

OPEN ACCESS BACKGROUND

From the **Budapest Open Access Initiative**:

An old tradition and a new technology have converged to make possible an unprecedented public good. The old tradition is the willingness of scientists and scholars to publish the fruits of their research in scholarly journals without payment, for the sake of inquiry and knowledge. The new technology is the internet. The public good they make possible is the world-wide electronic distribution of the peer-reviewed journal literature and completely free and unrestricted access to it by all scientists, scholars, teachers, students, and other curious minds. Removing access barriers to this literature will accelerate research, enrich education, share the learning of the rich with the poor and the poor with the rich, make this literature as useful as it can be, and lay the foundation for uniting humanity in a common intellectual conversation and quest for knowledge.

<http://www.soros.org/openaccess/read.shtml>

Open access is a social movement regarding free access to scholarly communication between the academic world and publishers over the past few years, but the creation of free scholarly literature started as far back as 1966. The Educational Resources Information Center (ERIC) was launched jointly by the U.S. Department of Education's Office of Educational Research and Improvement and the National Library of Education (Suber 2009). This collection was created to provide "ready access to education literature to support the use of educational research and information to improve practice in learning, teaching, educational decision-making, and research"

http://www.eric.ed.gov/ERICWebPortal/resources/html/about/about_eric.html). The advent

of the Internet in the 90's brought significance to the idea of shared information for the common good, and in 1999, the Open Archives Initiative (OAI) was formed, focusing on a principle of interoperable archives that contain digital content (<http://www.openarchives.org/>). This initiative included a protocol that defines how metadata (that is to say, information about the objects in an archive that helps make them searchable) should be provided so that it can be easily harvested. Many other initiatives have been explored since then, but over the past 15 years, the movement has gained momentum with such organizations as SPARC®, the Scholarly Publishing and Academic Resources Coalition, an international alliance of academic and research libraries working to correct imbalances in the scholarly publishing system. Formed in 1998, SPARC was developed by the Association of Research Libraries and includes members from nearly 800 institutions in North America, Europe, Japan, China, and Australia (<http://www.arl.org/sparc/about/index.shtml>). Pitt's ULS is a charter member of SPARC.

In December of 2001, a world-wide open access initiative began when the [Open Society Institute](#) (OSI) called a meeting in Budapest with leading proponents of open access for scientific and scholarly journal literature. The goal was to see how far the many current initiatives could assist one another and how OSI could use its resources to help the cause (<http://www.earlham.edu/~peters/fos/boaifaq.htm>). This meeting resulted in the Budapest Open Access Initiative (BOAI). Since the launch of the BOAI, other important open access initiatives include the Principles and Strategies for the Reform of Scholarly Communication, August 28, 2003, by the Association of College & Research Libraries (ACRL); the UN World Summit on the Information Society Declaration of Principles and Plan of Action, December 12, 2003; and the IFLA Statement on Open Access to Scholarly Literature and Research

Documentation, released by The International Federation of Library Associations and Institutions (IFLA) on February 24, 2004.

A simultaneous project called SHERPA was formed in the U.K. to create an open access institutional policy for a consortium of research-led institutions. Further projects have developed, including RoMEO, an ever-growing list of publisher's copyright and archiving policies; JULIET, a summary of research funders archiving mandates and guidelines; and Open DOAR, a worldwide Directory of Open Access Repositories.

A pinnacle of success for the movement was in 2006, when a bill was introduced to the U.S. Senate requiring that 11 U.S. government agencies with annual research expenditures over \$100 million would make free to the public via the Internet any journal articles published in a peer-reviewed journal resulting from research funded by these agencies, after an embargo period of six months. The bill was created because "U.S. taxpayers underwrite this research, [so] they have a right to expect that its dissemination and use will be maximized, and that they themselves will have access to it. If this information is shared with all potential users, it will advance science and improve the lives and welfare of people of the United States and the world (<http://www.arl.org/sparc/advocacy/frpaa/index.shtml>). The bill was eventually passed by Congress on December 26, 2008.

One result of this new bill was a revision to the National Institutes of Health (NIH) Public Access Policy in January 2008. Any researcher who publishes an article in a peer-reviewed journal resulting from funding from NIH is now required to deposit a copy in an open access repository within 12 months of publication of the article.

<http://www.arl.org/sparc/advocacy/nih/index.shtml>). This month marks the third anniversary of this first U.S. public access policy, which has come to allow “free and open access to over two million full-text articles, accessed by nearly half a million PubMed Central users from all sectors of the public every day” (Joseph and McLennan 2011).

The act of mandating open access policies has been the current focus of the open access movement in government, research funding agencies and universities all over the world. Many organizations are currently creating mandates or reviewing other mandates to decide how to proceed. In 2008, Harvard University’s Faculty of Arts and Sciences adopted an open access policy, and MIT adopted their mandated policy in 2009.

The University of Pittsburgh’s University Library System (ULS) has been involved for more than a decade in hosting and mounting open access content. In 2000-2001, the ULS partnered with the Center for the Philosophy of Science and the Philosophy of Science Association to create PhilSci Archive, an open access repository following the OAI protocols and serving the History and Philosophy of Science profession as a digital repository for grey literature such as conference proceedings, white papers, and prepublication of journal articles. This repository has grown steadily in size and importance in the field and now holds more than 2,500 articles from scholars all around the world. Members of the Pitt faculty moderate the site to ensure a high quality of content. In addition, the ULS supports the Archive of European Integration (AEI), an electronic archive for research materials on the topic of European integration and unification. The AEI collects two types of materials: independently produced research materials (such as working papers, policy papers, discussion papers, conference

papers, small monographs, journal or serial articles, etc.) and official European Community/European Union documents from our extensive EU Government Documents collection. To date, some 15,000 documents have been deposited in this archive.

In addition, the ULS also supports additional open access repositories and projects that are freely sharing research with scholars worldwide. This includes the mounting 745 titles from the University of Pittsburgh Press in a project entitled The University of Pittsburgh Press Digital Editions. These titles are available via open access and have resulted in increased sales of print copies from the Press' backlist.

Two years ago, the ULS opened an institutional repository on the same model as those created for disciplinary repositories such as the PhilSci Archive. D-Scholarship@Pitt is an institutional repository for the research output of the University of Pittsburgh. It provides stable, long-term storage and ongoing maintenance for content contained within the repository. Materials are submitted directly by authors with an active University of Pittsburgh computer account. Submissions are restricted to scholarly research materials. Examples of items that this repository can accommodate include:

- Research papers, published or unpublished
- Conference papers and presentations
- Supporting multimedia (audio, video, images, etc.)
- Research data
- Electronic theses and dissertations

D-Scholarship@Pitt is designed to increase discovery of research by allowing indexing by Google and other major Internet search engines, the Pennsylvania Digital Library, and PittCat+.

It has attracted more than 5,000 submissions, about half of which are pre- or post-prints of journal articles by current faculty; the other half are electronic theses and dissertations.

Today 2.5 million journal articles appear every year in scholarly journals across all disciplines and countries. No library in the world subscribes to all of the journals that are represented by this body of literature, and in fact the number of titles subscribed to in research libraries in America is dropping each year. By the very nature of the economics of scholarly publishing, the readership of the publications produced by traditional publishing outlets is falling and this trend is not likely to reverse. Many journals published by small publishers, universities, or scholarly societies are at risk of failing because of a decline in subscription income. The ULS has mounted several of these “at-risk” journals on a journal platform in open access to save them from extinction and broaden their readership.

It is very clear, based on the experience of the open access projects at Pitt and a number of research studies, including a 2010 report from the School of Electronics & Computer Science at the University of Southampton, that research papers placed into open access repositories and/or published by one of the growing number of open access journals are read and thus cited more widely than those published only in traditional, subscription-based journals. Only one study found no citation advantage to open access publishing, but even this study showed a major increase in readership for open access articles. No study has ever reflected fewer citations for open access articles. Most showed major increases in both readership and citations. A new study in the field of law reflects a clear citation advantage for open access articles (http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1777090).

The chart below is from a study at the University of Southampton:

THE OPEN ACCESS CITATION ADVANTAGE

Size of OA citation advantage when found (and where explicitly stated by discipline)	% increase in citations with Open Access
Physics/astronomy	170 to 580
Mathematics	35 to 91
Biology	-5 to 36
Electrical engineering	51
Computer science	157
Political science	86
Philosophy	45
Medicine	300 to 450
Communications studies (IT)	200
Agricultural sciences	200 to 600

An annotated bibliography on this topic is available at <http://www.istl.org/10-winter/article2.html>.

A large number of universities in the US and other countries have created institutional repositories. At those institutions, approximately 15% of faculty members place their articles into the repository on a volunteer basis. But a growing number of colleges and universities are “mandating” submission to an institutional repository in order to capture the research by their faculty in a stable and lasting open access environment. A list of approximately 150 universities

worldwide currently mandating placement in the institutional repository can be found at <http://roarmap.eprints.org/>.

Since many publishers have adopted policies that allow placement of either the final published article or the author's final accepted version into an institutional repository, or will accept a modified license in which the author retains the right to do so when requested, compliance rates are quite high in those institutions. Each of the policies varies slightly, but generally an opt-out provision is made for instances in which publishers refuse permission for placement. A list of publishers that freely allow authors to place in repositories the final published copy of their articles, some with embargoes, can be found at <http://www.sherpa.ac.uk/romeo/PDFandIR.html>.

Other publishers such as Elsevier allow authors to place in repositories the author's final accepted copy. The Pitt institutional repository, D-Scholarship@Pitt, can accommodate variations in publishers' policies such as embargo lengths, versioning, and other issues, and metadata about the item would include links to the published article, as well as the locally maintained copy. In the case in which a publisher refuses to allow any type of deposit into the repository, a metadata record can be created to link to the publisher site for access (although, in such cases, access would be limited to institutions which subscribe to the journal).

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