Professor Peter Jacso
Department of Information & Computer Sciences
University of Hawaii
USA

Meeting:	**157**　　　　　**Asia and Oceania**
Simultaneous Interpretation:	–

Abstract

The Open Access concept and movement are not new phenomena, but they only recently reached the level of international interest both in the developed and the developing countries. The time is right for the Asia and Oceania Section of IFLA to have an (appropriately) open session at the World Library and Information Congress on the theme of Open Access: Promoting Implementation in Asia and Oceania. The infrastructure seems to be available (and affordable and feasible for even the least developed countries with financial support from international organizations) to accelerate and to promote the implementation of open access systems to scholarly and other high quality information resources for education, research and development.

The keynote presentation is to provide a bird's eye view of the landscape formed by the variety of (partially) open access scholarly databases with emphasis on the journal and conference literature which represent the most important sources for science, technology and medicine, and increasingly even in some of the social sciences. These databases range from the open access versions of commercial indexing-only, and indexing-abstracting databases (which help in discovering the most pertinent documents), to open access full text databases of millions of scholarly journal articles and conference papers, with novel software features which foster further resource discovery.

In between, there are many publisher archives for subscribers of the print journals and conference proceedings, which offer open access for anyone to tens of millions of abstracts, scattered through the

digital archives maintained by the largest scholarly publishers, or aggregated by digital facilitators who help many publishers in creating and operating their digital archives.

The rapidly growing interdisciplinary and discipline-specific repositories and depositories provide another avenue for open access by facilitating the self-archiving or depositing of (p)reprint versions of scholarly papers by their authors directly, and/or the aggregation and integration of these by volunteer groups and entrepreneurs into comprehensive disciplinary and multidisciplinary digital depositories and repositories. Open access to scholarly literature is of paramount importance for research, development and education not only in the low-income countries but also in the most developed countries, where comprehensive access to scholarly publications is far beyond the means of many libraries and individuals, too. The emphasis is on discussing existing open access databases which not only function very well, but also serve as a model for the Asia & Oceania region.

INTRODUCTION

The large scale and intensive implementation of open access scholarly databases, digital archives, depositories and repositories of journal articles, conference papers, research reports, and dissertations on the Web represent the best option for making widely and easily accessible high quality information in a well structured, comprehensively searchable manner.

The Open Access concept and movement are not new phenomena, but they only recently reached the level of international relevance and feasibility both for the developed and the developing countries. The time is right for the Asia and Oceania Section of IFLA to have an (appropriately) open session at the World Library and Information Congress on the theme of Open Access: Promoting Implementation in Asia and Oceania. The infrastructure seems to be available to accelerate the implementation of open access to scholarly literature This can be best achieved through university and college libraries, by educating librarians and end-users about the open access options, and by supporting the deployment of broad-band facilities. Subbiah Arunachalam urged for such actions 3 years ago, outlining existing initiatives, and justifying others [1].

I know from first hand experience as a former consultant in UNESCO and UNIDO projects that there have been very successful projects in this field, generously supported by international and regional agencies by intensive and large scale deployment of open source software, such as the distribution of the CDS/ISIS software of UNESCO, one of the most powerful bibliographic information management software. In turn, the related educational and training programs made it possible to implement indigenous and locally and regionally highly relevant bibliographic full text databases.

In addition, the appeal and free availability of this excellent software tool, spawned a number of valuable enhancements, as well as developments of new versions for the Internet platform, and for different operating systems, especially in Brazil. It is no surprise that Brazil is also in the forefront of promoting the implementation of open access digital version not only for Brazilian journals, but also for scholarly periodicals published beyond its borders in print format [2].

Now, there are additional freeware programs with excellent features that foster the self-archiving process, and the creation of textual and multimedia digital libraries without a steep learning curve. The two most prominent applications are the Eprint program from Southampton

University in the UK [3,] and the Greenstone Digital Library software [4] from the University of Waikato in New Zealand.

There have been many "free" scholarly digital sources on the Web for more than a decade but most of them have not been easily searchable, or have been only "relatively" free - for only a specific community. Most often they were maintained from direct and indirect financial contributions by members of that community in form of taxes and/or tuition fees.

This keynote presentation is to provide a bird's eye view of the landscape formed by the variety of open access scholarly databases. These range from the indexing/abstracting databases (which help in discovering the most pertinent documents but whose toll-based versions have been beyond the means of many educational and research institutes in the developing countries), to completely open access full text databases of millions of scholarly journal articles and conference papers. The primary documents have been inaccessible for many researchers even in the most developed countries in lack of funds for subscriptions to all (or most of) the journals needed, or even for document delivery. Widening open access is the solution.

The concept of open access is very well defined and explained by Peter Suber, one of the most active apostles of the movement [5]. Steve Harnad [6] spares no efforts in intelligently and convincingly evangelizing about, and proving through facts and numbers, the benefits of open access and its various implementation alternatives, therefore I skip these issues.

Suffice it to say here that open access is better than free access as in my vocabulary it means that the well structured digital resource (or a well defined part of it) is available for anyone from anywhere at any time without charge. It does not mean that there is no need for signing up and registering, or that one can print or save digitally all the information she wants in the digital collection. It means that the resource can be browsed and/or searched and at least a well defined, predictable segment of its content can be displayed.

Most publishers' digital archives, allow open access to the bibliographic information and the abstracts of all the articles it published, in a given period of time, say, in the past 10 years, but not for those published earlier, or published in the past 12 months. For the functional restrictions, take the ebrary service as an example. It allows open access to and the display of the content of 35,000 books, and charges only for printing and saving selected pages.

Looking at the scholarly database landscape, it is quite apparent that open access sources keep popping up and blossoming in every direction we look. They are particularly prominent in the sciences, medicine and technology fields, but there are open access databases in the social sciences, arts and humanities fields as well. The dominance of open access journals of the various science fields is good news if we consider the widely accepted statistics that in the serials budget of the typical college library, science journals represent 30% of the journals but 70% of the subscription expenses.

WHO MAKE OPEN ACCESS SOURCES AVAILABLE?
One of the reasons for this multi-disciplinary growth of open access databases is that commercial publishers and non-profit society and university presses, directly or indirectly through their

digital facilitators, have been contributing to the ever growing garden of open access scholarly digital sources. Many of these publishers themselves publish journals and conference proceedings in a variety of subject fields from arts to zoology, such as Oxford University Press, and thus contribute to the multidisciplinarity.

Government agencies, and non-governmental organizations, such as the Department of Labor, the World Bank, the IMF have been among the most important contributors for many of the statistical, directory, and factographic databases. They are also behind several of the most well-known bibliographic and partially full-text databases, especially the various agencies of the United Nations, as well as several foundations and charity organizations.

Commercial publishers of abstracting/indexing databases, as well as database aggregators also hopped on the bandwagon, such as EBSCO which has offered the Teachers' Resource Center and Library Resource Center indexing & abstracting databases in open access formats for several years, and recently replaced the latter with the much larger, open access Library and Information Science & Technology Abstracts (LISTA) database. The National Information Services Corporation, NISC (which might almost qualify as a non-commercial company for its philanthropic attitude), offered open access or much reduced license fees to the least developed countries a decade before the term "open access" was coined. It makes available its AIDSearch and Child Abuse, Child Welfare and Adoption databases free of any charge instantly to anyone who signs up.

Universities across the world are engaged in creating large institutional digital repositories to host the preprint and reprint versions of the publications of their faculty and doctoral students.

Groups of volunteers and some entrepreneurs deserve much credit for launching important journals born as open access periodicals, such as *First Monday*, *Ariadne*, and preprint and e-print archives such as e-LIS, dLIST and DoIS to name a few from our very own field of library and information science.

WHAT IS AVAILABLE IN OPEN ACCESS FORMAT?
It may be easier to answer what is not available digitally in open access format. Practically, every type of traditional scholarly information is available digitally in open access format. ROAR, the Registry of Open Access Repositories at Southampton University, the Experimental OAI Registry at University of Illinois, DOAR, the Directory of Open Access Repositories created by University of Lund and University of Nottingham have up-to-date information about the variety of repositories, and provide handy discovery tools for discovering open access scholarly databases. There is considerable overlap among these. ROAR has the valuable extra feature of charting the growth of many of the repositories.

DOAJ, the Directory of Open Access Journals maintained by University of Lund, and OAIster managed by Michigan University also provide a good overview of the variety and size of more than 2,200 open access journals and close to 650 institutional digital archives, respectively. Both of them have the very important additional bonus to allow searching their content at the item level. DOAJ has 96,000 articles while OAIster has 7.5 million item-level records. The numbers should be taken with a grain of salt, especially in OAIster, as the same items may appear in two

or more digital collections. In DOAJ, the number of articles is much lower than that offered by the open access journals because only about 600 journals are searchable at the article level, so the articles in the other 1,600 journals are not counted.

There are many genres of open access digital collections. These include open access digital monographs, dictionaries, encyclopedias, directory databases, numerical databases, audio/image/video databases, beyond the most prevalent textual databases of journal articles and conference presentations. In the textual database category there are digital bibliography collections (without subject descriptors), indexing databases, indexing & abstracting databases, and full text databases. I focus the rest of my keynote address on the open access scholarly indexing/abstracting and full text databases. Kirsop and Chan [7] recently gave an excellent summary of the open access journal databases in the developing countries. The pace of growth of these collections is so fast that for this talk it was worth updating that information as you will see in the last section.

OPEN ACCESS INDEXING & ABSTRACTING DATABASES
Of course, these days the full-text databases are the most sought after. To appreciate the importance of, say, the open access indexing databases, one has to remember that until the late 1980s they were the most common ready reference database species in the libraries which spent tens of thousands of dollars for licensing them.

The venerable H.W. Wilson company, for example, had only indexing databases (except for Readers' Guide Abstracts) for many years. It was only in the early 1990s that Agricultural Index, Education Index, Social Science Index, Applied Science & Technology Index, etc. were enhanced with abstracts to become Agricultural Abstracts, Social Science Abstracts, and Applied Science & Technology Abstracts. These are –understandably- not open access as the content providers like H.W. Wilson, make their profit (and spend a lot of money) on creating these indexing/abstracting databases.

However, beyond the most well-known indexing-abstracting databases produced by government agencies, like Medline (and many other databases of the National Institutes of Health), ERIC, AGRICOLA, NTIS, Energy Science & Technology, there are other open access indexing/abstracting databases, such as the ASCE Civil Engineering database, the oddly named but outstanding PILOTS database by the National Center for Post-Traumatic Stress Disorder.

Most importantly, the largest commercial and society publishers of scholarly journals, conference proceedings and books, such as the American Chemical Society, AMA, ACM, BCS, IEEE, IEE, IoP, APS, Elsevier, Springer (including Kluwer), Taylor & Francis, John Wiley & Sons, Blackwell, SAGE, Oxford University Press, Cambridge University Press, Emerald Press and many of the smaller publishers offer together open access to tens of millions of bibliographic records with abstracts for scholarly journal articles and conference papers. Some of them do so directly, others, through their digital facilitators, like SAGE, Oxford University Press through HighWire Press, Springer, and Taylor & Francis through MetaPress, and Palgrave Macmillan and many others through IngentaConnect. Publishers migrate from one digital facilitator to another, and/or let one handle some of their journals, and another the rest of their journals. HighWire Press alone offers more than 3.5 million open access bibliographic records,

including about 2 million with abstracts and 1.3 million with the full text from many of the highest impact factor journals.

Elsevier's Scirus service offers open access to the bibliographic records and abstracts of more than 6.5 million articles published in Elsevier's 1,700 periodicals alone. In addition, Scirus also includes and integrates nearly 20 million indexing/abstracting records from PubMed, and from the archives of various scholarly society journals, such as those of IoP, and API. Scirus also searches and displays full records from the open access journals collection of PubMed Central and BiomedCentral, as well as from some the preprint, and e-print archives. I discuss these in [7].

Although the African Journals Online (AJOL) project is on a much smaller scale than any of the indexing/abstracting databases mentioned above, it has the additional importance of being a potential model from the perspective of fostering the implementation of open access databases in the lowest income countries and regions of the world. (Somewhat confusingly, there is another database with the same name, the Australian Journals Online, which is a traditional directory on the Web of all kinds of journals published in Australia.)
AJOL has bibliographic information and abstracts of articles published in 230 journals published in African countries from Algeria (2 journals) to Zimbabwe (6 journals). Nigeria is the most dominant participant with nearly 100 journals covered by AJOL. The second largest participant is South Africa with 47 journals covered.

The especially encouraging aspect of AJOL is that even the lowest income countries like Burkina Faso, Lesotho, Malawi and the Sudan participate in it, getting the so important initial push. There are records for about 20,000 articles in AJOL. Document delivery can be requested through the software at the end of the search process. For more than 110 countries the articles are delivered for free. Considering the cost and limitations of print document delivery, it is quite obvious that the next step should be the scanning and OCR-ing of the most often requested articles. Commercial print document delivery can be prohibitively expensive whoever sponsors it. In addition, digitization of the journal articles also offers the huge advantage of being able to search the full text of the articles, so this would be the most important next phase in the AJOL project.

AJOL can be a base model for many countries in Asia and Oceania. The idea of creating this database was conceived and managed by INASP, the International Network for the Availability of Scientific Publications, an Oxford-based charity organization, and financially supported by several international organizations. By now it will be of no surprise that the system is operated by the African subsidiary of NISC which has extensive experience in automating information services in the lowest income countries.

One of the major programs of INASP is PERI, the Programme for the Enhancement of Research Information in the less developed countries of the world. It has been sponsoring and managing many projects similar to AJOL at the national level in several countries in Central Asia and Latin America to improve access to local research through supporting the publishing of indigenous scholarly journals, and the creation of indexing/abstracting databases to increase the visibility of locally and regionally pertinent research results, and to facilitate open access to the full text archives of the largest scholarly publishers.

FULL TEXT OPEN ACCESS COLLECTIONS

Some of the publishers mentioned above also offer open access to the full text archive of one or more of their highly influential journals, such as *Clinical Diabetes* of the American Diabetes Association, *Nucleic Acid Research* of Oxford University Press, the *Journal of the American Osetopathic Association*, the *Journal of Bone Joint & Surgery*, *CA: A Cancer Journal for Clinicians of the American Cancer Society*, the *Canadian Medical Association Journal* – to name a few of those journals which are hosted by the best digital facilitator, HighWire Press for the publishers. In and by themselves it would not be that important, but when aggregated, the numbers quickly add up. HighWire Press is the largest (or second largest) archive of full-text scholarly publications in high impact factor journals. More than 1.3 million of the 3. 5 million full text articles are open access through HighWire Press with superb and innovative software features.   The other two major digital facilitators also offer open access to some issues of some journals, but in terms of volume they are not in the same league as HighWire Press.

It is to be mentioned here that commercial publishers showed that they can be generous when many of them joined the extraordinarily successful HINARI (Health InterNetwork Access to Research Initiative), and AGORA (Access to Global Online Research in Agriculture) projects [9].

Initiated by the World Health Organization and the Food and Agriculture Organization, with expert digital resources management support from Yale University and Cornell University, these two projects have provided for years unprecedented access to the archives of the best medical and agricultural journals of the most well-known publishers. As of May, 2006 HINARI offers open access to the full text archive of 3,290 medical, life science and agricultural journals [http://extranet.who.int/hinari/en/journalList_print.php]   of more than 60 publishers [http://www.who.int/hinari/partners/en/] to researchers, scientists, educators and practitioners in more than 2,000 institutions in 68 of the lowest income countries in the world with a GNP/capita of less than US$1,000. An additional 45 countries with a GNP/capita between US$1,000-3000, pays a nominal fee of US$1,000 per institutions for the same privilege. AGORA has 35 publisher partners [http://www.who.int/hinari/partners/en/]   and offers open access to 849 journals [http://www.aginternetwork.org/en/journals.php] to the lowest income 68 countries (about a dozen of the qualifying countries have not yet registered for the benefits of these exceptional offers). Of course, these are not universally open access sources, still, researchers in 1/3rd of the world's countries can benefit from open access to these huge full text collections of scholarly publications

The rapidly growing interdisciplinary and discipline-specific digital repositories and depositories provide another avenue for open access by facilitating the self-archiving or depositing of (p)reprint versions of scholarly papers by their authors directly. The aggregation and integration of these deposits by volunteer groups and entrepreneurs into comprehensive disciplinary and multidisciplinary digital depositories and repositories multiplies the effect of the individuals big way.

Understandably, universities are in the forefront of the open access movement. Their competent faculty members are doing what they are teaching and preaching and publish about. They

provide the initiatives, the software and the support service (with the help of doctoral students and web masters) for self-archiving by faculty members and for harvesting open access depositories and repositories of research publications to allow one-stop searching and finding of scholarly papers.

The Harvard-Smithsonian Center for Astrophysics (with other units of Harvard University) have been building and maintaining ADS (Astrophysics Data System), the largest open access abstracting/indexing and full text database. It has about 4.5 million records, and almost half of them are available in full-text, open access and swiftly searchable digital format. Cornell University has been a long-time supporter of the open access movement, especially in the field of agriculture, and is now in the process of implementing another version of the arXiv open access repository of nearly 400,000 e-prints in physics, computer science, mathematics, and quantitative biology.

Universities in the US, UK, Germany, Japan, New Zealand, Australia, and the Netherlands create the largest open access institutional repositories of full-text and multimedia scholarly materials. Some of them also contribute to the development of open access resource discovery tools discussed earlier.

Government agencies and NGOs at the national and international level represent a key group of open access content contributors. Organizations and agencies in the U.S., UK, Japan, and Canada offer the largest open access full-text collections.
PubMed Central is of primary importance for researchers in both the developing and the developed countries for reasons of subject and size. It has close to 250,000 open access full text articles of mostly life science journals. Not all of the articles are immediately open access, some have a moratorium before getting into that stage, but it is a very impressive collection, the best example for taxpayers' money well spent.

BioMed Central's is smaller, with emphasis on the highly successful open access BMC journal series, but deserves praise for offering the same user interface for PubMed, PMC and BMC.
The Research Council Canada offers the digital versions of 30,000 articles from 16 journals published by its Research Press in the past 10 years. There are further information about the full-text open access databases in [10].

BEST MODELS OF OPEN ACCESS SCHOLARLY DATABASES FOR THE ASIA & OCENIA REGION

For developing abstracting and indexing databases about the scholarly journal articles and conference papers published by authors of a country or region and/or in journals and conference proceedings published in the country or the region the African Journals Online (AJOL) project – discussed above- can be a good model for the lowest income countries. However, with sponsoring by international agencies, foundations and charities, it is worth to consider leapfrogging that stage, and go for the digitization of the full text articles and conference papers, especially as a significant part of the primary documents are likely to be available already in digital format, even if only in a simple word processing format.

A mixed approach of creating indexing/abstracting and full text databases is also feasible. The best model for that is the New Zealand Digital Library which was created by the developers of the widely popular Greenstone software with financial support from UNESCO and the Human Info NGO charity. The experience of these organizations in the developing world is of special importance for a successful jumpstart in many countries. Using NZDL as a model seems to be working well at the African Digital Library Center. Its first open access collection is created by the University of Cape Town.

Brazil and India could be of particular interest for many countries in the Asia and Oceania region as important contributors to full text open access journal archives. The two countries rank #71 and #129 in terms of Gross National Income/capita, but they are ahead in the game of much more affluent countries. They   can show the best models for promoting the open access movement in Asia and Oceania through national and regional cooperation between the highest income and lowest income countries.

The majority of digitization projects of scholarly journals is highly centralized in Brazil through the cooperation of the Sao Paolo State Research Foundation (FAPESP) and the Latin American and Caribbean Center on Health Sciences Information (BIREME). SciELO, the Scientific Electronic Library Online project took the lead in facilitating the open access movement by making available a dozen Brazilian scholarly journals nearly 10 years ago free of charge for anyone. It was the natural extension of BIREME's very significant earlier contributions to the creation of several indexing/abstracting databases of the scholarly publications of Latin American and Caribbean researchers, and to the substantial enhancements and adaptations of the widely popular, very powerful, open source CDS/ISIS software of UNESCO since the 1970s.

As of May, 2006 my tests indicate that there are nearly 57,000 full text articles in SciELO, from 150 Brazilian journals. BIREME expanded its scope by hosting on SciELO also journals published in print in Chile (a whopping 53 journals), Spain (28), Cuba (18) and Venezuela (6). Journals published in Peru, Mexico, Argentina and Uruguay may soon be available in SciELO which uses the open access WWW-ISIS software developed at BIREME. This project clearly garnered regional acknowledgement of Brazil's achievements in information technology in general, and in the implementation and operation of a highly efficient and substantial open access scholarly journal database project, in particular. Of course, Spain's presence makes this more than regional.

Figure 1. Search results from SciELO

It further enhances the international reputation of the Brazilian efforts in providing open access to scholarly journal literature that the Reference Center on Environmental Information of Brazil hosts the Bioline International e-print archive. It developed the software for the open access collection of 56 scholarly journals [http://www.bioline.org.br/journals] published in Bangladesh, Brazil, China, Colombia, China, Croatia, Egypt, India, Iran, Kenya, Malaysia, Nigeria, Senegal, Turkey, Uganda, and Venezuela. Its partners include the University of Toronto, which offers the Bioline open access service with a different software. The number of full text articles in Bioline is less than 3,000 but it represents a feasible alternative for efficient cooperation between low income and high income countries for implementing open access archives.

In India, the centralization of digital facilitation of publishing scholarly journals on the Web is not that concentrated as in Brazil, but it is still a good model for the promotion of open access movement in Asia and Oceania. MedKnow hosts 20,000 open access articles from 30 journals published in India. The articles are in HTML and/or PDF format searchable through an intuitive and easy to use search software. 14 of the 30 journals are also accessible through either the Brazilian or the Canadian Bioline services discussed above. These journals are covered by a variety of abstracting/indexing services, such MEDLINE, EMBASE, PsycINFO, CAB and CINAHL.

Figure 2. Search results from the MedKnow database

MedKnow is the most sophisticated open access system in India with the most journals, but there are at least three other important open access scholarly journal archives. The rather confusingly named medIND full-text database created from the content of 38 biomedical journals is an extension of the original IndMED database from the MEDLARS Center of India, which has offered indexing/abstracting records for 33,500 articles published in about 90-95 Indian biomedical journals (depending on how you count the title changes). Currently, medIND has a relatively small collection of about 3,200 full text articles, but it is very likely that the practitioners prefer the 8 full-text articles retrieved when limiting the search about toxoplasmosis to items available in full text format, rather than the 29 bibliographic citations and abstracts

retrieved for the same topic by IndMed. The search template alleviates the dilemma by offering a checkbox to limit the search results to articles available in full text format.

The Indian Academy of Sciences has a full text archive for its 11 journals. The journal issues are browsable online, but the interface is not unified and most importantly, there is no search engine for this important archive. (Of course, you can always use Yahoo and Google to limit a topical search using the site:ias.ac.in) search parameter. The Indian National Science Academy hosts its own publications. It has open access content for half a dozen journals and proceedings.

Japan offers an excellent model for larger scale, high-end digitization and conversion to the (partially) open access alternative. The Japan Science and Technology Agency (JST) just enhanced its digital library which includes J-EAST, a very large indexing and abstracting database of English language publications by Japanese researchers in 3,000 journals, conference proceedings, technical report collections; READ, a directory database of institutions and individuals involved in research and development activities in Japan; and BIRD, a collection of research tools and numeric datasets related to bioinformatics research and development. JST added about 60 journals to its J-STAGE database of predominantly open access journals, and introduced the Journals@archive database with mostly open access back issues of many of those journals, totaling about 490 publications, and 735,000 articles and other materials along with annuals, conference proceedings, and technical reports.

This part of the JST-project was just finished as I was working on the manuscript of this keynote address. The usage statistics that I found on the site provides a very powerful message to all those who consider to promote the visibility of the scholarly activity of a country or region through the implementation of open access databases.

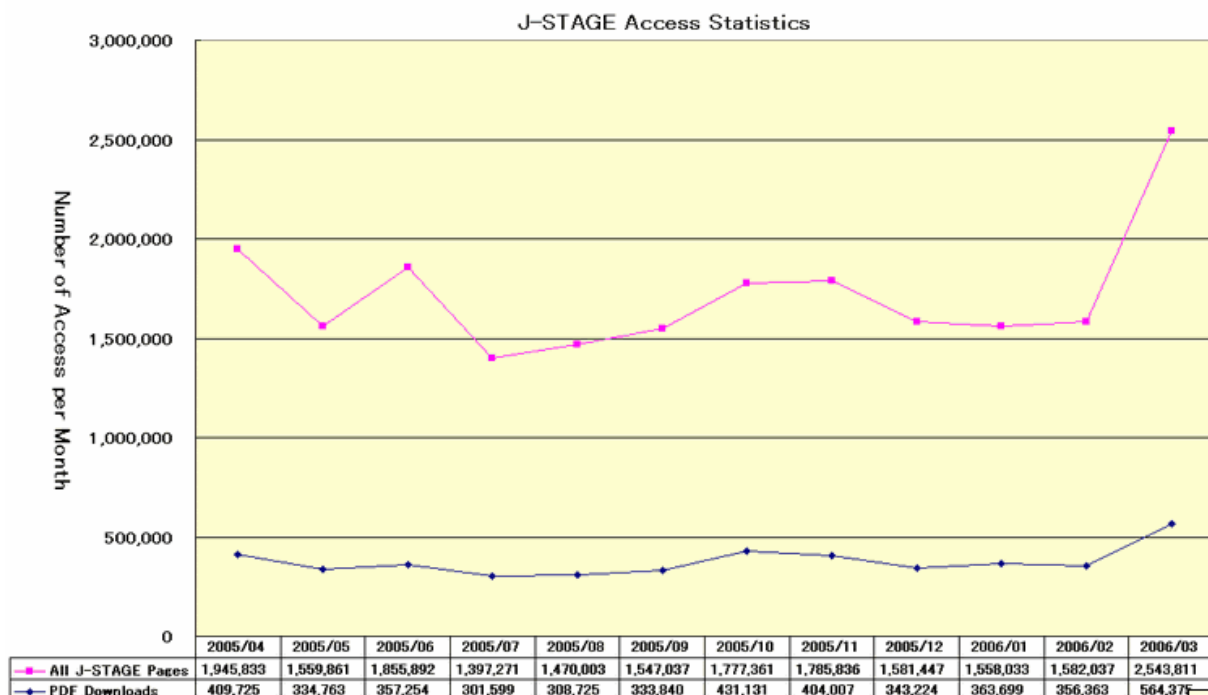|	2005/04	2005/05	2005/06	2005/07	2005/08	2005/09	2005/10	2005/11	2005/12	2006/01	2006/02	2006/03
All J-STAGE Pages	1,945,833	1,559,861	1,855,892	1,397,271	1,470,003	1,547,037	1,777,361	1,785,836	1,581,447	1,558,033	1,582,037	2,543,811
PDF Downloads	409,725	334,763	357,254	301,599	308,725	333,840	431,131	404,007	343,224	363,699	356,363	564,375

Figure 3. Access statistics for the J-STAGE database

The number of accesses which hovered around 1.5 million per month went up to 2.5 million in March after the J-STAGE database was enhanced by about 75,000 additional, mostly open access articles.

This shows the power of open access to high quality materials, and sums up the message for this keynote address: go for it.

References
[1] Information for Research in Developing Countries – Information Technology, a Friend or Foe? Arunachalam, Subbiah (2003) Information for Research in Developing Countries – Information Technology, a Friend or Foe?. *Bulletin of the American Society for Information Science and Technology* 29(5):pp. 16-21. available at
http://dlist.sir.arizona.edu/832/01/Arun%5F01.pdf
[2] Packer, Abel (2000). SciELO — a Model for Cooperative Electronic Publishing in Developing Countries. *D-Lib Magazine,*, 6 (10) available at .
<http://www.dlib.org/dlib/october00/10inbrief.html#PACKER>.
[3] Brody, Tim (2001). Mining the Social Life of an ePrint Archive, OpCit Blog available at
http://opcit.eprints.org/tdb198/opcit/
[4] Ian H. Witten, Ian, H., Bainbridge, David and Boddie, Stefan J. Greenstone: Open-Source Digital Library Software (2001). *D-Lib Magazine*, 7(10) available at
http://dx.doi.org/10.1045/october2001-witten
[5] Suber, Peter (2005). Open Access Overview. *The SPARC Open Access Newsletter*, March 10, 2006 available at http://www.earlham.edu/~peters/fos/overview.htm
[6] Harnad, Steven (2006). Open Access Archivengalism [weblog] available at
http://openaccess.eprints.org/
[7] Kirsop, Barbara and Leslie Chan (2005). Transforming Access to Research Literature for Developing Countries. *Serials Review* 31(4): 246-255. available at
https://tspace.library.utoronto.ca/handle/1807/4416
[8] Jacso, Peter (2006). Open Access Scholarly Indexing and Abstracting Databases (2006). *Online Information Review*, 30(4) available at http://www2.hawaii.edu/~jacso/savvy-mcb.htm
[9] Ochs, Mary, Aronson, Barbara, and Jane Wu (2004), HINARI and AGORA: revolutionizing access to scientific information in the developing world *Serials* 17(2):175-182 available at:
http://uksg.metapress.com/openurl.asp?genre=article&id=doi:10.1629/17175
[10]. Jacso, Peter (2006). Open Access Scholarly Full Text Databases and Digital Archives (2006). *Online Information Review* 30(5) available at http://www2.hawaii.edu/~jacso/savvy-mcb.htm

Biographical Note:
Peter Jacso is a professor at the Department of Information and Computer Sciences of the University of Hawaii. He received the Outstanding Information Science Teacher Award of ASIS&T and the Institute for Scientific Information; the Pratt-Severn Faculty Innovation Award in Library and Information Studies of the Association of Library and Information Science Educators; and the Louis Shores-Oryx Press Award for excellence in the reviewing of databases of the ALA Reference & User Services Association. He is a frequent speaker at international conferences, and has been a columnist for several journals.