

A B S T R A C T B O O K



SOCIETY FOR INFORMATION SCIENCE



27th

**Annual Convention of the
Society for Information Science**

**Open Access
Gateway to Open Innovation**



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Indian Institute of Chemical Biology

&

Bose Institute, Kolkata

Society for Information Science (SIS)

**27th Annual Convention of the
Society for Information Science &
Conference on
Open Access
Gateway to Open Innovation**

Invited Talks

Open Access: Why, where are we and what do we need to do?

Subbiah Arunachlam

Let us begin with a bit of history. Science and scholarship are communal activities where the role of individual is dependent to a great extent on the contribution of others across space and time. As Sir Isaac Newton had said, one sees farther because one stands upon the shoulders of giants. Ever since the first professional journals came into being in 1665, the printed journal has become the main channel of knowledge dissemination among scientists and scholars. Over a period of time, the number and kinds of journals grew and scientists evolved self-regulation and peer review systems. As far as the contents go, the number of researchers and hence the volume of research increased manifold, and original research journals branched of into review journals, letters journals, annual reviews, etc. and the writing became more crisp and even cryptic. This development was matched by a corresponding development in technology - from hand composing types cast from lead to machine composing and electronic composing. Academies and professional societies could not cope with the massive increase in the volume of work, nor were they able to create new journal titles to focus on emerging research fronts. Enterprising commercial firms stepped in as journal publishers.

Things were working well till about three or four decades ago, when publishers started increasing the subscription costs of journals and started consolidating into monopolies. Librarians in academic and research institutions started to feel the pinch. They were not able to retain subscriptions to all the journals they were subscribing and had to prune the list every year. Both the librarians and their clients felt the pinch of the 'serials crisis.'

In the early 1990s Paul Ginsparg of the Los Alamos National Laboratory had already come up with arXiv, a preprints repository for high energy and condensed matter physics, and physicists around the world were exchanging new research information even before publishing it in refereed journals. A little later, Tim Berners Lee of CERN came up with the World Wide Web, providing a platform for all to exchange information freely. In 1990 Stevan Harnad came up with his classic paper "Scholarly Skywriting and the Prepublication Continuum of Scientific Inquiry."

Although the research community and librarians did not take full advantage these developments in the beginning, the worsening serials crisis forced them to adopt open access.

There are two ways of achieving open access: Either by placing the full text of one's research paper in an open access repository or by publishing one's paper in an open access journal. The first is called green OA and the second gold OA. There are two kinds of repositories: institutional and central. There are OA journals which are free to authors and free to readers such as Current Science. There are OA journals where the authors (or their institutions) need to pay a publication fee. Again there are OA journals which are free immediately on publication and there are others which impose an embargo of a few months. DOAJ lists over 5,630 OA journals of which at least 2,400 are searchable at article level. ROAR lists about 2,000 repositories. The largest repositories are Hispana (~2 million entries), PubMed Central (~1.97 million), CiteSeer (~1.44 million), Humanities Text Initiative (~1.38 million), and

RePEc (~1.11 million). The physics archive arXiv has close to 6.4 million records. In all, about 20% of all research papers are now available through open access channels.

In India we have approximately 250 OA journals, more than 100 of them brought out by MedKnow, Mumbai. All journals published by IASc, INSA and NISCAIR (CSIR) are OA. India also has about 50 repositories, but most of them not filling up fast.

Only two institutions in India - NIT Rourkela, and ICRISAT, Patancheru - have mandated OA for all research publications.

Efforts made so far have resulted in partial success. Many workshops have been held on electronic publishing, EPrints, DSpace, and open access. Many overseas experts have come to India and spoken at these meetings as well as spoken to leaders of Indian science one on one. Hundreds of emails have been sent to policy makers, science administrators, directors of institutions, vice chancellors, professors and scientists on the advantages of and need for adopting OA. Pleas for open access made to key science administrators have mostly fallen deaf ears. There are a few exceptions. The Director General of CSIR sent out a request to directors of all CSIR labs to set up institutional repositories on 6 February 2009, but many labs have not set up one till this day. The Ministry of Earth Sciences has set up a central repository for all of its labs. The National Knowledge Commission has recommended open access.

Informatics India Ltd has come up with Open J-Gate, a free service providing access to the largest number of open sources.

Seven IITs and IISc came together to generate open education resources of quality with funding from the Ministry of HRD.

We need to continue advocacy campaigns. We may use the examples of information professionals such as Francis Jayakanth of IISc, Muthu Madhan of ICRISAT and Edwin Joseph of CMFRI to goad others to set up institutional repositories in their respective institutions. We may impress upon them the need for less talk and more action. It does not take much time either to set up or to populate an institutional repository, as has been shown by librarians at NIT Rourkela and CMFRI.

We need to convince researchers not to surrender copyright to their research to journal publishers. They should be persuaded to retain certain key rights such as right to reproduce for use in classes they teach or in books/book chapters they may write in future, and the right to place the full text in an institutional repository.

We may work with knowledge managers and computer professionals such as Venkataraman Balaji of the Commonwealth of Learning and T V Prabhakar of IIT Kanpur who have developed tools such as agrotagging for facilitating easy access to agricultural literature in the age of the web.

To conclude, the world is moving towards full open access and if we do not act now and act fast we may be left behind. And that will not be good for a nation with ambitions of becoming a knowledge power.

Open Innovation and Open Access

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In today's high- tech knowledge economy every new product is based on integration of number of technologies and this requires availability of all the technical capabilities within the organization. In the fast paced world no organization can keep all the skills at the cutting age. Even if an organization wishes to do so, the pace of technical change is so high that it is impossible to do it. Organizations therefore are keeping certain core competencies in-house at the cutting age and rest of the skills are acquired on a need basis from outside. This has given rise to a new paradigm called "Open Innovation" that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology.

This presentation will explain in detail how the "Open Access" facilitates the "Open Innovation" moment and benefits the researchers and research institutions.

Evolution of Institutional Repositories

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The access barrier to the peer reviewed scholarly literature can be mitigated to a great extent if the institutes of higher education / universities set up their respective institutional repositories. The institutions should also ensure that the final accepted copies of all the peer reviewed scholarly publications emanating from the institutions are placed in such repositories.

Institutional repositories not only help in overcoming the access barrier they also are becoming essential tools for the universities as they provide the solution to a number of issues critical to the future functioning of these institutions.

First, they provide the means to disseminate the outputs from universities cheaply, effectively and efficiently.

Second, as a result of this worldwide visibility, repositories provide universities with new impact.

There are advantages within the institution, too. If the whole research output is collected in the repository, then it becomes part of the management information system of the university.

The items listed above focuses on the institutional advantages and benefits that a repository provides. There is a much broader vision to explore as well. Repositories will form the data layer of the future – the layer where research articles, datasets and other digital items that support research will be located. This system will support the e-research (or e-science) agenda, facilitating the sharing of research data and their curation and preservation. Services, too, will work on this data layer, aggregating content in different ways, analysing content, disseminating it in targeted ways, providing in-out communication channels, and enabling researchers with the means to organise and display their own content in new ways.

This may all sound ideal but there is a long way to go before the vision can be realised. The talk will reflect on progress so far in technical, cultural and policy areas with respect to institutional repositories.

The Open Knowledge Network: an introduction

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The Open Knowledge Network is a series of events which aims at production, collection, sharing and distribution of different knowledge in an open manner. It uses a flexible technical solution to manage an exchange of ideas as well as experiences, like WorldSpace satellite, dial-up landlines and mobile phones. It aims at facilitating exchange of content from a local level/language to a global network. There are a number of different initiatives through out the world. The open knowledge network operates as a human network in parts of Africa, South Asia and Latin America in order to collect, support, disseminate and share local knowledge. In India many University Departments and Research laboratories are being connected by high bandwidth connection for the processing and exchange of huge amount of data. It is a developing area of open access initiatives in India.

Open Access Repositories: Opportunity to generate brand new library services

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Setting up interoperable open access institutional repositories and populating them with local research outputs have already become the mainstream business of librarians across the world. Interoperable institutional (research outputs) repositories are going to do much more help than what traditional publishing and library systems have done to the scientific community. Umpteen number of mashup ideas are being experimented across the web, but, their success largely depend on open access to scientific information and more importantly the formats in which it is presented. It is time for librarians to realize setting up open access repository and populate it, is a starting point for a huge revolution in scientific communication. It is a huge opportunity for librarians to move the libraries from the state of staidness and rebranding them to be a catalyst for the developments in the modern scientific communication process. The speaker will explain the above statements citing the project cases from web. He will also share his experiences about a few successful repository projects in which he had an opportunity to work.

Towards Open Library Systems

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The last decade in software industry witnessed a storm called open source movement. This movement is based on a simple philosophy that a piece of software is digital version of human knowledge, and therefore, these products of human intellect should be available freely (Mukhopadhyay, 2006). The English word 'Free' has dual meaning – one is 'Free of cost' and the other one is 'Freedom'. Open source movement has emphasis on 'Freedom' – freedom of customization, freedom of distribution, freedom of application, and freedom of building partnerships with developers (that's why these are now termed as Free/Libre Open Source Software or simply FLOSS). In open source movement, end users are very much part of the development process, a long desired facility neglected by commercial software vendors since beginning of the software game. Analysis of definitions given by Chudnov (1999), Raymond (2001), Moody (2001), OSI (2006) and Morgan

(2002), identifies following attributes of Open Source Software (OSS) – i) OSS is typically created and maintained by developers crossing institutional and national boundaries, collaborating by using Internet based communications and development tools; ii) OSS development process follows the famous Linus’s law – “Release early, release often and listen to users”; iii) Quality, not profit, drives open source developers who take personal pride in seeing their working solutions adopted; and iv) Intellectual property rights to open source software belong to anyone who helps to build it or simply use it and is not locked to any single vendor or institutions.

Open source software world is dominated by two major philosophies namely the Free Software Foundation (FSF) philosophy and the Open Source Initiative (OSI) philosophy. The philosophy of FSF centres around four user-driven freedoms – 1) the freedom to run a program, for any lawful purpose; 2) the freedom to study how a program works and adjust it to specific needs (obviously access to the source code is a precondition for this); 3) the freedom to redistribute software; and 4) the freedom to improve a program and distribute modified program (again access to the source code is a prerequisite for this). Therefore, we may say that Freedom is at the core of FSF philosophy – the freedom to use, study and customize, the freedom to redistribute, the freedom to cooperate. FSF philosophy is against to software patents and additional restrictions as included in existing copyright laws. On the other hand, the OSI philosophy is slightly different from FSF philosophy. The philosophy of OSI gives less emphasis on the ethical issues as proposed by FSF and is directed towards the practical rewards of the distributed development process of open source software. It targets on the technical values of participatory software development model for developing software, and is more business-friendly than the FSF. But there are many common issues in these two philosophies of open source software development such as efforts against proliferation of commercial software, software patenting and efforts in making software development process easy and user friendly. Richard Stallman, the father of FSF, rightly said that the Free Software Movement and the Open Source Movement are two political parties in the same community (Wong and Sayo, 2004).

Digital Library Federation (2004) of USA considers and advocates use of OSS in libraries in its draft report on the basis of following reasons. These are as follows:

- OSS is an economical alternative to libraries’ reliance upon commercially supplied software. It means that the real costs involved in the development, maintenance, and use of OSS software are lower than those associated with commercial software (license, upgrading and maintenance fees);
- OSS is essential if libraries are to develop software and systems that meet their patrons’ needs. With OSS the IT infrastructure for library operations and services can be:
 - Open (that is, built according to open standards and as such potentially interoperable with other software and systems);
 - Ubiquitously available to libraries;
 - Capable of being tailored to suit the needs and circumstances of individual libraries;
 - Documented (and documentation is accessible to all); and

- o Modified and corrected more effectively (“many eyeballs make bugs shallow”).
- OSS ensures that library systems and online services will be more functional for patrons because libraries, through OSS movement, -
 - o Are reinserted into the research and development process that results in new systems and software;
 - o Can share a stake in software development and thereby have greater influence over (and as a result take a greater interest in specification of) the functional and performance requirements associated with particular software tools and systems;
 - o Can motivate and empower systems librarians and related technical staff by encouraging creativity and positioning them to make a difference; and
 - o Are able to collaborate more easily with experts of other similar domains engaged in common research and development activities.
- OSS democratizes the use of software applications in libraries irrespective of the type or size of the library.

Since 1999, different open source software are available for different domains of application in libraries such as GSDL, DSpace, Fedora, Eprint etc. for digital library initiatives; ISISMARC, MARCEdit, etc. for automated cataloguing; Koha, Emilda, PHPMyLibrary, Avanti, WEBLIS etc. for library automation; BardodeFly, EasyBarcode etc. for bar-coding, and many more. The list is growing everyday. Certainly OSS provides new opportunities in the development of library system and services in an economic way (Riewe, 2008). But at this point it is too early to say that OSS is all set to replace proprietary software. In fact the issue is more whether OSS can provide a viable alternative and obviously there remain a number of obstacles to its wider adoption. First of all, OSS generally demands higher level of technical knowledge to install and maintain it. Users who migrate to open source applications face a steep learning curve and owing to this reason, the implementation of open source solutions today tends to be restricted to infrastructure and other “invisible” applications such as servers, where technical personnel are responsible for their installation and management (for example around 60 percent of the world’s Web sites run on Apache web server.)

Open source, then, offers new opportunities but also raises a number of challenges for the library and information community. Many library automation software vendors say (Poynder, 2001) that open source isn’t an easy option for libraries as it requires them to take more personal responsibility for their system and they have to carry the burden of development themselves, or to turn to a commercial vendor to mould the product to their needs. True, but one should not forget that OSS is not only a software development and delivery model, it is also a software solution model that helps users through discussion forums, FAQ (Frequently Asked Questions), online chats, manuals and developer’s guides. In this context we may quote Andy Powell (2002), assistant director of the U.K. Office for Library and Information Networking (UKOLN) - “You might well need a higher level of technical understanding, but with good open source solutions help is often just an e-mail message away”.

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Requirement Analysis Model of Digital Rights Management Licensing

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Requirements of DRM licensing model are determined on the basis of intuitive understanding of requirement analysis, its management through various requirement interaction and deletion of dependencies between a number of requirements of DRM. The finalized requirements after a process of iterative requirement analysis are engineered to a model. The model is either previously determined in the form of a framework or a well-defined generic template is made to customize the requirements to fall into place for the present need.

Requirement Analysis and related management of dependencies are two major elements of requirement engineering. This paper covers various categories of requirements of DRM licensing including open source and open ware licensing like [Robinson et al, 1999]:

1. System requirements
 - a. Hardware requirements
 - b. Software requirements
 - c. Requirements on system users
 - d. Development requirements
 - i) Cost-effectiveness
 - ii) Timeliness
 - e. Development aspects of the resulting products
 - i) Reusability
 - ii) Maintainability
 - iii) Portability
2. Functional requirement (FR) – These requirements describe a function or a process as a relationship between inputs and the resulting outputs.
3. Non-functional requirements (NFR) – These requirements describe attributes of the execution of a function. Various quality parameters of functional requirements are the subjects of NFR such as:
 - a. Efficiency
 - b. Reliability
 - c. Performance
 - d. Safety
 - e. Security

These are also called system qualities.

4. Abstraction requirements – A requirement abstraction hierarchy can be defined in this category of requirement.
5. Development properties – A proposed requirement may have the development properties of acceptance, rejection, pending or shelved for the time being.
6. Representational properties of requirements – Representation of requirements may be in a natural language or a more formal representation in UML, Z or in predicate calculus.

The modeling activity of DRM licensing is governed by both semi-formal (UML) and Formal (Z Specification language) methods. The paper achieves its goal to derive a verifiable framework of DRM licensing.

Putting Institutional Repositories on the Track

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Setting up of institutional repositories is one of the priority areas these days in the information dissemination. The advantages are perceived. Some quantitative studies also indicate their utility. But still this has not enough jelled in the minds of authors and the result is that the repositories are not getting established or populating as expected. The information professionals who play a key role in information dissemination and so setting up such repositories at times are seen to be making efforts in this direction. However, their efforts seem to deviate from main aim of providing full-text literature / information content on Internet and then the repositories merely act as bibliographic or abstracts databases, at times with limited access – on Intranet because of above mentioned situation!. The purpose of the exercise then gets defeated.

There are two options to a success: One – Continuously pursue the authors to add their content on the repositories (voluntary upload) and the other mandate it. National Institute of Oceanography (NIO), a constituent laboratory of Council of Scientific and Industrial Research (CSIR), in Goa way back in the year 2006-07 set up its repository with an aim to upload the published literature of its researchers. Experiencing the kind of efforts required to be done for voluntary upload, the institute realized the need to mandate the upload of the content. It also realized a need for a standard data entry in the record. It is now about 3 years the manuscripts are being collected under ‘mandate’ mode for the repository. The institute has a Publications Committee from which the authors seek permission to submit manuscript to a publisher. Information professionals found this prevailing workflow useful to plug-in mandate the manuscript submission on acceptance of a paper. The presentation explains how the manuscripts are collected under this workflow. The institute reached to 100% capture of the published literature for the repository by this way.

The presentation also emphasizes the need for the clear policy in the organizations on this aspect and the professional manpower requirements to handle such modern information dissemination tools and techniques.

Open Source Drug Discovery
An Alternative Innovation Model for Drug Discovery for Neglected Diseases

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The Millennium development Goals set ambitious target of reducing poverty, hunger and diseases that affect the poor. The diseases that mostly affect the poor of the world have earned the sobriquet 'Neglected Diseases' due to the inadequate research focus on those diseases by pharmaceutical enterprises. Tuberculosis (TB) is one such example. It kills one person every 20 seconds in the world. Yet there are very few new drugs for TB in the pipeline. The number of pharmaceutical entities working for diseases like TB has remained stale. In the absence of a market which is deemed profitable to invest, pharmaceutical enterprises are shying away from research on 'neglected diseases'. Diseases like TB continue to affect largely the developing world. In India alone, 2 persons die of TB every 3 minutes.

What is required is an alternative model of innovation for these diseases. Open Source Drug Discovery (OSDD) initiative provides such a model. OSDD is a CSIR led team India consortium with global partnerships. The first target disease of OSDD is TB. Launched in September 2008, it is now a global community of more than 4500 persons from over 100 countries. OSDD facilitates collaboration among biologists, chemists, bio and chemoinformaticians, mathematicians, software professionals, management professionals and others. www.osdd.net is a web 2.0 portal which facilitates that collaboration. OSDD has several ongoing projects on TB research. All these projects are collaborative in nature for identifying new drug targets and new inhibitors. This talk will explain the basic concepts of OSDD and take you through the process followed in this highly challenging open collaboration model.

Open Library

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The concept behind Open Library is based on building an online library open to all, which is running on Open source software and which has open data structure and even Open database. In this talk details of the Open Library initiative will be presented with illustrations, giving details of its goals, architecture and current status.

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Abstracts

Open Access Initiatives

Open Access to Scholarly Communication: Efforts in Different Areas

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The philosophy behind Open Access is that scholarly literature all over the world should be made accessible to all and sundry. This free flow of information is especially suitable for a country like India. The last decade saw many a significant development towards this direction. Many efforts have been seen in the sphere of open access archives, institutional repositories, and open access journals and also on open courseware with the help of the availability of open source software. This paper describes the Open Access (OA) Initiatives of different kinds centering round India taking brief examples of digital library initiatives, open courseware initiatives, open access journal gateways, metadata harvesting services, national level digital repositories, institutional repositories; and online reference works like online dictionaries, online encyclopedias, Wikipedia, Wikimapia, etc. The barriers to this sacred goal are manifold: copyright laws, budget crunch, low bandwidth and other infrastructural problems, technophobia, dearth of attitudes and work culture, non-adherence to uniform standards, problems of inter-operability and so on but what our country needs most is the formulation of a uniform policy through which gradual shift to OA policies (especially for the public-funded study and research) is possible.

Keywords: Open access Initiatives, Scholarly Communication

Open Source Initiative: A Knowledge Management Initiatives for Developing Nations

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The paper introduces with the concept of open access initiatives as a development method for software that harnesses the power of distributed peer review and transparency of process. The promise of open source is better quality, higher reliability, more flexibility, lower cost, and an end to predatory vendor lock-in. Discusses various issues of open source initiatives including its pros and cons. Suggests various measures to make Open

source initiatives more effective for the developing nation which may help these nations into a developed one as far as IT-enrichment is concerned. Concludes with a remark that the knowledge management with open source initiative in developing society can be made with reasonable cost and value added service.

Traditional Librarianship in Digital Environment : Challenges Ahead

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Libraries are witnessing a transformation of information environment which has put them at cross roads between print form and digital form leading towards a paperless society. Faster access to scholarly literature is the need of the hour. Generation of quality literature is based on easy, faster access and use of scholarly information. The need for e-information services is growing and becoming very essential and has ushered in OA Journals and Institutional Repositories. There is a paradigm shift providing new opportunities and challenges to the library professionals.

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Open Access and Capacity Building for Libraries : A Case for India

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In the recent years, there has been a revolution in the world of scholarly publication. The emergence of Internet has brought in miraculous changes. One of the recent growing movements in the scholarly communication is the 'Open Access', a revolutionary movement that promotes free access to all scholarly publication over the Internet. Libraries have been greatly affected by the 'open access' resources over Internet. Open Access transforms library policies, procedures and services as it removes both price and permission barriers to information resources. "**Capacity Building** is the process of building the potential for voluntary organizations to respond to the needs of the community they serve¹. It implies a process of developing and strengthening the skill, proficiency, makeup, abilities, processes and resources that an organization needs to thrive in this environment. Same is applied for the libraries as well. It aims to develop the aptitude to assess and tackle problems related to policy choices and its effective implementation. Open access to broaden the coverage of scholarly resources of the library, hence adds in its capacity building. This paper aims to convey the importance of open access on the capacity building of the libraries, especially in a developing country like ours with a vast educational resource. Unfortunately, India stands 18th in the list for journals with online contents and ranked 5th in open access category. It is the call of the hour to implement this system to break the jinx.

¹ Glossary of terms for voluntary sector.

<http://www.envision.ca/templates/profile.asp?ID=56>

E-resources Challenge and Opportunities for LICs Open Access.

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Interoperability of open access repositories enhances the visibility of research outputs and adds value to repositories. The literature that should be freely accessible online is that which scholars give to the world without expectation of payment. Primarily, this category encompasses their peer-reviewed journal articles, but it also includes any un reviewed preprints that they might wish to put online for comment or to alert colleagues to important research findings. There are many degrees and kinds of wider and easier access to this literature. By “open access” to this literature, its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited. With the Internet comes the opportunity and the imperative to share these results widely so all citizens can access, use and build upon research results in new and innovative ways. Sharing the research information via a more open access publishing model would bring millions of pounds worth of savings to the higher education.

Key words : Open access e-journals& e-books

Facilities Provided by Open Access Repositories of Research Institutes in India: A study

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Research institutes in India are playing a vital role in research in their respective Subjects. The purpose of this paper to explore the facilities provided by open access repositories (OAR) of selected research institutes in India. In this perspective we are able to know current trends about OAR. We have selected few research institutes for using open access repositories in India. Open Access repositories (OAR) are very popular over the past several years. Currently there are 1,451 of these registered in the Directory of Open Access Repositories (DOAR) (<http://www.openoar.org>). An open access repository can be defined as, “an online database, which makes the full text of items it contains freely and immediately available without any access restrictions” (Pinfield, 2005). The open access repositories contribute to better communication process for scientific research. In research institutes, Scientists need full text with informative and detailed abstracts. An open access repository can be institutional or by topic where the institutional manages and fosters the scientific publications of the institution as a whole and make evident the stage of development of a scientific community. The objective is to describe how they are managing the collections of articles, conference papers, other documents published by scientists, faculties and others.

Key Word: Open Access Repository (OAR), DOAR, Open Source, DSpace, Greenstone Digital Library, Eprints, Fedora

Library Consortia and Open Access Initiatives: Indian Scenario

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Indian libraries have undergone a transformation from print based environment to a digital environment with the infusion of new Information and Communication Technology. Introduction of E-publishing gives birth to ever escalating growth in publication and online availability of these publications creates huge demand for scholarly communication among users. Libraries have developed many schemes to make optimum use of library resources and to provide access to increased amounts of materials. Earlier there were subscription based consortia initiatives, taken up mainly for resource sharing and to provide enhanced library services to the users, which comes up with the practical solutions for the problem laden libraries to beat the situation like ever escalating growth in published documents both in print and electronic form, increasing demand for information among users, fund crunch and space limitation in libraries by functioning through consortia agreements.

Open access initiatives bring more challenges for consortium efforts for providing scholarly information to the users. Now users are provided with sea of information resources to read, download, copy, distribute, print or search full-text articles free of charge without any restrictions from publisher or service providers.

The present article discusses the benefits of library consortia and how it moulds the traditional library into a modern technology equipped service providing institute. It highlights the concept of open access and reasons for developing such initiatives. It also highlights the role of consortia in popularizing the models of open access in Indian libraries. The paper gives some glimpses of UGC-INFONET e-journal consortium and its efforts in promoting open access among Indian academic community.

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That Open Road to Freedom

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The Budapest Open Access Initiative (BOAI) identified stakeholders that collectively are directly responsible with roles to play at their individual levels to initiate, promote and sustain the open access model. These includes (i) scientists, scholars and researchers (ii) universities and laboratories (iii) libraries (iv) journals and publishers (v) foundations and research funding agencies (vi) learned societies and professional associations (vii) governments and (viii) citizens. The initiative laid down three methods and procedures viz. self-archiving, open-access journals and related measures which all these stakeholders have to understand, accept and implement in order to achieve the highly beneficial goal of open road to freedom. Concepts of self-archiving in repositories, open-access journals and other related dealings are lucidly explain thus bringing out clear-cut directions and tasks of what exactly each stakeholder have to undertake to finally establish the open-access model as the mode of information organization, preservation, dissemination and publishing. An attempt has also been made by the authors to analyze and compare the types, status and activities of repositories in India for the last five years as listed by the Sherpa Project in Registry of Open Access Repositories (ROAR) with those of the USA, a country with the largest number of registered repositories and drawing conclusions thereby.

Keywords: *open access, self-archiving, institutional repositories, UGC INFONET, INDEST-AICTE, India*

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Beginning of Open Access in India

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Open Access beginnings are indeed poised to revolutionise the scholarly communication process where the copyright of the article will rest with the author himself, which is a large departure from the conventional publication process. Open Access (OA) initiative emerged as a revolutionary movement that promotes free access to scholarly publications over the Internet, removes the price and permission barriers and ensures the widest possible dissemination of research. Open Access exists where there is free, immediate and unrestricted availability of digital content. In India poor access to international journals and the low visibility of research papers are the major problems facing Indian researchers. Open Access is viewed as a solution to remedy this problem. Developing countries have embraced open access with a view to promote visibility of research done in these regions. This paper attempts to highlight the importance of Open Access movement and gives an overview of the numerous Open Access initiatives and exemplary efforts that have taken place worldwide and those in India.. The present paper also aims to give the concept of Open Access and highlights some of the Open Access Journal initiatives in India. Open Access to information and knowledge not only enables digital inclusion of common citizens, particularly under privileged communities, but also bridges social divides.

Keywords: Open Access beginning, Open Access Journal, digital contents, India.

Open Access : Paths & Players

**Open Access Journal Initiatives in Scholarly Communication in India :
State of the Art.**

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Open Access (OA) for scholarly communication is giving free access to scientific literature on web. Ever rising cost of publishing and the emergence of ICT facilitated new publishing models and advent of Open Access Initiatives during late 1990's. In India this movement was initiated during the early 2000. Since then India has played a major role towards making scholarly communication open access (OA). India has taken various initiatives in OA publishing both in Golden and Green road channels. Academicians, scientists and technologists have realized the potentials of OA and shown interest through their association. Library and Information Professionals, especially in R&D centers, Universities, Society and Publishing sectors are facilitating in setting up Institutional Repositories, the most important OA channel and Open source journals. Directory of Open Access Journals (DOAJ), reveals India's rank at 5th position, well ahead of China, Japan, Australia and other countries. Initiatives have been taken both at the national and the institutional level to create awareness and framing policies on OA through various programs. Commercial publishing houses and various professional bodies have taken challenge to make OA a reality. Council of Scientific and Industrial Research (CSIR), National Informatics Centre (NIC), Indian Academy of Sciences (IAS) and others have taken a bold step to make most their journal publications open on web. This paper tries to depict the present Indian scenario regarding golden road OA movement in scholarly communication. With the help of available sources this paper also attempts to analyze different aspects of OA movement and its various scope of development in the years to come.

**Open Access Journals in Library and Information Science :
An Overview**

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The study reports evaluation of nine Open Access Repositories in the field of Computer Science and IT. The repositories were identified from the OpenDOAR; directory of Open Access repositories (<http://www.open.doar.org/>). Questionnaires were sent via e-mail to repository administrators to ascertain the background, resources, content management policies, preservation policies, rights management, promotion, advertisement, services, and feedback and access statistics of the repositories. The most popular software platform is Eprints, on account of its excellent support, ease of installation, transparency of interfaces, configurability, OAI compliance and active development. Most of the repositories follow policies for selection of content and submission of documents; have provision for withdrawal of content by the authors and voluntary faculty deposit policies. Although backups are taken for short term preservation of the content, no strategies have been adopted for long term preservation. Authors are responsible for ensuring copyright compliance of their articles in most of the repositories. Links are provided from library or departmental websites to most of the repositories for promotion and advertisement. Most of the repositories have provision for feedback from users. A few repositories provide access statistics. The paper provides recommendations for the establishment and management of OA repositories.

Open Access Journals: A New Approach Towards Research in Digital Environment

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Journals are good medium for scholarly communications. The concept of journal was conceived in seventeenth century. A few decades ago research output were published solely through subscription-based journals and as well as through various academic societies. There has been a revolutionary transformation in scholarly publishing after the advent of Internet. Good number of journals are now available in electronic as well as in print format. The concept of Open access was initiated by Budapest Open Access Initiative (in 2002), followed by Bethesda statement (in 2003) and Berlin Declaration (in 2003). There are various definitions of Open access journals. However the concept is still evolving. Open access journals are scholarly journals that are available online to the readers without financial, legal, or technical barriers through Internet^e. Broadly speaking there is two types of routes – *Green route* and *Gold route*^b, by which open access is achieved.

There are various potential advantages of open access journals – quick retrieval of desired papers, increased visibility, increased. Users can be prevented from being Digitally Divided. Open access journals may be tuned to be more acceptable to the users with disabilities with the assistance of Assistive or Adaptive Technologies. People with visual disabilities, hearing disabilities, cognitive disabilities and motor disabilities can't make use of conventional computer based services; hence additional requirements are need for them which are known as Assistive or Adaptive technologies. It includes various software, hardware and devices namely screen reading software, screen magnification software, Braille printer, specialized keyboard, specialized mouse, automatic wheel chair.^d It is matter of great concern to the publishers of journals. Various questions are being raised regarding the quality, standards, plagiarisms and financing aspects.

Various attempts have been taken to convert some subscription-based journals to open access journals. There are some directories of open access journals. The Directory of Open Access Journals (DOAJ) was created to provide a comprehensive database of Open Access scientific and scholarly journals from different countries round the globe.

As far as the number of journals (converted in to open access system) in DOAJ is concern, the contribution of USA is maximum, while India is occupying the seventh position. Open J-Gate, is the electronic gateway to 7571 open access journals (4515 peer-reviewed) ^e. Total number of articles published from IIT Kharagpur between 2003 and 2007 was 3,367, out of which only 110 (3.26%) were open access. Elsevier's Scopus database was used for this purpose. ^e

Most of the Indian journals having very low circulation, low visibility and low impact factor. Better result may be expected with the adoption of open access mechanism. A national-level mechanism is highly essential to promote and coordinate open-access publishing systems. Stress is to be given to develop awareness for open access among the scientific community in India. Traditionally only the medically fit candidates used to get admission in various engineering and medical degree courses within the country. However with the enactment of "The persons with Disability (Equal Opportunities, Protection of Rights and Full Participation) Act 1995, few seats have been made reserved in various post graduate and undergraduate degree courses hence it is expected by Indian librarians to gear up services for them in judicious manner. Specialized services can be rendered to those target users with the assistance of Assistive or Adaptive technologies under open access environment only. Open access journals are inevitable but subscription-based open traditional model is equally important. There are some bumps on the road that leads to the kingdom of open access system for scholarly communications, however with hardworking and firm determination we can overcome the constraints.

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Keywords : OPEN ACCESS JOURNALS, GOLD ROUTE, GREEN ROUTE, ASSISTIVE TECHNOLOGY

Open Government Data Initiative in India

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This article discusses about Open Government Data, importance of Open Government Data, world wide governments initiative to promote Open Government Data. It also describes initiative taken by Indian Government to provide information to its citizen. India is one of the fastest growing economies in the world with major cultural influences. To say about its Government, it is the world's largest democracy and second most populous country in the world. It is federation with a parliamentary form of Government, governed under the Constitution of India. Federalism in India defines the power distribution between the centre and the states. It has also Local Government – Municipalities and Panchayats. India comprises 28 States and seven Union Territories. The Government consists of a number of Ministries/Departments, number of and character varying from time to time on factors such as volume of work importance attached to certain items, changes of orientation, political expediency, etc. India is at the dawn of the government open data initiative. We still have a long way to go. Citizens in India often get frustrated with their local, state and national governments. Lack of transparency into governmental departments and processes can leave the average Indian bewildered. Indian Open government data is a valuable public resource for its ability to fuel innovation in areas far beyond the mandate or resources of government. Some of the areas where Government needs to open their data in India are for accelerant research activities are full text patent information and scientific information generated in various organization. The most of the organization neither has taken steps to develop institutional repository nor published their dataset derived from their experiments. Publishing grey literature in this digital era is so easy, but no steps are being taken by the Government R&D lab to do so. With so

many departments, ministries, state and local government, India produces lots of data and information that are not properly made available to the public. From all types of public government data one can find many examples of where sharing the data with the public has spurred advances in everyday life, promoted economy, and truly made lives safer. We Information Professional has a great role in this direction — we need to take steps to build institutional repositories for our organization, we need to find out obstacles and opportunities to open government data, we need to assist in formulating law and policy to open government data, Promoting reuse, finding open government data: catalogues, registries and metadata, technical aspects of opening up government data, the role and value of linked data - the term Linked Data is used to describe a method of exposing, sharing, and connecting data via dereferenceable URIs on the Web.

Open Access Repositories

Open access initiative: A Case Study on West Bengal Public Library Network (WPUBLIBNET)

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As first Public Library Network in India, it has to play a greater role in promoting and proving access information to the users. WPUBLIBNET are encouraged to develop its capacity and environment of e-resources and e-information. These are provided with the *Digital Archive of Rare and Old Books* and *Community Information Services* worldwide. In the digital archive, the oldest books (before independence) are stored and used natural language terms to describe these resources to aids its users in searching them. In describing the recourses it is used Dublin core metadata with some modifications. It is the initiative of open access to digital archive, here user can see the archive as it is freely accessible worldwide. User can copy, use, distribute, transmit and display the work publicly. It is hoped that study will draw attention to both the users and the administrator of digital archive of WPUBLIBNET that well-planned website has extending access to digital archive of rare old books.

Keywords: Open Access initiative, Case Study, State Central Library, DSpace WPUBLIBNET,

**Open Access through Institutional Repositories in CSIR Institutions
Need to have a common SOP to overcome the Roadblocks**

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It is now universally accepted that Institutions must have their online Repositories making all the output of the organisation available in an open access environment. The ever increasing cost of access to online resources published by commercial publishers has all the more escalated the need for in-house repositories. There is no second thought that open access articles have a greater research impact than those in publisher's domain. Though the need is felt by all, number of Indian research institute's

online repository is not very encouraging. In spite of the fact that open source software such as e-prints, Dspace etc are available free of cost and the establishment of IR is quite simple using such software, very few repositories are truly rich in content. The total number of papers from Indian research institutes available in open access through IRs is miniscule as compared to the huge number of output from the country. There must be something that hinders expected pace of IR establishment and maintenance.

CDRI online repository is comparatively nascent and we have also felt the hitches and have confronted hindrances. In this paper, we are highlighting some of roadblocks that have to be minimised for making maximum number of papers available in open Access. There is a complete lack of awareness about benefit of Open access among the scientists who are supposed to be the main beneficiary. In Indian context, IR's are at an embryonic stage but the main reason for slow growth is the author's inertia. The non-seriousness of scientists with regard to copyright transfer and an absence of any concrete copyright policy of the institutions have also to be properly addressed to. Scientists do not maintain their manuscripts in proper format as a result of which pre-prints of published papers are not at all available. Haphazard way of keeping records of publications in the institutions has contributed a lot in non-compliance of the open access policy of certain institutions such as CSIR.

Based on our experience, we have not only highlighted the problems but have also tried to suggest some ways and means of overcoming those hurdles so as to make the Open Access movement a success.

Digital Repository of IICT

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Repository is a central place where data are kept for future use and form one part of the institution's web platform. Digital repositories should be one of the institutional Web-based tools that take research into places it has not been able to reach before.

The most primary reason for establishing a digital repository is to increase the visibility of the institution's research output by making it Open Access. Keeping in view of changing nature of users and their varied requirement digital repository become indispensable need of the Library of Indian Institute of Chemical Technology (IICT)

to facilitate the users to get their desired material at their desktop. This paper attempts to establish the preservation of the archival materials, facilitate online access of IICT staff Publications, Patents, Theses, e-Journals e-reference and e-databases of the digital repository plan of IICT.

Open Access Institutional Repositories : Indian Scenario

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One of the important contributions of web technology has been the creation of open access to scholarly research worldwide. Open access means free and online access to scholarly literature that can be freely disseminated further with proper author attributes. The open access literature can be available in different forms like open access archives, institutional repositories, open access journals and off late open courseware and so on. The Institutional Repositories are digital collections of the outputs created within an institution. The main feature for a repository is to maximize the visibility of Institution's research outputs thereby increasing impact for its research. The paper briefly describes the Indian initiatives in developing Institutional Repositories.

Open Access Repositories in India

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The purpose of this paper is to trace the development of Open Access (OA) Repositories in India and finding its ranking in the international market. This paper studies growth and development of Open Access Repositories in India and analyses

the contribution through various institutions at university level, government level, private institutions and institution of national importance. Paper will compare the activities of various institutions related to benefits of Open Access Repositories, staffing, methods of recruiting digital content, characteristics of operational Open Access Repositories including their costs.

The paper also analyses their content and shows the requirement of more research output to be included with effective author support policies. It will also highlight the need of initiation of Open Access Repositories Support Projects in India. This will further increase the popularity and growth of Open Access Repositories. It stresses on need for formal training of Open Access Repositories Managers and suggest a set of modules that would be suitable for development of Open Access Repositories.

It also looks for a single platform which allows users to search the aggregated metadata of multiple institutions. Digital repositories require ongoing evaluation to determine their quality and new directions for growth. The paper attempts to survey the use and development of Open Access Repositories in India with the supporting statistics.

Implementation of an Open Source software DSpace at ARIES, Nainital: As Institutional Repository

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Purpose – The purpose of this paper is to describe the selection process and criteria that led to the implementation of the DSpace at the library of Aryabhata Research Institute of Observational Sciences (ARIES), Nainital.

Design/methodology/approach – Institutional Repository (IR) systems are used to preserve the research outputs of research organizations. The implementation conducted at ARIES, Nainital to ascertain the need of an institutional repository and the different aspects associated with the setting up of institutional repository is described. The phases involved in the development of the pilot Institutional Repository at ARIES, Nainital using open source DSpace Institutional repository software to capture the intellectual capital and enable knowledge sharing are also described.

Findings – Institutional repository software, such as DSpace, can be used to extend access to and longevity of special collections as the digital forms.

Research limitations – The case study of this paper is specified for ARIES and describes the implementation of institutional repository.

Originality/value – The Institutional repository provides ARIES, Nainital with a central facility for systematic archiving of its “intellectual capital” – the research materials of its scientists, engineers, research scholars and others. Awareness and availability of the scholarly material of peer faculty enables knowledge sharing. The Institutional Repository is useful to the scientists, engineers, research scholars and the other institutions also. Research Institutions, especially in India, should be encouraged to develop Institutional Repositories of their intellectual capital and share knowledge. The discussion in this paper, of the challenges and decisions inherent in using an institutional repository with a digital archive will assist other institutions working to integrate resources as will the portal structure to facilitate harvesting from multiple relevant repositories and direct users to digital resources independent of their native repositories.

Keywords – ARIES, Institutional Repositories, DSpace, Digital Archive

Institutional Repository Development in the Indian Institute of Management, Lucknow : A Case Study

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Effective management of digital assets, increasing research exposure and its impact on the society are become the challenges for the institutions with limited infrastructure and resources. The development of internet has changed drastically the Scholarly Communication. The ‘digitization’ has transformed the ability to publish, access and store the scholarly works in the libraries and information centres. The traditional libraries were the store houses of print publications. The Libraries and Information Centres are expanding their services by collecting and disseminating the digital content and becoming content providers by digitizing their intellectual collection. The libraries and Information centres are no merely the storehouses of print materials. The LICs

provide access to electronic documents and faster retrieval of information, and are adding to the choice and diversity in scholarly communication as well as publishing. The pattern of Scholarly Communication within the campuses is changing the communication means. The all type of documents, reports and other publications are being digitized. In future, all the administrative/financial/academic documents may not be available in print within the organisations. The institutions are developing different models to provide barrier less access. Out of the various communication method and models of the organisations, the Institutional Repository (IR) is one of them. The IR as a whole can represent the complete intellectual collection of a particular organisation. Therefore, the Institutions are crating the IRs to manage and preserve their digital content. The IRs may include all types of Gray literature, Ph. D. theses, Dissertations, Faculty Publications, Old Administrative Documents, Questions papers/ Curricula/Learning Projects/ the important work of the students, etc. in case of an academic institution.

Therefore, keeping in view the importance of IR, it becomes the prime responsibility of the particular organisations to create an excellent IR. The Indian Institute of Management, Lucknow is having its Institutional Repository. To evaluate the functions and set of the established IR, a case study was conducted during the month of April to June 2010 in the some of the important areas, like, Submission of the Intellectual Property, Legal Issues regarding Uploading, Search Strategy, Dissemination, Preservation Plan, Financial and other Resources, Initiation, Stakeholders, Assessment of the IR, Content, Policy development, Marketing, etc. The opinion was collected from the library and analysed in context of some of the guidelines suggested by various scientists and by the MIT Libraries (2005) and recommended accordingly.

Analysis and Study of Challenges in Building an Open Access Repository and Datawarehouse Solutions through Open Source Tools

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Knowledge sharing through Open Access will lead to higher visibility in terms of technology to the research and academic domain. Initiatives to build an Open Access repository should be taken in regional level and the same strategy should be followed upto the international level. All the researchers and academicians should be motivated towards the development of Open Access to publish materials for online access. The

indent of this paper is how to resolve the challenges in integrating the data available in various formats in their domain to build a repository and to create an awareness of open source Datawarehouse integration or ETL tools available in the market.

Facilities Provided by Open Access Repositories of Research Institutes in India: A study

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Research institutes in India are playing a vital role in research in their respective Subjects. The purpose of this paper to explore the facilities provided by open access repositories (OAR) of selected research institutes in India. In this perspective we are able to know current trends about OAR. We have selected few research institutes for using open access repositories in India. Open Access repositories (OAR) are very popular over the past several years. Currently there are 1,451 of these registered in the Directory of Open Access Repositories (DOAR) (<http://www.opendoar.org>). An open access repository can be defined as, “an online database, which makes the full text of items it contains freely and immediately available without any access restrictions” (Pinfield, 2005). The open access repositories contribute to better communication process for scientific research. In research institutes, Scientists need full text with informative and detailed abstracts. An open access repository can be institutional or by topic where the institutional manages and fosters the scientific publications of the institution as a whole and make evident the stage of development of a scientific community. The objective is to describe how they are managing the collections of articles, conference papers, other documents published by scientists, faculties and others.

Key Word: Open Access Repository (OAR), DOAR, Open Source, DSpace, Greenstone Digital Library, Eprints, Fedora

Towards the Building of Digital Institutional Repositories of CSIR laboratories: an Overview

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This paper highlights the CSIR's laboratories initiatives in establishing their own institutional repositories. It also provides an overview of the 10 institutional repositories of CSIR in the range of various subject disciplines. The study also highlights the importance of IR, delineates the scope, methodology and projects the findings. Most of the CSIR's laboratories are using open source software like DSpace, EPrints for making Digital institutional repositories. The author believes that IR will help in the sharing of institutional intellectual output and will increase citation of individual's researchers. To provide wider access of intellectual output of the institute needs to adopt repositories especially remaining CSIR laboratories and other R& D organizations on priority basis.

Keywords: Institutional Repository, Digital libraries, CSIR, Library

Creating an Institutional Repository at HRDC: A Case Study

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Significant increase in the volume of published / unpublished research work, intellectual & institutional information outputs, and their accessibility & archival needs has necessitated the creation of Institutional Repositories (IR). An IR enhances the visibility of the intellectual outputs locally produced. The paper discusses the initiatives taken to create an Institutional Repository at 'Human Resource Development Centre, Ghaziabad'. Organising training programmes and workshops on a wide range of subjects/topics for various cadres of CSIR is the core activity of the Centre. IR at HRDC is aimed at archiving, organizing, and analysing information related to these training programmes and workshops. Primarily the contents fall in three categories, viz., Participants details, Programme Modules, and Participants' feedback for the respective programmes. Besides these, the study materials in hard

and soft copy formats, pictures and videos also form the part of IR contents. The paper also discusses various problems faced while gathering information, analysis of data, and the challenges and responsibilities that lies ahead.

Keywords: Institutional Repository, Intellectual Output, Digitization, Preservation, Archival, Training Programmes, DSpace

Open Access Repositories : A Case Study of IICT

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This paper provides an over all idea about design and development of an Institutional Repository of the Indian Institute of Chemical Technology (IICT), Hyderabad, by using Dspace, an open source software. Search module allows users to search by specific community type. This paper also focuses on required hardware and software components along with best possible solutions in choosing them. Also it describes the working method, copyright issues, search options, and challenges before the LIS professionals in designing such an IR. This repository is compiled from several identified, authentic sources by extracting metadata and constructing a suitable search strategy. The database is updated periodically and publications can be edited through the work space module.

Keywords: Institutional Repository, Dspace, Indian Institute of Chemical Technology

Open Access : Data Harvesting / Mining

Open Access: Data Harvesting /Mining

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Data, the lowest level of *Knowledge Pyramid* which acts as a foundation for Knowledge abstraction and inferences, can be defined as a collection of information that represents variables having qualitative and quantitative properties. Data Mining refers to the extraction of hidden predictive information from data warehouse or from multiple distributed databases scattered over physical geographic boundaries.

Data Harvesting refers to the congregation of data from heterogeneous sources into a particular database from where various inferences can be drawn. Data Harvesting/Mining can be achieved by creating virtual agents that can extract and manage data from various sources into data warehouse and can even publish data to multiple destinations at the same time. Open Access refers to the freedom for a researcher or analyst to access data from multiple heterogeneous database without the boundations of patents or copyright to search various hidden patterns and deduce the inferences that enriches the knowledgebase which can be redistributed. Open Access is the medium through which the power of Data harvesting or Data Mining can be achieved for the development of various innovative tools such as web search engines and Open Source Drug Discovery (OSDD) etc. OSDD can be considered as the best example of Open Source Data Harvesting/Mining. As per OSDD statement: “A concept to collaboratively aggregate the biological and genetic information available to scientists in order to use it to hasten the discovery of drugs. This will provide a unique opportunity for scientists, doctors, technocrats, students and others with diverse expertise to work for a common cause.”

In this paper, our emphasis is to thoroughly examine the importance and benefits of Open Source Data Harvesting/Mining system and highlight the need of collaborative/shared knowledge domain for the benefit of society and mankind.

**Designing & Development of “Leish-Net”
A Web Based Server for Microarray Data on Leishmaniasis**

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Leishmaniasis is a highly contagious neglected protozoan disease, encompassing 88 countries of the world. It is caused by protozoan parasite belonging to the genus *Leishmania*. There is need to explore the parasite for its genome and gene for combating leishmaniasis employing all modern tools and technologies. Microarray is a technology that enables researchers to analyze expression of many genes in a single experiment quickly and efficiently. But it is important to improve data quality and process to analyze & carryout prediction of gene function with accuracy in a microarray experiment in the drug discovery process. Leish-Net is an endeavor to provide secure platform for on-line data archiving storage, channel, analysis & prediction of microarray data in order to discover novel potential targets for therapies against leishmaniasis.

This paper describes the capabilities, function abilities provided on the Leish-Net Server with the concept of providing a single window to access for A-Z information about Leishmaniasis to researchers.

Keywords: Leishmaniasis, Web Server, Microarray, Gene Expression, Database Management System, Computational Biology, Bioinformatics

Data Mining and Data warehousing: A Key Aspect for Library Professionals

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A loyal user relationship is developed in libraries by noticing their needs, remembering their preferences and learning from past experiences and by knowing how to behave better in future to fulfil the demands of the users. Data Mining and Data warehousing are the major aspects helping the library professionals in bringing the gap between user and library staff. The paper highlights the concept of data mining & Warehousing in detail. The Data Mining methodology is discussed in the paper. The importance of metadata in libraries and data mining is also covered in the paper. Various techniques of data mining is also dealt in the paper. The importance of data mining & Data warehousing for library professionals is also highlighted in the paper.

Open Knowledge Network

Open Knowledge Network Initiatives and Developments

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Open Knowledge means a set of methodologies and principles that are related to both the distribution and the production of different knowledge works. The coordinating organization behind the Open Knowledge Network is OneWorld International, but the Open Knowledge Network is made up of many partners, including the M.S. Swaminathan Research Foundation (MSSRF) and The Energy Resources Institute (TERI) in India, and Afribone and School-Net Uganda in Africa. The network was instigated by the Digital Opportunity Task Force (DOTForce) set up by the G8 heads of state to help bridge the digital divide by encouraging “national and international efforts to support local content and applications creation”. Members of the network’s steering group include the Berkman Centre of Harvard Law School, the International Institute for Communication and Development (IICD), the International Development Research Centre (IDRC), MSSRF and OneWorld International.

The general term ‘knowledge’ is defined to include data such as historical, geographic and scientific information, content such as books, films and music and also general information that are produced by governmental or other administrative authorities. According to Open Knowledge Foundation, Open Knowledge (OK) is any content, information or data that people are free to use, re-use and redistribute — without any legal, technological or social restriction. The term **knowledge** is taken to include - Content such as music, films, books, Data be it scientific, historical, geographic or otherwise, Government and other administrative information. Open Knowledge (OK) satisfies the following conditions:

- **Access, Redistribution and Reuse**
- **Absence of Technological Restriction**
- **Attribution and Integrity**
- **No Discrimination Against Persons or Groups**
- **No Discrimination Against Fields of Endeavor**
- **Distribution of License and Must Not Be Specific to a Package**
- **License Must Not Restrict the Distribution of Other Works**

The main principles of OK are - Free and open **access** to the material, Freedom to **redistribute** the material, Freedom to **reuse** the material and **No restriction** of the above based on **who someone is** (e.g. their nationality) or their **field of endeavour** (e.g. commercial or non-commercial)^{1,5}.

The OKN is not something new. It is a synthesis of tried and tested ideas; building on what is already happening in many different fields and joining up the dots. Poor people must be able to express and communicate locally relevant knowledge in local languages if they are to shape the decisions that affect their livelihoods. Local content development is closely tied to human development, and the ultimate aim of OKN is the empowerment of local communities. There exist a number of different initiatives such as the so-called Open Knowledge Network that defend and stand up for the general protection, production and exchange of local content in local languages. According to Dr. Arunachalam “Poor people must be able to express and communicate locally relevant knowledge in local languages if they are to shape the decisions that affect their livelihoods. Local content development is closely tied to human development, and the ultimate aim of the Open Knowledge Network is to empower local communities.”⁶

In this paper an attempt has been made to present about the Open Knowledge Network (OKN) its principles, funding, initiatives and projects taken up by its partner organisations including MSSRF, TERI, Drishtee, TARAhaat, Datamation Foundation, School-Net, etc.

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Public Knowledge Project (PKP) and its Role in Open Access Initiatives

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The Public Knowledge Project (PKP) initiated in 1998 by John Willinsky of University of British Columbia is playing a vital role in the development of open access movement. The PKP is dedicated to improving the scholarly and public quality of research for which it has developed open source software for publishing open access journals (Open Journal Systems), conference management system (Open Conference Systems) and harvesting metadata from OAI-compliant databases (Open Harvester Systems). The Open Journal Systems (OJS) is a journal management and publishing system for the management, publishing, and indexing of journals. The Open Conference System (OCS) is a free web publishing tool that will create a complete web presence for scholarly conferences. These software tools increase access to knowledge, improve management, and reduce publishing costs. The Open Harvester System (OHS) allows the creation of centralized search services on metadata from OAI-compliant databases. All PKP software tools are available under the GNU Public License. These software tools are playing a vital role in the development of OA across the globe. The number of OA journals published using the OJS is increasing steadily and at present about OA journals are published through the OJS. At present, South America is leading with 1537 titles followed by North America with 1343 titles, Europe with 961 titles, Asia with 678 titles, Africa with 429 titles and Oceania with 96 titles. The OCS is also widely used by academicians and researchers who are conducting professional events for global communication. In this context, this paper attempts to profile the role of PKP in the development of OAI.

Keywords: Open access initiatives, Public Knowledge Project, Open Conference System, Open Journal System, Open Harvester System.

Open Source Software and Discovery

Use of Open-Source Software in Libraries –A Review

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The open source software which involves sharing and collaboration across organizations, time zones and cultures has been embraced by Libraries in the last decade. For their unique advantages, open source software is becoming increasingly popular amongst Library and Information Management professionals. This paper highlights the issues which are to be taken into account while selecting the right software from the widely available choices. It discusses the advantages and disadvantages of open source software to help in making decisions for adopting such a software solution for a Library.

“Challenges and Opportunities using Open Source Software : A case study in Bose Institute Library

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“Knowledge is the ultimate goal” depicts Indian philosophy about knowledge and its dissemination. The concept of sharing and contributing knowledge is in-built into the Indian philosophy with an ultimate objective of creation, assimilation and dissemination of knowledge. The philosophy behind open source software is to make the source code available in open access to the general public for use and / or modify with a rider that derivative solutions are also made available open. Libraries and open source software promote learning and understanding through the dissemination of information. Open Source offers opportunities, but poses a number of challenges for the LIS professionals and its suppliers. Bose Institute library is using open source software KOHA for library automation and D-Space for digitization as well as for Institutional Repository. The paper discusses the challenges faced by Bose Institute to implement and maintain open source software for library automation as well as digitization. It also discusses the challenges and opportunities to build-up and maintain Institutional Repository. Paper raises certain issues associated with institutional repositories needing professionals to resolve them.

Key words : Automation, KOHA, Digitization, Dspace, Institutional Repository, Challenge, Opportunities

A Comparative Study between the Open Source Softwares and the Commercial Softwares from the point of view of a Librarian

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The libraries are the store houses of knowledge. Today's librarians are the information scientists. The librarians are now very much aware about the different types of softwares available from different sources. The open source softwares are now very much popular among the librarians and the information professionals. The information professionals are now little bit preferred the open source softwares. The open source softwares are very much user-friendly. These softwares can be modified according to the requirement of the users. On the other hand, the commercial softwares are now struggling for their existence. The commercial softwares are trying to develop the software design according to the need of the users. The futures of the commercial softwares are very much depending upon the marketing and advertisement activities. The another important factor for the commercial softwares is the financial factor (i.e. cost of the softwares, maintenance, etc.). This paper discusses the advantages, disadvantages and the comparison between the open source softwares and the commercial softwares. The examples are also available in the paper. From the point of view of a librarian, all the factors are discussed in a lucid manner.

The open source softwares are Linux, Fedora, Koha, Greenstone, New Gen Lib, D-Space etc. The commercial softwares are LIBSYS, Alice for Windows, Bibliosys, SLIM++, DEL PLUS, etc. The software SOUL (Software for University Libraries) is designed and developed by the UGC-INFLIBNET Centre, Ahmedabad. The objective of this centre is not for profit making. Henceforth, the SOUL software can not be treated as the commercial software. It is purely an academic library software. The CDS/ISIS and the WINISIS are also not the commercial softwares. Because, the motto of the UNESCO is not profit -making. These softwares are also the library softwares which are used by any kind of libraries. The LIBSYS is designed and developed by the LIBSYS Corporation. It is purely a commercial software. The DELPLUS is designed and developed by the DELNET (Developing Library Network),

New Delhi. It may be treated as the commercial software. The SLIM ++ (Software for Library and Information Management) is designed and developed by the Kesavan Institute, Hyderabad. It may be treated as the commercial software. The other softwares like Alice for Windows , the BIBLIOSYS etc. are also the commercial softwares. The following softwares are treated as the open source softwares (OSS) : Linux, Fedora, Koha, Greenstone, New Gen Lib, D-Space etc.

Directory of Open Access Repository (DOAR): An Overview

Sonali Dapsi

This articles deals with Open Access Repository and Infrastructure of, Directory of Open Access Repository (DOAR).

Definition: -

DOAR is a protocol and software that provide extensible Digital object and Object identifiers.

-It works in concert with handle system to provide a secure.

-It is a reliable system for creating and interacting with digital object

-It covers multiple level of abstraction

-It set of such sequence of entity and identifier.

-It can represent specific data structure; provide services through proxy server entities.

Characteristics of DOAR:

- Listing of Open access repositories available world-wide
- DOAR stuff harvest metadata
- To Provide high degree of quality of information
- To provide listing of repository service

Purpose:

- ✓ Produce a descriptive list
- ✓ It is reliable, relevance, authoritative
- ✓ Locate of academic open research repository
- ✓ Display a structured comprehensive, self regulation, update, clear list

- ✓ Support open access outreach advocacy within institutions.
- ✓ In a networked environment, information Discovery and Retrieval are the keys to the successful delivery of service
- ✓ Developing new services for end-user
- ✓ DOAJ is a project of DOAR

Search service:

To search URL based information through Search engine. .

It gives “find”, “Institutional” and “subject based “searching facility.

And able to harvest metadata.

Develop by-

Open Society Institution, Joint Information System Committee, Consortium of Research Libraries, SPARC Europe.

Application:-

- a) Harvest metadata
- b) Retrieve metadata records for multiple item
- c) List of metadata support by archive
- d) Service provider
- e) Data provider

It compares of other repositories like Public Library Of Science and Registry Of Open Access Repository.

This article also showing as - Analysis of Searchable Criteria for Open Access Repository of subject wise, content type wise, repository type wise , country wise and language wise.

Using Open Source Software for Large Scale Digitization Project of Old and Rare Books in West Bengal Public Libraries: A Report

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Digitization of the existing traditional documents is the prerequisite to develop a digital library. Hi technology has given in order to become functional and relevant opportunities through open source movement in this 21st century. Bengal has long back tradition of libraries and has separate directories of library services under the ministry of mass education and library services of government of west bengal. The State central library with other 26 libraries has taken the initiatives of digitization of old and rare books throughout the Bengal. This is the first attempt in india in the public library domain and under the guidance of the state central library all the district library now connected to each other and the entire process has been done through the open source software. This article will search the software which they are used specially in networking environment as well as will give the details for the making of first public digital repository with its long back valuable documents. This article will search the process through the entire system has been developed.

Keywords: Open source, open source software, C-DAC, Metadata, Public libraries

Open Source Software in the Healthcare System in India

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Information Communication Technology (ICT) has revolutionized the world communication. People can be informed in more effective, efficient and convenient ways through ICT which helps the healthcare system to deliver top quality care to citizens. Open source software is an important part of this ICT revolution. Generically open source refers to a program in which the source code is available to the public for use and/or modification from its original design free of charge. Open source code is typically created as a collaborative effort in which programmers improve upon the code, and share the changes within the community. It also helps in the context of

social networking, content management, e-learning and file management (storage, access, integrity) and document help (facilitates to edit and to share the knowledge).

The objectives of the study are to find out: role of open source software in the healthcare industry; the problem arising from it and the future aspects of it in India. Open source software can be used for free in medical practice management, electronic medical records, prescription writing, and medical billing application. These programs are also referred to as electronic health records. It is a free open source replacement for medical applications such as Medical Manager, Health Professionals. It also creates a social networking platform, aiming at evaluating the main scopes of every existing open source tool for e-health for quality, security and privacy purposes. Open source software offers a fully comprehensive system which offers tools like e-prescribing, drug information, medical billing, document management etc. It also covers the major areas of practice operation in the different public hospitals.

This article surveys the current state of the art in open source software for healthcare system in India. The history of information system development in Indian healthcare is not a happy one. There are three companies involved in health care focused on improving outcomes for child and maternal health and reducing the impact of communicable diseases such as malaria, tuberculosis and HIV/AIDS. It is unfortunate that non-communicable diseases are not being considered so much. Investments in ICT for healthcare have always lagged behind other sectors due to its complexities and high cost. Limited resources are often diverted to implement the “showcase hospital” at the expense of much needed services elsewhere.

But it is also true that, open source software for healthcare will provide a viable and sustainable alternative in mainstream ICT for positive impact in health outcomes as adjunct to building a global knowledge society. In summary, open source is a profound idea. It is likely to generate major benefits for India. By dropping the cost of IT implementations, it will also speed up the economic growth in India.

Keywords -- Open Source Software, Information Communication Technology, Medical Application, Healthcare, Medical Manager.

The Past, Present and Future of Open Source Software Evolution and its' Impact on the Libraries

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Open-source software puts the right to make changes to the software in the hands of the public, rather than a company. Modification is an essential characteristic of software development as software systems must respond to developing requirements, platforms and other environmental pressures. In the last years, free and open source software has gathered increasing interest both from the business and academic world. Recently, however, with the growing popularity of the Open Source movement, some librarians have started to promote open source software, software whose licensing allows it to be redistributed and/or modified without restriction or charge, as a solution to the problems associated with traditional closed-source proprietary library software. Growing numbers of libraries worldwide are using open source software for managing their library systems more economically and effectively. Librarians and programmers have worked together to produce several open source integrated library systems. With the widespread availability of several large software systems that have been developed using an “open source” development approach, we now have a chance to examine these systems in detail, and see if their evolutionary narratives are significantly different from commercially developed systems. This paper presents an analysis of the evolution of open source software systems with the concept of software evolution from several perspectives. It emphasizes the way that relates to and differs from software maintenance. Overall this paper throws the light on the evolution of open source software and its impact on the libraries in the globe over the decades.

Keywords: Software, Open Source Software, Open Source Integrated Library System

Library Open-Source Software

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Open source software has been the center of attention in the library world for the past several years. A single point of entry to all library information, that refers to all library resources. The next-generation catalog contains not only bibliographical information about documents but also leads to the full text of all library resources. OSS allowing to use the software, redistributes it, and change its' functionality as desired. OSS has become an attractive and feasible proposition for library and information professionals around the world. Paper emphasized on standards into digitization of organization's resources to maximize its effectiveness.

Keywords: OSS, Digital Archiving Software, Digital Library Software.

Open Source: DSpace for Digital Library Software – An Overview

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The Massachusetts Institute of Technology (MIT) Libraries and Hewlett-Packard (HP) Labs have jointly worked on the development of an open source system called DSpace that functions as a repository for the digital research and educational material produced by members of a research university or organization. This paper describes about the prospects of DSpace open source software (DS OSS) in the development of digital libraries, also elucidates on different DSpace communities, DSpace technical architecture, Digital Preservation levels, and universities offering DSpace in India.

Key words: Open Source Software, DSpace, Digital Repository.

Implementation of An Open Source Software DSpace at ARIES, Nainital: As Institutional Repository

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Purpose – The purpose of this paper is to describe the selection process and criteria that led to the implementation of the DSpace at the library of Aryabhata Research Institute of Observational Sciences (ARIES), Nainital.

Design/methodology/approach – Institutional Repository (IR) systems are used to preserve the research outputs of research organizations. The implementation conducted at ARIES, Nainital to ascertain the need of an institutional repository and the different aspects associated with the setting up of institutional repository is described. The phases involved in the development of the pilot Institutional Repository at ARIES, Nainital using open source DSpace Institutional repository software to capture the intellectual capital and enable knowledge sharing are also described.

Findings – Institutional repository software, such as DSpace, can be used to extend access to and longevity of special collections as the digital forms.

Research limitations – The case study of this paper is specified for ARIES and describes the implementation of institutional repository.

Originality/value – The Institutional repository provides ARIES, Nainital with a central facility for systematic archiving of its “intellectual capital” – the research materials of its scientists, engineers, research scholars and others. Awareness and availability of the scholarly material of peer faculty enables knowledge sharing. The Institutional Repository is useful to the scientists, engineers, research scholars and the other institutions also. Research Institutions, especially in India, should be encouraged to develop Institutional Repositories of their intellectual capital and share knowledge. The discussion in this paper, of the challenges and decisions inherent in using an institutional repository with a digital archive will assist other institutions working to integrate resources as will the portal structure to facilitate harvesting from multiple relevant repositories and direct users to digital resources independent of their native repositories.

Keywords – ARIES, Institutional Repositories, DSpace, Digital Archive

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Comprehensive Knowledge Archive Network: An Overview

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This paper tries to discuss in detail about the new emerging concept of Open Knowledge available over Internet Resources and how the daily originating open knowledge in different areas is being stored, organized, retrieved and maintained throughout the Comprehensive Knowledge Archive Network System (CKAN).

Keywords : Open Knowledge Network; Open Knowledge; Comprehensive Knowledge Archive Network; CKAN.

Open Source Software (OSS) for Molecular Biology Education and Research: A Study

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Molecular Biology, the study of biology at molecular level, chiefly concerns with understanding the interaction between the various systems of a cell including the interactions between DNA, RNA and protein biosynthesis as well as learning how these interactions are regulated. When molecular biologists work on genes, they need to manipulate and modify DNA to prepare new DNA fragments for further use in gene and protein functional analysis. For this purpose, molecular biologists started using software tools. Since powerful graphical tools and simple interfaces of the software tools help the analysis and construction steps *viz.*, adaptor, PCR, Gateway, in a very intuitive way, molecular biologists are showing much interest to use variety of software for their education and research purposes. In this context, this paper attempts to profile some of the important open source software (OSS) available on the Internet which are useful for the molecular biology education and research. General purpose search engines Google and Yahoo, scientific search engines Scirus and

SciSeek and a number of molecular biology gateway sites and directories were used for identification of open source software useful for molecular biologists. The study revealed that there are good numbers of OSS concerned with molecular biology are available on the Internet. The OSS are useful for DNA/RNA and genomic analysis, plasmid graphic packages, primer design, protein analysis, *etc.* The OSS identified by these search engines and collected from the gateway sites and directories were listed, duplication checked and a unique list prepared. The unique list of OSS with a brief profile about the software and the universal resource locator of the OSS are categorized and presented in this paper for the use of molecular biologists.

Evaluation of some selected Open Source Institutional Repository Software's: A drive

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The term Open Source has been gaining popularity with the rise of the Internet, which provides access to diverse production models, communication paths and interactive communities. How open is Open Source Really? Again, Libraries and Open Source Software (OSS) promote learning and understanding through the dissemination of information. Open Source offers opportunities, but poses a number of challenges for the LIS professionals and for its suppliers. There are number of questions before applying and software, like, how the Software will run, whether it will be appreciable to the particular organization to use the same, what is its prerequisite relating to the hardware & Software. Therefore, it is essential to a library professional to select fruitful software for his/her library. To do this efficiently and effectively, it is very much urgent to any library professional to know the evaluation techniques of similar types of available software's, on the basis of which he/she may adapt right software for the smooth operation of the library. In view of the above, the present paper is a drive to evaluate some selected Open Source Software on the basis of some norms & standards. The paper contains only four Open Source Institutional Repository Software's e.g. Dspace, Eprints, Fedora and I-Tor.

Keywords : Institutional Repositories (IRs), Open Source Software (OSS), Dspace, Eprints, Fedora, I-Tor.

Open Standards

Application of Open Source Technology and Metadata in Library and Information Services

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This paper is discussed about the application of open source technology in library and information services. It mainly focuses how to use metadata in free and open source software (FOSS) for library and information services. It says about 'Metadata' (a set of attributes of a resource/item/document) and their different types and schemes such as – DCMI (Dublin Core), Government Information Locator Service (GILS), Metadata Object Description Schema (MODS), Metadata Encoding and Transmission Standard (METS), Learning Object Metadata (LOM) etc. The advanced FOSS-based software for library and information services are coming with metadata-based architecture. It also discusses the implementation and customization the metadata set in a FOSS based software to extent the capabilities of the software. The major part the metadata of a open source software is XML (eXtensible Mark-up Language) tags. The XML tag is a user define tag which are used in web pages for describing and accessing the web resources. In XML architecture, there are three mandatory files are needed, i.e. '.xml', '.dtd', '.css' or any style sheet. In dtd file, the user define tags are declared. The css file present the output in a style and in the XML file, the declared user defined tags are use with the contents. It describes about DSpace (an Institutional Repository) software and how the metadata are used in this software. DSpace is a freeware and open source software for storing, managing, and retrieving the full text digitized objects. Dspace uses Dublin core metadata set and the digitized objects are describing in this set. It provides a general data input form and retrieving the data with a limited metadata set. But we can easily customize the metadata set as per our own requirement. However this article should help them who are interested in free and open source and Web 2.0 technology.

Information Highway for Progressive performance Improvement in the Indian Cement Industry

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1. WHY INFORMATION HIGHWAY

The contemporary industrial scenario in the “Flat world” has been undergoing major and rapid, very often, revolutionary changes in sourcing or outsourcing manufacturing, products or services. This is very apparent from a casual peep into any market for fast-moving consumer goods (FMCG), flooded with products from all corners of the globe. Same is the case with Information, Communication or Software Technologies. Such a phenomenon is progressively enveloping many of the erstwhile traditional and niche manufacturing arenas of nations and countries. To survive under such an onslaught or threat, manufacturing industries need, not only to be regularly modernizing and technologically upgrading to maintain its competitive bottom line, but also to be constantly updated with flow of information in prerequisite fields.

The mechanism of information sharing through commonly shared menu-driven Benchmarking software module helped the Indian cement industry to remain ahead and competitive in a highly globalised market.

The Indian cement industry is the second largest in the World with an annual installed capacity of 280 million tones. The industry comprises an inhomogeneous mix of highly modernized large capacity state-of-art plants (+ 3000 to +14000 tonnes per day capacity) , medium (1200 to 2500 tonnes per day) to small capacity plants with small rotary or Vertical Shaft Cement Kilns (50 to 600 tonnes per day capacity). The major plants sector constituting 97% of total annual installed capacity and production, comprises 54 cement companies with 148 cement plants and 175 cement kilns throughout the country. Each plant, to maintain and improve its position in a highly competitive market, puts its best efforts for energy efficiency and process optimization for cost reduction and product quality improvement through various measures. This is obviously a solo-effort. Admittedly, it is a daunting task for individual companies or plants to keep up with the “Best practice” in technology and process technology.

This is exactly where the Cement Manufacturers' Association (CMA) has stepped in with a helping hand, armed with a tool for information sharing for common benefit for all, without comprising the competitive edge of individual Members. The Benchmarking system introduced by CMA since 2002 involves voluntary participation in information sharing by all Members and enabling each to focus on areas needing improvement.

The relentless efforts of CMA since 2000 to design a customer friendly software model for dynamic benchmarking of important functional inputs and operational

results could achieve the desired results after a large number of trials and modifications for data collection, analysis and deriving results.

2. VOLUNTARY PERFORMANCE TRACKING - BENCHMARKING

Benchmarking is a dynamic system of voluntary performance tracking and rating on regular basis through comparative assessment of one or more activities, outputs, products or results of operations employing the same process technology and having the same technological and economic functional parameters and objectives. Benchmarking provides the following facilities and benefits:

- (a) A tool for tracking one's performance level in any desired area of activity with respect to other similar units.
- (b) A mechanism for identifying the reasons (technology level, operational or management) for difference in performance from the Best or the Average, as the case may be.
- (c) Knowledge of options and mechanisms for bridging the gap in performance
- (d) Virtually a Zero-cost means for improving performance through regular sharing of information, its centralized analysis and unbiased dissemination of results.

Benchmarking is not an alternative for any of the stated certifications or accreditations, like, say, "Inter-Firm Comparison". Benchmarking serves altogether a different purpose with a different mechanism but with a major sum-up goal, i.e., performance enhancement through continuous monitoring and self-appraisal in juxtaposition to others in the same "Affinity Group". It may not look glamorous at first sight, but when pursued regularly it provides both an insight and direction for the practitioner to adopt needed steps for performance improvement to reach the "best practice".

The Benchmarking practiced by the cement industry with tangible benefits for all members has encouraged other industry sectors in India to adopt same or similar mechanisms for progressive performance improvement.

Status and Relevance of SUSHI and COUNTER Code of Practice for Librarians

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COUNTER (Counting Online Usage of Networked Electronic Resources) and SUSHI (Standardized Usage Statistics Harvesting Initiative) are complementary initiatives designed to improve, respectively, the reliability and usability of online usage statistics. The role of COUNTER is to ensure that usage statistics are credible, compatible and consistent, while the role of SUSHI, which is sponsored by NISO (the National Information Standards Organization), is to ensure that they are easy to obtain. COUNTER and SUSHI benefit libraries and publishers by facilitating access to and management of reliable usage statistics. The usage statistics thus made available are already being used by librarians to assess the utility and value of their collections of journals and databases, and by publishers to demonstrate the value of their collections of content. Metrics such as “Cost per download” and “Cost per FTE” (full text) are now widely used.

Keywords: Open Access. Open Standards, NISO, SUSHI, COUNTER, Z39.93

Open Source Licensing and Diffusion

Open Access to Journals: Models and Mechanism

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The major barriers for scholars and researchers in universities is the lack of access to the current literature in their subject, much of which may be published in journals that have high annual subscription rates and are far too expensive for many libraries. The study conducted by Rao, Ashher Kamal Waris & Khan, Mohammad Haroor on Impact of E-resources on users of AMU, Aligarh reveals that main purpose of use of e-resources is for research work and dependency on the use of electronic resources is 63%. It also reveals that users are more dependent on Internet (63%) as compared to R-journals (25%). Also Gherab, Karim have argued for an open model of e-science in his paper. So do we need e-journals or not? Or should we share e-journals or provide open access are the issues that need addressing.

The open access (OA) movement addresses this barrier by arguing for the “free availability of literature on the public internet, permitting any users to read, download, copy, distribute, print, search or link the full texts of these articles, crawl them for indexing, pass them as data to software or use them for any other lawful purpose, without financial, legal or technical barriers other than those inseparable from gaining access to the internet itself” (www.soros.org/openaccess/). As a compliment, OA has been given impulse by the Open Archives Initiative (OAI), which makes available the metadata created by the various data providers (OA journals, content repositories, etc). So that it can be harvested by service providers who will subsequently build added-value services using the compiled metadata. The objective of the OAI is to promote greater visibility and dissemination of this data through the world.

According to Guedon “two roads have been identified to reach the dream of full open access: the ‘golden’ road and the ‘green road’. The golden road would have the journals themselves digitize their past and present publications, so that the electronic versions could be available at no cost to anyone wishing to read them. The ‘green’ road calls for scholars to store – or self-archive-their (usually) peer-reviewed pieces, in digital format, in institutional repositories, as the final step in their research efforts”.

This paper discusses about the different open access models and the advantages and disadvantages of the models. It also discusses about the cost effectiveness of setting up an open access model and covers new set of open access models.

Open access may involve a lot of cost borne by producers of knowledge. To make them visible they need to publish in scholarly journal. The scholarly tag comes with reputed publishers and reputed journals that embody peers for assessing the publications. This process needs a very strong backbone of reviewers. How do we create reviewers, is it by payment?, is it by reputation?, all these questions need answers in open access movement. Countries need to collaborate. Countries need to exchange authentic information. This needs an open-ended system. Journal publishing should continue. Once, a need for continuing arises, methods of distribution needs addressing. Can developed countries freely exchange information with developing countries? This is not a fair proposition to the developed world. Then, at least a portion of their output needs exchange for a portion of the output from the developing world. This may start a good healthy competition in publishing initially.

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Open Access Publishing: Key Players and Indian Scenario

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We are all aware that “Knowledge for All”. Due to sky high subscription of commercial journals publication it is very difficult to subscribe all important research journals even for the libraries of developed countries. To free from this vicious circle, Open Access Movement, the alternative of current model of publishing was started in 1990s wherein the cost of publishing and dissemination of scholarly content is charged from the authors, their affiliated institutions or funding agencies instead of libraries or its users. The paper also discusses about the present Indian scenario and too some extent world scenario towards two channels of Open Access Publishing i.e., Open Access Journals (golden route) and Open Access EPrint Archives or Repositories (green route).

Keywords: Serial Crisis, Open Access Journals, Cost Saving Process, Open Access Archives, Key Players of Open Access

Open Innovation

Patent Information – What you can get from Open Sources?

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Patent information represents a vast repository of technical knowledge. There are close to 65 million patent documents published so far. They cover seventy percent of technical information which is never published anywhere else. Patent documents also represent the earliest disclosure of new technology. With the advent of Information and Communication Technologies, the availability and accessibility of patent information has increased considerably. There are various databases which provide patent information, some free and some paid. Each database has its own advantages. The national patent offices of most of the countries have their own database for searching patents filed in their representative country. There are some free search engines which allow one to do a search of different countries together as well. In addition, there are certain value added paid patent databases produced by certain publishers. This presentation will discuss the content and merits of free and paid databases and when to use what?

Open Innovation : The Chance & Necessity

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Open Innovation is at present a buzzword . However , there is a downside to openness , which we must recognize and overcome in order to develop open innovation mode in science . Undeniably, science and technology is a very competitive game. Thus, like any other competitive venture – S& T has embedded within its core various ethos which nurture secrecy – rather than openness. This is one issue I will first discuss in my talk. The next related issue, I will peep into will be sociological in nature . My aim will be to locate the sociological imperatives which is forcing S& T today to adapt this new mode of open innovation .

Lastly, I will discuss the specific Indian Scenario . Taking bioscience and biotechnology as example - the perils, pitfalls as well as progress will be charted in this largely uncharted new territory , where open innovation is expected to play a key role in future .

A Platform to Achieve High Throughput in Collaborative Drug Research

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The ever increasing & diverse drug research data generation with all its complexities, poses a challenge for an effective & efficient management. The rapid & multifarious advancements in information & communication technologies (ICT) over the past two decades can be employed in overall management of very sensitive & collaborative drug research projects very significantly and thus help in achieving the desired economized throughput in a time scale environment in this competitive world of drug research. Where in wide spectrum of investigators from a very diverse background as well as multiple distributed institutions, research groups and interdisciplinary consortium can contribute, access, share, analyze, manage, network, monitor & evaluate the progress in their collaborative R&D program with all the heterogeneity in a secure environment. The CDRI-MoES project Web Portal is an effort in this direction. The paper gives an overview of the architecture, design, security, tools, features & functionalities embedded in the portal with future planning. It is expected that this portal will meet the diverse needs of the researchers, administrators & planners together through this “single virtual platform”.

Keywords: Web portal, Marine, Drug Research, Collaboration, Virtual Private Network, Information & Communication Technologies, Open Source

CDRI MoES Project Web Portal: A Platform to Achieve High Throughput in Collaborative Drug Research

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Informational Alternative to Technological Innovation: A Demonstration

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Technological innovations are the prime mover of societal development. For this to happen, proper and timely informational support is *sine qua non*. Decision Support Systems or Discovery Support Systems plays the role of informational support in an organizational setting. Now the fact is that the documents recording the scientific developments or discoveries are available through a Decision Support System. But whatever may be the system, the documents relating to technological innovation are always confidential, so closely guarded and not available freely. So we need to depend on scientific documents and other freely available literature to support researches on new technological innovations. A case study in this regard is reported regarding the development of solar heater of water.

Water can be superheated under direct sunlight by making water flow through metal pipes for optimum efficiency, i.e. maximum rise of temperature of water in minimum

time. For this to happen, a large number of parameters and components are needed to be optimized: Specification of metals or materials of pipes; Condition of the outer structure of the pipes – the colour, conductivity, reflectivity or absorption of different wavelengths of solar radiation available near the ground level or between 0 and 100 meters; Diameter of the pipe; Thickness of the pipe; Distance or gap between two adjacent pipes; Rate of flow or speed of water; Pure water versus water solutions such as brine (salt water); Recycling of water etc. From these, for example, the information on thickness of pipe, capacity of heat absorption of pipe, amount of water flow possible at a certain time may be known either from theoretical or experimental scientific papers.

As a research and development (R&D) problem for optimizing all these factors it would need long-term painstaking, highly expensive work of technical persons. However, the whole problem at least to a large extent may be considered as an information innovative work or discovery support. It is expected that much data on all the parameters or aspects noted above are available in scientific literature, possibly through Internet. A small exercise towards that goal is reported here. The work is only indicative. The results would cover up many preliminary stages of R&D and would require only some final actual R&D work. Such approaches may well be adopted for any other technical R&D problems.

Keywords: Technological innovations; Informational alternatives; Discovery Support Systems Decision Support Systems; Solar energy.

Scientometric Analysis of Publications on Open Innovation

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The paper covers the outline and the concept of Open Innovation (OI). It discusses the need, objectives, advantages and disadvantages of the OI and the initiatives taken in this direction. It presents a scientometric analysis of the literature, indexed in Web of Science.

Keeping in view the importance of the OI concept and its relevance in the present day context; the topic was chosen for this scientometric study. An attempt has been

made to extract and analyze publications on OI for the period from 2000-2010, indexed in the internationally renowned Science Citation Index Expanded (SCI) database of Web of Science. The SCI database covering the period from 2000 to 2010 was searched with OPEN INNOVATION under Topic Search (TS) tag category with advanced search.

Unrefined records of publications in the database contained required bibliographic information such as author, title, source, language, type of publication, keyword, affiliation, addresses of author, subject category, pages, references/bibliography and the citation received. The records downloaded as NotePad file. Records retrieved were converted in an ISO file with FANGORN convertor software and then the ISO file was uploaded on to a database designed specifically for the purpose in WINISIS 1.5 version software of UNESCO. Each record was thoroughly scanned to find out the relevant and unique records.

The database of unique records was analysed to uncover growth of literature chronologically and geographically, status of collaboration in publications, type of publications, sources preferred for publications, authorship pattern, language-wise distribution, key contributing institutons, major publishers, references appended, page length and citations received by publications on OI.

Following were the major finding of this scientometric analysis: the publications reported on OI were 80 in number during the period from 2000-2010. The year 2010 reported 27.50% publications followed by 2009 with 25.00%, 2008 with 15.25%. The USA was on top of the list in geographic distribution with 45.00%, UK with 15.00%, Germany with 12.75% and The Netherlands with 7.50%. The Asian region's contribution to the subject was 10.00% only and the presence of India was missing. International collaboration for publications was depicted in 18.75% publications. In authorship pattern, sole authored publications were in majority with 48.75% followed by double authored with 18.75% , three authored publications were 15.00% and 17.50% were authored by four or more. No paper was contributed with a team of more than seven authors. The English language accounted for 96.25% publications followed by German, Japanese and Russian with 1.25% each. Maximum of 12.50% publications have 5 pages in length and no publication exceeded the length of 23 pages. Publications having up to 5 number references were 33.75%, followed by 13.75% with 6 to 10 references and 5.00% with 11 to 15. The Industrial Research Institute Inc., USA was at top in the list of quantitative publishing with 33.75% followed by M/s Elsevier Science, The Netherlands with 15.55%. Concerning to the type of publications, Article type was highest with 57.50% followed by Editorial with 21.25%, Proceedings with 7.50%, Book Reviews with 6.25%, News Items with

5.00% and Reviews with 2.50% was at the bottom. Media preferred for publications by authors was journals. The Research Technology Journal accounted for 25.00% followed by International Journal of Technology Management with 8.75% and Chemical Pharmacology and Therapeutics with 5.00%. Data was also analyzed to find out the institution wise contribution and the analysis revealed that Allience Management Group Inc., Gladstone, NJ, USA; Rutgers State Univeristy, Newark, USA and WHU Otto Beisheim School of Management Innovation and Organisation, Germany share first position with equal share of 3.75%. There was a presence of authors from a total of 139 institutions. Data of citations received by the publications was also analyzed to know the impact of publications and it was found that a maximum of 22 citations were received by 1.25% publications whereas 56.25% publications received no citation and average citations received was 1.10 numbers.

The study revealed that the concept of OI is fast emerging in its present form and would pick up its pace gradually with its wide acceptibility. This newly emerged concept may take its own time to mark its global and widely acceptable presence, may be a decade or so. More and more improved techniques are emerging in this area and lot of people have started taking interest in the concept which is resulting in overcoming the difficulties faced and people are accepting it with wider applications and scope.