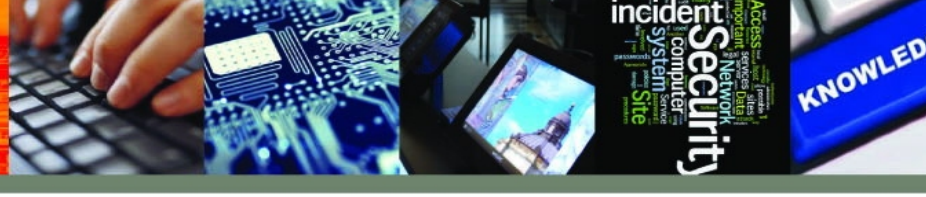


Dibentangkan Di
Seminar Kebangsaan Teknologi Maklumat Di Perpustakaan
Anjuran Perpustakaan Sultanah Bahiyah, Universiti Utara Malaysia

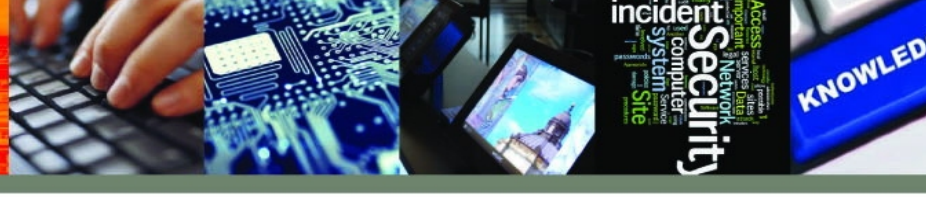
Sesi 2 : Open Source Dalam Perkhidmatan Perpustakaan
4 Ogos 2010 | 8.00 – 10.30 pagi | Bayview Hotel, Pulau Pinang

OPEN SOURCE REPOSITORIES: IMPLICATIONS FOR LIBRARIES

Oleh / By

Prof Dr Zainab A.N.
Digital Library Research Group,
Faculty of Computer Science & Information Technology,
University of Malaya
Email: zainab@um.edu.my

(Presented at National Seminar On Information Technology In The Library at Bayview Hotel, Penang, Malaysia : Session 2 – Open Source In Library Services, 4th August 2010 8.00 – 10.30 a.m. Seminar organized by Sultanah Bahiyah Library, Northern University of Malaysia : http://www.lib.uum.edu.my)



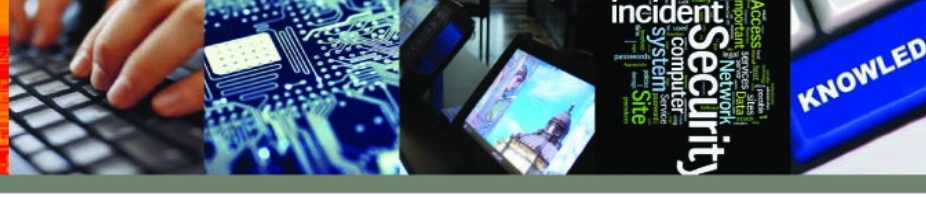
OPEN SOURCE REPOSITORIES: IMPLICATIONS FOR LIBRARIES

Abstract:

Software that is accepted as "Open source" should comply with 10 conditions which are itinerated in the paper. The paper subsequently describes the application of open source initiatives in the digital library context. Three open source digital library initiatives developed by the Digital Library Research Group at the Faculty of Computer Science and information Technology, University of Malaya are highlighted. These are; (a) MyManuskrip: digital library of Malay manuscripts; (b) MyAIS : Digital library of Malaysian scholarly journals and conference proceedings; and (d) DSpace@Um: a digital library of dissertations, theses and final year project reports. Other "free" systems such as EJUM: electronic journal of university of Malaya is also described to highlight the slight difference between open source and being free. The paper also describes the libraries involved in the initiatives and the changing eco-system which libraries must accept to embrace the open source culture.

1.1 Introduction

I will start by clarifying some definitions of terms such as Open Source, Open Access Repositories and Open Access journals. What is termed as Open Source? There are numerous explanations about this, which can be found on the Web. To some it means freely downloadable open source codes. Yes, this is true, open source does mean that the system or initiatives adopts an open access policy and programmers can download source codes freely for use. Programmers could download, modify or enhance and use the source codes for another programme. To others it would mean "free redistribution" of source codes. This is true too, as the modified or enhanced programme codes can be freely reused by others, who could in turn modify and enhance the programme further. This indicates a state of continuous sharing, improving and giving back to group members of the open access initiatives. When applied to literature Suber (2004, 2007) defines open source literature as literature which are "digital, online, free of charge and free of most copyright and licensing restrictions". There are two ways in which open access literature can be delivered, and these are through (a) Open access repositories and (b) open access journals. There is a distinct difference between the two. The former can be either hosted by single institutions or cross institutional and provides an avenue for individuals and institutional members to deposit literature which are then made freely available. In this situation, no peer reviewing process is undertaken as the repository merely acts as an archival instrument. The contents are mainly preprints, post prints or both, unpublished scholarly works such as theses, dissertations, final year project reports, research reports and teaching resources. These contents are usually maintained by universities, research laboratories or groups, professional societies and associations that commission the repositories. Open access (OA) journals refer to electronic journals, which give access to all users and are subscription free. Peer reviewing is undertaken in OA journals and, in this case the accepted articles will then be made freely available to users. There is a difference between open access and free access. Open access means free to view, use, distribute and the copyright is held by the author. Free access can mean free access but with restrictions in terms of use, to redistribution and the copyright is often held by the publishers or creators.

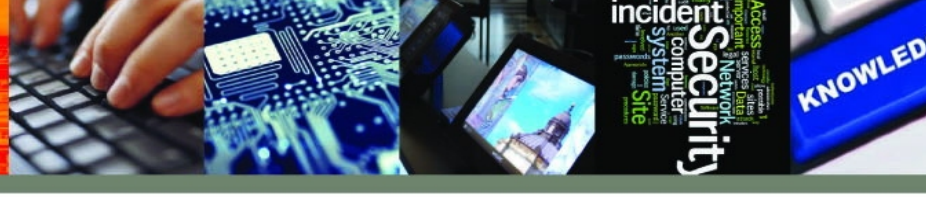


The Berlin Declaration (2003) promotes the Internet as the functional instrument for a worldwide sharing of scientific knowledge derived from research funded by educational institutions, libraries, archives and museums. The Declaration therefore called for an open committment to open access to contributions of all forms of knowledge. As a result of the open access movements, there are now a number of open source software available for building both repositories and journals. Most of the open access repositories and journals are free. In some cases, the cost is incurred by the authors themselves for publishing their works, whilst the works are completely free to users. An Open source software directory is available (http://www.opensourcesoftwaredirectory.com/), developed by Jeroen Verhoectx, which currently listed 843 applications divided into four categories, for home users, businesses, administrators and developers.

1.2 Open Access Repositories

Many of these repositories are set up by universities or research institutions to handle their own institutional research resources. *DSpace,* for example, was set up by Massachusetts Institute of Technology to hold their entire intellectual output. This repository is linked to similar archives at other research institutions, thus creating a "seamless worldwide network, where multiple databases could be searched as if they were a single entity" (Ware, 2004). *DSpace* initially costs MIT US$2.4 million and was jointly sponsored by Hewlett-Packard of Palo Alto, California. Such a repository is vital in helping institutions create and maintain their own archive for the posterity of all digital documents and data they generate themselves. This is different from cross-institutional repositories such the *arXiv.org* (http://arxiv.org/), an archive designed to serve communities in specific disciplines (physics, mathematics, non-linear sciences, computer science, quantitative biology, quantitative finance, and statistics). The institutional repositories provide publishing tools, which could be easily handled by academics to self archive their own works. Most archives comply with the standards initiated by the Open Archive Initiatives (OAI) (http://www.openarchives.org/) for describing documents and digital objects. The standard unite all distributed archives that use it and facilitate searching as if they were one, by either using the search engine provided by the OAI service providers or by general search engines like Google. These repositories allow open access to most of their content with some imposing restrictions to documents such as theses and dissertations or e-textbooks written by their academics. Such repository is becoming a common feature of a modern university and an indication of a reformed scholarly communication where the institution provides a set of services for the management and dissemination of digital materials created by the institution and its members. As these resources are on open access, it would enhance institutional prestige by making their research output more visible. This is therefore done in the spirit which Harnad (2003) had previously advocated, that is, "self-archiving". A list of institutional archives worth mentioning is listed in *SPARC:collected repositories* (SPARC, (2007-1010) and is available at http://www.arl.org/sparc/repositories/collectedrep.shtml, the *Registry of Open Access Repositories (ROAR)* (Registry, 2007-2010) and *OpenDOAR* (OpenDOAR, 2006-2010).

Even though the number of OA repositories is growing, the idea of institutional self-archiving has only caught on in recent years as there was still concern about plagiarism. Ware (2004) surveyed 45 institutional repositories and found that the average number of contents held was low. Most of the contents were pre-prints, theses and dissertations. This situation was found to be the result of poor academic participation and this reluctance cannot be explained as Gadd, Oppenheim and Probets (2003) and Crow (2002) found that journal publishers did allow self-archiving.



Open Access repositories can either be institutional or cross-institutional or discipline-based. There are many cross-institutional repositories which hold e-print and post-prints (Hitchcock, 2003), but an example of a successful venture is the *arXiv.org* (http://arxiv.org/). This repository was developed by Paul Ginsparg (1996) at the Los Alamos National Laboratory in 1991 but has since moved to Cornell University and funded by Cornell, the National Science Foundation and participating institutions. This archive focuses on research papers in physics and its related disciplines, nonlinear science, mathematics, computer science and quantitative biology submitted by researchers from all over the world. This archive pays attention to the needs of users and authors and plays down the role of the publisher as processes are highly automated. Users can retrieve papers from the archive either through an online web interface, or via e-mail links. Similarly, authors can submit their papers or reports to the archive, by either using the web interface, ftp or using their e-mail. Authors can update their submissions if they choose to, and previous versions of articles remain available for users to view. Users can also register to automatically receive a listing of newly submitted papers in areas of interest to them. An example of a domain well covered by this archive is high energy physics theory (http://arxiv.org/hep-th).

The archive was started in 1991 and was intended for less than 200 physicists working on "string theory". Within a few months, users of the archive grew to over 1000 and by 2009 it typically processed 489,368 transactions per day . (Ginsparg, 1994;2002). As in 2010, the repository held roughly 614,672 full-text e-prints and grows at a rate of more than 40,000 new submissions per year. Its usage grew because physicists need to communicate quickly and easily. This type of publication channel soon becomes indispensable to physicists, especially for those in developing countries. The repository works on the simple premise that if researchers are writing without the expectation of making money directly from their efforts, then there would be no reason why anyone else should. Brinkman (2002) remarked that physicists who used the *arXiv* site did not appear concerned that the papers on it were not refereed. To the physicists the repository acts as a comprehensive "archival aggregator", a place where they could browse or search and be assured that the relevant articles they need can be found and if not, it is because it does not exist. This model works very well for the physicists but are slow to take off in a field such as medicine, where posted materials are substantially reviewed before they are published in an archive (Kling, Spector and McKim, 2002) for the simple reason that wrong reporting may result in deaths! *The New England Journal of Medicine* has indicated that they do not accept preprint submissions. A list of clinical medicine journals that will (29 titles) and will not (21 titles) accept preprints appears at http://clinmed.netprints.org/misc/ policies.shtml.

Most repositories are dedicated to the science and technology disciplines. Besides the *arXiv.org*, other equally well known archives are *CERN* document server (http://preprints.cern.ch), which provide full text coverage of preprints, articles, books, journals and photographs since 1994 and include links to their preprint servers in the subjects of psychology, neuroscience, linguistics and cognitive sciences; *Clinmed Net prints* (http://clinmed. netprint.org), which is produced by the British Medical journal and Highwire Press, providing a place where authors could archive completed studies and original research preprints; *PubMedCentral* (http://www.pubmedcentral. nih.gov/) published by the US National Library of Medicine's digital archive of life sciences journal literature, and includes full-text articles, data tables, streaming videos and high resolution images; and the *Highwire* initiative at Stanford University. Examples of e-print archives in the arts and social sciences are *eScholarship* repository (University of California' digital repository of humanities and social science research); *Social Science Research Network* (SSRN, providing access to over 30,800 papers and over 49,200 abstracts; *Educationon-line* available at http://www.leeds. ac.uk/educol/, providing free access to conference papers, working paper, preprints; *PhilSci Archive* (philosophy of science, hosted by the Department of Philosophy and of History, University of Pittsburgh and available at http://philsci-archive.piutt.edu/); *Preprints on conservation laws* (administered by the Department of Mathematical Sciences, Norwegian University of Science and Technology at Trondheim since 1996); *RePEc* (Repository on Economics at http://repec.org, access to over 177,000 records and over 86,000 are available online); *WoPEc archives* (Working papers in Economics, the economic network database of working papers, containing over 80,000 documents, 53,035 working papers and 41,895 journal articles and available at http://netec.mcc. ac.uk/WoPEc/data/paper Series.html. An example of a cross-institutional repository in Malaysia is MyAIS (hhtp://myais.fsktm.um.edu.my) and MyManuskrip (http://myManuskrip.fsktm.um.edu.my).

Monitoring

There are two initiatives that monitor the existence of open access repositories world-wide. The first is *ROAR* or *Registry of Open Access Repository* (Registry, 2005-2010) developed by Tim Brody at the University of Southampton, UK. ROAR listed 1606 repositories world –wide and has a useful option where repositories can submit their domain to be included in the registry. ROAR listed 19 Malaysian repositories. The second is *OpenDOAR* (*Open Directory of Open Access Repository)* hosted by the University of Notingham in UK which makes public their services in 2006. This service has been awarded the SPARC Europe Award for Outstanding Achievements in Scholarly Communications. *OpenDOAR* (2006-2010) listed 1650 open access repositories world-wide and Malaysia is listed as having 11 repositories (0.6%) and this is quite encouraging compared to other Asean countries (Philippines 1, Singapore 2, Thailand 3, Indonesia 6, Vietnam 1). Obviously, the larger Asian countries lead such as India (41) and Japan (79) and Taiwan (35). Figure 1 shows the world-wide regional distribution and Table 1 shows the distribution in Asia.

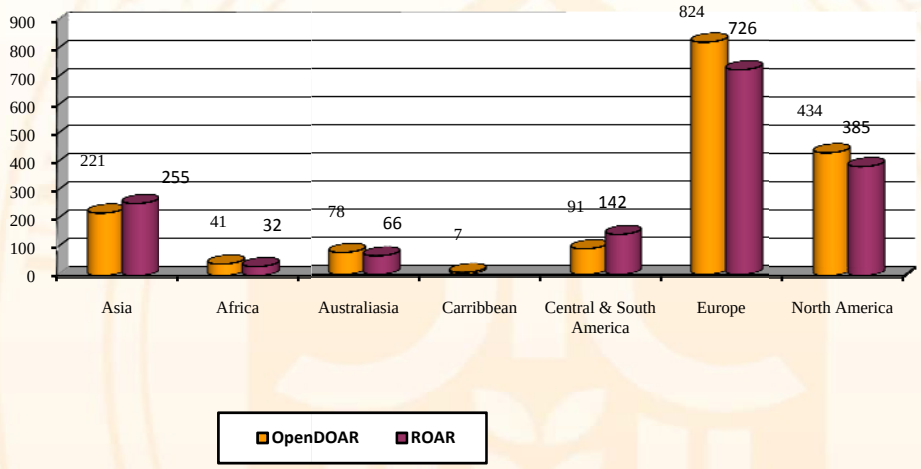


Figure 1: Open Access Repositories World Wide Based on OpenDOAR (n=1696) and ROAR (n=1606)

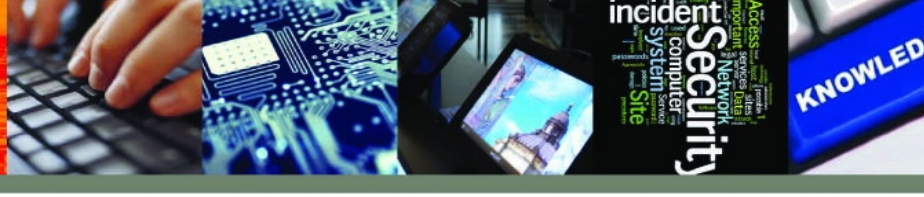
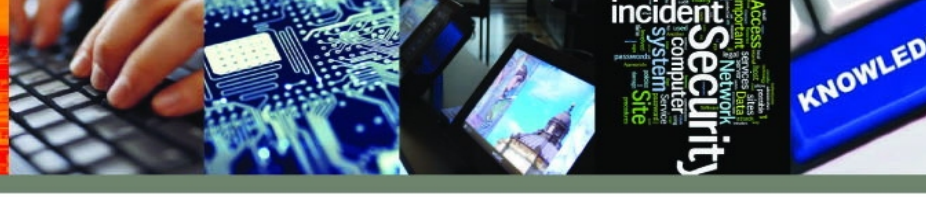


Table 1: Distribution of Repositories in Asia Listed in ROAR and Open DOAR

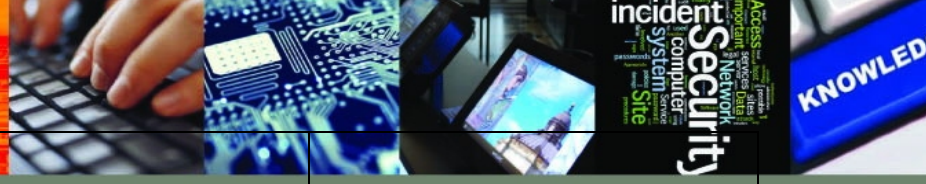
Countries in Asia	ROAR (n=255)	OpenDOAR (n=221)
Japan	78	79
India	53	40
Taiwan	45	35
Malaysia	17	11
Turkey	12	9
China	12	9
Indonesia	10	6
S. Korea	4	5
Hong Kong	4	0
Iran	3	2
Saudi Arabia	1	3
Azerbaijan	2	1
Bangladesh	2	2
Kyrgyzstan	2	2
Singapore	2	2
Sri Lanka	2	1
Thailand	2	3
Israel	1	2
Afghanistan	0	1
Georgia	0	1
Kazakhstan	1	1
Philippines	1	1
Pakistan	1	2
Nepal	0	1
Qatar	0	1
Vietnam	0	1



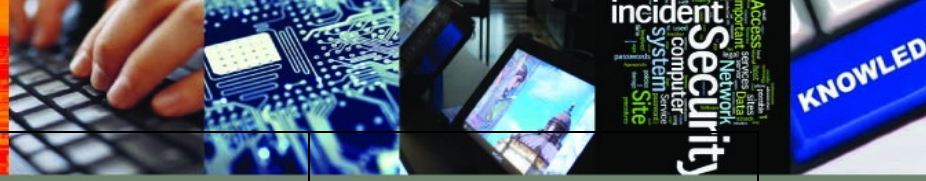
The eleven Malaysian repositories listed in *Open DOAR* are shown in asterisk in Table 2. The rest are repositories reported in the *Registry of Open access Repository* (ROAR) (Registry, 2005-2010).

Table 2: Institutional Repositories in Malaysia as at 5.7.2010 (n=20)

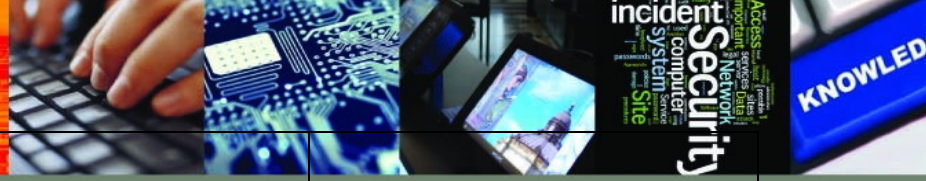
Repositories	Software	Contents	Access
• DSpace@UM Digital Library group, Faculty of Computer Science & Information Technology, University of Malaya http://mymanuskrip.fsktm.um.edu.my/Greenstone/cgi-bin/library.exe	DSpace	Master dissertations, Ph.D theses, Final year project reports 763 items (6-7-2010)	• Unrestricted, full access to masters and Ph.D materials except final year project report.
• DSpace/Manakin Repository Universiti Tenaga Nasional Library http://dspace.uniten.edu.my/xmlui/	DSpace	Articles, Conference papers, Digital images, In house publications, Manuals, news articles, examination papers, project papers, Research reports, Theses & dissertations, Speeches. 453 items	• Restrictions for examination papers & theses.
Elmtiyaz@Usim Intellectual/Manakin Repository Universiti Sains Islam Malaysia http://ddms.usim.edu.my/	Dspace	2694 items. Mainly theses and dissertations. Also include academic project papers, conference papers, examination papers, news clippings, research reports.	• Full access to items
• EPrints@USM Universiti Sains Malaysia http://eprints.usm.my/cgi/oai2	Eprint3	Journal articles, Conference papers, theses 17,611 items (5-7-2010) article - 227, books - 88, book section - 56, conferences – 592, images - 83, monographs – 490, others – 156, teaching resources – 15050, theses – 919)	• Full access to most contents except theses. • Books are uploaded in a single file, therefore slow to download – suggest break book contents into chapters • Restricted access to theses, title, contents pages, chapter 1 up to about 30 - 50 pages only.



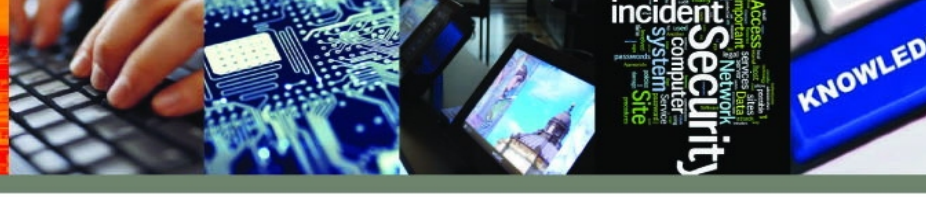
• MyAIS (Malaysian Abstracting and Indexing System) Digital Library Research Group, Faculty of Computer Science and Information Technology, University of Malaya. Available at: http://myais.fsktm.um.edu.my/	Eprint	Mainly journal articles, conference papers 8,880 items (5-7-2010) Journal articles 8447, Books 16, book chapters 26, conference papers 376, monographs, 5 and theses 10)	• Full text access to most items unless the restrictions is required by copyright owners.
• PTSL UKM Repository Tun Seri Lanang Library, Universiti Kebangsaan Malaysia. Available at: http://eprints.ukm.my/	Eprint	Conference papers and journal articles 208 items (5-7-2010)	• Full access to most contents
• MyManuskrip.fsktm.um.edu.my Digital Library Research Group, Faculty of Computer Science & Information Technology, University of Malaya. Available at: http://mymanuskrip.fsktm.um.edu.my/Greenstone/cgi-bin/library.exe	Greenstone	Malay manuscripts, research papers and reports on manuscript studies 178 items (6-7-2010) 69 – DBP collection, 99 UM collection, 4 published items, 6 others	• Full access to all contents
SHDL@mmu digital repository Multimedia University Malaysia http://shdl.mmu.edu.my/	Eprint3	Journal articles, books, book sections, conferences, monographs, others, theses. 1450 items (5-7-2010)	• Full access to articles and selected conference papers • Restricted access to books, book section and theses
UiTM digital repository Universiti Teknologi Mara http://eprints.ptar.uitm.edu.my/	Eprint3	Mainly journal articles, conference papers. 288 items (5-7-2010)	• Full access to journal articles



• UM Digital Repository (University of Malaya Library) http:// eprints.UM.edu.my/cgi/oai2	Eprint3	Journal Articles, Conference papers, books 1446 (2010-02-04)	• Full access to articles & conference papers. • Restricted access for books access (access only to title and contents pages and bibliographies. •
UMP@institutional repository Universiti Malaysia Pahang http://umpir.ump.edu.my/information.html	Eprint3	Journal articles, conference papers, theses, new clippings, images 698 items (5-7-2010) Article 1, book section 1, conference 1, images 37, other 1, theses 667.	• Full access to most contents except theses • Restricted access for theses to 24 pages only
• UniMAP Library Digital Repository Universiti Perlis Malaysia http://dspace.unimap.edu.my/dspace/	Dspace	Conference papers; theses, journal articles, pass examination papers, newspaper clippings. 7146 items (16-11-2004)	• Restricted access to all resources • Cannot view fulltext, contents restricted to content pages, abstracts. A small number of journal articles are given full text access
• Universiti Putra Malaysia Institutional Repository (PSAS IR) http:/psasir.up,.edu.my/cgi/oai2	Eprint3	Journal articles, conference papers. Learning objects. Theses 5869 items (5-7-2010) Articles 2159, conferences 40, inaugural lectures 43, newspaper clippings, 756, theses 2512, upm news 359.	• Full access to most articles, conferences, newspaper clippings. • Restricted access to theses (title page, contents pages, abstracts, part of chapter one) – about 25 pages only.
UTHM repository Universiti Tun Hussein Onn http://eprints.uthm.edu.my/	Eprint3	Mainly conference papers 159 items (5-7-2010)	• Full access to conference papers
Universiti Teknologi Malaysia Institutional Repository http://eprints.utm.my/	Eprint	Journal articles, conference papers, Theses; Books. 7413 items (5-7-2010)	• Full access to most contents



UTEM Perpustakaan Library Universiti Teknikal Malaysia Melaka http://library.utem.edu.my/index.php?option=com_docman&Itemid=208		Journal articles, reports, proceedings, theses, final year projects, journal contents, speeches, exam papers 2702 items (5-7-2010). Reports 63, proceedings 352, theses 174, final year projects 614, journal contents pages 754, speeches 161, examination paper 986.	• Restricted access. Access to the first 26-27 pages only
UTP Institutional Repository Universiti Teknologi Petronas http://eprints.utp.edu.my/	Eprint3	Mainly journal articles and conference papers. 1282 items (5-7-2010)	• Restricted access to most contents.
• UUM IRepository http://eprints.uum.edu.my/cgi/oai2	Eprint3	Mainly theses, includes journal articles, conference papers. 1791 items (5-6-2010) Articles 268, conferences 185, theses 1338.	• Restricted access to theses (title and contents pages, few pages of the first chapter, references, appendices, questionnaire used. • Full access to selected journal articles, conference papers
ethesis@UUM (Electronic theses and dissertations) Universiti Utara Malaysia http://ep3.uum.edu.my/view/subjects/	Eprint3	Theses 1706 items (5-7-2010)	• Full access to theses
WorldFish Centre Publications World Fish Centre, Penang http://www.worldfishcenter.org/v2/pubs.html		Articles; References; Conferences; Unpublished; Books; Special 549 items (2009-05-13)	• Full access to all materials



The listing above indicates that:

- The repositories do not undertake peer reviewing and provide an archival option to institutional works.
- Most of the Malaysian repositories are institutional or department based. Only two are cross institutional (MyAIS and MyManuskrip)
- Most repositories deposit all types of items, journal articles, conference papers, examination questions, final year student project reports, theses and dissertations, research reports, images, news clippings and teaching resources.
- UUM and UM have provided access to their theses and dissertation collections in separate repositories, which makes good sense especially if the collections are delivered full-text, which would need huge storage and computing power for speedier access.
- Most theses collections except for UM are delivered in a single PDF file, which is cumbersome for users as downloading and opening the folder will consume more time as some of the files can be as large as over 50MB.
- Some Universities (eg UPM and UTEM provide access to about 25 pages of their theses collections.
- Most repositories are hosted and managed by the libraries. At UM three repositories are hosted at the Faculty of Computer Science (MyAIS, MyManuskrip and DSpace@UM).

The Berlin Declaration (Berlin, 2003) identifies two condition of open access: (a) Users should be given free access and a license to copy, use, distribute, transmit and display of all contributions by authors and right holders; and (b) Academic institutions, scholarly society, governance agency are responsible for making available and maintaining the digitized content of works in repositories which are open access initiative compliant. This will ensure that contributions are available for unrestricted access in a long term archiving environment. In this spirit then the restrictions imposed by Malaysian repositories need to be looked at seriously as this would mean using open access systems to behave like a rich library catalogue (providing rich metadata information and limiting access to items). It must be remembered that accessibility will result in usability and hopefully citation. It is a matter of librarians persuading university governance to adopt the open access policy.

Previous studies have indicated that open access articles are being cited more (Antelman, 2004; Eysenbach, 2006). Swan (2010) examined 31 studies about the citation advantage of OA articles and found 27 studies reported positive citation advantages and 4 studies reported no citation advantage. Lawrence (2001) compares citation counts and online availability of 119, 924 conference titles in computer science obtained from DBLP (dblp.uni.ytier.de) using Research Index and exclude self-citation. Lawrence found correlation between the number of times an article is cited and the probability that the articles are freely available online. The mean citation of offline articles was 2.74 compared to 7.03 for OA online articles. Other studies have stressed that the increase in citation of OA articles are discipline dependent, that is citations occur more in fields such as life sciences, engineering, physics and mathematics (Craig, Plume, McVeigh, Pringle, Amin, 2007). Looking at the list of highly ranked repositories in OpenDOAR substantiates this point as repositories in the top ten performs well in terms of accessibility and web visibility. Also, the highly ranked repositories are those in the fields where the tradition for self-archiving and using open archive repositories are highly preferred as exemplified by Arxiv.org amongst the physicists.

1.3 Open Access Journals

Unlike open access repositories, open access journals especially those which are scholarly are peer reviewed. Nielsen (2010) identifies three types of journal publishing models; The traditional toll access journals, the golden open access journals and the green open access journals (see Figure 2). In the Golden publishing model the pay to publish practice is often used and this is practiced by medical journal such as *PLoS Medicine*, an open access peer reviewed medical journal, where the cost of publishing is transferred to authors and users freely access articles. In the Green approach user access are provided at various stages that is (a) at the pre-print stage, where authors submit to OA repositories to get feedback from readers, improves on their articles before submitting to OA journals and becomes accessible to all; (b) at the accepted stage where, the authors' submissions are peer reviewed before being accepted by OA journals which, subsequently make them available to all, and (c) at the post-print stage where, authors submit their post-prints to an OA repository after informing or obtaining permission from OA journals publisher of his intention to deposit his article in his institutional or cross institutional repositories which makes their works accessible by all. In the "Green" case the visibility is increased.

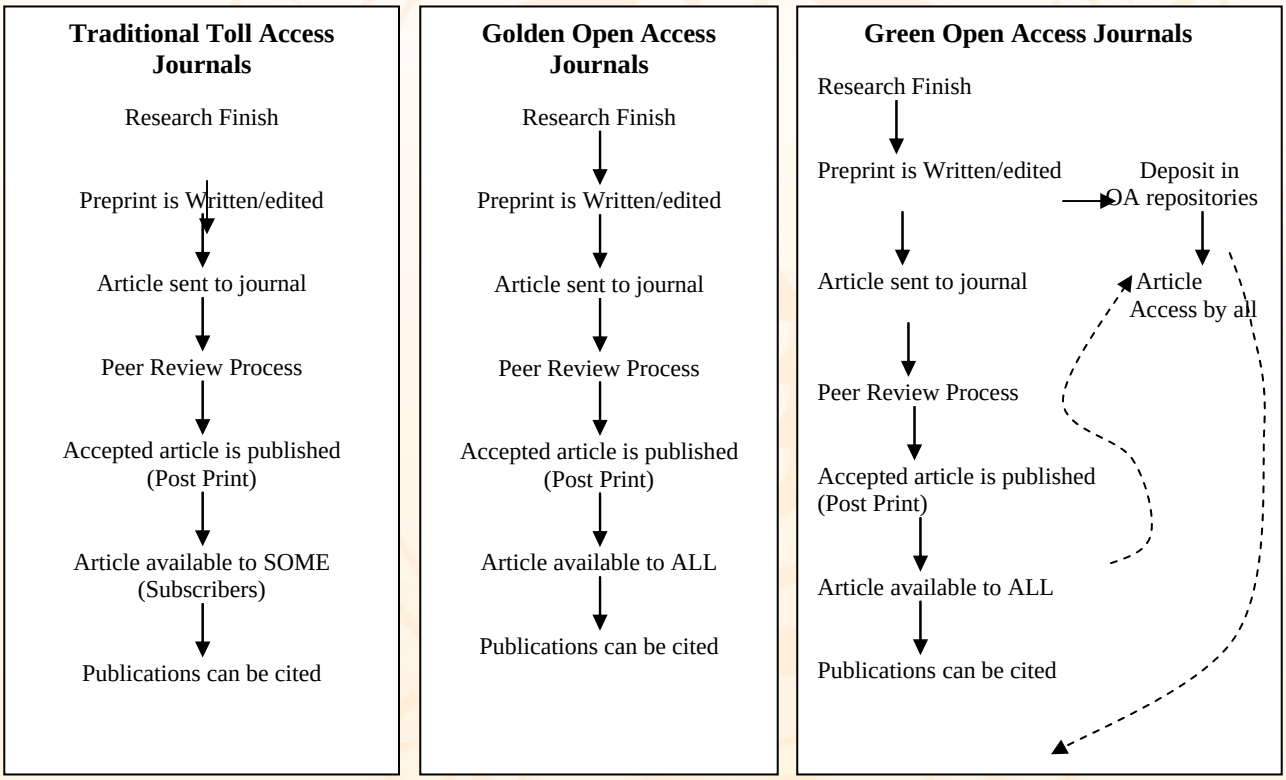
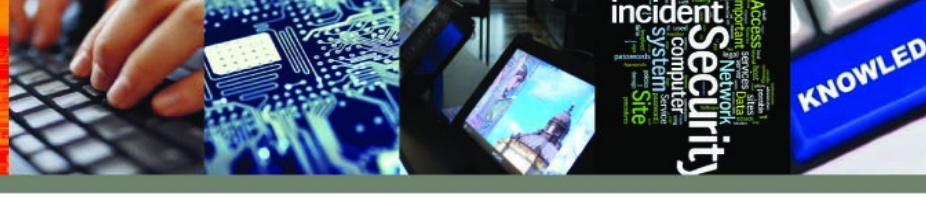


Figure 2: Open Access Journal Publishing Process



The number of open access electronic journals are increasing. This growth is derived from institutional and professional publishers who want to increase access to the contents of their journals without any restrictions. The pull factor is the increase in readership and citation to the contents. The *Directory of Open Access Journal* (DOAJ) (2010) published by Lund University mooted by the First Nordic Conference on Scholarly Communication in Lund, Copenhagen and initially funded by the Open Society Institute indicates the existence of 5160 open access journals with contents of 416,421 articles. The directory focused only on journals that provide full text, are peer reviewed and scholarly. Currently, it is estimated that 20% of total articles published are on open access (Hitchcock, 2004, updated 2010). A total of 31 Malaysian Journals are listed in DOAJ (See listing in double column below) (Table3).

Table 3: Malaysian OA Journals in DOAJ (n=31)

1. **3L Language, Linguistics and Literature : the Southeast Asian Journal of English Language Studies**
ISSN: 01285157
Subject: Languages and Literatures
Publisher: Penerbit UKM ; Start year: 2003
Added to DOAJ: 2010-04-16

2. **ASEAN Journal of Teaching & Learning in Higher Education**
ISSN: 19855826
Subject: Education
Publisher: National University of Malaysia ; Start year: 2010
Added to DOAJ: 2010-01-25

3. **Asian Academy of Management Journal**
ISSN: 13942603 ; EISSN: 19858280
Subject: Business and Management
Publisher: Universiti Sains Malaysia Press ; Start year: 2002
Added to DOAJ: 2010-03-31

4. **Biomedical Imaging and Intervention Journal**
ISSN: 18235530
Subject: Medicine (General) , physics, radiobiology
Publisher: University of Malaya ; Start year: 2005 ;
Added to DOAJ: 2005-08-31

5. **CFD Letters**
ISSN: 21801363
Subject: General and Civil Engineering
Publisher: ISSR ; Start year: 2009
Added to DOAJ: 2009-12-09

6. **Concrete Research Letters**
ISSN: 21801371
Subject: Construction
Publisher: ISSR ; Start year: 2010
Added to DOAJ: 2010-03-31

17. **Journal of Physical Science**
ISSN: 16753402 ; EISSN: 19858337
Subject: Science (General)
Publisher: Universiti Sains Malaysia Press ; Start year: 2007
Keywords: physics, chemistry, material science
Added to DOAJ: 2010-04-01

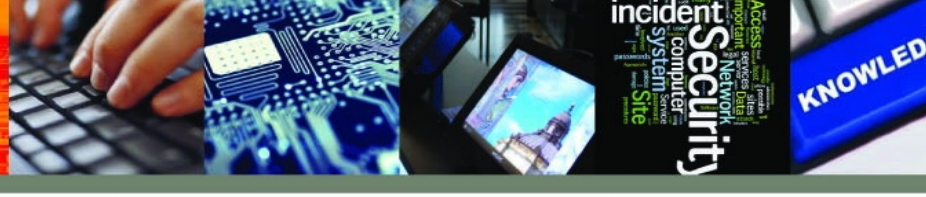
18. **Jurnal Kejuruteraan**
ISSN: 19854625
Subject: General and Civil Engineering
Publisher: Penerbit UKM ; Start year 2006
Keywords: technology ; Added to DOAJ: 2010-03-10

19. **Jurnal Kemanusiaan**
ISSN: 16751930
Subject: Business and Management
Publisher: Universiti Teknologi Malaysia ; Start year: 2003
Added to DOAJ: 2010-03-03

20. **Jurnal Pendidikan Malaysia**
ISSN: 21800782
Subject: Education
Publisher: National University of Malaysia ; Start year: 2005
Added to DOAJ: 2009-10-30

21. **KEMANUSIAAN : The Asian Journal of Humanities**
ISSN: 13949330 ; EISSN: 19858353
Subject: Languages and Literatures
Publisher: Universiti Sains Malaysia Press ; Start year: 2008
Added to DOAJ: 2010-04-01

22. **Malaysian Family Physician**
ISSN: 1985207X ; EISSN: 19852274
Subject: Medicine (General)
Publisher: Academy of Family Physicians of Malaysia
Start year: 2006 ; Added to DOAJ: 2008-01-15



7. **Elektrika: Journal of Electrical Engineering**
ISSN: 01284428
Subject: Electrical and Nuclear Engineering
Publisher: University Teknologi Malaysia
Start year: 2006 ; Added to DOAJ: 2008-01-24

8. **GEMA Online Journal of Language Studies**
ISSN: 16758021
Subject: Languages and Literatures --- Linguistics
Publisher: Universiti Kebangsaan Malaysia ; Start year: 2001
Added to DOAJ: 2007-07-31

9. **International Journal of Asia-Pacific studies**
ISSN: 18236243
Subject: Multidisciplinary
Publisher: USM Press ; Start year: 2005
Added to DOAJ: 2006-09-27

10. **International Journal of Biometric and Bioinformatics**
ISSN: 19852347
Subject: Biology --- Mathematics
Publisher: Computer Science Journals ; Start year: 2007
Added to DOAJ: 2009-06-02

11. **International Journal of Computer Science and Security**
ISSN: 19851553
Subject: Computer Science
Publisher: Computer Science Journals ; Start year: 2007
Added to DOAJ: 2009-06-02

12. **International Journal of Engineering**
ISSN: 19852312
Subject: General and Civil Engineering
Publisher: Computer Science Journals ; Start year: 2007
Added to DOAJ: 2009-05-20

13. **International Journal of Image Processing**
ISSN: 19852304
Subject: General and Civil Engineering
Publisher: Computer Science Journals ; Start year: 2007
Added to DOAJ: 2009-06-02

14. **International Journal of Security**
ISSN: 19852320
Subject: Computer Science
Publisher: Computer Science Journals ; Start year: 2007
Added to DOAJ: 2009-06-02

23. **Malaysian Journal of Community Health**
ISSN: 16751663
Subject: Public Health
Publisher: Universiti Kebangsaan Malaysia ; Start year: 2006
Added to DOAJ: 2010-01-1

24. **Malaysian Journal of Medical Sciences**
ISSN: 1394195X
Subject: Medicine (General)
Publisher: Universiti Sains Malaysia ; Start year: 2002
Added to DOAJ: 2007-11-20

25. **Malaysian Journal of Pharmaceutical Sciences**
ISSN: 16757319 ; EISSN: 19858396
Subject: Therapeutics
Publisher: Universiti Sains Malaysia ; Start year: 2004
Added to DOAJ: 2010-04-26

26. **Matematika**
ISSN: 01278274
Subject: Mathematics
Publisher: Universiti Teknologi Malaysia ; Start year: 1997
Added to DOAJ: 2008-08-13

27. **Neurological Journal of South East Asia**
ISSN: 1394780X
Subject: Neurology
Publisher: ASEAN Neurological Association ; Start year: 1996
End year: 2003 Continued by Neurology Asia
Added to DOAJ: 2007-02-22

28. **Neurology Asia**
ISSN: 18236138
Subject: Neurology
Publisher: ASEAN Neurological Association ; Start year: 2004
Added to DOAJ: 2005-10-03

29. **Signal Processing : An International Journal**
ISSN: 19852339
Subject: Computer Science
Publisher: Computer Science Journals ; Start year: 2007
Added to DOAJ: 2009-06-02

30. **UNITAR e-Journal**
ISSN: 15117219
Subject: Computer Science --- Social Sciences
Publisher: Universiti Tun Abdul Razak ; Start year: 2005
Added to DOAJ: 2005-08-25

15. **Jebat : Malaysian Journal of History, Politics and Strategic Studies**
ISSN: 01265644 ; EISSN: 21800251
Subject: History
Publisher: Universiti Kebangsaan Malaysia ; Start year: 2007
Added to DOAJ: 2010-04-14

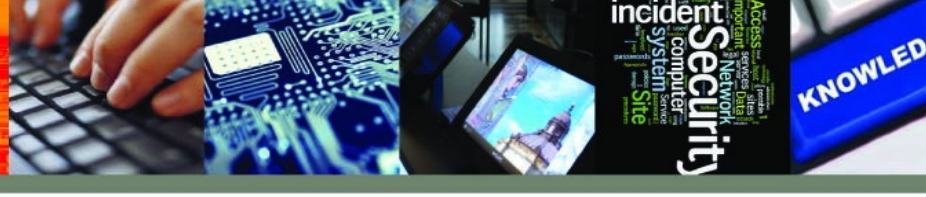
16. **Journal of Construction in Developing Countries**
ISSN: 18236499 ; EISSN: 19858329
Subject: Construction
Publisher: Universiti Sains Malaysia ; Start year: 2006
Added to DOAJ: 2010-04-16 11:15:35

31. **Wacana Seni Journal of Art Discourse**
ISSN: 16753410 ; EISSN: 19858418
Subject: Arts in general
Publisher: Universiti Sains Malaysia Press ; Start year: 2002
Added to DOAJ: 2010-04-26

Another pull factor to publish on open access are studies which indicate that OA journals are receiving citation and impact. A study by Testa and McVeigh (2004) (Table 4) who wanted to find out whether the OA journals perform differently from other non-OA journals in the various fields using ISI citation metrices. In 2004 ISI covers about 200 OA journals and this number is small compared to the 8000 over journals indexed by the ISI then. They looked at a group of 148 journals in the natural sciences that have been covered long enough to have Impact Factors (IF) in the 2002 Journal Citation Reports (CR). The results suggest that the OA journals have in general similar citation pattern to other journals, but may have a slight tendency to be cited earlier. The study found there was a slightly higher percentage of citations to articles published in 2002. This situation is however discipline dependent. In fields such as pharmacology and mathematics there is evidence of early citations. McVeigh (2004) found that in 2004 DOAJ, J-STAGE and Sci ELO listed a total of 1190 OA journal titles. Out of this number, 239 (20%) were indexed by the ISI which comprises 2.9% of the total 9000 titles indexed by the ISI. From January to June 2004 the number of OA journals had increased by 43 titles. The largest increase were in the fields of Physics, Engineering and Mathematics.

Analysis of the performance of these OA journals show that (a) the majority of OA journals are listed in the lower quartile category of journals in their subjects based on their impact factor. However, the OA journals performed better when ranked by their immediacy index. This means that because OA journals are made accessible earlier, the likelihood of being cited earlier is higher. This is especially in the fields of Medicine, life sciences, physics, engineering, mathematics and chemistry. The number of OA journals in the ISI databases have increased to 479 as reported in the JCR 2008 (revised version) (Giglia, 2010; Hitchcock, 2010; Agerback and Nielsen, 2010). Also, 225 titles out of 479 (47%) show better performance in terms of the Immediacy Index than in Impact Factor (56% in Chemistry 56% in Mathematics-Physics-Engineering, 41% in Life Sciences and 49% in Medicine). Eysenbach (2006) compares citation counts received by 1,492 articles (grouped into OA and non-OA journals) pubished in *PNAS: Proceedings of the National Academy of Sciences* between June 2008 2004 and December 2004. Using a logistic regression model he found that OA articles are more likely to receive citation than non OA articles and concluded that OA articles is likely to benefit through eccelerated dessimination and early use.

Rowland and Nicholas (2005) reported on a study commissioned by the Publishers Association and the International Association of STM Publishers to find out the attitudes and perceptions of 5,513 authors about the new publishing models initiated by the digital environment. The authors were solicited from Australia, India, Mexico, France, Greece, the USA and UK, whose names were obtained from the mailing list of the Institute for Scientific Information (ISI). A total of over 76,000 email invitations to answer the questionnaire were posted and only 5,513 gave complete responses (7.2%). The respondents were active authors for they reported as being referees, journal editors or editorial board members in the previous 12 months.



It was found that authors chose journals to publish (in order of priority) in terms of the following criteria; the reputation of the journal, wide readership, journal with impact factor, speed of publication, reputation of the editorial board, journal which allows preprint and post-print publishing, as well as journals which allow authors to retain copyright. The open ended sections revealed more information as authors indicate wanting the right to unlimited distribution and copyright of their work. Although the majority of authors felt that the reviewing process is important many were dissatisfied with the time it takes.

The authors in the sample also indicated high reliance on electronic medium to identify articles that are relevant to their needs. They follow links given in article references, use abstracting and indexing databases, search publishers' websites, search Google, Google Scholar and other search engines. The majority, (over 60%,) have little knowledge or none at all about open access journals or open access institutional repositories. Authors anticipate the following outcomes of open access publishing (in order of importance); articles will be easier to obtain, libraries will have more money to spend; authors will publish more often, fewer articles will be rejected, and the quality of articles will improve.

A minority of the author (20.1%) thinks that OA publishing is a bad thing. A significant number of senior authors believe downloads to be a more credible measure of the usefulness of research. The results of this study indicate that there is a great deal that librarians can do to inform academics of open access publishing initiatives to make them more aware of their options to publish.

Table 4 : OA Journals Indexed by the ISI by Region (2004)

Regions	No. of OA Journals	No. of Journals in ISI	Percent of OA
Asia-Pacific	79	530	14.9%
Eastern Europe	19	282	6.7%
Mid.East / Africa	5	57	8.8%
North America	58	3910	1.5%
South/Central America	33	78	42.3
Western Europe	45	3961	1.1%
WHOLE	**239**	**8818**	**2.7%**

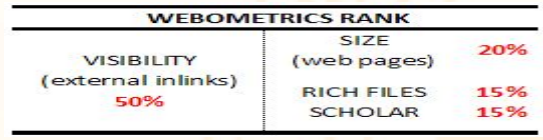
Source: Testa and McVeigh (2004)

1.4 Monitoring

Currently, repository's presence on the Web is being analysed by the Cybermetrics Laboratory in Spain (Ranking Web, 2010; Aquillo, 2010) which carries out quantitative studies about scientific communications through open access electronic journals and institutional repositories on the web. The ranking are done in accordance to the following indicators (Ranking Web, 2010). Data from OpenDOAR and ROAR was used for the analysis.

Size (S) = Number of pages recovered from the four largest engines: Google, Yahoo, Live Search and Exalead.
Visibility (V) = The total number of unique external links received (inlinks) by a site can be only confidently obtained from Yahoo Search and Exalead.
Rich Files (R) = The number of text files in Acrobat format (*.pdf*) extracted from Google and Yahoo.
Scholar (Sc) = Calculate of the mean of the normalised total number of papers and those (recent papers) published between 2001 and 2008 found in Google scholar.

The four ranks were combined according to a formula where each one has a different weight but maintain the ratio 1:1 between activity (size *sensu lato*) and impact (visibility).

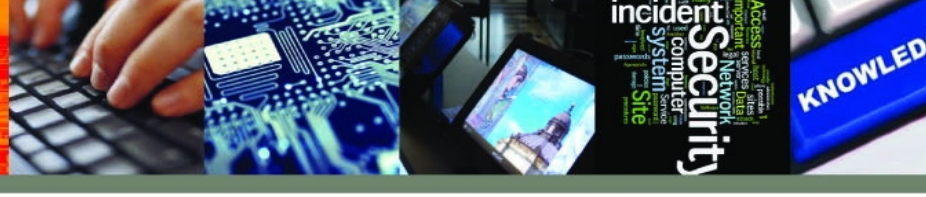


Source: (Ranking Web, 2010).

Based on the 2010 data the Cybermetrics Lab listed the top 800 repositories. The ranking indicates that amongst the top 20 repositories come from the United states, France, Germany and the European countries where establishing OA repositories are active(Table 5). The performance of repositories in Southeast Asia is shown in Table 6 and the performance of Malaysian repositories is given in Table 7.

Table 5: Web Ranking of World Repositories (Top 20/800)

World Rank	Repository	Country	Size	Visibility	Rich Files	Scholar
1	CiteSeerX	US	2	1	528	2
2	HAL Hyper Article en Ligne CNRS	FR	9	5	1	7
3	Research Papers in Economics		1	7	86	4
4	Social Science Research Network	USA	5	4	41	5
5	Arxiv.org e-print Archive	USA	19	2	231	3
6	CERN Document Server	SWIS	3	12	4	9
7	Smithsonian/NASA Astrophysics Data System	USA	11	3	739	1
8	HAL Institut National de Recherche en Informatique et en Automatique Archive Ouverte	FR	10	11	5	21
9	Digital Lib and Archives Virginia Tech University	USA	13	10	3	33
10	HAL Hyper Article en Ligne Sciences de l'Homme et de la Société	FR	16	9	7	39
11	École Poly. Federale de Lausanne Infoscience	SWIS	4	13	11	137
12	MIT DSpace	USA	15	27	6	11
13	Ressources documentaires Institut de recherche pour le développement	FR	8	23	2	304



14	Calif Inst of Tech Online Archive of California	USA	7	15	8	683
15	Depot Erudit	CA	119	8	153	347
16	Organic ePrints	DE	22	38	22	30
17	Univ of Southhampton Dept Elec. & Comp. Sci	UK	24	22	37	98
18	Humbolt Universitat zu Berlin Publikationsserver	GER	26	30	24	123
19	Tufts University Perseus Digital Library	USA	6	6	477	809
20	Universitat Stuttgart Elektronische Hochschulschriften	GER	77	14	43	292

Source: Ranking Web.. Cybermetrics, Lab, Spain, 10 July 2009 http://repositories.webometrics.info/top800_rep.asp

Table 6: Web Ranking of Universities in Southeast Asia (Top 20/100)

Rank SEA	University	Country	World Rank	Size	Visibility	Rich Files	Scholar
1	National University of Singapore	SG	146	120	210	122	192
2	Kasetsart University	TH	229	459	156	324	354
3	Prince of Songkla University	TH	338	236	236	658	587
4	Mahidol University	TH	381	473	394	947	91
5	Chulalongkorn University	TH	398	541	445	474	291
6	Nanyang Technologcal University	SG	468	434	560	718	311
7	Chiang Mai University	TH	478	666	414	523	807
8	Universitas Gahjah Mada	IND	562	602	421	1,028	827
9	Khon Kaen University	TH	567	824	387	703	1,214
10	Institut Teknologi Bandung	IND	661	564	657	1,138	654
11	Universiti Putra Malaysia	MAL	686	688	887	1,064	342
12	Thammasat University	TH	700	525	748	1,035	846
13	Universiti Sains Malaysia	MAL	725	500	1,097	1,195	256
14	Universiti Teknologi Malaysia	MAL	733	519	1,487	852	126
15	Asian Institute of Technology Thailand	TH	770	436	846	1,218	992
16	University of Malaya	MAL	778	857	1,1328	1,239	100
17	University of Indonesia	IND	815	903	1,007	741	981
18	King Mongkut University of Technology	TH	822	836	682	1,100	1,437
19	Petra Christian University	TH	854	1137	1794	964	59
20	Naresuan University	TH	924	1687	591	1088	1775

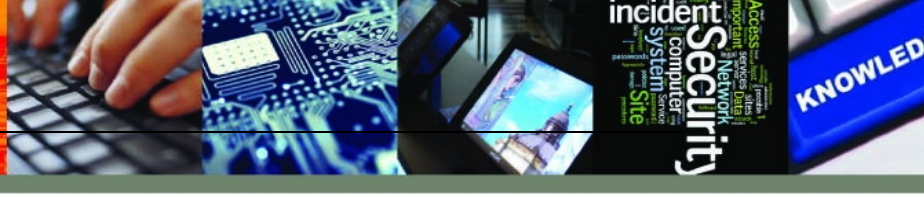
REST							
22	Universiti Kebangsaan Malaysia	MAL	985	849	1515	1063	614
35	Universiti Teknologi Mara	MAL	1,367	1010	1285	1870	2254
36	Universiti Malaysia Perlis	MAL	1413	1697	1518	3974	501
37	Universiti Utara Malaysia	MAL	1454	1623	2249	1531	776
39	Multimedia University	MAL	1528	1173	1595	1771	2250
42	International Islamic University	MAL	1576	2199	1510	2034	1747
66	University of Nottingham Malaysia	MAL	2273	5233	2256	3927	
78	Universiti Malaysia Pahang	MAL	2546	3280	4136	1341	2088
83	Universiti Tenaga Nasional	MAL	2665	2877	4348	2244	1632
84	Universiti Malaysia Sabah	MAL	2681	2271	2844	4153	2899

Source: Ranking Web, Cybermetrics Lab, Spain , 10 July 2010. Available at http://www.webometrics.info/top100_continent.asp?cont=SE_Asia

Table 6 indicates that amongst the top 20 out of 100 OA initiatives listed under Southeast Asian countries, the active countries are Thailand, followed by Malaysia, Indonesia and Singapore. Amongst the 800 repositories, the repositories at UPM was ranked at 159, UUM at 246, UM at 356, UKM at 408 and Universiti Telekom Petronas at 559. The performance of Malaysian universities in terms of Southeast countries is indicated in Table 6. It is curious to note that except for those topped ranked universities which are active in OAI research (MIT, Virginia Tech in the USA) the other highly ranked universities seems less active. The *Oxford University Eprint repository* is ranked at 504 and the *Oxford University Research Archive* is ranked at 707. The performance of Malaysian repositories amongst the 8000 world repositories is given in Table 7.

Table 7: Performance of Malaysian Universities Repositories

World Rank	University	Size	Visibility	Rich files	Scholar
686	Universiti Putra Malaysia	688	887	1064	342
725	Universiti Sains Malaysia	500	1097	1195	256
733	Universiti Teknologi Malaysia	519	1487	852	126
778	University of Malaya	857	1328	1239	100
985	Universiti Kebangsaan Malaysia	849	1515	1063	614
1367	Universiti Teknologi Mara	1010	1285	1870	2254
1413	Universiti Malaysia Perlis	1697	1518	3974	501
1454	Universiti Utara Malaysia	1623	2249	1531	776
1528	Multimedia Universiti	1173	1595	1771	2250
1576	International Islamic University Malaysia	2199	1510	2034	1747
2273	University of Nottingham Malaysia	5233	2256	3927	1091
2546	Universiti Malaysia Pahang	3280	4136	1341	2088
2665	Universiti Tenaga Nasional	2877	4348	2244	1632
2681	Universiti Malaysia Sabah	2271	2844	4153	2899
3185	Universiti Teknologi Petronas	5571	1704	7812	3848
3212	Open University Malaysia	4022	3388	4632	2776
3222	Monash University Malaysia	5186	2446	4069	4539
3441	Universiti Sarawak Malaysia	4622	2116	6946	4857
3508	Universiti Tun Hussein Onn Malaysia	2446	5039	2524	4053



3741	Universiti Malaysia Terengganu	4914	4174	4889	2801
3788	Curtin University of Technology Sarawak Campus	7085	2029	5726	6624
3874	Universiti Pendidikan Sultan Idris	2769	3424	5014	7086
4060	Taylor's University College	5031	5360	6052	1876
4149	Islamic Science University of Malaysia	3870	5595	7385	1831
4165	Universiti Tun Abdul Razak	3439	5365	5084	3321
4197	Universiti Teknikal Malaysia Melaka	3099	5361	3674	4893
5065	University of Kuala Lumpur	6128	3008	9389	8563
5276	Sunway University College	5968	6114	7232	3287
5413	Universiti Tunku Abdul Rahman	5540	6198	4541	5946
5763	Asia Pacific Institute of Information Technology	4643	5656	6722	6001
5834	Wawasan Open University	6644	6441	7093	4187
6104	Universiti Darul Iman Malaysia	5267	5186	8572	8563
6353	Universiti Industri Selangor	5968	5126	9356	8563
6358	UCSI University	8026	6816	5408	5547
6395	Help University College	5060	6498	7353	7631
6662	Tunku Abdul Rahman College	7882	5182	11331	6004
6788	KDU College	5352	5269	11453	9750
6884	University of Malaya Medical Centre & Faculty of Medicine	7439	6546	8452	6098
7077	Malaysia Theological Seminary	11580	4471	8348	8563
7089	Universiti Malaysia Kelantan	7858	5877	9378	8001
7193	Segi College	7387	7007	7791	7252
7235	International Medical University	8596	7052	9764	4715
7429	LimKokWing University of Creative Technology	6068	5852	12727	9750
7907	National Defence University of Malaysia	10537	4916	12406	9750

Source: Ranking Web Universities by countries, Cybermetrics lab, 10 July 2010. Available at: http://www.webometrics.info/rank_by_country.asp?country=my

The Cybermetrics Laboratory also provides ranking by country (Table 8) using a different sets of indicators listed below.

- **System**: Number of universities in the Top 500 in the given country, divided by the mean position of those institutions.
- **Access**: A score built according to ranks (5 points for a university in the top 100, 4 points for 101-200, 3 points for 201-300, 2 for 301-400 and 1 for 401-500) divided by the population size (root of the population in thousands) of the country (World Bank, 2007).
- **Flagship**: A normalized score (100 for positions 1-20, 96 for 21-40, and so on) based on the leading university rank for countries with institutions among the Top 500.
- **Economic**: Same score as the access defined before but divided by the GDP (PPP) per capita for the country in question (World Bank, 2007).

Table 8: Distribution of Repositories by Continent

Continent	Top 200	Top 500	Top 1000
USA & Canada	114	200	370
Europe	60	223	408
Asia	15	45	124
Oceania	6	14	35
Latin America	4	14	44
Arab World	1	5	4
Africa		1	5

Source: Ranking Web, Cybermetrics Lab, Spain , 10 July 2010.
Available at http://www.webometrics.info/Distribution_by_Country.asp

The advice given by the Cybermetrics lab group is as follows.

" **If the web performance of an institution is below the expected position according to their academic excellence, institution authorities should reconsider their web policy, promoting substantial increases of the volume and quality of their electronic publications".**

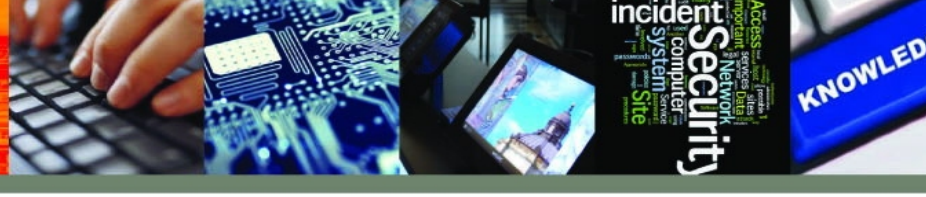
1.5. Implications for Libraries

Aware of OA Issues

Open access should have an impact on libraries, especially academic libraries. First and foremost, librarians must be knowledgeable about what OA means, the differences between OA and free access, what is open repositories, creative commons license, e-prints, post-prints, self archiving, OA journals, how do users search for OA documents, how OA repositories and journals affect the library's collections and in Malaysia how open access affects institutional research visibility and impact. Bailey (2006) proposed that librarians should be able to advice university management about the feasibility about setting up institutional repositories using OA software to increase institutional visibility and impact and to educate academics about self-archiving, about the types of institutional materials that can be archived and the degree of accessibility given to users. The presence of Malaysian academic libraries in ROAR shows an awareness of academic librarians about this issue. However, the spirit of OA is not being readily applied as restrictions are being imposed by some libraries, to their academic's journal articles and especially theses and dissertations. Open access should mean "removing permission barriers". Libraries may adopt the Creative Commons license agreement where the rights remain with the authors who may grant users with certain rights or the authors give up all rights and makes his work available freely to the public.

Remove Price crisis and Limited Permission Crisis

Suber (2003) proposed that advocating to open access help remove all woes faced by libraries as it removes serials pricing crises, remove legal barriers from copyright laws and license agreement. He observed that even though libraries pay huge sums of money to subscribe journals, their freedom to archive is limited by licensing agreements. In a sense libraries now pay more "in order to get much less". Suber terms the crises libraries face as "permission crisis".



Adopting the open access policy makes scholarly literature become available to everyone and users are allowed to read, download, share, store, print, link and cite. Just think if all librarians manage to influence the academic publishers in their institutions to adopt the OA policy. There would be no more subscriptions, pricing issues are solved, permission crisis is removed and what exist are mutual linking of inter-university repositories, a situation of sharing and using. The costs of providing OA repositories and OA journals are absorbed by the funding institutions. But of course this is an ideal situation as there will always be those who are overly cautious about opening access to their institutional scholarly works which are usually underuse because other users are simply unaware of their existence.

Suber (2004) identified the advantages libraries get when advocating OA repositories and AO journals.

- Libraries have the right to archive for example journal issues as a backup to existing sites or to archive past print issues to supplement those available online. This is especially true for journals which have a long print run.
- Libraries would be able to convert materials to new media format to keep them readable as technology changed.
- Libraries would make all materials available to all users, on-site and off.
- Users would not be limited by password, IP address, usage hours or ability to pay.
- Libraries could emphasize that faculties should donate their research papers to the repositories to increase visibility. In return faculty could equally use other items available in the repositories.
- Libraries do not have to negotiate for prices or licensing terms.
- Libraries need not cancel serials due to reduced budget.

Help in the development of Institutional IRs

Bailey (2006) itemized how libraries can help in the development of institutional repositories.

- Help create IR policies and procedures and to provide
- Provide feedback about the work process of the IR.
- Assist in designing the IR user interface so that it is clear, easy to use,
- and effective.
- Help identify self-archiving activity and processes in their various institutions
- Promote the IR to faculty and graduates.
- Introduce IR in user education programmes
- Provide assistance to academics and students on how to deposit items and search for items.
- Help in enhancing the descriptors or metadata to items in Irs.
- Help in monitoring the quality control of deposits in Irs as chief cataloguers have done for years for library catalogue entries.

Provide Advice to AO Journal Publishers

Librarians can advice academic journal publishers to adopt the golden publishing model used by *PLoS Medicine*, if institutional support is not available. Ask authors to pay a minimal sum to publish their refereed and accepted article and users are given full access. This situation is quite plausible as most researchers obtained funding for their research and the cost of publishing can be absorbed by such funds.

Libraries as Publishers of OA journals

Libraries have been involved in publishing electronic journals. The University of Houston published *The Public-Access Computer Systems Review* in 1989. In 1990s, the Scholarly Communications Project of The Virginia Polytechnic Institute published the *Journal of the International Academy of Hospitality Research*.

Libraries Can Collaborate in Building Special Collections

There have been successful OA initiatives which involved the collaboration between both libraries and research groups. Examples are MIT libraries/Hewlett Packard in *DSpace* (Mackenzie, et al. 2003) and University of Virginia Libraries in *Fedora* (Staples, Wayland and Payette, 2003). At the University of Malaya, two initiatives grew from such collaboration. Libraries often synchronize this collaborative venture as part of their digitization project. This is absolutely true for special libraries which are not well funded. The Dewan Bahasa and Pustaka Library (DBPL) has benefitted in collaborating with University of Malaya Digital Library Research Group in acting as the content expert and provider for the digital library of Malay manuscripts (*MyManuskrip*), funded by the Ministry of Science, Technology and Innovation between 2007 and 2009 (Figure 3). In this collaborative repository (Zainab, Abrizah & Hilmi, 2009), DBPL has successfully digitized 69 titles of original Malay manuscript costing close to RM60,000 using allocations from the research grant. Another partner of the digital library is the University of Malaya Library which benefitted from the project by getting 102 titles of their Malay manuscripts digitized which cost about RM90,000 and a dedicated microform scanner used to convert microform version of manuscripts to the digital format (the scanner costs over RM50,000). *MyManuskrip* is listed in ROAR as a cross-institutional repository and currently holds about 179 items.

Figure 3: Main Page of MyManuskrip.Available at http://mymanuskrip.fsktm.um.edu.my/Greenstone/cgi-bin/library.exe

Another collaborative effort is *DSpace@UM* (Abrizah, 2009), an institutional repository that provide access to over 763 theses and dissertation mainly submitted to the University of Malaya. The Digital library Group currently hosts the repository, which will eventually be taken over by the University library. The UM library coordinates the collection of digital copies of students' theses submissions and provide these to the Digital Library Research Group to be used as the content for simulation. This project is funded by the University of Malaya Research Grant between 2009 and 2010 (Figure 4)

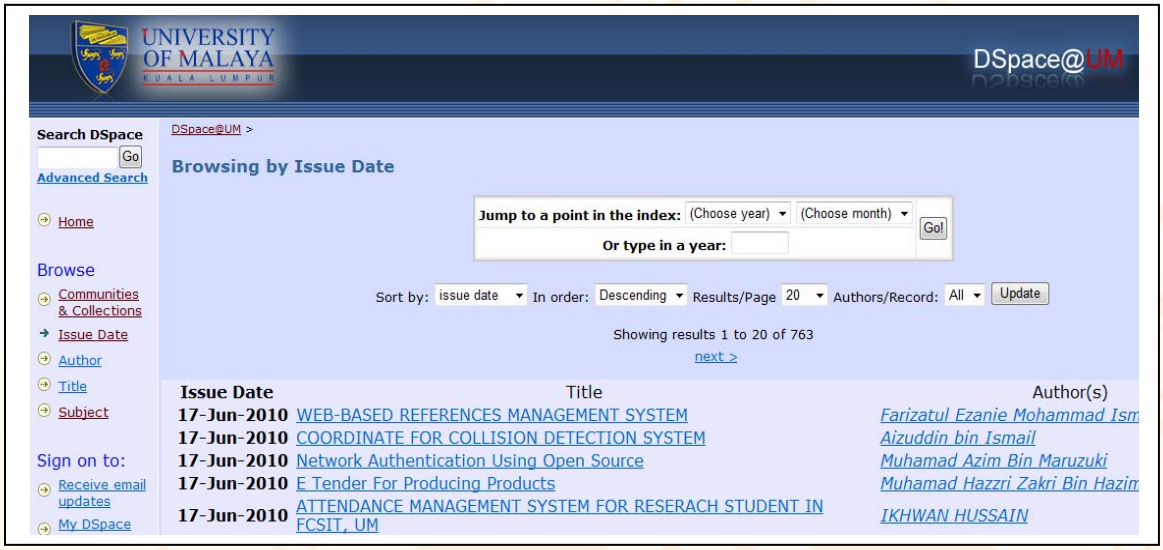


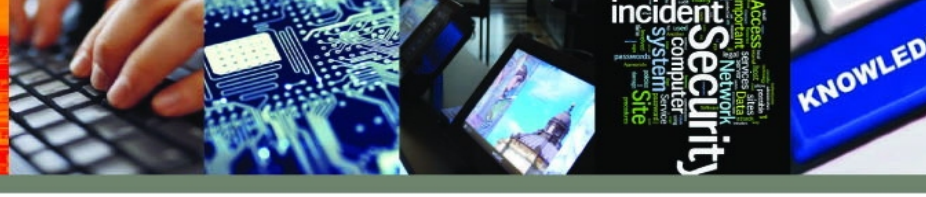
Figure 4: Main Page of MyManuskrip

Abrizah (2009) assessed the readiness of University of Malaya academics in accepting and contributing to *DSpace @UM*. She surveyed 131 academics from 14 faculties and reported favourable response from the science-based faculty members and 60% of the respondents were in favour of depositing theses and dissertations in the repository. Respondents were motivated by the open access principle and understood that this would their work more accessible. There was fear about copyright and plagiarism issues and the fear that depositing their pre-prints would prevent their work from getting published. The respondents also perceived that a mandate from the university and funding bodies would help put these worries to rest.

In both these collaborative initiatives libraries win in terms of;

- Getting their rare items digitized without incurring any financial cost
- Obtaining more experience in setting up an OA repository and understanding the processes that need to be structured; and
- Making their institutional research and rare items more visible and open to the public to be read, use and cited.

Westrienen and Lynch (2005) clearly say it all. Their world survey of institutional repositories revealed problems such as the difficulties of convincing faculties about the value of institutional repositories; problems of convincing them to contribute their works, problem of ironing out issue of copyright and intellectual property, the suspicion authors have with open access rights, the problem of dispelling believes of losing impact and scholarly credit, and the cumbersome submission system of some archives which "put off" some faculties.

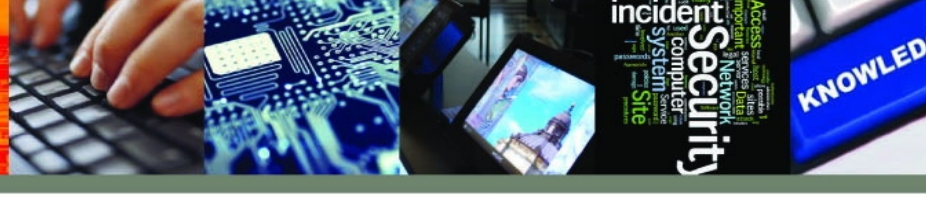


Problems such as copyright ownerships seem to be able to be resolved, as attitudes are beginning to change. More e-print, e-journal and print journal publishers are allowing authors to retain the copyright to their works. The *Electronic Journal of Comparative Law* (*EJCL*), *British Medical Journal* and *Nucleic Acid Review* (the latter two had recently switched to an open source model) allow their authors to keep their copyright and mentions in the copyright notice that articles may be produced for educational purposes and other uses should seek author's permission. In this situation, the publisher asks only for a license to publish the article as the first publisher. Authors are allowed to republish their article on other platforms and are obliged to mention *EJCL* as the original source. This is becoming a typical copyright policy adopted by many open access electronic journals and the majority of authors (71%) who published in open access journals also agree that they should be allowed to keep copyright of their works (Hoorn, 2006).

1.6 Conclusion

OA electronic journals, e-print repositories and archives could make Malaysian research available and visible and increase the chances for use and exchange of ideas among scholars within similar disciplines. The "end" of scholarly communication may therefore be fulfilled, that is to provide an environment for scholarly inter-communication, establishing recognition for authors, conferring authors with the right to disseminate various versions of their articles as reflected by an on-going research activity, and allowing authors to disseminate to the largest audience possible. The future of scholarly communication will definitely be dominated by OA electronic journals and archives as a channel for communication, and should be planned on an open access initiative in various focused subject areas as exemplified by *arXiv.org* and *E-print in Library and Information Science (E-LIS*), which encourage authors to submit their articles to the e-print repositories.

Where do libraries fit in this situation? Subject librarians and faculty liaison librarians could play the role of creating awareness amongst academics of the various faculties they are responsible for. To contend that academics know about the existence of electronic journals and repositories within their discipline is more often a fallacy. With the current universities' emphasis for their faculty members to publish in journals, librarians could help by making them aware that more OA journals are refereed, some are highly cited and indexed by the ISI databases and SCOPUS. With a little bit of homework, the data can be given to them as evidence. Academics could be informed either through personal emails or an online directory of electronic journals categorized by broad disciplines as reflected by the faculties which exist within the university. Subject indexes could inform academics of the types of OA journals, and e-print archives that are available in the respective disciplines, and also provide information such as the refereeing status of the journals, their impact factor, if any, and whether they are on open access. On top of this, the OA journals and repositories electronic journals should be catalogued as a resource, searchable in the library's OPAC and actively linked to the actual electronic OA journals. Ultimately, it is the case of, whether the academics' knowledge about the OA electronic journals will induce them to start using it for dissemination and research consumption - a case of "to know is to use".



References

Abrizah A. 2009. The cautious faculty: their awareness and attitudes towards institutional repositories, *Malaysian Journal of Library & Information Science*, 14 (2): 17-37.

Agerbæk, A. and Nielsen, K. 2010, Factors in Open Access which Influence the Impact Cycle *ScieCom info*, 6(1) (issue notice posted 22 March 2010).

Antelman, K. 2004. Do Open-Access Articles Have a Greater Research. *College and Research Libraries,* 65 (5), 372-382.

Aguillo, I.F., Ortega, J.L., Fernández, M., Utrilla, A.M. 2010. Indicators for a webometric Ranking of Open Access Repositories. ***Scientometrics***, 82 (3): 477-486

Bailey, Charles W. 2006. Open access and libraries (preprint 1/11/2006). Available at http://www.digital-scholarship.org/cwb/OALibraries2.pdf. Accessed 10.7.2010.

Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities, 23 October, 2003. Available at: http://oa.mpg.de/openaccess-berlin/berlin_declaration.pdf

Brinkman, W. 2002. Brinkman outlines priorities, challenges for APS in 2002, *APS News Online*. Available at http://www.aps.org/apsnews/0102/010208.html.

Craig, I. D., Plume, A. M., McVeigh, M. E., Pringle, J., & Amin, M. 2007. Do Open Access Articles Have Greater Citation Impact? A critical review of the literature. *Journal of Informetrics*, 1 (3), 239-248.

Crow, R. 2002. *The case for institutional repositories: a SPARC position paper*. Available at: http:////www.arl.org/sparc/IR/ir.html.

DOAJ - Directory of Open Access Journals, 2010, Lund University Libraries. Available at http://www.doaj.org/

Eysenbach, Gunther. 2006. Citation advantage of open access articles. *Plos Biology*, 4 (5): E157. Available at http://www.plosbiology.org/article/info:doi/10.1371/journal.pbio.0040157.

Gadd, E., Oppenheim, Charles and Probets, S. 2003. The intellectual property rights issues facing self-archiving: key findings of the RoMEO project, *D-Mib Magazine* 9(9) September.

Giglia, Elena. 2010.The impact factor of open access journals: data and trends. Paper presented at the *14th International Conference on Electronic Publishing*, Helsinki, 16-18 June, 17-39. Available at http://dhanken.shh.fi/dspace/bitstream/10227/599/72/2giglia.pdf (e-mail: elena.giglia@unito.it)

Ginsparg, P. 1994. First steps towards electronic research communication. *Computers in Physics*, 8(4):390-396.

Ginsparg, P. 1996. *Winners and losers in the global research village*. Paper presented at the Conference on Electronic Publishing in Science, Paris, UNESCO, 10-23 February 1996. Also available at http://xxx.lanl.gov/blurb/pg96unesco.thml.

Ginsparg, P. 2002. Can peer review be better focused? *Science and Technology Libraries*, 22 (3/4) 5-18.

Harnad, S. 2003. Eprints: electronic preprints and post-prints, In: *Encyclopedia of Library and Information Science.* Marcel-Dekker, 6p. Also available at, http://222.ecs.soton.ac.uk

Hitchcock, Steve. 2003. Explore open archives: core meta list of open access eprint archives. *ARL bimonthly report,* (227) April. Also available at http://opcit.eprints.org/explorearchives.shtml.

Hitchcock, Steve, 2004. *The effect of open access and downloads (bib) on citation impact: a bibliography of studies.* Open Citation Project, updated June 2010. Available at: http://opcit.eprints.org/oacitation-biblio.html

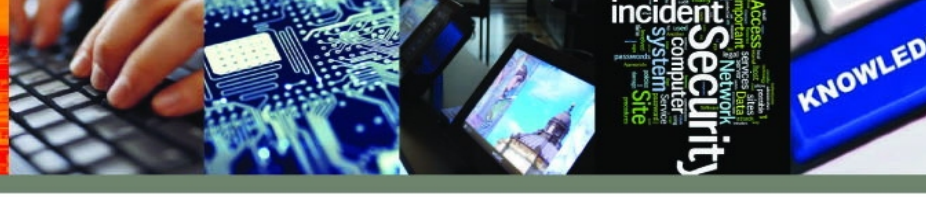
Hoon, Esther and Van der Graaf, Maurits. 2006. Copyright issues in open access research journals. *D-Lib Magazines* 12 (2) Fen; 9p. Available at http://www.dlib.org/dlib/february06/ vandergraaf/02vandergraaf.html.

Kling, Rob, Spector, Lisa and McKim, Geoff. 2002. The guild model, *Journal of Electronic Publishing*, 8(1): 16p.

OpenDOAR: Directory of open access repositories. University of Nottingham, 2006-2010. Available at http://www.opendoar.org/

Open source software directory. by Jeroen Verhoectx. Available at (http://www.opensourcesoftwaredirectory.com/). Accessed 9.7.2010)

Lawrence, Steve. 2001. Free online availability substantially increases a paper's impact, *Nature,* 31 May.



MacKenzie Smith, Mary Barton, Mick Bass, Margret Branschofsky, Greg McClellan, Dave Stuve, Robert Tansley, and Julie Harford Walker, 2003. DSpace: An Open Source Dynamic Digital Repository, *D-Lib Magazine* 9 (1), http://www.dlib.org/dlib/january03 /smith/01smith.html.

McVeigh, Marie E. 2004. *Open access journals in the ISI citation databases: analysis of impact factor and citation factors*. Thomsen Corporation. Available at: http://docs.google.com/viewer?a=v&q=cache:oT9vBCCr460J:science.thomsonreuters.com/m/pdfs/openaccesscitations2.pdf+Impact+of+Open+Access+journals:+a+citation+study+from+Thomson+ISI.&hl=en&gl=my&pid=bl&srcid=ADGEESjze1n9F1yVRCw5USWaCdPtQ0TpjgxRomi7DRF1XSpNBEIb0mD7NO-stazq9whFAVSB-War0XU2HfQrxFFxV9mdoB2J8JpZKw2N7ppessP5a5j8lyU5EJ_aTAf-z42GwsKdnkpf&sig=AHIEtbSQkaPZNrPAs_PN2y8IilZK1-fTxg

Nielsen, Anders Agerbaek Kjoller. 2010. Factors in open access which influence the impact cycle. *Sciecominfor* (1) 2010. Available at, http://www.sciecom.org/ojs/index.php/sciecominfo/ article/viewFile/3549/3123

Ranking Web of World Repositories, 10 July 2010. Cymetrics laboratory, Spain. Available at: http://repositories.webometrics.info/about.html 2004-2010

Registry of Open Access Registry. 2005-2010. Tim Brody. University of Southampton. Available at: http://roar.eprints.org/

Rowland, Ian and Nicholas, Dave. 2005. *New Journal publishing model: an international study of senior researchers.* A CIBER report for the Publishers Association and the International Association of STM Publishers, 22 Sel, 64p.

Savage, Lou. 1991. The Journal of the International Academy of Hospitality Research, *The Public-Access Computer Systems Review* 2(1): 54-66, Available at http://info.lib. uh.edu/pr/v2/n1/savage.2n1.

Suber, Peter. 2007. Open source overview: focusing on open access to peer-reviewed research articles and their preprints. *Open Access news*, 2007. Available at: http://www.earlham.edu/~peters/fos/overview.htm

Suber, Peter. A very brief introduction to open access, Open access News, 29 Dec 2004. Available at: http://www.earlham.edu/~peters/fos/brief.htm.

Suber, Peter. 2003. Removing the barriers t research: an introduction to open access librarians. *College & Research Libraries News* 64, 92-94, 113. Also available at http://www.doaj.org/

http://dash.harvard.edu/bitstream/handle/1/3715477/suber_crln.html?sequence=5

Swan, A. 2010. *The Open Access citation advantage: Studies and results to date*. Truro, UK:Key Perspectives Ltd, 17 p. http://eprints.ecs.soton.ac.uk/18516/

Testa, James and McVeigh, Marie E. 2004. *Impact of Open Access journals: a citation study from Thomson ISI.* Thomson Corporation, Available at http://www.thomsonscientific.jp/ event/oal/impact-oa-journals.pdf. Accessed 7.7.2010.

Thornton Staples, Ross Wayland, and Sandra Payette,2003. The Fedora Project: An Open-Source Digital Object Repository Management System, *D-Lib Magazine* 9, no. 4, http://www.dlib.org/dlib/april03/staples/04staples.html.

Ware, Mark. 2004. Universities' own electronic repositories yet to impact on open access, *Nature*, 7p. Available at http://www.nature.com/nature/focus/accessdebate/4.html.

Zainab, A.N., Abrizah, A, Hilmi M.R. 2009. What a Digital Library of Malay Manuscripts Should Support: An Exploratory Needs Analysis. Libri, Vol.59 no. 4, 275-289.