

Title:

The Public Knowledge Project and the Simon Fraser University Library: A partnership in open source and open access

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Abstract:

The Public Knowledge Project is an ongoing collaboration between academics, librarians, publishers, editors, and software developers, working together to build alternatives in scholarly publishing. The project has developed a suite of open source software that significantly reduces the time and expense required for producing academic journals and conferences, and facilitates making research results freely available through open access. This article examines the history of the project, provides an overview of its open source software, discusses the growing community participating in the project, and considers its future directions.

Keywords:

Scholarly publishing; academic libraries; open source software; open access

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INTRODUCTION

In December 2001, a “small but lively meeting”¹ of the Open Society Institute in Budapest generated perhaps the most cited definition of open access:

“...free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself.”²

In the five years since the declaration of the Budapest Open Access Initiative (BOAI), the open access movement and the consequent rise of alternative scholarly publishing models have made tremendous strides. A prime indicator of this growth is provided by periodic snapshots from the Directory of Open Access Journals (DOAJ) which was established in 2003. For example, in early March 2006 the DOAJ listed open access 2,080 journals representing a collective total of 83,411 articles. By early August, 2007 these counts had increased to 2,796 journal titles and 142,436 articles.³

Alternatives to the conventional commercial publishing models have also started to appear, often (but not necessarily) as an offshoot of the open access movement. Many of these new ventures may not adhere to a full open access model but they generally offer less restrictive and relatively inexpensive access options. They seek to reduce the overhead and associated costs of scholarly publishing through the use of alternative publishing platforms, software systems and new sustainability models. They retain more

control and often participate more closely in the entire publishing workflow from the initial editorial process through actual production activities such as article preparation, layout, and final online publication.

Libraries and librarians are also engaging in a range of new roles and activities, not just as advocates for the open access movement but as partners and providers of direct support. Many have become involved in providing hosting services and related infrastructure support for open access journals. Some libraries have gone further and become more involved in developing and maintaining software for online publishing or taking on many of the duties – editorial work, journal layout and production, subscription management – often associated with traditional publishers. In turn, this is leading to new partnerships and collaborative activities with local faculty and researchers, journal editors and publishers, open source software developers and projects, and so on.

Through its involvement in the Public Knowledge Project (PKP)⁴ since early 2005, the Simon Fraser University Library⁵ has become a centre for online software hosting and support, a “home base” and coordinator for open source software development, and a participant in many national and international projects to promote open access publishing or new scholarly publishing initiatives. Much of this activity has been a natural extension of previous service initiatives and systems activities undertaken by the SFU Library. But it has also significantly moved beyond the conventional roles in the areas of scholarly communication and software development for most academic libraries.

A BRIEF HISTORY OF THE PUBLIC KNOWLEDGE PROJECT

The Public Knowledge Project (PKP) was started in 1998 as a relatively modest research project by Dr. John Willinsky who at that time was a Professor in the Department of Language and Literacy Education of the Faculty of Education at the University of British Columbia.⁶ Dr. Willinsky recently moved to Stanford University⁷ but continues to provide the overall leadership and vision for the PKP.

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The PKP's initial focus was on increasing access to scholarly research and output beyond the traditional academic environments. This soon led to a related interest in scholarly communication and publishing, and especially on ways to make it more cost effective and less reliant on commercial vendors and their generally restricted access models. In 2001, the first version of the Open Journal Systems (OJS)⁸ was released. It had been developed to provide an online management tool for one of the most time consuming and costly components of journal publishing – the article submission, review, and editing process.

The OJS software is significant in two other respects. Although it is very configurable and can support almost any journal publishing model, it has been primarily designed for open access journals. And OJS has been developed and released as open source software under the GNU General Public License (GPL)⁹. In the article “The unacknowledged convergence of open source, open access, and open science” that appeared in *First Monday* in 2005, Willinsky discusses the complementary aspects of these “open” principles:

“However, open source and open access are nothing less than two practical and proven means of resisting that constant capitalization of knowledge work that marks this economy. They are ways of affirming the university's ability to contribute to the public good. Those who would resist the commercialization of higher education would do well to recognize the convergence of interests among open source, open access, and other open initiatives, in a world that can otherwise seem all-too-ready to allow shareholder-value to drive the pursuit of knowledge.”¹⁰

The next logical extension of the PKP activities was the realization that academic libraries had also been addressing many similar issues in their struggles to manage escalating serials subscription costs and to adjust to the transition from print to online journals. This led to the establishment of a three way partnership in 2005 with the existing PKP initiative at UBC, the SFU Library, and the Canadian Centre for Studies in Publishing (CCSP)¹¹ at SFU. Each partner contributed a unique perspective and associated expertise. In his capacity as the PKP director, John Willinsky continues to

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provide an overall vision and research agenda. The SFU Library brings its open source systems development resources and an extensive computing infrastructure. The CCSP contributes both a practical and academic connection to the publishing world in general.

OVERVIEW OF PKP SOFTWARE SUITE

The Public Knowledge Project's suite of software includes four separate, but inter-related applications, including the Open Journal Systems (OJS), the Open Conference Systems (OCS)¹², the PKP Metadata Harvester¹³, and Lemon8-XML¹⁴. All of the products are open source and freely available to anyone interested in using them. They share similar technical requirements (PHP, MySQL, Apache or Microsoft IIS 6, and a Linux, BSD, Solaris, Mac OS X, or Windows operating system) and need only a minimal level of technical expertise to get up and running. In addition, the software is well supported with a free, online support forum and growing body of documentation.

Open Journal Systems

OJS is designed to manage and publish scholarly journals, from the submission of the author's original document right through to making the final version available online.

Website

OJS provides a journal with its own, customizable web site, where authors can submit papers, researchers can read the articles, reviewers can access their latest assignments, journal managers can post announcements, and more.



Figure 1: Journal using OJS

While many use OJS for a single publication, it can also be used to host a large group of journals. For publishers hosting multiple journals, whether private companies, scholarly societies, or university libraries, it provides a single publisher home page, and separate sites for each journal.

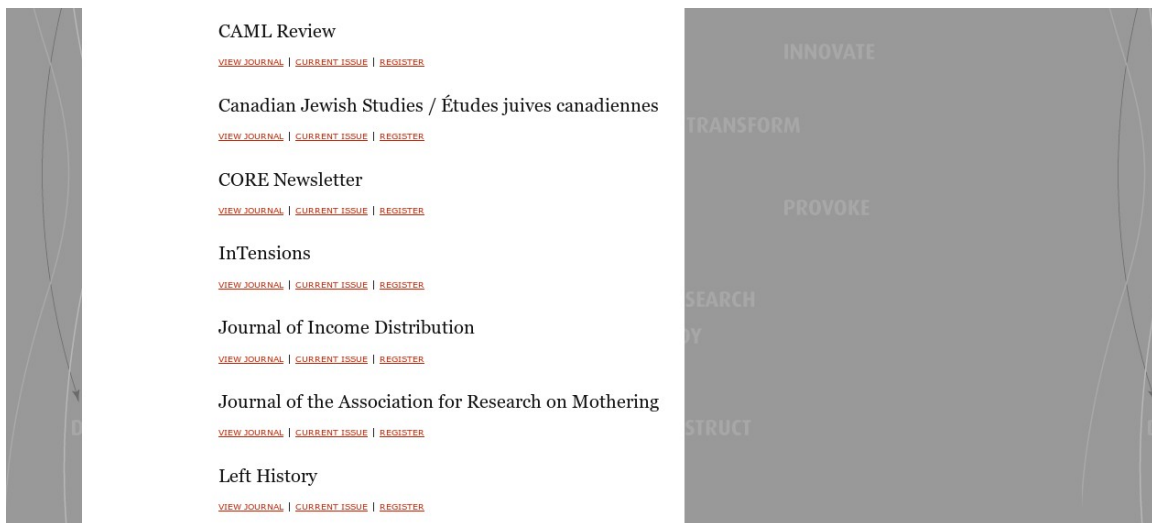


Figure 2: OJS with multiple journals

Submissions

OJS allows authors to respond to Call for Papers directly on the journal web site, create a user account, fill in a web form describing the submission, and upload their file.

HOME ABOUT USER HOME SEARCH CURRENT ARCHIVES

OPEN JOURNAL SYSTEMS - TEST DRIVE JOURNALS

Home > User > Author > Submissions > **New Submission**

Journal Help

Step 1. Starting the Submission

1. **START** 2. ENTER METADATA 3. UPLOAD SUBMISSION 4. UPLOAD SUPPLEMENTARY FILES 5. CONFIRMATION

Authors submit items to this journal through this web site in a five-step process for uploading the manuscript and relevant information (with an option to upload, as well, supplementary files, such as research data and instruments). If difficulties are encountered in this process, contact [test](#) by email or phone for assistance.

Submission Checklist

Indicate that this submission is ready to be considered by this journal by checking off the following (comments to the editor can be added below).

- The submission has not been previously published, nor is it before another journal for consideration (or an explanation has been provided in Comments to the Editor).
- The submission file is in Microsoft Word, RTF, or WordPerfect document file format.
- When available, the URLs to access references online are provided, including those for open access versions of the reference. The URLs are ready to click (e.g., <http://pkip.sfu.ca>).
- The text is single-spaced; uses a 12-point font; employs italics, rather than underlining (except with URL addresses); and all illustrations, figures, and tables are placed within the text at the appropriate points, rather than at the end.
- The text adheres to the stylistic and bibliographic requirements outlined in the [Author Guidelines](#), which is found in About the Journal.
- If submitting to a peer-reviewed section of the journal, the instructions in [Ensuring a Blind Review](#) have been followed.

Journal Section

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Figure 3: Author submission

The editor receives a notification that a new submission is available and can begin the task of reviewing and editing the document.

Peer Review

Once a document has been submitted, and the Editor has decided it is worth considering, it can be assigned to one or more reviewers to conduct the formal peer review process, which may require multiple rounds and revisions before the submission is accepted or rejected.

Review Schedule

Editor's Request	2007-09-11
Your Response	2007-09-11
Review Submitted	—
Review Due	2007-10-09

Review Steps

1. Notify the submission's editor as to whether you will undertake the review.
Response
2. Click on file names to download and review (on screen or by printing) the files associated with this submission.
Submission Manuscript [930-1880-1-RV.COT](#) 2007-09-11
Supplementary File(s) None
3. Click on icon to enter (or paste) your review of this submission.
Review
4. In addition, you can upload files for the editor and/or author to consult.
Uploaded files None
5. Select a recommendation and submit the review to complete the process. You must enter a review or upload a file before selecting a recommendation.
Recommendation

Figure 4: Reviewing

Editing

If the submission passes the review stage, it then goes through the editorial process, for copyediting, layout editing, and proofreading. All of these steps are conducted within the OJS environment, and may involve a single editor responsible for all of these tasks, or may be divided up among different individuals involved with the journal.

Copyediting

[REVIEW METADATA](#)

	REQUEST	UNDERWAY	COMPLETE	ACKNOWLEDGE
1. Initial Copyedit	INITIATE	N/A	COMPLETE	N/A
File: 132-745-1-CE.DOC 2007-01-25				
2. Author Copyedit	<input type="text"/>	—	—	<input type="text"/>
File:				
3. Final Copyedit		N/A	COMPLETE	N/A
File:				

Upload file to Step 1, Step 2, or Step 3

Copyedit Comments [COPYEDIT INSTRUCTIONS](#)

Layout

Layout Editor [ASSIGN LAYOUT EDITOR](#)

Layout Version	REQUEST	UNDERWAY	COMPLETE	ACKNOWLEDGE
None	<input type="text"/>	—	—	<input type="text"/>
Request email cannot be sent until a Layout Version is in place.				

Galley Format

FILE	ORDER	ACTION	VIEWS
None			

Supplementary Files

FILE	ORDER	ACTION
None		

Upload file to Layout Version, Galley, Supp. files

Layout Comments

Figure 5: Editing

Publishing

With the editing completed and the appropriate galley files uploaded (e.g., PDF, HTML, MP3, etc.), the article can be scheduled to appear in the current or upcoming issue of the journal.

Reading

Once published, the article can now be read online. OJS allows journals to make the article immediately available via open access, delay open access for a set period, or limit access to subscribers. Despite the PKP's desire to foster open access to scholarly research, subscription management is built directly into the system.

OJS goes beyond simply displaying content, and provides an interesting set of Reading Tools, allowing for innovative interactions between the reader, the text, and the author. The Reading Tools allow readers to communicate privately with the author or to place comments directly on the web site, providing an interesting model of post-publication, open review. In addition, readers can take advantage of a set of pre-selected, subject-appropriate research databases, which can instantly search keywords and author names, and lead to related materials.

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Scholarly Associations and the Economic Viability of Open Access Publishing

John Willinsky, *University of British Columbia*

Abstract

The information landscapes within which scholars work is undergoing a seismic shift. The computer monitor that rises out of the photocopy stacks, piles of journals, clippings and correspondence, now offers a new, rich vein of information that seems destined to eventually overwhelm the traditional trappings of desktops, filing cabinets, and bookshelves. After little more than a decade of Internet publishing, two-thirds of academic journals provide online access, while more than 1,000 peer-reviewed journals are published solely in digital form (Tenopir and King, 2001). Faculty and students are increasingly writing with their browsers open to online research sources.

[1]

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Email the author

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Author's work
Related studies
Book reviews
Pay-per-view
Surveys
Soc sci data
Social theories
Book searches
Databases
Relevant portals
Online forums
Legal materials
Government policy
Media reports

Figure 6: Reading Tools

Other Features

OJS supports a variety of other useful features, including article and user data importing. This is used by journals moving an existing publication from print to online, or from one online publishing system into OJS, and allows for quickly bringing digitized back issues and user data into the system. OJS also supports article and user exporting, allowing journals to send their metadata to indexing services such as Medline¹⁵ or CrossRef¹⁶. OJS provides a range of statistics, including COUNTER-compliant¹⁷ usage statistics and generates a variety of reports. It is also important to mention that OJS has been translated into several languages, and supports a multilingual user interface.



Figure 7: OJS in Italian

Open Conference Systems

OCS is largely based upon the OJS software outlined in the previous section. Like OJS, a single OCS installation provides a complete, customizable web site for a single conference, as well as the infrastructure for a multiple conference hosting system.



Figure 8: Conference using OCS

OCS allows prospective presenters to create an account and submit a conference proposal. It provides the ability to conduct a peer review of the proposals, as well as the editing of accepted proposals, and the organization of conference streams or tracks. Session abstracts, papers, or podcasts can be published on the conference web site, and access can be open or restricted to registered participants. Like OJS, OCS allows for the use of Reading Tools to facilitate presenter/reader interactions, reader comments, and searching for related information. Conference registrations can also be made online, including online payments via Paypal¹⁸ or other online financial transaction systems, and managed by the conference organizers. As with OJS, OCS reduces the time and effort required to host a scholarly conference, and reduces the cost of making the results of the conference freely available.

PKP Metadata Harvester

The PKP Metadata Harvester allows for the creation of a customizable, searchable, online index of metadata available from Open Archives Initiative-compliant databases and information sources, including OJS journals and OCS conferences.

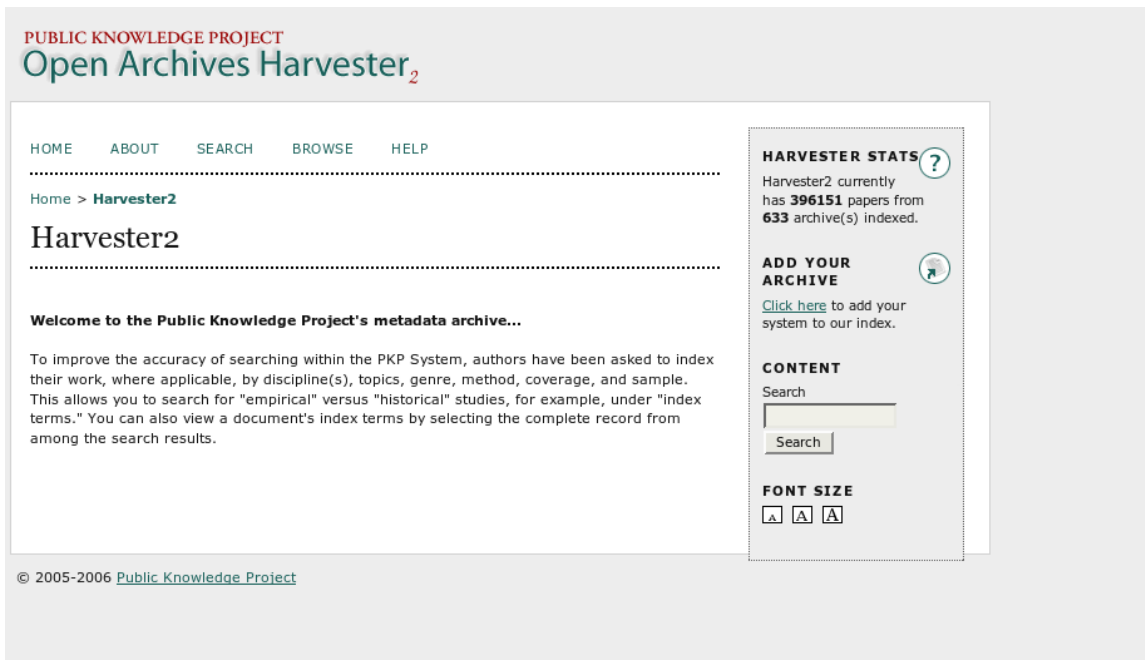


Figure 9: PKP Harvester

The software harvests OAI metadata in a variety of schemas, including unqualified Dublin Core, the PKP (Open Journal Systems/Open Conference Systems) Dublin Core extension, MODS, and MARCXML.

The Harvester has a flexible search interface that allows for both simple and advanced searching using crosswalked fields from all harvested archives. It also has the ability to perform post-harvest and pre-indexing filtering/normalization on the metadata.

The software allows for Harvester administrators to select the archives from which to harvest and also provides the option of allowing archive managers to submit their metadata themselves.

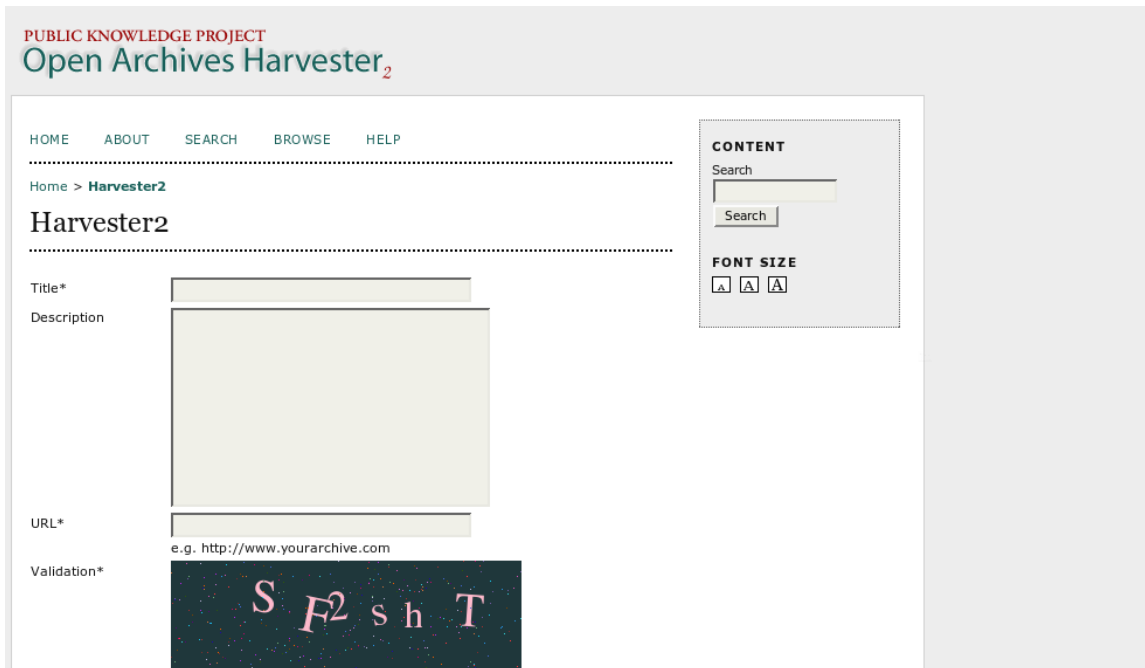
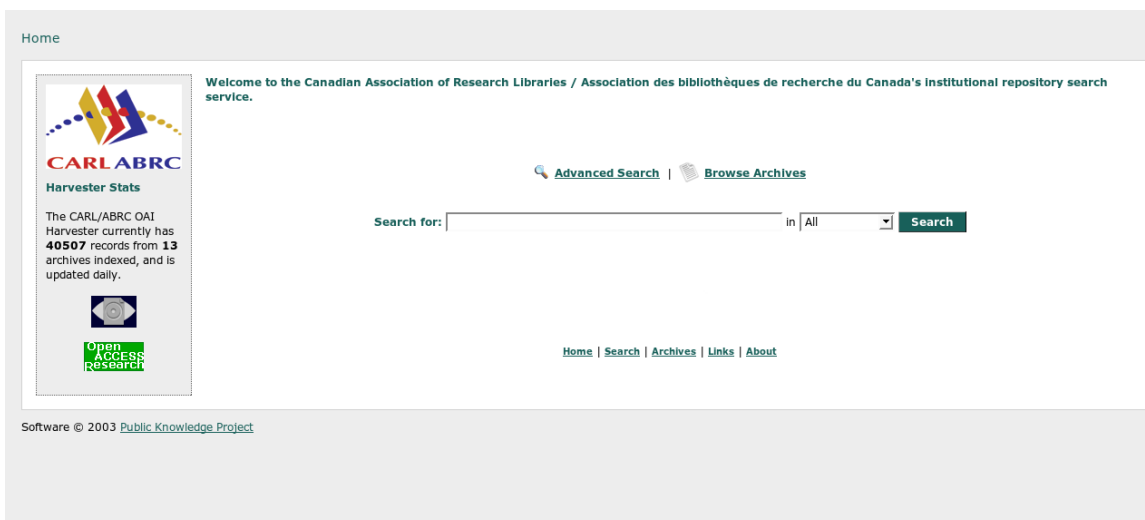


Figure 10: Submitting metadata

The Harvester is currently being used by a number of organizations, including the Canadian Association of Research Libraries (CARL)¹⁹. CARL uses the software to create a single search interface for several of their member's institutional repositories, including the University of Toronto's T-Space²⁰, the University of Manitoba's M-Space²¹, the University of Waterloo's Electronic Theses²², and more. With the CARL Harvester²³, a researcher can search in one place to find the information in a variety of locations.



Lemon8-XML

Lemon8-XML is the most recent addition to the PKP suite of software, and is still in development. It is a web-based service to automatically convert standard word processor documents, such as Microsoft Word (.doc) or OpenOffice Write (.odt) files into XML. The resulting XML file can then be easily transformed into a PDF or HTML file, suitable for uploading and viewing with OJS or OCS.

Lemon8-XML provides a crucial missing piece in the Public Knowledge Project's goal of reducing the cost of online publishing. Up to now, journal editors or conference managers have needed to convert the submitted author files (often Word documents) using external software, such as Adobe Acrobat or Dreamweaver. With Lemon8-XML, this process will be automated and more closely integrated into OJS and OCS.

SFU LIBRARY HISTORY AND ROLE

The SFU Library's pre-PKP software development activities and accomplishments made the Library well suited to undertake a new role in coordinating the ongoing development and support of the PKP software suite. It had already developed and continues to maintain the reSearcher open source software suite of library-related modules²⁴. ReSearcher modules include the GODOT link resolver²⁵, the CUFTS electronic resources management system²⁶, the dbWIZ federated search tool²⁷, and Citation Manager, a personal bibliographic management system²⁸.

The SFU Library also operates an active digitization program with a well equipped in-house digitization centre. Several recent projects consisted of scanning and digitizing the backfiles of 2 journals – Archivaria²⁹ and the Canadian Journal of Communication³⁰.

The SFU Library was already using all of the PKP software for various local projects. The library hosts several local journals such as the Canadian Journal of Communication with the OJS software. Similarly, the OCS software had been used to host several local conferences. The SFU Library had also been instrumental in recommending the use of the PKP's metadata harvester to support the Canadian Association of Research Libraries (CARL) Institutional Repository project, and subsequently hosting the system on behalf of the participating CARL libraries.

All of the SFU Library's software development initiatives were undertaken as collaborative projects with regional consortia such as the Council of Prairie and Pacific University Libraries (COPPUL)³¹ and the B.C. Electronic Library Network (ELN)³². This was very important for an open source software project is as much about developing collaborative relationships and building communities as it is about software development.

And finally, the SFU Library had a very supportive University Librarian – Lynn Copeland – who was prepared to commit library resources to a new and potentially very large undertaking.

As the home for the ongoing coordination and development of the PKP software suite, the SFU Library inherited several major responsibilities. There is a core PKP development team who is paid from a variety of sources, primarily cost-recovery services and successful grant funding undertaken by the PKP partners. For example, when the PKP received a \$50,000 award as one of the successful nominees in the Mellon Foundation's first Technology Collaboration Awards in 2006³³, all of that money was immediately allocated to PKP software development and several training workshops in developing countries.

SFU Library provides and operates the entire support infrastructure for the PKP. The PKP website is a very rich and extensive resource and is maintained using Drupal³⁴, an open source content management system. In addition to being the primary source for downloading the PKP software the site includes the following:

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- demo versions of the software available for a “test drive”
- user manuals, technical documentation, etc.
- links to featured journals, conferences, and harvester installations
- online support forum

The PKP website receives a large number of visitors and appears as the seventh most active site on the Alexa.com traffic analysis report³⁵ for the entire sfu.ca domain. The PKP support forum³⁶ is a very active one and inquiries from PKP software users around the world are posted continuously. Many of these are very technical in nature and it is often necessary for the core PKP development team who monitor the site on a daily basis to respond to these queries. However, it is just as likely that other forum members will respond to more common questions or offer their suggestions on how to address a particular workflow issue or other problem. One of the tenets of open source initiatives is that a community of users will coalesce around a specific system and begin to contribute in a number of ways as they become more experienced with the software. This has certainly been the case with the PKP software. A good example of this is the large number of language translations available for OJS. All of these have come from the PKP user community around the world.

Coordinating the testing and then releasing each new version of a PKP software module is one of the more demanding and time critical responsibilities. The PKP modules share a lot of code and general systems architecture. Changes instigated by the work on one module often have to be propagated to the others. Testing is always an iterative activity that can introduce new problems and be very tedious and time consuming. The many language translations must also be updated and carefully coordinated with the release of new software versions. This requires the participation of numerous contributors who are working remotely from the core PKP development team.

When a major security flaw or potential breach is discovered in any of the PKP software or the associated LAMP architecture, the core PKP development team has to move very

quickly. The problem must be completely identified and a programming fix applied and tested. Then it must be released as quickly as possible and the entire PKP user community must be notified and provided with instructions on how to apply the patch.

Many libraries already have to undertake some and possibly many of these activities as part of operating and maintaining their local ILS and associated systems. But in most cases there are two key differences. Much of the actual work may be done by vendors or other third party groups such as an academic or municipal computing centre. And it is usually just for one site. In the case of the PKP software, the SFU Library holds the primary responsibility for undertaking and coordinating this activity, and not just for one local site, but for hundreds of other sites and users.

PKP GROWTH SINCE 2005

The Public Knowledge Project has seen a tremendous level of growth in the past two years. In 2006, there were approximately 400 journals using OJS, 50 conferences using OCS, 4 organizations using the Harvester, and 350 members registered on our online support forum. In 2007, we now know of over 1000 journals using OJS, more than 100 conferences using OCS, at least 10 organizations using the Harvester, and 827 members on the support forum.

Since 2005, there have also been major new releases (version 2) of all three software modules, as well as the addition of Lemon8-XML, with a growing number of downloads being recorded every month for all of the software. From August 12, 2007 to September 11, 2007, there were 880 downloads of OJS, 269 of OCS, and 75 downloads of the Harvester (Lemon8-XML was still in development and unavailable for downloading during that period).

A growing number of translations have been contributed by community members, with Croatian, English, French, German, Italian, Japanese, Portuguese, Russian, Spanish, Turkish, and Vietnamese versions of OJS completed, and several others in production³⁷.

The PKP has also witnessed increased community programming contributions, including new plugins and features, such as the subscription module, allowing OJS to support full open access, delayed open access, or full subscription only access.

The PKP web site has also undergone some significant enhancements since 2005, migrating to the Drupal open source content management system, and having new sections created for PKP publications, a Theme Gallery providing alternative style sheets for OJS and OCS, and a growing body of documentation.

Finally, 2007 saw the First International PKP Scholarly Publishing Conference³⁸, held in Vancouver, Canada, bringing together PKP community members and collaborators from around the world. With major sponsorships from the International Network for the Availability of Scientific Publications (INASP)³⁹, Athabasca University⁴⁰, the Open Society Institute (OSI)⁴¹, the Scholarly Publishing and Academic Resources Coalition (SPARC)⁴², and others, the PKP was able to support the attendance of more than 20 delegates from the developing world, who spoke about their own projects and their use of the PKP software.

RELATED HOSTING AND SUPPORT SERVICES AT SFU LIBRARY

While the majority of people using the PKP software take the D.I.Y. (Do It Yourself) approach, the SFU Library was increasingly being asked to provide a level of assistance that went beyond the online documentation or free support forum. In response, the Library established *Software @ SFU Library*⁴³, a new initiative to provide this extra help and to also make this open source venture more self-supporting and sustainable. *Software @ SFU Library* consists of a range of fee-based services, including advanced technical support, software installation and hosting, digitization of back issues or other printed materials, and customized software programming.

An additional level of assistance is also available from the Canadian Centre for Studies in Publishing, which, through their CCSP Press⁴⁴, provides journals with a variety of publishing services, including production management, editing, marketing, planning and more.

Software @ SFU Library, together with the CCSP Press, offers a range of alternatives for those interested in using the PKP software, from the completely free and independent approach, where the software is downloaded and the PKP is never contacted again, to those who download the software and make use of the free support forum, to those who contract the SFU Library to install and host the software for them, all the way through to journals looking for a full service model, to assist with every stage of their operations. A central goal of the project has been to provide the most appropriate option for the wide variety of situations different individuals or organizations may face.

SOFTWARE @ SFU LIBRARY GROWTH SINCE 2005

Just as the Public Knowledge Project has seen significant growth since 2005, so too have the *Software @ SFU Library* services. Starting at zero in 2005, 8 titles were hosted by early 2006, with another 10 in the exploratory stage. By mid-2007, 73 titles were hosted, including 3 country portals, 2 open access publishing companies (Multimed, Inc.⁴⁵ and Co-Action Publishing⁴⁶), and many independent journals from societies or universities around the world. The country portals are associated with the INASP Asian Journals Online project, and include Bangladesh Journals Online⁴⁷, Nepal Journals Online⁴⁸, and Vietnam Journals Online⁴⁹.

Many of the journals hosted are new and just getting started. As a result, few have extensive back issues, and many are still working on their first issue. Most of them have adopted a full open access policy, and many are inter-disciplinary. Education, information technology, and the social sciences are well represented, as well as 6 journals in the health sciences (Child Health and Education⁵⁰, Social Medicine⁵¹, Journal of Applied Clinical Medical Physics⁵², Current Oncology⁵³, Neurocirugia⁵⁴, and, most

recently, Open Medicine⁵⁵). Open Medicine has the distinction being the most intensely visited site, due to the controversy around its establishment and the resulting national publicity⁵⁶. The hosted journals come from a variety of countries, including Australia, Bangladesh, Canada, Israel, Italy, Nepal, Saudi Arabia, Spain, Sweden, United States, and Vietnam. They come from a range of associations, such as the Association of Canadian Archivists, the Australian Computer Society, the Canadian Entomology Society, the Canadian Philosophy of Education Society, the Massage Therapy Foundation, and the National Aboriginal Health Organization.

RESEARCHER AND PARTNERSHIPS

Another area of significant growth for the Public Knowledge Project has been the development of research and partnerships with other organizations. INASP is one of the major collaborators, using OJS for over 270 journals on the African Journals Online project⁵⁷, and the more recent Asian Journals Online project. Related to its work with INASP in Africa, the Public Knowledge Project is conducting the “Strengthening African Research Culture and Capacities” research project⁵⁸, and in 2006/2007 ran a number of online scholarly publishing workshops at African research libraries, exploring the feasibility of moving more journals to online management and full-text publishing, as a way to strengthen local research culture and knowledge building. This project is funded by the International Development Research Council (IDRC)⁵⁹, the Open Society Institute (OSI), and the Carnegie Corporation of New York⁶⁰.

The Public Knowledge Project is also involved in the Synergies project⁶¹, a consortium of universities across Canada working to provide researchers with a digital publishing service. Synergies will also develop an online, scholarly research database, to improve the visibility of Canadian human and social science researchers around the world. The project will include peer-reviewed journal articles, datasets, theses, conference proceedings, and scholarly books produced in Canada. OJS will play a major role in the project, being used by four of the five principal partners. Synergies recently received \$12 million in funding from the Canada Foundation for Innovation (CFI)⁶².

As part of this project, several Canadian universities⁶³ have begun to support their own researchers in setting up new journals, or transitioning established ones, with OJS. These include Lakehead University, McGill University, Memorial University, Queens University, the University of Alberta, the University of British Columbia, the University of Calgary, the University of Guelph, the University of Lethbridge, the University of New Brunswick, the University of Northern British Columbia, the University of Toronto, the University of Toronto Press, the University of Windsor, and York University. Athabasca University is also using OJS to manage the journals produced by their new open access publishing service, AU Press⁶⁴. They will also be working with the Public Knowledge Project to develop a new component to the software suite – an online monograph publishing system - based on the core OJS programming code.

The Instituto Brasileiro de Informação em Ciência e Tecnologia (IBICT)⁶⁵ is another important PKP partner, establishing over 140 OJS journals throughout Brazil. The PKP has also established working relationships with Google Scholar⁶⁶, LOCKSS⁶⁷, SPARC, and other organizations to ensure that its software is designed to serve the larger scholarly community.

The PKP open source community of OJS users has continued to grow steadily. This community provides significant contributions to the development of the software, through programming work, testing, translations, research, and more. By bringing together software developers and leading researchers exploring the emerging trends in academic publishing, plus practitioners involved in the daily operations of small, local publications or large-scale national publishing projects, the PKP is ideally positioned to act as a clearinghouse of innovation, a test-bed of development initiatives, and a mature publishing platform for implementation.

PROJECT SUSTAINABILITY

Open access publishing models have made great strides during the past few years. The number of titles in resources such as the Directory of Open Access Journals and growing use of journal publishing software such as PKP's Open Journal System attest to this. However, the successful establishment of a new journal, full open access or otherwise, does not necessarily imply it will be widely consulted and cited, continue to attract new readers, and be a viable undertaking in the long run. Are there viable sustainability models that can be adopted by open access journals to ensure their longevity?

The topic has generated considerable debate and attempts to identify emerging models or to propose new ones. In *The Access Principle*⁶⁸, Willinsky summarizes the following open access publishing models:

- Home pages maintained by academic departments
- E-print archive maintained by institution (arXiv.org⁶⁹)
- Author fees (Biomed Central⁷⁰)
- Subsidized by scholarly society, institution, foundation (First Monday⁷¹)
- Dual mode, i.e. online subsidized by print subscription (Journal of Post Graduate Medicine⁷²)
- Delayed open access w. subscription for immediate access (New England Journal of Medicine⁷³)
- Partial open access, i.e. selected articles (Lancet⁷⁴)
- Per capita, offered scholars in developing countries as a charitable contribution (HINARI⁷⁵)
- Indexing access only, pay for full article (Science Direct⁷⁶)
- Co-operative, member institutions (libraries, scholarly societies) contribute to support

Some of these are based on relatively simple publishing platforms; many rely heavily on various forms of in-kind support, subsidies, and charitable “good works.” Those that are

modified versions of traditional subscription models invariably reduce the extent of full or immediate open access. The Social Sciences Research Network⁷⁷ reverses the “indexing access only, pay for full article” model, but it is still subscription based.

The co-operative model was proposed in a SPARC Discussion Paper⁷⁸ prepared by Raym Crow and released in February 2006. Crow applies the classic theory of a co-operative enterprise to the scholarly publishing sector: “Publishing cooperatives—owned and controlled by nonprofit publishers—will allow those publishers to act collectively to compete more effectively. Society publishers will gain multiple benefits through participation in cooperatives....”⁷⁹ and goes on to identify some major benefits of the cooperative model:

- Lower costs, via economies of scale and increased bargaining power, for a comprehensive set of publishing services.
- Increased market visibility and leverage to compete against for-profit publishers under current subscription models
- Risk analysis and mitigation to support transitions to new business and access models;
- Professional business management expertise and a broader strategic perspective; and
- Access to capital to allow a greater role in serving growing market demand.

However, the co-operative model is still just that – a proposal. It is unlikely to materialize without a significant number of open access journals working in concert.

There are several other innovative models worthy of mention. As of July 2007, The Stanford Encyclopedia of Philosophy is only \$850,000 short of reaching its goal of raising \$4,125,000 for a protected endowment to ensure its long-term growth and sustainability.⁸⁰ It asks institutional subscribers to shift from a conventional annual subscription model to a one-time investment model based on a protected endowment. This endowment will be professionally managed by Stanford University, accrue interest,

Owen, G.W.B and Stranack, K. (2008). The Public Knowledge Project and the Simon Fraser University Library: A partnership in open source and open access. *Serials Librarian*.

and in the event the project is terminated, return the initial investment with interest to participating institutions. The institutional investors receive some value-added benefits such as membership in the Stanford Encyclopedia of Philosophy International Association that includes the right to download and store SEP archives and serve them if the project is terminated. Most important, the SEP will be available as a full open access resource to all potential users.

In addition to the hosting services offered by the SFU Library, several other OJS-based online publishing services have appeared. Scholarly Exchange⁸¹ hosts journals for a nominal annual support fee and offsets costs with a 50/50 share of advertising revenue. The Scholarly Exchange motto is “Making Open Access Affordable and Sustainable.” Multimed Inc. and Co-Action Publishing are other OJS-based hosting services that offer a full range of hosting and publishing services primarily to life-sciences journals.

Software such as OJS that support the management and publication of an online journal is not an alternative publishing solution per se. It automates and streamlines many of the very labour intensive activities associated with publishing a journal. Lemon8-XML, the XML conversion tool that is the most recent addition to the PKP suite, addresses another major and time-consuming production task and promises to reduce overhead even more. What OJS and Lemon8-XML do provide is the opportunity to minimize overall publication costs – a key component in developing a realistic and achievable sustainability model for any online journal, open access or otherwise.

The SFU Library’s experience with journal hosting services provides a basis for additional observations on ways to reduce publishing costs. Use proven, readily available open source software to automate, standardize, and support online publishing initiatives. Partner with libraries and others that already have robust infrastructure with additional capacity including network connectivity; 7/24 availability; secure operations environments; systems redundancy. Identify and exploit cost-recovery and revenue opportunities whether it is selling ad space or providing consultation and support services to others.

Owen, G.W.B and Stranack, K. (2008). The Public Knowledge Project and the Simon Fraser University Library: A partnership in open source and open access. *Serials Librarian*.

A significant proportion of the SFU Library's open source development activities are supported by hosting and other cost-recovery services associated with the reSearcher and PKP software suites. In the fiscal year 2006/07 over \$170,000 was generated in direct cost-recovery. This amount has been growing by at least 10% annually during the past few years. Although open source software is available to anyone to use at no charge, it is also possible to build a very successful business model around open source through the provision of consulting, contract programming, and other value-added services.

CONCLUSION: WHAT'S NEXT FOR THE PKP/SFU LIBRARY

The SFU Library's participation in the PKP has been a successful and mutually beneficial partnership. The Library's software development expertise and experience with managing and operating systems infrastructure have provided a solid foundation for the continued expansion and support of the PKP software suite. In turn, PKP has provided an opportunity for the library to be an active partner and to work with researchers, software developers, and scholarly journal publishers on a very exciting initiative that has already made a significant contribution to the still evolving environment of scholarly publishing.

It has raised the SFU Library's profile as an important resource for faculty, researchers, and other members of our local campus community who are interested in publishing an online journal or finding out more about scholarly communication and publishing trends. SFU faculty often hear about OJS or OCS from colleagues at other institutions or conferences. They are sometimes surprised and invariably pleased to discover their library is an active participant in supporting the PKP software suite. It also complements the recently launched Scholarly Communications Program at the SFU Library⁸².

What is on the horizon for the PKP? If the past few years are any indication, the PKP user community will continue to expand. It is especially noteworthy the many libraries in

North America and elsewhere that have become part of the PKP community and are now offering a wide variety of OJS and OCS based services and related support to their campus communities. The software will continue to be enhanced and improved. Major initiatives like Synergies and other partnerships will provide a solid source of support, both in-kind and financial, and ensure the PKP suite remains a healthy and well-supported open source software solution.

In the coming years, some of the PKP's major development initiatives will reflect the themes of collaboration and consolidation. This will be best expressed in a PKP aggregator module that will enable multiple journals to be collectively administered and presented as a single package – based on geography, or discipline, or shared production and marketing strategies. And this leads back to one of the other synchronicities mentioned earlier – the relation between open source and open access. It is not inconceivable to envision an open access equivalent to the “big deal” consisting of hundreds of open access journals that share a common software platform with powerful aggregator tools that provide all of the standardization, access, and functionality currently associated with the commercial sector.

PKP MILESTONES (highlighted sidebar)

- 1998: Founded by John Willinsky in the Faculty of Education at UBC. Dedicated to improving the scholarly and public quality of research.
- 2001: First PKP software released: Open Journal Systems, Open Conference Systems and PKP Harvester under the GNU GPL open source license.
- 2002: OJS was added to the Timeline for the Open Access Movement as a Landmark Event.
- 2005: Partnership formed with the Faculty of Education at UBC, the SFU Library, and the Canadian Centre for Studies in Publishing at SFU.
- 2006: PKP was the sole Canadian winner (\$50,000 USD) and the one prize given for scholarly communication software in the first annual Mellon Awards for Technology Collaboration
- 2006: Scholarly Publishing and Academic Resources Coalition (SPARC) announced Leading Edge partnership with PKP
- 2007: First International PKP Scholarly Publishing Conference, July 11 - 13, 2007, Vancouver, BC, Canada
- 2007: over 1,000 journals worldwide using OJS software and over 800 members on the PKP support forum

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