



## The NIH Public Access Policy and Federally Funded Research: An Analysis of Problem Recognition and Agenda Setting



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### ARTICLE INFO

#### Article history:

Received 21 February 2014

Accepted 30 September 2014

Available online 30 October 2014

#### Keywords:

Information policy

Open access

National Institute of Health

PubMed Central

Public policy

Multiple streams framework

### ABSTRACT

This interpretive and descriptive study examines the development of the U.S. National Institute of Health's (NIH) public access policy which requires NIH funded research to be made publicly available through an open access depository, the PubMed Central database. Using elements of Kingdon's (2003) multiple streams framework, Stone's (2012) challenges to the theory of free market efficiency, and her rhetorical characterization of "good weak interests" vs. "bad strong interests," this work explores the rationale behind the development of the NIH open access policy. Based upon this rationale and the current structure of the scholarly publishing system, future implications for other federally or publicly funded research are proposed.

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### INTRODUCTION

This is an interpretive analysis of the U.S. National Institute of Health's (NIH) public access policy. This policy, implementing Division G, Title II, Section 218 of PL 110–161 states as follows:

The Director of the National Institutes of Health shall require that all investigators funded by the NIH submit or have submitted for them to the National Library of Medicine's PubMed Central an electronic version of their final, peer-reviewed manuscripts upon acceptance for publication, to be made publicly available no later than 12 months after the official date of publication: Provided, That the NIH shall implement the public access policy in a manner consistent with copyright law.

[[Consolidated Appropriations Act, 2008]]

In April of 2008, the NIH public access policy was enacted. As related above, the law requires that NIH-funded researchers deposit electronic copies of their peer-reviewed manuscripts into the National Library of Medicine's online archive, PubMed Central (PMC). Since the implementation of the policy, the PubMed Central database has grown to include more than 2.5 million full text scientific articles, with over 700,000 users accessing the database everyday (SPARC Europe, 2012). The NIH public access policy effectively addresses the public's growing need for high-quality health information and promotes accelerated scientific advancement in the biomedical sciences. This policy of requiring "open access" (OA) to federally funded research

published in scientific journals aims to increase access to this knowledge that has been generated, to a large extent, with the support of tax payer financing through federal entities.

This paper seeks to understand the development of the policy by using elements of Kingdon's (2003) multiple streams (MS) framework, with a focus on problem recognition and agenda setting, and perspectives from Stone (2012) regarding "polis realities" of free market efficiency and rhetorical characterization of issues. The paper begins with a background discussion of the scholarly publishing crisis. After this discussion, the author offers an analysis of the NIH policy using elements from the work of Kingdon (2003) and Stone (2012). In conclusion, the author explores the future implications of this policy regarding compliance and availability of other federally funded research.

The rationale behind this approach is to incorporate research orientations from other disciplines, such as public administration, to analyze and discuss library science subjects. Both Kingdon (2003) and Stone (2012) have different philosophical orientations within public administration. The MS framework of Kingdon (2003) is metaphorical in character and views policy making in a chaotic environment "under conditions of ambiguity" (Zahariadis, 2007, 83). The "polis" model of Stone (2012) is both metaphorical and normative, in discussing how "change occurs through the interaction of mutually defining ideas and alliances" (36). For the purposes of this review, both Kingdon (2003) and Stone (2012) are used to identify and discuss problem recognition and the academic library community's response in terms of agenda setting. Library science may benefit from the lens of public administration in order to better

understand the intersection of library issues with public policy and government bureaucracy.

## METHODOLOGY

This work employs a research approach inspired by qualitative inquiry. As a method of interpretative analysis, the author explores the topic as a student of public administration, and as a practitioner of library science, who values access to library and archival collections as being important to a free and democratic society. The strategy of inquiry is a basic interpretive and descriptive study as described by Merriam (2002, p. 6). A basic interpretive and descriptive qualitative study is useful to inductively analyze a phenomenon based upon the analysis of data in order to identify patterns or common themes (Merriam, 2002, p. 6–7). As mentioned above, this analysis approaches the subject by employing elements of Kingdon's (2003) MS framework, with a focus on agenda setting, and perspectives from Stone (2012) regarding "polis realities" of free market efficiency and rhetorical characterization of issues. The paper begins with a background discussion on access to scientific information and to the scholarly publishing crisis. After this discussion, an analysis of the NIH policy using elements from the work of Kingdon and Stone is offered. In conclusion, future implications of this policy regarding compliance and availability of other federally funded research are considered.

## BACKGROUND ON ACCESS TO SCIENTIFIC INFORMATION/SCHOLARLY PUBLISHING CRISIS

Access to scientific information depends upon entrance to venues in which they are published: academic/scientific journals. Traditionally access has been determined by cost, provided by subscriptions from academic libraries, which are under continual pressure to cancel subscriptions (Fernandez, 2003, p. 290). Costs for academic journals (or serials) have escalated with regular frequency as publishers continue the practice of price escalation. From 1986 to 2011, serial (or journal) expenditures for the member libraries of the Association of Research Libraries (ARL) increased 402% with only an increase of 71% for monographs in the same period (Association of Research Libraries, 2012). The average annual percentage increase for all serials was 6% in both 2012 and 2013 (Bosch & Henderson, 2013, Table 4). Average increases vary by discipline as do prices. While the highest average prices are found in the scientific disciplines, such as chemistry (\$4,450), physics (\$3,893), and engineering (\$2,652), average prices in other disciplines such as business (\$1,131) and sociology (\$804), although less, still increase with regularity (Bosch & Henderson, 2013, Table 1).

The extraordinary costs involved in the scholarly publishing cycle may be a result of its curious economic model (McGuigan & Russell, 2008, par. 1). As related by Peek (1996), scholarly (or scientific) publishing depends upon an unusual economic model in that, while authors and editors are often not paid for the labor, libraries purchase access to the content that had been subsidized by the institutions which paid the salaries of the scholars who authored the journal articles (p. 11). Essentially colleges and universities must pay multiple times for the production and distribution of the scholarly journals. The scholarly journal, published within the peer review process, is purchased by academic libraries from the journal publishers where it is used by library patrons, consisting primarily of students and faculty/scholars. After this knowledge/content is processed by the faculty/scholars, new knowledge and research is produced and continues the cycle. The players in the process include the faculty/scholars, who consume and produce the content; the publishers that vet and package the content; the academic libraries that provide access to the content; and in some cases (for the focus of this analysis), federal agencies that sponsor the research. This phenomenon of high prices and frequent price increases makes the scholarly content available only to those with access to the electronic

subscriptions through major research libraries. This ability to increase prices so frequently, a result of the unique nature of academic publishing, limits access to research.

Academic libraries are forced to pay these prices in the traditional subscription model as a result of profit seeking by commercial publishers. One journal is not an equal substitute for another journal which creates a lack of substitutability. "Because authors of research articles are normally expected to read and cite all articles relevant to their research topics, they cannot omit reading an article in favor of a close substitute" (Stoller, Christopherson, and Miranda, 1996, p. 13). This situation of constant price escalation is a result of this lack of substitutability. This leads to a low price elasticity of demand for academic libraries purchasing subscriptions for use by patrons. Therefore, as shall be discussed, the OA approach attempts to offer an alternative business model that changes the dynamics of traditional subscriptions.

The scientific journal publishing industry, as a segment of the larger industry of publishing, encompasses the creation, review, packaging and distribution of knowledge and/or information in multiple formats for use mainly by academic and scientific consumers. In terms of segments, out of a total of \$38.4 billion for the U.S. industry in 2013, the academic and professional scientific journal publishing industry constitutes 28.8% of revenues (IBISWorld, 2013, p. 5). While many of the primary consumers are assumed to be individual scholars and students at colleges and universities (who actually "consume" the content by reading and referencing the material), in many cases academic libraries serve as the intermediary between the publishers and consumers by paying for the content and facilitating access to the published material. The developments in information technology have caused the container of information to change from the paper issues to the electronic format. Scientific research and development in the United States generates revenue of approximately \$134 billion in 2013, with the federal government accounting for 61.3% of industry revenue (IBIS World, 2013, p. 17). Defense research accounts for a large portion of that revenue, but official figures are not available. With the exception of biomedical and defense research, most federally funded research is supported by federal agencies such as the National Science Foundation (United States Congress.House.Committee on Science, Space, and Technology Subcommittee on Investigations & Oversight, 2012, p. 2). In terms of authorship in scholarly publications, the U.S. remains the largest player but China continues to increase its scholarly production (The Royal Society, 2011, p. 14).

The NIH access policy accepts the notion that the electronic version serves as the publication of record. This concept reveals the impact of technology upon the scholarly publishing industry and upon libraries. Technology has dramatically impacted libraries in how they undertake their core mission of providing access to information. Library collection management exists in an environment of change. Over time, various internal and external factors have impacted scholarly publishing. It is possible to view the history of library collection management over time and through the following dimensions: information overload (including the rapid growth of research library collections through the 20th century), the shift from traditional "collection development" or acquisitions to "collection management" (as an integrated activity encompassing "policy, planning, analysis, and cooperative activities"), the failure from the 1950s to the 1980s of cooperative collection development, fiscal constraint (as in the reduced budgets of many academic libraries in the 1980s), and the development of digital information systems (Brinin, Groen, & Thorin, 2000, pp. 23–32). Therefore it is informative to note that the NIH access policy takes technology for granted in terms of the publication and access to the repository.

The evolution to electronic delivery influences how academic libraries fulfill their mission of delivering scholarly resources and services to their patrons. Libraries are experiencing changes that include how patrons seek information, changes in the format of information, and changes in how libraries engage in collection development (McGinn, 2002, p. 110). While there exists an abundance of free information via Web sites,

libraries still exist as the main provider of published information to their patrons by delivering access to books, journals, and material through proprietary databases. These changes bring complexity to the delivery of services and materials in academic libraries. A noteworthy point in this discussion is that while library collections are changing as a result of the electronic transition, and the roles of librarians are changing in how they do their jobs, the institutions of academic libraries are often still based on the same approaches as before, and the relationships with publishers have not developed to reflect these changes. Tension exists between the immature digital information system and the traditional scholarly publishing environment in terms of subscriptions, access, and storage.

In summary, the major developments facing scholarly publishing and academic libraries concern change. There are changes in the availability of technology, changes due to reduced or constrained library budgets, and changes being brought about by new policies such as the NIH mandate. As a result of the electronic transformation, academic libraries, in some cases, have enhanced access but diminished control. Regarding funding, academic libraries are under pressure to pay more and more for large electronic subscriptions. Academic libraries cannot continue to pay these journal increases as institutional budgets are consumed by the “big deal” journal package subscriptions to a few large companies. As a result, Open Access initiatives, such as the NIH mandate, will continue to grow, as a result of these factors.

Considering these points, the NIH policy, as a reaction to the current scholarly publishing environment related to federally funding, may serve as a new, viable paradigm for some research projects. In addition, it may provide future incentives for authors to seek to deposit their manuscripts into a publicly available repository.

#### NIH OPEN ACCESS REPOSITORY

PubMed Central is a database of full text articles at the National Library of Medicine. according to the United States Department of Health and Human Services' *NIH Policy* (2013), it allows access to the 90,000 new scientific articles published each year that report research funded through the NIH's \$32 billion annual investment in biomedical research (par. 2). All of the research is made freely available through the open access repository. The policy does not violate U.S. copyright law in that the author, while granting the NIH a non-exclusive right to distribute the paper via the repository, may still hold the copyright to the original work and/or transfer that copyright to a publisher as he/she sees fit (NIH, 2012, par. 3). Publishers are free to choose whether or not to review or publish papers within this framework, although most publishers have agreed to voluntarily submit the authors' manuscripts to PubMed Central (NIH, par. 4). The PMC database is in alignment with its mission of collecting, preserving, and disseminating the world's biomedical scientific research. In viewing the publishing issues surrounding this process of providing free access to journal articles, the question arises: what is open access?

The phrase “open access” (OA) is used with great frequency by those discussing alternative business models of scholarly publishing. While there are variations to how the OA publications would be produced, the primary point is that these products would be peer reviewed and made freely available to users. OA journals “are peer-reviewed journals whose content is made freely available on the Internet upon publication for use by anyone anywhere for any purpose as long as the authors are properly acknowledged” (*Information Access Alliance, 2008*). This concise definition relates the characteristic of them being “freely available” to users but does not address all of complex business issues that arise in this alternative approach. Nothing comes free of course. Many of the OA plans involve a payment by the author or the publisher to facilitate dissemination of the journal content. This approach has also been identified as the “author pays” model.

As the OA movement is growing, there are different approaches to the open access business model. While there are hybrid arrangements,

there stand essentially two open access (OA) models for authors to make their research available: gold access and green access (*Suber, 2013, par. 1*). The gold access approach is one in which authors pay a fee for publishing their articles (often over \$1,000 per submission), while the green OA approach permits authors to publish their research in a journal of their choice, but allows authors to self-archive the articles in their institutional OA repositories (*Ptolomey, 2013, p. 32*). While many commercial publishers still retain high prestige based upon higher rejection rates, OA journals continue to grow in terms of citation and in numbers of articles published (*Van Noorden, p. 429*). Due to the nature of their availability, OA journal articles may be more easily accessed and therefore cited than non-OA journals (*Eysenbach, 2006, p. 0692*).

The NIH policy serves as a mandated form of “green” OA for all research funded by the NIH in the U.S. Through advocating such policies, supporters of OA intend to encourage the development of scholarly publishing by supporting the faculty/scholars and/or scholarly societies that produce the content and the academic libraries that purchase it. In viewing the definitions of the gold or green approaches, the NIH public access policy could not really be categorized as either since it would depend upon the approach of the journal publisher, although it is closer to green than gold. In either case, as long as the publishers accept the action of depositing the manuscripts into the repository after the twelve month embargo, it exists as a hybrid OA model.

#### ELEMENTS OF KINGDON'S (2003) FRAMEWORK FOCUSING ON THE “PROBLEM STREAM”

The multiple streams (MS) framework, developed by *Kingdon (2003)*, and inspired by *Cohen, March, and Olsen's (1972)* “garbage can model” of organizational choice, provides theory at a systemic level, viewing policy decisions as the collective output that is constructed by the interaction of several factors (*Zahariadis, 2007, p. 66*). Focusing upon the process of agenda setting in the MS model, according to *Kingdon (2003)* governmental agendas are established based upon three explanations: problems, politics, and visible participants (p. 197). What is an agenda within the MS approach? “The agenda”, according to *Kingdon (2003)*, “is the list of subjects or problems to which government officials, and people outside of government closely associated with those officials, are paying some serious attention at any given time” (p. 3). Using the NIH public access policy case as an example, one can use the MS lens to view the agenda setting process based upon these three explanations of problems, politics, and visible participants.

Regarding problem identification, one may see that the “functional mission” of the National Library of Medicine (NLM) requires the action of providing access to research that the agency supports. The NLM, a unit of the NIH, pioneering electronic database retrieval going back to the 1960s, seeks to fulfill its congressionally mandated mission of acquiring, organizing, disseminating, and preserving biomedical information for the public health (*Zerhouni, 2004, p. 1895*). The repository is called PubMed Central (PMC). The core problem may be seen in the points identified by the NLM in its mission. According to its mission statement, the NIH identifies its primary activity as assisting in “the advancement of medical and related sciences through the collection, dissemination, and exchange of information important to the progress of medicine and health” (*NLM, 2005*).

The NIH policy clearly aligns with multiple elements of the NIH mission, although the first item of advancing scientific knowledge “through the collection, dissemination, and exchange of information” appears the most relevant. The NIH established its public access policy on a voluntary basis in 2005 (*Kroth, Aspinall, & Phillips, 2006, p. 279*). Responding to low compliance rates, the agency then made the rule mandatory in 2008, requiring manuscript submission within a year of publication (*Charbonneau & McGlone, 2013, p. 21*). As shall be discussed, there remain problems with low compliance by those scholars publishing federally funded research.



Values have a role in the process of problem identification in the MS framework. As a process of problem identification, Kingdon (2003), in pointing out the difference between “conditions” and “problems,” relates how conditions that “violate important values are transformed into problems” (p. 198). Unfortunately since values impact how one may see a condition vs. a problem, it can determine how one defines the term (Kingdon, p. 111). Since a range of values are identified with specific issues, changes in conditions may result in a perception of the violation of values, activating interest and attention (Zahariadis, 2007, p. 71). The notion of values here is the ideal of the “public good” of federally funded research being made available to the public, and how the commercial use of this information transformed a condition into a problem. A primary goal of federally funded research is to support the “wide dissemination” of research in a variety of fields (United States Congress.House.Committee on Science, Space, and Technology Subcommittee on Investigations & Oversight, 2012, p. 2). The NIH policy seeks to address the problem of values relating to the notion of the public good. This shall be discussed further later in the paper as related to the “polis” perspective of Stone.

Regarding the political dimension of agenda setting, much of the activity supporting the establishment of the NIH policy was undertaken by the Alliance for Taxpayer Access (ATA). The group describes itself as “a coalition of patient groups, physicians, researchers, educational institutions, publishers, and health promotion organizations that support barrier-free access to taxpayer-funded research” (Alliance for Taxpayer Access, 2013, par. 1). This organization was created by the Scholarly Publishing and Academic Resources Coalition (SPARC), an alliance of universities, research libraries, and organizations. The coalition was an initiative of the Association of Research Libraries (ARL), a coalition of the major research libraries in the United States. Started in 1997, SPARC aims to be a constructive response to market dysfunctions in the scholarly communication system and focuses upon policy issues related to that system. SPARC promotes policies and tools to facilitate alternatives to the current scholarly publishing system. SPARC aims to be the vanguard in providing the tools to organizations to promote change. The ARL, through SPARC, is providing the tools for moving forward the message regarding the need for change. It is no surprise that SPARC’s advocacy and education campaign is called “Create Change.”

The ATA declares that it is committed to the following four general principles:

1. American taxpayers are entitled to open access on the Internet to the peer-reviewed scientific articles on research funded by the U.S. Government.
2. Widespread access to the information contained in these articles is an essential, inseparable component of our nation’s investment in science.
3. This and other scientific information should be shared in cost-effective ways that take advantage of the Internet, stimulate further discovery and innovation, and advance the translation of this knowledge into public benefits.
4. Enhanced access to and expanded sharing of information will lead to usage by millions of scientists, professionals, and individuals, and will deliver an accelerated return on the taxpayers’ investment.

(Alliance for Taxpayer Access, 2013)

Representing the interests of universities and their libraries, SPARC, through the ATA, exists as a pressure group within the political stream. Endorsed by the Association of American Universities (AAU) and the National Association of State Universities and Land-Grant Colleges (NASULGC), the mission of SPARC is to fundamentally alter the scholarly communication system (SPARC Europe, 2012). Partnering with professional societies, SPARC’s goals are to reduce the cost of scholarly journals by changing the industry structure of academic publishing to create lower cost or free, non-commercial, peer reviewed, and scholarly journals. SPARC’s agenda embraces a strategy focusing upon what it identifies as incubation, advocacy, and education (SPARC Europe, 2012). For the

purposes of this discussion, focus is placed upon the advocacy activities since these concerns the NIH policy that was promoted by SPARC. However, this does not diminish the importance of the educational activities of SPARC to initiate discussion about scholarly communication aimed at the stakeholders of the scholarly publishing networks, i.e. the librarians, faculty/scholars, and editorial boards of journals.

In considering this debate of transforming the scholarly publishing business model, the question then arises of who are the stakeholders within this process? Regarding visible participants in the policy stream as related by Kingdon (2003, p. 3), a Congressional hearing identified the interested parties as follows: the federally funded researcher, the academic journal and its governing society, the commercial journal publishers, universities and their libraries, and taxpayers (United States Congress.House.Committee on Science, Space, and Technology Subcommittee on Investigations & Oversight, 2012, pp. 2–5). Therefore SPARC has served as the visible participant representing universities and their libraries, along with the more-broad constituency, of taxpayers. According to the Finch report’s Executive Summary (2012), stakeholders in that analysis include researchers, universities, funders, and publishers (p. 3).

An essential question is why did this issue of federally funded research obtain prominence in the policy stream? Considering the universe of ideas that jumble around each other in Kingdon’s “policy primeval soup”, it does appear that the origins are impossible to clearly identify. However, as related by Kingdon (2003), an order is eventually developed out of the chaos and certain ideas are selected over others based upon the following factors: technical feasibility, congruence with the values of community members, and the anticipation of future constraints, including budget constraint, public acceptability, and politician’s receptivity (p. 200).

In terms of technical feasibility, the NIH policy is not difficult to implement. The adoption of an electronic-based publishing strategy using the Internet overcomes many of the disadvantages in an older paper-based system. The fixed costs for establishing a Web-based publishing capability are less than those for printing paper journals and the variable cost of an electronic publication is minimal once the original article has been posted on the web. “Some have expressed concern that archiving NIH-funded manuscripts in MPC will incur huge costs. In fact, by building on an existing information technology infrastructure housed at the NLM, the NIH public access policy can be exceptionally cost effective” (Zerhouni, 2004, p. 1895). Web-based publishing offers a low cost alternative for producing specialized journals as well as providing easy access to potential readers anywhere in the world. The long range consequences of Web-based publishing for academic journals are enormous. Just as the emergence of WIKIs and blogs has democratized social and political commentary, the production and distribution of scientific knowledge is greatly enhanced by the emergence of electronic journals.

Regarding the congruence with the values of community members, the concept of free access to federally funded research appeals to the notion of providing a public good. “Free access” is considered a “core principle” by PubMed Central. In the overview section of the database, the values of the community and of the policy are expressed here:

As an archive, PMC is designed to provide permanent access to all of its content, even as technology evolves and current digital literature formats potentially become obsolete. NLM believes that the best way to ensure the accessibility and viability of digital material over time is through consistent and active use of the archive. For this reason, free access to all of its journal literature is a core principle of PMC.

Please note, however, that free access does not mean that there is no copyright protection. As described on our copyright page publishers and individual authors continue to hold copyright on the material in PMC and users must abide by the terms defined by the copyright holder.

[(National Library of Medicine, 2013)]

As noted above, the values of public access serve as the central foundation of the PubMed Central database and of the NIH policy. Free access to federally funded scientific information supports knowledge sharing, scientific discovery, effective decision making, and democratic pluralism.

Concerning anticipation of future constraints, it is difficult to speculate. The movement toward Web-based journals could significantly alter the current business model of academic journal publishing. By multiplying the number of journals available not under the control of for-profit publishers, Web-based publishing would increase the bargaining power of academic libraries.

### NIH POLICY AS A “POLIS REALITY” AND A “GOOD WEAK INTEREST”

Within this discussion, it is valuable to look to elements of the work of [Deborah Stone \(2012\)](#) to examine the NIH policy in terms of free market efficiency and rhetorical characterizations of the issues. Her important book, *Policy Paradox* (2012, Norton, 3rd Ed.), continues the ongoing discussion in the literature of Public Administration concerning the clash between what Stone identifies as “the rationality project” (concepts inspired by the market model focusing on positivism and efficiency) versus “the polis” (broadly speaking, “the people,” characterized by community, altruism, and issues surrounding the concept of the “public interest”) ([Stone, 2012, pp. 9–36](#)). This book presents the contrasting views with a skeptical eye toward positivism and an embrace of the ambiguous, although noble, concept of “the polis.”

Stone's view of information in the market model and the polis model reveals her skepticism of how the nature of information differs into the two different conceptions of society. In the market model, the nature of information is “accurate, complete, fully available”, while in the polis view, the nature of information is “ambiguous, interpretive, incomplete, strategically manipulate” ([Stone, 2012, p. 35](#)). This perception harkens back to the old adage that “knowledge is power”. If that is true that knowledge is power, or that access to information contributes to sources of power, the NIH policy is an appropriate arena for this discussion. “Power is the phenomenon of communities. Its purpose is always to subordinate individual self-interest to other interests—sometimes to other individual or group interests, sometimes to the public interest” ([Stone, p. 34](#)). The ultimate goal in the NIH policy, from this perspective, is to allow free and unfettered access to scientific information for the public interest, thus promoting change by increasing access to the power of information.

Federal funding through the NIH transforms scientific research from a private good to a public good, echoing [Waldo's](#) notion of democratic equity. The concept of providing access to federally funded research relates to Stone's concept of “polis realities vs. market efficiencies.” This argument concerns public goods. A public good is defined by the characteristics of being non-rivalrous in consumption and non-excludable in use or both ([Weimer and Vining, 2005, p. 72](#)). Common examples of public goods include national defense, public roads, and street lighting. While a detailed discussion of the economic and ethical aspects of this concept is outside the scope of this paper, it is notable to point out that scientific knowledge and scholarly knowledge generally may not necessarily be included within the range of public goods. For example, in the *Encyclopedia of Public Administration & Public Policy* edited by [Schultz \(2004\)](#), the following statement is made regarding scientific knowledge in relationship to public goods:

Confusion arises because individuals can be excluded from many goods from which they should not be excluded. Scientific knowledge and the Internet are examples. In principle they should be freely available for the benefit of world citizens, and they grow only as they are shared. In practice, it is possible to partly commodify or privatize them by making them accessible only to those prepared to pay, such as through license fees or sponsorship or by purchasing scientific

journals or specialized equipment. In this way there is a distinction between the economic and ethical meanings of the term public good. (p. 347)

This is a remarkable point since it was written in 2002, before Google Scholar and the more broad dissemination of content via the Internet and the World Wide Web. However it still holds true, that generally scientific knowledge and scholarly publishing, since they are protected by copyright (either the author's own copyright, or more commonly, the copyright relinquished to and owned by the commercial publishers), would not qualify as public goods. Certainly one embracing the “polis realities” would argue that they “should” not be excluded based upon ethical concerns. Yet in the case of NIH funding, scientific knowledge is transformed from a private into a public good, that the greater public will share the knowledge generated through the funding. While there often may be distinctions in the typology of private vs. public goods ([Birkland, 2011, p. 222](#)), the establishment of the NIH public access policy creates a central public repository that will benefit not only other scholars, but also students, entrepreneurs and the general public.

How does the NIH policy impact copyright? It should be noted that the works submitted to the repository after the twelve month embargo are still protected by copyright, but would be available through the repository to the public without payment under fair use principles. The NIH policy does not violate U.S. copyright law. The author, as the creator of the work, owns the copyright in the original paper. “The author gives NIH a non-exclusive right to distribute the paper in PMC and may transfer to the publisher the balance of his rights, including an exclusive copyright for the final published version of the paper” ([NIH, 2012, par. 3](#)). The authors are able to publish in any journal of their choice, as long as the contract allows that their final, peer reviewed paper is published in PMC. The paper may be posted there by the author or by the publisher.

Regarding [Stone's \(2012\)](#) rhetorical characterization of political contests as “good weak interests” versus “bad strong interests,” the “polis” reality includes normative values that encourage policy makers to “do right” and represent collective and diffused interests (pp. 243–244). Therefore it is possible to view this policy issue of federally funded scientific literature as a “good weak interest” within the framework generally, although there is a twist when it comes to the rhetoric of the ATA as described below. In fact, according to Stone, it is the government's role to support those “good interests,” that arise out of normative values that are not championed by the most powerful interests, so that the government can support these “good” interests that “are too weak to flourish on their own” (p. 244). Yet the forces supporting the NIH policy, in the form of the ATA, attempt to craft the message regarding the NIH policy as one that actually embraces both dimensions.

[Table 1](#) shows some characterizations of this type of political contest.

In viewing these terms under the first column, one may note how the presentation of the concept of federally funded scientific research aligns with these terms. The activity is “collective” in that it is publicly supported. It is “diffused” and “broad” in that the research is disseminated

**Table 1**  
Rhetorical characterizations of political contests.  
Adapted from Table 10.2, [Stone \(2012, p. 245\)](#)

Good weak interests	Bad strong interests
Collective	Individualistic
Diffused	Concentrated
Broad	Narrow
Long-term	Short-term
Social	Economic
Public	Special
“The people”	Elites
99%	1%

openly and broadly to the worldwide community. The policy is “long-term” in that it impacts current and all future NIH federally funded scientific research. Expanding access to scientific information informs the “social” and “public” (such as the “99%”) in terms of the interests of society. The very name of the SPARC-created group, “The Alliance for Taxpayer Access,” reveals the rhetorical characterization of this policy position as a “good weak interest.”

The rhetorical characterization of this policy argument focuses upon various dimensions of the polis, but it can also be turned on its head when viewing the political lobbying effort by the ATA to encourage the policy. An interesting contrast is that within the lobbying effort of SPARC, the issue was framed by the “good weak interests” as described above, but could also be characterized by some of the “bad strong interests” identified by Stone in the use of the term “the taxpayer”. The notion of “the taxpayer,” while relating to the “good weak interests” as described, could also be identified with the “bad strong interests” associated with individualistic or economic interests. Here, the policy is not for the good of society, but for the fairness of the taxpayer. It’s notable to see that SPARC branded the name of its lobbying arm “the Taxpayer Alliance” to appeal to the rhetoric not of social benefits, but of economic fairness. As pointed out by Miller (2009), the rhetoric of the Alliance for Taxpayer Access supporting the NIH policy focuses upon “taxpayer” interests as opposed to a government solution. Miller exemplifies this from a quotation on SPARC’s Taxpayer Alliance page:

Access to scientific and medical publications has lagged behind the wide reach of the Internet into U.S. homes and institutions. Subscription barriers limit U.S. taxpayer access to research that has been paid for with public funds. Taxpayer access removes these barriers by making the peer-reviewed results of taxpayer-funded research available online, and for no extra charge to the American public.

[(Alliance for Taxpayer Access, 2007, as quoted by Miller, 2009, p. 128).]

As can be noted in this paragraph, the stress on “taxpayer” rhetoric could not be more forceful. It is mentioned three times, and also in the name of the group. So based upon Stone’s typology, the rhetorical characterization reflects both the economic and the ethical dimensions of scientific information as it relates to the public good. In the case of the economic dimension, the ATA speaks of “taxpayer” fairness and the economic justification to allow access to scientific research paid for by public funds. In the ethical perspective, the “polis” realities of providing long-term, collective, public access to scientific information enhance the public good.

In terms of problem recognition and agenda setting, the forces supporting the NIH public access policy, employ a complex strategy of embracing both rhetorical interests. The ATA, supported by SPARC and coalitions of universities and their academic libraries, is able to create a strategy that communicates the “public good” (good weak interests) and simultaneously transform the message from social values to economic interests (bad strong interests). This may be noted in selections from the opening statement by Rep. Paul Broun (R-GA) during the hearing a Congressional hearing on federally funded research:

As we progress through the digital age, expectations of access to scientific findings are increasing, specifically research funded by taxpayers. Just as the Internet has challenged entrenched interests in other mediums such as news and music, so too has it affected scholarly publishing. The academic community and scholarly publishing interests must be flexible enough to adapt to our ever-changing times.

Society’s expectations of transparency are clearly increasing. Couple this trend with the fact that taxpayers rightfully expect access to research they have funded, and you quickly realize that we all must

work together to ensure that the various interests involved are treated fairly, and that ultimately science and research are not harmed.

[(Rep. Paul Broun, Chairman, United States Congress.House.Committee on Science, Space, and Technology Subcommittee on Investigations & Oversight, 2012)]

In reviewing this statement, one may note how the Internet has provided an opportunity of convergence in which the “public good” may intersect with the “taxpayer” orientation of economic interest. The concept of providing access to federally funded scientific research becomes simultaneously both a collective and an individual interest; an activity that supports the “public good” and the rights of “the taxpayer”.

## FUTURE IMPLICATIONS

In viewing future implications of this policy, there are two major points that are valuable to consider, one practical and the other theoretical. These points concern the implementation of, and compliance with, the current policy; and how this policy relates to federally funded research generally as a public good for non-NIH federally funded research.

While many researchers are now required to submit their manuscripts to PubMed Central, there appears to be some problems in terms of compliance. Based upon a recent study (Charbonneau & McGlone, 2013, p. 21), while many faculty members are aware of the NIH public access policy, many NIH funded faculty have not modified their author agreements with publishers. The faculty members have found the instructions confusing, along with unclear journal policies. Responding to the low compliance rates, the NIH made the rule mandatory in 2008, in which all authors are required to upload to PMC every manuscript submission within a year of publication (Charbonneau & McGlone, 2013, p. 21). Even so, only around 75% of papers stemming from NIH-funded research are submitted to PMC today, according to a report from the US President’s National Science and Technology Council (2012, p. 14). This low compliance rate has prompted the NIH to try a new enforcement strategy. On November 16, 2012, the NIH announced that in the future any investigator using NIH grant money to conduct research must submit that work to the government repository to continue to receive future funding (Matthews, 2013, par. 1). At this time, it appears that compliance is improving but nevertheless remains a problem of implementation.

Regarding implications for other non-NIH, federally funded research, the question of the public-private good distinction must be raised. While previously discussed in the context of the NIH, the issue could be examined in a broader light. Since public goods are those goods that are available to all in society and cannot be consumed exclusively by a single person or group (Birkland, 2011, p. 220), how could this logic apply to other government related activities? While the NIH open access policy applies only to those research activities funded by that specific agency, the question arises of whether other federally-funded research could be considered a public good. Is there other scholarly work, either supported directly or indirectly through the federal-government, which could potentially be considered a public good? What about other entities that receive federal funding in for research related activities in various forms? For example, could the scholarly work produced by faculty members at state universities or state-affiliated universities, fall under the category of public goods? In addition, what of research that cites that NIH-funded papers? Do those articles need to be included in the repository as well? Also, how will this new policy impact scholarly publishing in general? Will authors become accustomed to depositing their manuscripts into an OA repository in addition to the journal publication? While outside the scope of this paper, these are questions that will need to be addressed in the future.



Points of view from public administration, such as those presented here like the MS framework and the polis model, are valuable to the field of library science due to the fact that government policies impact how libraries are able to store, preserve, and disseminate research. Library science interacts with public administration on many levels. For example, in considering the unrealized interactive potential of e-government, there are many challenges for public administration that require library science responses, such as constructing interoperable and uniform Web sites throughout all government entities, and providing more open access to government information, including government funded research, as discussed in this essay. While the challenges are daunting, they are not insurmountable, and indeed will be met with different degrees of success through the collaboration between both public administration and library science communities.

## CONCLUSION

This interpretive study offered an analysis of the U.S. National Institute of Health's public access policy, the law that requires NIH-funded researchers to deposit electronic copies of their peer-reviewed manuscripts into the National Library of Medicine's online archive, PubMed Central. Since the implementation of the policy, the PubMed Central database continues to grow. Based upon this review, the NIH public access policy successfully addresses the public's growing need for high-quality health information and promotes accelerated scientific advancement in the biomedical sciences. This policy of requiring "open access" to federally funded research published in scientific journals intends to increase access to this knowledge that has been produced, to a large degree, with tax payer funding through the NIH.

This work analyzed the development of the NIH open access policy by using elements of Kingdon's (2003) MS framework, with a focus on problem identification and agenda setting, and perspectives from Stone (2012) regarding "polis realities" of free market efficiency and rhetorical characterization of issues. The paper began with a background discussion of the scholarly publishing crisis. After this discussion, an analysis of the NIH policy using elements from the work of Kingdon (2003) and Stone (2012) was offered. In conclusion, future implications and some questions regarding this policy in terms of compliance and the availability of other federally funded research were discussed.

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