Open Access to Information and Knowledge : An Initiative of Institutional Repositories and Digital Library in India

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Abstract

The paper discusses the Open Access Initiatives for global access, repository, preservation, and organized management of networked information services in a distributed environment where both the users and resources are at varied locations. The paper highlights various initiatives of Institutional Repositories and Digital Library in the country. The Paper also discusses the necessity of DSpace Digital Library Software for Digital Library Initiatives and OAI-PMH (Open Archives Initiative Protocol for Metadata Harvesting) in Open Archives Initiative.

Keywords :   Open Access, Institutional Repositories, Digital Library, Dspace, OAI-PMH, Dublin Core.

1.   Introduction

In the information society, free flow of information is a fundamental principle for bridging the knowledge gaps between privileged and under-privileged communities. Social inclusion and economic empowerment are also achieved in a society where citizens have universal access to information and knowledge, ranging from public information to specialized or customized information related to ones' profession, vocation or culture. Open access to information and knowledge is a key contribution in provisioning universal access to information and knowledge. It is gaining momentum in developed countries which already have necessary information infrastructure.

Open Access to information and knowledge is an innovative mode of scholarly communication within the digital environment aimed at achievement of universal access to information and knowledge. While Open Access helps digital inclusion of citizens in developing countries by bringing within easy reach full-text contents of scholarly works, documentary heritage collections and development-related literature, the Digital library remains a knowledge repository of such citizens, indigenous people, communities and institutions. Open Access to knowledge in model adopted by many international and intergovernmental fora, such as the World Summit on the Information Society (WSIS), for disseminating full-text contents to online communities.

2.   National Knowledge Commission (NKC) on Digitization & Open Access

The National Knowledge Commission of India (NKC), constituted on 13th June 2005, is a high level advisory body to the Prime Minister of India, with mandate to guide policy and direct reforms. NKC's overarching aim is to transform India into a vibrant knowledge-based society. The NKC's Working Group on Open Access and Open Educational Resources and Working Group on Libraries have

strongly recommended open access to public-funded research literature and supported establishment of open courseware repositories for countrywide dissemination of quality courseware to many cross-sections of people. If implemented, these recommendations will have far-reaching implications in the knowledge creation and dissemination cycle. The scholarly literature and lifelong learning materials produced by state-sponsored institutions would then be made accessible through open access channels such as national and institutional repositories. This way the NKC's recommendation on peer-reviewed research papers resulting from public-funded research would be validated by subject experts when making these resources available through open access channels. NKC also recommended creation of national knowledge portals for basic needs/ key sectors such as water, energy, environment, education, food, health, agriculture, employment and citizen rights.

2.1   NKC Working Group on Libraries Recommendations

Digitization & Open Access

To enable equitable and universal access to knowledge resources, it is important to create more digital resources which can be shared. The concept of an "information commons" i.e. "resources shared by a community of producers and consumers in an open access environment" needs to be promoted. New resources should be openly accessible and historical documents, too, should be digitized and made available.

- ♦ This Working Group strongly recommends that peer-reviewed published research   papers resulting from publicly funded research in India must be made available through open access channels, subject to copyright regulations. The group also recommends use of open standards and free and open source software.

- ♦ All pre-independence periodicals and newspapers in all Indian languages and in English must be digitized for access and preservation.

- ♦ To help preserve digital resources, optimize their use and avoid duplication of effort:

- ♦ State-level archives for preservation of digitized materials must be set up.

- ♦ Every State should establish a registry and archives of knowledge-based digital resources, and make it accessible.

3.   Institutional Repositories Initiatives

An Institutional repository is a digital archive of the intellectual output of an Institution. It makes the quality and breath of scholarship produced at the Institution accessible to others world wide over the Internet. It is a set of services that a University/Organization offers to the members of its community for the management and dissemination of digital material created by the institution and its community members. It is most essentially an organizational commitment to the stewardship of

the digital materials including long term preservation. An effective Institutional repository represents collaboration among libraries, information technologies, archives and record managers, faculty and university administrators and policy makers. It is a new channel for structuring the organization's contribution to the border world and as such invites policy and cultural reassessment of this relationship.

Following are some of the important initiatives of national level Digital Repositories and Institutional Repositories in India:

3.1   National Level Digital Repositories

♦   Catalysis Database www.eprints.iitm.ac.in

♦   Knowledge Community on Children in India: Turning Knowledge into Action www.kcci.org.in

♦   Librarians' Digital Library (LDL) https://drtc.isibang.ac.in/

♦   OpenMED@NIC http://openmed.nic.in/

♦   Urban Health Gateway http://uhrc.in/uhgateway/

3.2   Institutional Repositories

♦   Digital Archive of National Institute of Technology Rourkela http://dspace.nitrkl.ac.in/dspace/

♦   Electronic Theses and Dissertations of Indian Institute of Science (ETD@IISc) http://etd.ncsi.iisc.ernet.in

♦   Open Access Repository of IISc Research Publications (ePrints@IISc) http://eprints.iisc.ernet.in/

♦   IDRC Digital Library http://idl-bnc.idrc.ca/

♦   Digital Repository of IIT Bombay http://dspace.library.iitb.ac.in/dspace/

♦   DSpace at National Centre for Radio Astrophysics http://ncralib.ncra.tifr.res.in:8080/dspace/

♦   DSpace@IIMK http://dspace.iimk.ac.in/

♦   DSpace at National Chemical Laboratory http://dspace.ncl.res.in/dspace/

♦   DSpace@INFLIBNET http://dspace.inflibnet.ac.in/

♦   University of Delhi EPrint Archive http://eprints.du.ac.in/

♦   Raman Research Institute Digital Repository http://dspace.rri.res.in:8080/dspace/

♦   One World South Asia Open Archive Initiative http://open.ekduniya.net/

4.   Digital Library Initiatives

In India, large volumes of cultural heritage resources (documentary) are on the verge of extinction due to lack of preservation, non-availability, rarity and natural decay. The knowledge and wisdom lost from these cultural heritage documentary resources can cause a severe vacuum in the intellectual wealth of humanity, if we cannot preserve them at this critical juncture. With the emergence of successful digital library projects in more developed countries, the public institutions in the region opted for long-term preservation of this wealth of knowledge through digitization projects and digital library initiatives. Diverse multi-cultural and multilingual contents are now being documented, preserved and made available through the internationally acclaimed digital library initiatives such as:

- ♦   Digital Library of India www.new.dli.ernet.in, http://dli.iiit.ac.in, www.dli.cdacnoida.in

- ♦   Traditional Knowledge Digital Library www.tkdl.res.in

- ♦   Archives of Indian Labour: Integrated Labour History Research Programme www.indialabourarchives.org

- ♦   CSIR Explorations http://csirexplorations.com/

- ♦   Cultural Heritage Digital Library in Hindi http://tdil.mit.gov.in/coilnet/ignca/welcome.html

- ♦   Digital e-Library (Dware Dware Gyan Sampadaa/Providing Books at Your Doorsteps) http://mobilelibrary.cdacnoida.in

- ♦   India Education Digital Library http://www.edudl.gov.in

- ♦   Indian National Digital Library in Engineering Sciences and Technology (INDEST) Consortium http://indest.iitd.ac.in/

- ♦   Kalasampada: Digital Library Resources of Indian Cultural Heritage (DL-RICH) http://www.ignca.nic.in/dlrich.html

- ♦   Muktabodha: Digital Library and Archiving Project http://www.muktabodhalib.org/digital_library.htm

- ♦   Vidyanidhi http://www.vidyanidhi.org.in

- ♦   Vigyan Prasar Digital Library http://www.vigyanprasar.gov.in/digilib/

5.   Dspace in Digital Library Initiatives

The DSpace is a joint project of the MIT Libraries and HP labs. DSpace is a digital asset management system. It helps create, index and retrieve various forms digital content. Dspace is adaptable to different community needs. Interoperability between systems is built-in and it adheres to international standards for metadata format.

5.1   Why DSpace?

The reasons why we chose DSpace are:

♦ Dspace is an open source technology platform which can be customized or extend its capabilities.

♦ Dspace is a service model for open access and/or digital archiving for perpetual access.

♦ Dspace is a platform to build an Institutional Repository and the collections are searchable and retrievable by the Web.

♦ To make available institution-based scholarly material in digital formats. The collections will be open and interoperable

6.   Open Archives Initiatives in Digital Library & Institutional Repositories

OAI-PMH (Open Archives Initiative Protocol for Metadata Harvesting) is a protocol developed by the Open Archives Initiative. It is used to harvest (or collect) the metadata descriptions of the records in an archive, so that services can be built using metadata from many archives. The Open Archives Initiative-Protocol for Metadata Harvesting has become the de facto standard for metadata harvesting. Thus service providers of digital libraries can collect metadata, index them and provide better search results. The protocol is usually just referred to as the OAI Protocol.

OAI-PMH is based on a client-server architecture, in which "harvesters" request information on updated records from "repositories". Requests for data can be based on a datestamp range, and can be restricted to named sets defined by the provider. Data providers are required to provide XML metadata in Dublin Core format, and may also provide it in other XML formats.

A number of software systems support the OAI-PMH, including GNU EPrints from the University of Southampton, Open Journal Systems from the Public Knowledge Project, Desire2Learn, DSpace from MIT and HyperJournal from the University of Pisa.

7.   Conclusion and Suggestions

It is largely achievable in a country where policy frameworks, institutional frameworks, information infrastructure, trained manpower, and financial resources are adequately available. The effect of focused capacity building programmers in the areas of digital preservation, digital libraries and open access to literature is encouraging in country like India, where significant proliferation of open access and digital library initiatives have been achieved in the last decade. A number of workshops and training events were organized in India during this period, where a few thousand libraries and computer professionals received training in open source software for building open access repositories. Library schools in India have since included open source digital archiving software in their curricula. Several national and international conferences, seminars, and symposia were also organized in

India, where library professionals discussed methods and techniques of digitization, digital library development, institutional repository development and digital preservation. India has now become the leader in digital library and open access initiatives is South Asia and across Asia, due to stakeholders' active participation in capacity building processes as well as the availability of financial resources. The key to commitment and development in this field lies in the sensitization of stakeholders.

The sustainability of open access portals is another issue that requires proper attention. Too often, the open access portal in an institution may remain non-functional due to some internal dynamics, pointing to the need for introduction and maintenance of proper institutional frameworks and manpower development in this field. Coordinators of self-archived institutional repositories may also sensitize community members on the importance of open access to knowledge and provide training in self-archiving methods on a regular basis.

Open access to Indian literature both scholarly communications and development-related literature ensures global visibility and accessibility, resulting in increased global recognition. Open access to information and knowledge not only enables digital inclusion of common citizens, particularly under-privileged communities, but also bridges social divides.

The sharing and strengthening of global knowledge for development can be enhanced by removing barriers to equitable access to information for economic, social, political, health, cultural, educational, and scientific activities and by facilitating access to public domain information, including by universal design and the use of assistive technologies. Therefore (i) Governments are encouraged to provide adequate access through various communication resources, notably the Internet, to public official information. Establishing legislation on access to information and the preservation of public data, notably in the area of the new technologies, is encouraged; (ii) Develop policy guidelines for the development and promotion of public access information (open source information) as an important international instruments promoting public access to information; (iii) Encourage initiatives to facilitate access, including free and affordable access to open access initiatives including journals and books, and open archives for scientific information; and (iv) Promote research and development to facilitate accessibility of digital library initiatives and digital repositories with open source software and ICTs for all, including disadvantaged, marginalized and vulnerable groups.

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