

The future of scholarly communication: US efforts to bring warring factions to common purpose in support of scholarship

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Abstract. Key stakeholders in scholarly communication have been at odds over the purpose, mission and business models of publishing. This piece reviews developments in the United States but with a particular focus on efforts at reestablishing common purpose, such as (1) the Scholarly Publishing Roundtable created in June 2009 by the Chairman of Science and Technology Committee of the US House of Representatives; (2) the Task force of the Association of American Universities and Association of Research Libraries established in 2012 to focus on university presses, scholarly journals and institutional repositories; and (3) the Office of Science and Technology Policy Memorandum of February 22, 2013 on Increasing Access to the Results of Federally Funded Scientific Research.

Keywords: Open Access, Public Access, scholarly publishing

1. Towards collaborative action

Anyone interested in scholarly communication probably has noted the parallels in the conduct and publication of research, such as

- The importance of quality, e.g. the peer review of research grant proposals and of papers submitted to publication;
- The increased internationalization, e.g. scholars collaborate in international networks and journals recruit editors and reviewers globally; and
- The increased volume, i.e. the rapid global expansion of research drives the growth of published outcomes.

In the United States, for scholars, libraries and institutions the premise is that “dissemination of knowledge is as important to the university mission as its production” [4]. For centuries, publishers have facilitated dissemination. Yet, for years many of the key stakeholders have been at odds over the purpose, mission and business models of scholarly publishing.

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US-based scholarship leads the world in many ways, and many points about the future of scholarly publishing and open access have been argued most vigorously among stakeholder in the United States. This account examines the factionalism that has beset scholarly communication over the past ten years, particularly as expressed in competing efforts at legislation. I also review key moves made to achieve common purpose such as the Scholarly Publishing Roundtable [1], which I chaired, as well as the Scholarly Communications Task Force of the Association of American Universities (of which I am the Executive Vice President) and the Association of Research Libraries (2012). In conclusion, I look forward at possible ways of achieving good faith collaboration in the United States, particularly as the President's Office of Science and Technology Policy has directed all large federal research funding agencies to adopt a public access plan (February 2013, see below), and at fostering a wider sense of international community as we move forward in implementing new means of scholarly communication enabled by the extraordinary developments in digital technologies.

2. Public Access and long-standing concerns about cost versus price

In the United States, for more than two decades, the Association of Research Libraries, an organization of the major research libraries in the U.S. and Canada, has tracked the impact of serials expenditures on library budgets. Although library budgets increase annually, a study in the early 1990s showed that those budgets were a declining portion of institutional budgets, no doubt reflecting in large part the growth of regulatory compliance costs imposed on universities. But fundamentally, the extraordinary growth in the volume of research combined with numerous cases of annual double-digit price increases for major scholarly journals have put severe pressure on library budgets, leading to journal cancellations and the crowding out of book purchases. Data collected by universities and libraries suggests that the price of access to scholarly materials often and over long periods considerably exceeds the cost.

Given the public purposes of university research and the predominance of public funding of that research, I believe that the primary role of scholarly publishers should be one of public service, not revenue generation. To the extent that prices exceed costs the following should apply:

- Commercial publishers: Incorporating profit into scholarly publishing is justified only if the added cost is minimal or is largely reinvested in benefits to scholarship that would not otherwise occur;
- Society publishers: University library budgets should not be expected to cover society operating costs that are built into some non-profit society publisher pricing policies.

3. Legislative and regulatory battles in congress and the executive branch

Factionalism in scholarly communication is most evident in competing efforts to enact legislation. Key examples are the National Institute of Health Public Access Policy, for which implementation began in 2005; the Research Works Act, which was introduced in December 2011 and abandoned in early 2012; and the Federal Research Public Access Act (FRPAA), which was originally introduced in 2006, has been reintroduced most years since, and was re-written for 2013 as The Fair Access to Science and Technology Research Act (FASTR).

4. The National Institute of Health Public Access Policy

The National Institute of Health (NIH) began implementing a public access policy in 2005, initially proposing a six-month embargo period between the appearance of articles in peer-reviewed journals reporting on the results of research funded wholly or in part by NIH and the free, public access to the final accepted manuscript of the article in NIH's public access repository, PubMed Central; the embargo period was expanded to twelve months following negotiations with publishers. The initial policy called for voluntary submission of an author's final accepted manuscript (so-called Green Open Access). Because compliance was low, however, the policy was changed in 2008 to make submission mandatory. From 2013 onwards the NIH policy will be enforced by withholding a subsequent grant until an overdue prior manuscript has been submitted.¹

5. Federal Research Public Access Act

The Federal Research Public Access Act was initially introduced in the Congress in 2006 and has been reintroduced in every year since. It would require the eleven federal agencies that provide more than \$100 million in extramural research funding (NIH, National Aeronautics and Space Administration, National Science Foundation, Department of Defense, Department of Energy, and the Department of Agriculture, and five additional agencies) to develop public access repositories providing free public access to authors' final accepted manuscripts of research papers resulting wholly or in part from agency funding. The legislation would provide an embargo period of up to six months between the publication of the article and the appearance of the final accepted manuscript in an agency repository. This legislation is strongly supported by many universities and libraries, as well as open access advocates.²

6. The Research Works Act

The Research Works Act was introduced in the House of Representatives in December 2011. The Act would have made the NIH's PubMed Central unlawful by prohibiting any federal agency from requiring, as a condition of research funding, the transfer to the agency of articles resulting from that funding.

Initially, the bill was strongly supported by the Association of American Publishers and many of its members. The provisions of the bill were widely regarded as extreme, however, and in the ensuing controversy, several university presses and scholarly publishers distanced themselves from the proposed legislation, and soon it was abandoned by its Congressional sponsors.³

7. The Scholarly Publishing Roundtable

The Scholarly Publishing Roundtable was created in June 2009 by the Chairman of Science and Technology Committee of the US House of Representatives – in part as response to the ongoing legislative battles. The Congressional Committee convened a diverse set of participants from key stakeholder

¹Further information available at <http://publicaccess.nih.gov/>.

²Further information available at <http://www.arl.org/sparc/advocacy/frpaa/index.shtml>.

³Further information available at <http://thomas.loc.gov/cgi-bin/query/z?c112:H.R.3699>:

groups: librarians, publishers and university administrators. The roundtable was charged with developing consensus policies for expanding public access to journal articles arising from federally funded research.⁴

8. Shared principles

The roundtable first established a set of shared principles to guide the development of its recommendations:

- Peer review must continue its critical role;
- Adaptable business models will be necessary;
- Scholarly and scientific publications can and should be more broadly accessible with improved functionality;
- Sustained archiving and preservation are essential;
- Scholarly publishing should maximize the possibilities for creative reuse and interoperability.

9. Recommendations

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

Although the phrase 'as soon as possible' does not stipulate a specific time interval (embargo period), the main recommendation nevertheless sets out a clear expectation that agencies should establish public access policies that provide free public access to the results of research they fund, and that the development of specific embargo periods should be established in consultation with all key stakeholders. Federal research funding agencies should take the lead.

As noted in the additional recommendations (see Table 1), the roundtable argued that the final published article – the version of record – and not the final accepted manuscript would be the preferred version available in agency repositories. However, the judgment of NIH in establishing its public access policy was that U.S. Copyright law precluded it from mandating free public access to the version of record. The roundtable report therefore includes a clear call to publishers and public stakeholders to work with federal agencies through private-public collaborations that could significantly expand free public access to the version of record.

These recommendations are intended to encourage agencies, universities and their libraries, and publishers to explore mutually beneficial collaborations, which resolve conflicts and develop new methods of producing and disseminating research results that exploit the capacities of digital technologies to the benefit of researchers and scholars and the broader public.

10. Subsequent legislation: The America COMPETES Act of 2010

Subsequent to the roundtable and its final report, members of Congress specifically used "The America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science

⁴The full set of documents is available at http://www.aau.edu/policy/scholarly_publishing_roundtable.aspx?id=6894.

Table 1
Main recommendations of the Scholarly Publishing Roundtable

The Roundtable proposed the following additional, more detailed recommendations to implement the core recommendation:

- (1) Agencies should work in full and open consultation with all stakeholders, as well as with OSTP, to develop their public access policies.
- (2) Agencies should establish specific embargo periods between publication and public access. An embargo period of between zero (for open access journals) and twelve months currently reflects such a balance for many science disciplines. For other fields a longer embargo period may be necessary.
- (3) Policies should be guided by the need to foster interoperability. OSTP should work with agencies to facilitate collaboration among them and between agencies and stakeholders to develop robust standards for the structure of full text and metadata, navigation tools, and other applications to achieve interoperability across the literature, taking international standards into account. OSTP should work with agencies that have cyberinfrastructure programs to develop a multi-agency program supporting research and development to expand interoperability capability.
- (4) Every effort should be made to have the version of record (VoR) as the version to which free access is provided. If the VoR is not included in a public access database, the article version or reference that is included should contain links back to the VoR on the publisher's site.
- (5) Government agencies should extend the reach of their public access policies through voluntary collaborations with nongovernmental stakeholders. To achieve the full potential of publicly accessible, interoperable databases, the multiagency public access program recommended here should be extended through voluntary collaborations with publishers, universities, and other entities husbanding the results of research, within and beyond the U.S.
- (6) Policies should foster innovation in the research and educational use of scholarly publications.
- (7) Government public access policies should address the need to resolve the challenges of long-term digital preservation.
- (8) OSTP should establish a public access advisory committee. To provide a mechanism for periodic assessment of the rapidly changing scholarly publishing landscape, and to provide a forum for discussion of adjustments to agency public access policies in the context of that changing landscape, OSTP should establish an advisory committee to provide a periodic, independent evaluation of agencies' public access policies and practices.

(COMPETES) Act" – mainly a reauthorization of funding for federal research agencies – to incorporate a number of the roundtable report recommendations in a section of the bill establishing an Interagency Public Access Committee (Section 103). This section of the legislation directs federal agencies, in establishing public access policies, to:

- Implement interoperability across Federal science agencies and science and engineering disciplines through development of standards for research data and reports;
- Coordinate Federal agency programs to ensure preservation and stewardship of all forms of digital research data, including scholarly publications;
- Work with international counterparts to maximize interoperability between US and international research databases and repositories;
- Solicit input from, and collaborate with, non-Federal stakeholders.

The requirement to collaborate with non-Federal stakeholders is intended to engage all key scholarly communication stakeholders in the development of federal agencies' public access policies.

11. Complementary Executive Branch action

The United States President's Office of Science and Technology Policy (OSTP) conducted a Public Access Policy Forum from December 2009 through January of 2010. Nearly every scholarly publishing stakeholder submitted comments. Subsequent to this talk, OSTP produced its response to the Public Access Policy Forum in the form of memorandum to federal research funding agencies (see below).

12. Task force of the Association of American Universities and Association of Research Libraries

In the Spring of 2012, I worked with the Executive Director of the American Research Libraries to form a task force of six AAU university provosts and six ARL library deans to seek sustainable policies that exploit digital communication capacities to provide expanded, cost-effective access to and support of scholarship.

The Association of American Universities (AAU) has sixty members in the United States and two in Canada. In 2011, the sixty U.S. AAU universities jointly received 58% of all federal research funds to universities and colleges, and furthermore invested USD 5.7bn institutional funds in research. From 2005–2010 they accounted for nearly 20% of global output in scholarly papers and a citation share of 86% for papers published by US-based authors.

The Association of Research Libraries (ARL) has 125 members in North America. Member libraries hold research collections of national significance. Among the guiding principles of the ARL is promotion and advocacy for barrier-free access to scholarly information resources.

The task force is conducting internal discussions to develop a common point of view before consulting with scholarly publishers on collective actions to enhance support of scholarship. The focus is on three areas: university presses, scholarly journals, and institutional repositories. Some preliminary considerations that have emerged from internal discussions are:

- University presses: Books are crowded out of library budgets by journals, while the subsidies from host universities are being reduced. Under consideration is a consolidation of the digital production of books across universities. Also possible is that universities will move to subsidize the first book of scholars in those humanities and social science disciplines where books are the primary means of disseminating scholarly work, which could also enable those books to be open access;
- Scholarly journals: The task force is considering means by which universities could collaborate with society publishers more effectively. One possibility is the university funding of article-processing charges (APC) in hybrid journals so that societies may begin transitioning them to open access. However, one would need a mechanism for the avoidance of "double-dipping" by the publisher, by having subscription prices decline commensurate with increased APC income;
- Institutional repositories: The main objectives are to increase intra-institutional submissions to repositories and develop inter-institutional interoperability to establish a functionally interconnected database. Also under consideration is collaboration with federal research funding agencies in development of their public access repositories.

We envision that this effort will help stakeholders in the United States to find common ground and will move public access forward in a manner that all stakeholders can accept.

13. Developing good faith in the United States

The Scholarly Publishing Roundtable in the US as well as the Working Group on Expanding Access in the UK has demonstrated the importance of the good faith engagement of all stakeholders. We need to harness digital technology to expand public access to the results of publicly funded research in sustainable ways.

Projects around the linking and tracking of publications, grants and authors (e.g. CrossRef, ORCID) show that public-private partnerships that involve government agencies, universities and publishers can produce mutually beneficial results without legislative mandates.

My own view is that, while legislation or government regulation may sometimes be necessary, there are ways in which we could move forward on public access without legislative mandates – which tend to get locked into place and resistant to change with the changing scholarly communications landscape. One example of a promising public-private collaboration is an effort to link research reports that grantees deliver annually to their funder with the published version of record of those same research results. This requires collaboration between publishers and research funding agencies. Here the process is more important than the pace.

14. The OSTP Memorandum on Public Access

On 22 February 2013, the Office of Science and Technology Policy published its long-awaited public access policy “Increasing Access to the Results of Federally Funded Scientific Research”. The policy directs federal agencies with more than \$100M annual research and development expenditures to develop public access plans that include peer-reviewed publications as well as digital data.⁵

The policy provides a thoughtful, balanced, and comprehensive set of guidelines for agency public access plans, including objectives for providing public access to scientific publications and data resulting from federally funded research. In developing and implementing their plans, agencies are encouraged to coordinate plan development across agencies where appropriate; to use transparent processes for soliciting views from stakeholders, including researchers, universities, libraries, publishers, users of federally funded research results, and civil society groups; and to implement public-private partnerships and collaborations to achieve the goals of the policy in expanding public access to the results of federally funded research. The policy calls for agencies to “use a twelve-month post-publication embargo period as a guideline for making research papers publicly available; however, an agency may tailor its plan as necessary to address the objectives articulated in this memorandum, as well as the challenges and public interests that are unique to each field and mission combination, and shall also provide a mechanism for stakeholders to petition for changing the embargo period for a specific field by presenting evidence demonstrating that the plan would be inconsistent with the objectives articulated in this memorandum”.

Agency plans must “ensure that the public can read, download, and analyze in digital form final peer-reviewed manuscripts or final published documents within a timeframe that is appropriate for each type of research conducted or sponsored by the agency”.

Agencies must identify resources to implement their plans within existing agency budgets. The financial challenges posed by this requirement may be mitigated, however, by the policy’s provision for

⁵Further information available at <http://www.whitehouse.gov/administration/eop/ostp/library/publicaccesspolicy>.

Table 2
Key requirements of the OSTP Memorandum on Public Access

Each agency plan for both scientific publications and digital scientific data must contain the following elements:

- (a) a strategy for leveraging existing archives, where appropriate, and fostering public–private partnerships with scientific journals relevant to the agency’s research;
 - (b) a strategy for improving the public’s ability to locate and access digital data resulting from federally funded scientific research;
 - (c) an approach for optimizing search, archival, and dissemination features that encourages innovation in accessibility and interoperability, while ensuring long-term stewardship of the results of federally funded research;
 - (d) a plan for notifying awardees and other federally funded scientific researchers of their obligations (e.g., through guidance, conditions of awards, and/or regulatory changes);
 - (e) an agency strategy for measuring and, as necessary, enforcing compliance with its plan;
 - (f) identification of resources within the existing agency budget to implement the plan;
 - (g) a timeline for implementation; and
 - (h) identification of any special circumstances that prevent the agency from meeting any of the objectives set out in this memorandum, in whole or in part.
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agencies to develop and maintain their public access repositories through arrangements with other Federal agencies or by working in partnership with other entities including scholarly and professional associations, publishers, and libraries. Agencies are directed to submit draft plans within six months, after which OSTP and the Office of Management and Budget will review the plans, provide guidance for the development of final plans, and promote consistency across agencies where feasible (see Table 2).

The memorandum specifies Green Open Access via repositories to “final peer-reviewed manuscripts or final published documents . . . consistent with law”. As noted previously, U.S. Copyright law is understood to preclude the federal government mandating access to final published papers. The OSTP policy, however, explicitly encourages public-private collaboration to: (1) maximize the potential for interoperability between public and private platforms and creative reuse to enhance value to all stakeholders; (2) avoid unnecessary duplication of existing mechanisms; (3) maximize the impact of the Federal research investment; and (4) otherwise assist with implementation of the agency plan.

15. Developing a sense of international community

The mission of any university, worldwide, is to create, preserve, and disseminate knowledge through teaching and research. The core norms and values that drive scholars and students are the open and free exchange of ideas, tolerance for new challenges and honest error, and the orderly processes of cooperation and competition that contribute to the advancement of knowledge.

Hence the global network of universities is distinguished by a common language and a shared set of norms that rise above boundaries, histories, customs, and government frictions to advance the interests of mankind. In this realm the key stakeholder groups must collaborate to exploit the capacity of digital technologies to enhance the creation, organization, dissemination, interoperation, and preservation of new knowledge.

In support of the public purposes of this global university network, I envision a growing set of public-private partnerships and other forms of collaboration among governments, academic institutions, publishers and institutional repositories that assure the quality and authenticity of the published record of science and scholarship, support full-text interoperability, and build on diverse, sustainable business models facilitating access. At all times, let us remember that our common goal must be to advance knowledge and understanding for the benefit of scholarship and the broader public.

Scholarly publishing roundtable

Membership

David Campbell, Provost, Boston University

Y.S. Chi, Vice Chairman and Managing Director of Global Academic and Customer Relations, Elsevier
Paul Courant, University Librarian and Dean of Libraries, University of Michigan

Phil Davis, PhD student in scientific publishing and former librarian, Cornell University

Fred Dylla, Executive Director and CEO, American Institute of Physics

Donald King, Distinguished Research Professor, University of North Carolina School of Information and Library Science

Richard McCarty, Provost, Vanderbilt University

James O'Donnell, Provost, Georgetown University

Ann Okerson, Associate University Librarian, Yale University

Mark Patterson, Director of Publishing, Public Library of Science (PLOS)

Scott Plutchak, Director of the Lister Hill Library of Health Sciences, University of Alabama, Birmingham

Crispin Taylor, Executive Director, American Society of Plant Biologists

Carol Tenopir, Professor Information Sciences and the Director of the Center for Information and Communication Studies, University of Tennessee

John Vaughn, Executive Vice President, Association of American Universities (chair)

Additional participants

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Government contacts

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