



American Society of Plant Biologists

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Submission for the Record: **Response to November 4, 2011, Federal Register Notice of Request for Information, OFFICE OF SCIENCE AND TECHNOLOGY POLICY, Public Access to Peer-Reviewed Scholarly Publications Resulting From Federally Funded Research; FR Doc No: 2011-28623**

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The American Society of Plant Biologists (ASPB) appreciates this opportunity to submit comments and would be delighted to continue working with the Office of Science and Technology Policy (OSTP) and other federal partners through a process of active engagement.

About ASPB

ASPB is a 501(c)(3) not-for-profit membership corporation created in 1926 and headquartered in Rockville, MD. Today, ASPB is an organization of approximately 5,000 professional plant biology researchers, educators, graduate students, and postdoctoral scientists with members in all 50 states and throughout the world. A strong voice for the global plant science community, the Society's mission—achieved through work in the realms of research, education, and public policy—is to promote the growth and development of plant biology, to encourage and communicate research in plant biology, and to promote the interests and growth of plant scientists in general. The Society publishes two of the most widely cited plant science research journals: [The Plant Cell](#) and [Plant Physiology](#).

As a publisher, ASPB plays a central role in the process by which plant biology research is developed, validated, communicated, disseminated, and ultimately accepted by the scientific community. To publish its two top-ranked journals, ASPB expends millions of dollars annually on peer review, editorial management, production, printing, shipping, distributing, and hosting its online journals on a fully digital, highly reliable platform.

Whether an article is read online or in print, high-quality peer review, page composition (XML), copyediting, and the listing and linking of bibliographic and reference data must be managed, necessitating considerable human capital investment in staff, in addition to scores of editors around the world. Our editors maintain the quality and reputation of our journals, utilizing the well-established system of peer review, whereby independent experts review submitted articles.

Accepted articles are those that pass muster based on established criteria, including novelty and significance of the research findings. Managing peer review for ASPB's journals is a complex undertaking. It requires sophisticated electronic resources, associated support personnel, and help from thousands of referees. Each year ASPB makes such necessary investments to fulfill its public nonprofit mission, generating an intellectual return through the dissemination of scientific research.

Introduction

ASPB aims to achieve the widest possible dissemination of the research results it publishes in its journals. Enabled by Internet technologies, ASPB in 2012 disseminates more information, more widely and more affordably, than ever before in its history. This accomplishment requires heavy investments in technology and infrastructure (such as an online platform) and business acumen to develop sustainable free and low-cost access models, whether by pay-per-view, article rental, or as a benefit of membership. But it is not just the cost of producing the articles that is important in driving the development of novel business models; it is their value to the community.

ASPB believes that it would be in the best interest of the United States government and all other stakeholders to strike a balance between public access and the needs and interests of the scholarly publishing industry because of the impact and value the latter brings to the progress of science and its contributions to American society and the national economy. Such a balance can be achieved based on shared principles, including the importance of peer review, the recognition of economic realities, the exploration and adoption of adaptable and viable publishing business models, the need to ensure secure long-term archiving and preservation of scholarly information, the increasing need to establish connections among disparate information sources and repositories online, and the desirability of broad access. One way to achieve this balance is for government to adopt a sensible, flexible, and cautious approach to drafting and revising public access policies—an approach that engages all concerned parties, including federal agencies, scientists, university administrators, librarians, publishers, and the public.

Indeed, it is ASPB's position that government agencies should develop flexible public access policies through voluntary collaborations with nongovernmental stakeholders, including researchers and publishers. Policies should be guided by the urgent need to foster interoperability of information across multiple databases and platforms. Agencies' efforts and resources could then be directed toward facilitating cyberinfrastructure and collaborative programs with and among agencies and other stakeholders to develop robust standards for the structure of full text and metadata, navigation tools, and other applications to achieve interoperability across the scholarly literature and other information sources.

ASPB Responses to RFI Questions

(1) Are there steps that agencies could take to grow the existing and new markets related to the access and analysis of peer-reviewed publications that result from federally funded scientific research? How can policies for archiving publications and making them publically accessible be used to grow the economy and improve the productivity of the scientific enterprise? What are the relative costs and benefits of such policies? What type of access to these publications is required to maximize US economic growth and improve the productivity of the American scientific enterprise? According to trade association and other industry surveys of US publishers, both the nonprofit and commercial sectors already serve a robust, innovative global market for the access and consumption of peer-reviewed publications. Academic, corporate, and governmental research and education communities constitute primary segments of the market. Global revenue from scholarly journal

publishing was estimated at \$8.0 billion in 2008^{1,2}, with approximately \$3 billion attributed to the US market. The enterprise employs approximately 110,000 people worldwide, with 30,000 in the US. New publishers, journals, and business models evolve or emerge constantly, signaling a healthy, competitive marketplace. There is, to our knowledge, no evidence that the current system is in any way inimical to maximizing US economic growth, and there is no indication that the productivity of the American scientific enterprise is inhibited by it. So, ASPB's position is that there is no role or need for agencies to seek to grow existing or new markets related to peer-reviewed publications and no robust economic arguments for pursuing policies aimed at making articles publicly accessible.

Indeed, the combination of investments in digital and online technologies (by publishers and others) and the formation of library consortia in the US and around the world has accelerated and broadened access to peer-reviewed literature, and it has dramatically decreased the cost of such access. ASPB currently serves over 2,000 research institutions, and every person affiliated with these institutions has instant access to ASPB journal content online.

Furthermore, current conditions in the scholarly communications market already support a growing diversity of business models, as well as continuous innovation. It is our belief that the US government should support and encourage this diversity through its actions and policies, for example, by developing partnerships with publishers aimed at seeding further innovation and by providing funding support for experimental and innovative approaches toward increasing interoperability. (For more specific suggestions regarding partnerships and pilot projects that would meet mutually beneficial goals and conserve precious federal research funds for the agencies' primary mission of funding research, please see ASPB's responses to Question 5 later in this document. These recommendations for partnerships and pilot projects with federal agencies were developed in collaboration with a number of scientific publishers as we engaged over the past year in productive discussions with subject matter experts within the NSF and DOE, two US federal agencies that fund substantial research in the biological and physical sciences and engineering.)

As stated in the 2010 *Scholarly Publishing Roundtable* report³, many publishers have made the decision to move toward increasingly open structures and archives⁴ as enabled by Open Access business models and new solutions to associated permissions, such as Creative Commons⁵ licenses. These licenses provide a means for exercising certain rights regarding the re-use of an item. For example, these licenses could provide reuse rights if the resulting new works are also made available to the public. The *Roundtable Report* also notes that the number of journals making a change in business model is appreciable but small within the universe of more than 25,000 scholarly peer-reviewed journals⁶. ASPB echoes the *Roundtable Report* assertion that no existing digital business model has demonstrated its viability to the satisfaction of all, and we caution against de facto government endorsement of any single approach.

As part of the market's evolution and scholarly publishers' commitment to community and dissemination of peer-reviewed information, an increasing number of all types of journal publishers are electing to make their articles freely available to academics and others in 100 or more developing countries. Some well-known programs include the United Nations' HINARI, AGORA, and OARE Research4Life programs, in which ASPB's journals participate; HighWire Press's Developing Economies Program; and JSTOR's Developing Nations Initiative, in which the ASPB journals also participate. For descriptions of these and more, see www.library.yale.edu/~llicense/develop.shtml.

To meet the market's increasing demand for easily accessible quality information, ASPB invests considerably in new technologies for viewing and sharing its journals. For example, within the past year, ASPB has deployed a mobile phone reader for *Plant Physiology* and *The Plant Cell*. Such ongoing investments in existing products and services and the development costs for new products are funded through subscription fees and author payments. ASPB and many other scholarly publishers offer an immediate free access option for authors, and ASPB's journal *Plant Physiology* currently offers this option at no cost to corresponding authors who are members of the Society.

The ability for scientific publishers, large and small, for-profit and not-for-profit, to experiment with different publication, business, and access models is paramount and assures the vitality, diversity, and effectiveness of scholarly communication, leading to scientific and technological advances. Rather than mandate business models and de-incentivize market efficiencies, a more effective approach by government would be to incentivize the continued growth and vitality of the scholarly communication market for the benefit of the scholarly community and, in turn, the nation's competitive position. To that end, working with publishers, libraries, and other stakeholder communities, research agencies should identify specific needs of particular user groups and collaborate with publishers to meet those needs most effectively. Obviously, researchers, professionals, funders, and various segments of the general public (e.g., patients) have different information needs. ASPB is collaborating with other scholarly publishers to identify and address any existing access gaps through initiatives such as the low-cost article rental scheme pioneered by DeepDyve and the Research4Life consortium for developing countries (mentioned above).

To maximize the effectiveness of its efforts, government does have an important role to play in convening stakeholders to develop standards for data and metadata, thereby helping to make research more readily searchable and discoverable. Publishers are already working in partnership to develop standardized information and collections through initiatives such as CrossRef⁷.

With a relatively straightforward implementation of existing policy, government could make the funder-collected and maintained outputs of taxpayer-funded research, such as grant reports and research progress reports, freely available to the public⁸. Furthermore, to incentivize open access publishing, funds could be made available specifically to support payment for open access to published articles as pilot projects. Several research funders have already adopted this approach (e.g., Howard Hughes Medical Institute, Wellcome Trust, and Max-Planck Institutes).

In the same vein, government funding could be provided to license content from publishers in order to make it available to specific audiences. (Publishers license content to customers of many kinds, including government agencies, and have the ability to ensure its continued availability with existing infrastructure.)

ASPB has been a participant in working groups that are proposing and planning partnerships with NSF and DOE on access, linking of grantee reports to publications, data mining across agency and publisher databases, tools and methods for identifying publicly funded work, and potential pilot projects in these areas.

Government mandates for public access come at a significant cost to the US economy and to the scientific enterprise. Data from the National Institutes of Health's (NIH's) PubMed Central (PMC) repository indicate that two-thirds of PMC's users are from overseas. This suggests that critical export opportunities for the industry may be compromised, potentially resulting in the loss of US jobs⁹. Significant economic value added by the publishing industry could be wasted if revenue

derived from sales in the global market is compromised or eliminated because mandates require that articles appear for free on government-owned or operated websites. ASPB is actively involved in efforts to grow its business in Europe, Asia (including China), Latin America, and here at home. Government mandates that would require the ASPB journals to post content for free under a limited embargo period are bound to cut into those efforts and harm the Society's mission – including its capacity to continue to disseminate the peer-reviewed information published in its journals.

PubMed Central adversely impacts the US scientific enterprise in another way: by consuming financial resources for a duplicative and unnecessary repository that might otherwise go toward directly supporting the scientific enterprise.

In summary, ASPB believes that publishers should continue to be free to experiment with various business models in the marketplace of ideas and economics. ASPB endorses the Roundtable Report recommendation that "Agency policies should encourage the development, in a competitive landscape, of new value-added information products and services that take advantage of a scholarly environment in which articles are increasingly interoperable and available through licenses that support creative reuse. Such development should be carried out on a level playing field among all those who would devise such products and services." We believe that it is essential that any public access policies developed by the government do not undermine the ability of the market to create and sustain peer-reviewed journals.

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

ASPB and other scientific publishers rely heavily on the reputation of their journals to compete in the marketplace. Copyright protection reinforces the motivation for sustaining managed peer review, thereby protecting a journal's reputation. Any policy decisions regarding the publication and dissemination of peer-reviewed scholarly publications resulting from federally funded scientific research must respect US copyright law as it presently exists. Under the law, these works meet the criteria for copyright protection. It is a constitutional right granted to the copyright holder to exercise the exclusive rights attached to a work. In its role as the guardian of those rights, government must seek to strike the appropriate balance for all stakeholders through fair interpretation of the law.

It is ASPB's position that agencies should provide free public access to final research reports and link them directly to any peer-reviewed journal articles that are derived from the funding, regardless of the access mechanism via which those articles are available. This solution would drive the standardization of information reported on publicly funded research, promote rapid dissemination (rather than waiting for an article to be authored and subsequently peer reviewed), and ensure preservation of intellectual property rights, which provide the incentive for producing, distributing, and preserving all forms of intellectual property.

ASPB encourages agency policies and actions that work to ensure copyrighted materials are protected from unauthorized dissemination and piracy. Copyright is an essential ingredient in

promoting creativity, innovation, and the continued integrity and reliability of the scholarly record. There is some evidence that the NIH policy undermines intellectual property rights and promotes piracy of intellectual property. As noted in response to Question 1, the NIH public access policy and availability of articles through NIH's database, PMC, undermine an important US export market. Furthermore, copyrighted material downloaded from PMC appears on rogue Internet sites, resulting in significant annual losses to US publishers.

Nearly all scholarly publishers adopt liberal copyright policies, allowing authors to post copies of their manuscript on their individual and institutional websites with very little restriction, share copies with colleagues, and use their manuscripts for other educational and research purposes. Only commercial use is restricted and enforced by the industry.

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

A defining feature of the Internet is that information is dispersed and widely distributed. It is, nevertheless, readily discoverable. So, although a centralized data platform may have some potential advantages related to simplicity of operation, the use of a centralized, government-controlled platform for a large corpus of scholarly content has many significant downsides, not the least of which is increased and unnecessary costs to the government. A centralized approach discourages innovation by driving traffic away from innovators, including publishers, thus minimizing scientific and commercial opportunities.

However, an important role for government in this arena would be to drive and fund the development of interoperability standards that would facilitate and enable ever richer connections among journal articles and other types of scholarly information available online and promote the widespread adoption and use of such standards.

ASPB supports the recommendation of the *Roundtable Report* that states that government policies should be guided by the need to foster interoperability and encourage "additional multiagency programs supporting research and development to expand interoperability capacity and to develop and promote additional interoperability practices and standards." The *Roundtable Report* further notes that the NSF, DOE, and other agencies provide important funding for the development of interoperability capacities through their cyberinfrastructure programs.

In developing public access policies and procedures, agencies should carefully consider international cooperation with a larger vision that includes building standards and fostering distributed systems that are global in scope and go far beyond the work funded by US federal research dollars. In the Internet age, research and research resources are distributed globally. US federally funded research is only one part of the entire universe of information on any given topic, and in some disciplines, research is increasingly non-US government funded. A centralized repository such as PMC is not a model that is universally applicable or necessarily the best model for the future. Indeed, the success of the Internet is its evolving capability to connect an exponentially growing array of highly distributed information resources and databases. Any successful and optimized scientific publishing

system will incorporate effective incentives to implement and expand interoperability and reuse across internationally distributed databases.

It is ASPB's position that stewardship of publications in the Internet age should be the collaborative responsibility of the publishing, library, and research communities. US government involvement in the long-term stewardship of publications is best addressed as part of the copyright system and through the Library of Congress digital preservation initiatives primarily as a promoter of standards, as noted above, and as one of many stewards of specific data platforms that need to be linked across public and private boundaries.

What constitutes a publication and the nature of publication is changing with technology. A publication is no longer just a chunk of text fixed in time forever but a fluid representation. Publications can include supplemental material, multimedia files, software, and links to resources on the web and can be revised and corrected over time by the authors and publishers, hence the emergence of new community initiatives such as CrossRef's CrossMark¹⁰ service, which electronically watermarks an article's Version of Record (VoR), and DataCite¹¹, which extends the CrossRef-promoted Digital Object Identifier (DOI) to datasets. Any plan for the future should recognize that the static aggregation/library model is not likely to hold up well in the distributed and dynamic Internet milieu.

ASPB believes that it is unlikely that one optimal procedure for preservation and stewardship will emerge to become applicable across all of scholarly publishing. For now, ASPB strongly recommends that agency policies embrace diversity, decentralization, and interoperability. In the long term, systematic collaborations among stakeholders (government, publishers, universities and their libraries, and other not-for-profit participants in the scholarly publishing system) will be necessary to achieve maximum benefit. We note that libraries, in partnership with publishers, have established entities for preservation of digital documents that are already in wide use, for example, Portico¹² and CLOCKSS¹³.

Long-term stewardship of content comes at significant cost that is being borne by publishers and others. In an era of dwindling federal resources, central federal repositories are arguably duplicative, an unnecessary expense, and a recurring burden that may not be viable in the short or long term. Long-term stewardship might be more suitably carried out by the private sector or through collaborative stakeholder projects. There are productive ways to define appropriate roles of government and nongovernmental participants in the system, and ways that government agencies and nongovernmental stakeholders can collaborate as equal partners to their mutual benefit in strengthening the scholarly publishing system and expanding public access to its outputs.

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

Yes, please see detailed response to Question 5 below.

(5) What steps can be taken by federal agencies, publishers, and/or scholarly and professional societies to encourage interoperable search, discovery, and analysis capacity across disciplines and archives? What are the minimum core metadata for scholarly publications that must be made available to the public to allow such capabilities? How should federal agencies make certain that

such minimum core metadata associated with peer-reviewed publications resulting from federally funded scientific research are publicly available to ensure that these publications can be easily found and linked to federal science funding?

To facilitate public access and drive and support scholarship, agency databases should be able to communicate with each other. Each agency's policies should include at least a minimal set of common core properties that promote access to and interoperability among the content in all public access databases. Specifically, ASPB encourages agencies to develop collaborations and partnerships with scientific publishers to develop and implement:

- Standards and persistent identifiers to enhance the discoverability of research results and to promote interoperability among agency, publisher, and any third-party databases and platforms;
- Discovery tools to facilitate journal content mining; and
- Pilot projects that would drive access, use, and innovation from research results.

Specifics on these items are discussed below.

Beyond common properties, agencies should have the flexibility to manage and modify their policies in response to evolving circumstances. Each agency should fully engage researchers, institutions, and publishers working in fields that coincide with that agency's missions, both in establishing initial public access policies and in modifying those policies as appropriate over time.

Many scholarly publishing organizations, such as ASPB, were founded by scientists for scientists and fully embrace providing publishing and other services as their primary mission. As part of this objective, ASPB's executive director was an active member of the Scholarly Publishing Roundtable, and he has subsequently remained involved in working groups of nonprofit and commercial publishers that have proposed implementing joint projects with both the DOE and NSF with mutually agreed-upon goals.

Standards and Identifiers: Agency Funding Information

Most funding agencies currently require researchers to acknowledge in publications the support that they have received. There are no standards, however, on how this should be done. Consequently, agency funders find it difficult to know what publications have arisen from the research they have funded. ASPB supports the recommendation that publishers develop, in collaboration with funding agencies and CrossRef, means for standardizing funder information and making that information available to funding agencies and the public. We believe that a community-wide solution of this type will be easier and far less expensive to deliver than for each agency to develop its own response to the problem. This is because publishers are in the best position to provide a simple way of ensuring that journal articles are accompanied by standardized, high-quality metadata providing information about the agency, program, and even the specific grant that funded the research. It would be very expensive for agencies to obtain this information through data mining of existing publisher databases.

This proposal has been endorsed by CrossRef and a number of major scientific, technical, and medical (STM) publishing trade associations, including the Professional and Scholarly Publications Division of the American Association of Publishers (PSP-AAP) and the International Association of Scientific Technical and Medical Publishers. Related to this proposal, the DOE's Office of Scientific and Technical Information (OSTI) has agreed to maintain a registry of standard nomenclature for funding agencies and the associated naming and numbering system for grants. OSTI already

houses technical reports and data sets for more than 40 federal and international funding organizations.

With the successful implementation of this funding identity proposal by STM publishers, CrossRef, and the DOE, agencies would have access to standard metadata from published articles. By displaying this information on agency websites, visitors—from the research community to the general public—could follow the link (enabled through the DOI) to the publisher's platform where article abstracts are freely available and the full VoR (maintained by the publishers) is made available through a variety of access mechanisms, including innovative rental access models that give the public instant access for a modest fee. More than 40 scholarly publishers, including ASPB, are currently testing this particular access mechanism.

Standards and Identifiers: Promoting Interoperability

ASPB is seeking to collaborate with operators of a prominent knowledge base in plant biology that incorporates a rich array of genomic information from a wide variety of plant species to establish mechanisms for algorithmically connecting journal articles to database entries upon publication. Specifically, the collaborators propose to enable the retrieval of functional gene annotations and molecular annotations from ASPB journal articles using data-mining tools such as Textpresso¹⁴ and BioCreative¹⁵, both of which make use of Natural Language Processing and are organized around robust and highly structured ontologies. The collaborators plan to create a reference library that includes known and predicted gene names, symbols, functions, phenotypes, and pathway annotations in three target plant species. Together with the ontologies, which will play a key role in structuring data annotation, the library will also help establish data capture architectures that the ASPB journals would implement with their authors as manuscripts are being submitted, thereby directly, immediately, and algorithmically connecting published journal articles with the underlying datasets and knowledgebase. Both collaborators envision developing proof-of-concept data-mining methodologies that would be broadly applicable in other fields of research.

Standards and Identifiers: DOIs for Data Sets and Supplementary Material

Increasingly throughout the world, investigators are being asked to share or provide plans regarding how they will share with other researchers the primary data, samples, physical collections, and other supporting materials created or gathered in the course of their work. Grantees are expected to encourage and facilitate such sharing. Scholarly publishers are already participating in a number of initiatives designed to facilitate the voluntary sharing of data or to foster interoperability among data sharing repositories, and they would be willing to work with NSF, DOE, and other database/repository operators to develop recommended practices for assigning DOIs to data sets and supplementary material.

For data policies, publishers would draw on their experience with initiatives such as Opportunities for Data Exchange (ODE; see www.alliancepermanentaccess.org/current-projects/ode), which aims to gather and promote best practices on the way scientific data are treated, and CoData, a partner of the International Council for Science (ICSU) World Data System (www.icsu-wds.org). The goals of the relatively new ICSU World Data System (WDS) are to create a global federated system of long-term data archives and data-related services covering a wide spectrum of natural sciences, thereby encouraging interdisciplinary scientific approaches. For supporting information, publishers would draw on their involvement with the joint NISO/NFAIS Working Group on Supplementary Journal Information (see www.niso.org).

Standards and Identifiers: Author Name Disambiguation

Name ambiguity and attribution are persistent, critical problems embedded in the scholarly research ecosystem. ASPB encourages all federal agencies to work in collaboration with publishers as well as universities, funding organizations, and corporations from around the world to eliminate this problem through Open Researcher and Contributor ID (ORCID). ORCID is a recently established nonprofit organization whose goal is to establish an open, independent registry of researchers that is adopted and embraced as an industry-wide standard to resolve systemic name ambiguity by means of assigning unique identifiers linkable to an individual's research contributions. Researchers will be able to create, edit, and maintain an ORCID ID and profile free of charge and will define and control the privacy settings of their own ORCID profile data. Participants expect that accurate identification of researchers and their work will facilitate emergence of new services and benefits for the research community by all types of stakeholders in scholarly communication, from commercial actors to nonprofit organizations, and from governments to universities.

Discovery Tools: Content Mining

Content mining can be especially useful to the scientific community in driving interdisciplinary research and supporting the identification of new areas of discovery, and publishers are committed to managing content in modern digital formats to ensure that users gain maximum benefit. Scholarly publishers should work with funding agencies to develop pilot projects for journal content mining that would create thesauri, perhaps building on the ontologies that are used to define architectures for some types of databases, using their expertise to identify, organize, and analyze content to create conceptual links within and between highly technical subject matter. Although there are various ways to perform this type of processing, certain elements are common to all methods, including an automated way to process all sizes and types of content in which to identify relevant information and facilitate its extraction and analysis.

Such pilots should focus on goals such as the following:

- Structuring input text, deriving patterns within the structured text, and evaluating and interpreting the output;
- Extracting semantic entities from publisher content for the purpose of recognition and classification of the relations among them; and
- Enabling developers who wish to design and implement applications to analyze publishers' content, or test applications, as part of their research within publishers' content.

Consensus approaches within the community could also be explored for developing better standardized, mining-friendly content formats, a shared content mining platform, and common permission rules for content mining. The Publishers Research Consortium recently completed an instructive study on article-level content mining based on a broad survey of ongoing or planned activities among nearly 30 STM publishers or associations (see www.publishingresearch.net/documents/PRCSmitJAMreport20June2011VersionofRecord.pdf).

Pilot Projects: Sponsored Access to Published Research

The "Gold" Open Access dissemination model, whereby an author or their institution pays an article processing charge to the publisher, delivers immediate and unrestricted online access to the VoR. ASPB suggests that agencies could work with publishers to set up experiments in specific scholarly communities to answer the following questions dealing with the cost, benefits, and sustainability of the Gold Open Access model, as well as investigate how such a model should be funded and administered:

- How much would it cost an agency to fund Gold Open Access in the aggregate and on a per-article basis?
- What is the most effective method to provide Gold Open Access funding for authors? The ability to use grant funds for sponsorship? A separate pool of funding reserved solely for Gold Open Access sponsorship? Other means?
- Should authors be required to expend grant funds on publishing articles derived from that funding? If not, how can authors be encouraged to utilize the available funds?
- How can agencies best administer a Gold Open Access program?
- Does Gold Open Access offer agencies new opportunities to showcase the productivity of their funding activities to the American public and federal oversight committees?

Pilot Projects: Linking to/from Research Reports

ASPB encourages federal agencies to fund a pilot project that would seek to determine whether and how publisher content derived from agency-funded research could be mapped against agency research reports and other content. Specifically, the project might send users from publisher websites to the agency website to view free government-sponsored research reports and would, likewise, send users from the agency websites to publisher sites to view free abstracts and links to the VoR of articles connected to a particular research report or funded project.

If successful, this would result in interoperability between online agency content and publisher platforms. This is of interest to scholarly publishers because they would like to work with major research funders to identify, organize, evaluate, and highlight published results from federally funded research, as well as identify relationships, projects, and offerings that might be applicable to other research funders.

Possible outcomes of such a pilot might include:

- The ability to identify all agency-funded research within publisher offerings and the ability to deliver associated metadata to agencies
- The ability to establish mechanisms and approaches that could be implemented (for all research funders) across the industry
- A capability to report to major funders on the impact of the research they fund, for example, through bibliometric and other tools
- A “research dashboard” capability or the ability to contribute to one already in existence, for example, <http://rd-dashboard.nitrd.gov/>
- A mechanism for low-cost content rental access to the VoR of published articles and a mechanism to explore its impact
- Subject area content portfolios of agency-funded research articles for internal agency use (e.g., study sections)
- The possibility to use the DOE-OSTI platform (the <http://www.science.gov>) to extend this pilot to other federal funding agencies, and
- Models to illustrate how traditional publishing systems can coexist with self-archiving, including the posting of content on individuals’ websites or in institutional repositories.

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

An excellent mechanism to ensure public access to federally funded research results is by providing access to final agency reports. Every federally funded research project is required by law to provide a detailed final report. The research reports are a condition of the government contract. These reports should be archived and made accessible to the public. Some science funding agencies make these reports freely available via the web, others do not. Making all such reports available and accessible in a comprehensive and systematic way would solve an essential public access problem. One leading example is DOE's OSTI, which publishes final reports online in a portal called Information Bridge. These reports are not journal articles, but the final reports are often much longer than the resulting journal article (if such article exists—researchers typically publish only positive results and then have to meet the publication standards of the journals in their field), more timely, and provide more information.

Moreover, NSF instituted a new reporting requirement as a result of specific legislation in the America COMPETES Act (Section 7010: Reporting of Research Results), which required that "all final project reports and citations of published research documents resulting from research funded in whole, or in part, by the Foundation, are made available to the public in a timely manner and in electronic form through the Foundation's Website." For several years, publishers have proposed working with authors to develop short abstracts for a lay audience to accompany each research report.

Publishers are partnering with federal agencies to develop policies that maximize public access to research results and provide easy links between research reports (detailing research results, perhaps including lay summaries) and the peer-reviewed VoR, including complete access to the abstract or summary. Such projects would result in interoperability between funder and publisher content, ensuring access and better reporting on the results of funding.

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

No. Publishers also invest in these other types of content used by researchers, often by conceptualizing the project, commissioning the content, and investing heavily in its development. Any kind of mandated access to that content is an expropriation of that content.

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

There is no "appropriate" embargo period after publication before the public is granted free access to the peer reviewed scholarly publications. Embargo periods should be consistent with the mission and business needs of publishers. ASPB believes strongly that a uniform access policy or mandate for scholarly publications would be an ineffective approach. Any overarching government-wide policy or embargo period would fail to accommodate such key factors as the specific needs of any given agency, the rapidly changing nature of scholarly publishing, and the unique considerations of the various fields of science and the journals that serve them.

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http://www.outsellinc.com/contact_us/open_access_primer_2009.

³ Report and Recommendations of the Scholarly Publishing Roundtable, January 2010, available at www.aau.edu/WorkArea/showcontent.aspx?id=10044. Referred to throughout this document as the *Roundtable Report*.

⁴ Morris, S., *Journal Authors' Rights: Perception and Reality* (London: Publishing Research Consortium, 2009), <http://www.publishingresearch.net/documents/JournalAuthorsRights.pdf>.

⁵ Creative Commons (<http://creativecommons.org/about>) is a nonprofit corporation that provides free licenses and other legal tools to mark creative work with the freedom the creator wants it to carry, so others can share, remix, use commercially, or any combination thereof.

⁶ Ware, Mark and Michael Mabe, *The STM Report: An Overview of Scientific and Scholarly Journals Publishing*. September 2009.

⁷ CrossRef (www.crossref.org) is a not-for-profit group founded by publishers in 2002 that now maintains 50 million items. Almost 1,000 publishers participate, assigning Digital Object Identifiers (DOIs) to published content items. Development of the CrossRef service has resulted in seamless navigation of the research literature by users so that researchers using the bibliography in one article can link from a reference to the full text of the referenced article.

⁸ This would ensure readability to the broadest audience. NSF is already pursuing such a policy, see <http://www.nsf.gov/pubs/policydocs/pofaqs.jsp>, and DOE through its Office of Scientific and Technical Information provides public access to nearly 300,000 DOE-funded research reports, see <http://www.osti.gov/bridge/>.

⁹ See, e.g., 2009 U.S.-China Joint Commission on Commerce and Trade (JCCT) Factsheet. Available at <http://www.ustr.gov/about-us/press-office/fact-sheets/2009/october/us-china-joint-commission-commerce-and-trade>.

¹⁰ CrossMark (www.crossmark.com) is a current pilot project of CrossRef to that will allow readers to easily determine whether they are looking at the publisher-maintained, stewarded version of a journal article.

¹¹ DataCite (<http://datacite.org>) is a not-for-profit organization established to facilitate easier access to research data on the Internet, increase acceptance of research data as legitimate, citable contributions to the scholarly record, and support data archiving that will permit results to be verified and re-purposed for future study.

¹² Portico (<http://www.portico.org/digital-preservation/>) is a digital preservation service provided by a not-for-profit organization with a mission to help the academic community use digital technologies to preserve the scholarly record and to advance research and teaching in sustainable ways. It is among the largest community-supported digital archives in the world, working with libraries, publishers, and funders to preserve e-journals, e-books, and other electronic scholarly content.

¹³ CLOCKSS (*Controlled LOCKSS*) is a not-for-profit joint venture between the world's leading scholarly publishers and research libraries whose mission is to build a sustainable, geographically distributed dark archive with which to ensure the long-term survival of web-based scholarly publications for the benefit of the greater global research community (<http://www.clockss.org/clockss/Home>).

¹⁴ <http://www.textpresso.org/>

¹⁵ <http://biocreative.sourceforge.net/>