incentive to data collection – but this can be ensured by a few simple guidelines. I have further argued that data sharing is extremely rare in medicine. Indeed, I have published an empirical study of data sharing (http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2739314/?tool=pubmed). In this study, we contacted ten authors who had published research in a Public Library of Science journal. These journals explicitly specify, as a condition of publication, that raw data must be shared on request. We only received 1 out of 10 data sets.
My own view is that the current situation is disastrous: the American taxpayer funds research to the tune of many billions of dollars a year; data from that research is then considered the private property of researchers. Voluntary measures would not seem to encourage data sharing any more than they were effective for open access to study reports. Journal policies are ineffective. It would therefore seem that federal mandate, similar to that for open access to journal publications, is the only solution. Put simply, this would state that, as a condition of receiving further federal grants, raw data and analytic code for publications from prior grants must be made freely available.
- The data must be stored on a freely accessible website (such as the microarray websites)
- Only data pertaining to a published paper need be made available. For example, if a research group publishes the results of a clinical trial, data on correlative studies would not need to be made available until the results of those studies were published
- Data need not be updated. For example, if a group publishes a study on cancer patients, the data set for open access should include all deaths occurring before the time the study database was closed for the analysis associated with that publication. Deaths occurring subsequently would not need to be added to the data set in real time.
- Researchers could request an embargo period of up to two years between publication of the paper and publication of the data.
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Benefits of sharing raw data
• Analyses can be reproduced and checked by others
• Acts as an incentive for checking that a data set is clean and accurate
• Teaching
• Aids development and evaluation of novel statistical methods
• Allows testing of secondary hypotheses
• Aids design of future studies
• Simplifies data acquisition for meta-analysis
• May help prevent fraud and selective reporting