

Information Professionals in the Open Access Era: the competencies, challenges and new roles

The major challenge facing information professionals involved with Open Access projects is not technical but cultural.

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INFORMATION PROFESSIONALS AND OPEN ACCESS IN INDIA

The Open Access (OA) movement is the most significant movement on the library landscape, which is generating much passion and enthusiasm in the profession worldwide. Perhaps the greatest challenge for librarians today is to develop and maintain a sustainable model of open access repositories for users. India is one of the late entrants in the OA movement and unfortunately many libraries in India do not have a policy on open access. Librarians serving in different institutions have to play an active role in digitizing Indian language content available in the major libraries. Self-archiving in Open Access repositories, metadata harvesting, electronic document management, interoperability in searching, etc. are presenting a whole new dimension of the information landscape. Information professionals working in libraries have been facing tremendous challenges in disseminating scholarly material and learning objects emanating from their institutions. A proactive approach in information handling and collaboration with IT staff and academics are essential for open access to be sustained. In order to become a knowledge society, India needs to provide access to high quality university course material and promote Open Course Ware projects. Financial barriers have prevented researchers in developing countries from accessing the research information they need. A digital repository can hold a wide range of materials for a variety of purposes and users. It can support research, learning and administrative processes. However, repository solutions are most viable and sustainable when they are built on open standards. The arguments for librarians to engage with open access issues and place them centre stage are as follows:

- providing access to resources is core to information service objectives and librarians are charged with the main responsibilities in this area
- by fulfilling their core objectives, libraries make a sufficient and appropriate contribution to the Open Access movement and appropriately discharge their social responsibilities.

The benefit of open access to libraries lies in solving the pricing and permission crises. The benefit to scholars, beyond the benefit to libraries, is giving readers barrier-free access to the literature they need, and giving authors larger audiences and greater impact. The benefits on both sides are immense, and librarians and scholars should work together to bring open access, step by step, to every institution and discipline. The *Directory of Open Access Journals* has passed a significant milestone, now exceeding 3,000 journals; it covers free, full text, quality controlled scientific and scholarly journals (<http://www.doaj.org/>). There are now nearly 3,500 journals in the directory; about 10 percent of the world's peer-reviewed journals are now fully open access.

Open Access Journals in India

Indian open-access journals use government grants and subscriptions to their print versions to cover publishing costs. A dozen journals of the Indian National Science Academy (INSA) are open-access journals. INSA has already produced free-access electronic versions of back volumes for all its journals, and the Indian Academy of Sciences is also attempting a similar 'retro-digitization'. The *Journal of the Indian Institute of Science* is also available in this form back to its very first issue, published in 1914. The Indian Medlars Centre of the National Informatics Centre, New Delhi, has brought out electronic versions of a number of biomedical journals, all of them accessible without subscription. The Medlars Centre also has an online bibliographic database, (<http://www.indmed.nic.in>) providing titles and abstracts of articles from 77 Indian

biomedical journals. National IC's OpenMED@NIC is an archive in the area of medical and allied sciences developed primarily with the aim of promoting self-archiving amongst Indian professionals. Additionally, some Indian open-access journals are using international agencies such as Bioline, a not-for-profit electronic publishing service for developing countries, and JournalServer.org, an online library of academic journals, to gain greater visibility.

DEFINITIONS OF OPEN ACCESS AND RELATED TERMS

First, it may be useful to offer some definitions of Open Access and related terms to understand the relationships between some of the key terms in this area:

Open Access

Open Access (OA) is the free online availability of digital content, especially of peer-reviewed scientific and scholarly journal articles and grey literature such as electronic theses and dissertations, technical reports, project reports, etc. There are two major open access strategies: self-archiving of e-prints and open-access journals.

Open Access Movement

The Open Access movement emerged in the year 2003 from a conference on open access hosted in Berlin and has become a significant force for change in the scholarly publishing industry. The Budapest Open Access Initiative (BOAI) conference was launched by the Open Society Institute in 2002. The Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities is considered one of the major international statements on open access.

Open Access Literature

Peter Suber, one of the pioneers of the open access movement, defines Open Access literature as literature that is digital, online, free of charge, and free of most copyright and licensing restrictions. Firstly, it is free of charge to everyone. Secondly, the copyright holder has consented in advance to unrestricted reading, downloading, copying, sharing, storing, printing, searching, linking, and crawling (Suber 2003). The IFLA Statement on Open Access (IFLA 2004) indicates that an open

access publication is a property of individual works, not necessarily of journals or of publishers.

Open Archive Initiative

The Open Archive Initiative (OAI) develops and promotes interoperability standards that aim to facilitate the efficient dissemination of content. Its major contribution is the OAI Protocol for Metadata Harvesting, a set of guidelines that enable repositories to expose the metadata describing their content to service providers who harvest the metadata into large aggregations. It is intended to expose the work deposited in repositories to the widest possible audience and ensure the interoperability of repositories. (<http://www.library.uiuc.edu/scholcomm/glossary.htm>)

Open Standards

These are publicly available descriptions of the ways in which systems can interoperate. Being publicly available, they enable developers to link together systems in innovative ways. The Joint Information Systems Committee (JISC) in the United Kingdom supports the work of both UKOLN and CETIS, which are services that play active roles in the creation, maintenance and deployment of open standards (www.jisc.ac.uk/publications)

Digital Repository

The Scholarly Communication Glossary of the University of Illinois at Urbana-Champaign (<http://www.library.uiuc.edu/scholcomm/glossary.htm>) gives the following definition:

Digital repository is an online, searchable, web-accessible database containing works of research; deposited by scholars. The purpose is both increased access to scholarship and long-term preservation. Digital repositories are often built to serve a specific institution's community of users, in which cases they are called institutional repositories. There are also discipline-specific digital repositories, like arXiv.org. Most digital repositories may be searched together via OAIster.

Institutional Repository

It is a type of digital repository that is designed to collect the work of a particular institution (usually a

university), as opposed to a disciplinary repository like arXiv (www.arxiv.org) and IDEALS (Illinois Digital Environment for Access to Learning and Scholarship).

Open Archival Information System

An Open Archival Information System (OAIS) is an archive, consisting of an organization of people and systems, that has accepted the responsibility to preserve information and make it available for a designated community. OAIS is also defined as archive to provide a broad set of useful terms and concepts.

Digital Rights Management

DRM is a collective name for technologies that prevent you from using a copyrighted digital work beyond the degree to which the copyright owner (or a publisher who may not actually hold a copyright) wishes to allow you to use it.

Self-archiving

Self-archiving is defined as the act of authors depositing their work in institutional repositories.

LITERATURE REVIEW

The literature on Open Access is current and there is a proliferation of articles on the Open Access movement and initiatives. However, coverage is comparatively less on the competencies and roles information professionals need to have or play in the open access era.

Chang (2003) stated that it is necessary for librarians to be conversant with digital collection management and open archive information system management skills. Library staff and authors need to be trained to prepare documents in an acceptable format and to submit content to the repository using a simple interface.

Arunachalam (2004) opined that information professionals can act as champions in their respective institutes and take the leading role in promotion of the Open Access movement. Some of the reviewed literature suggests that although the information professionals' responsibilities are shifting, they are as essential as they were with a traditional collection. Self-archiving is an illusion that does not circumvent the need for librarians but redefines their role as educators

and stewards to assure maximum accessibility to the documents housed in the institutional repository.

Genoni (2004) suggests that librarians should evaluate the performance of the collection and make decisions relating to access, conservation, and preservation. In terms of defining the collection, librarians need to establish content management policies. They are experienced in selecting, describing, storing and managing information content and can negotiate with users on content priorities such as what metadata to store and present, should teaching materials be included, how to handle successive drafts of the same paper, etc.

Mackie (2004) urges librarians to take the initiative, encourage the researchers and play a proactive role in garnering content for their repositories and work towards a sustainable approach. For an institutional repository to succeed, it is essential that librarians be involved in its planning, implementation, and operation.

Reference Services Review, a journal published by Emerald, devoted an entire issue (Vol. 33, no 3, 2005) to institutional repositories with special reference to the role of librarians in institutional repository management, access and control.

While talking about a professional code of conduct for librarians, Edwards (2001) stated "we work in various cultures, for public and private employers each with their own values and objectives. But what we do have in common is our role as intermediaries working on behalf of the consumer". Today librarians are involved in complex dealings with content providers and in the manipulation of increasingly fragmented information. If they are successful, then the librarian brand will be in worldwide demand.

Allard (2005) identifies six roles of librarians in the institutional repository environment: understanding software, project planning and management, collection definition, metadata guidance, submission review, and author training.

Bailey (2005) suggested possible activities for reference librarians in institutional repositories:

- Helping to create sensible institutional repository policies and procedures and to provide feedback about how they work in practice.
- Assisting in designing the institutional repository user interface so that it is clear, easy to use, and effective.
- Helping to identify current self-archiving activity on campus to aid the content recruitment effort.

- Acting as change agents by promoting the institutional repository to faculty and graduate students in their subject areas.
- Informing faculty and graduate students about Creative Commons licensing options and publisher e-print policies.
- Depositing digital materials for faculty in their subject areas if such assistance is desired.
- Participating in the creation of institutional repository metadata, such as local controlled vocabularies (e.g. subject categories for institutional repository documents).
- Preparing web-based and paper documents that explain and promote the institutional repository and advocate scholarly publishing reform.
- Training users in institutional repository deposit and searching procedures.
- Assisting local and remote users with institutional repository utilization, answering questions about institutional repository policies and procedures, and using the institutional repository to answer reference questions.

Barbara (2005) stated

Reference/subject librarians need to involve themselves, partner with colleagues throughout the library and across campus to help shape the IR's future. They bring to the effort an intimate knowledge of users' search techniques and an ability to deal with complex information systems. As vital partners in developing this new model of scholarly communication, reference/subject librarians can advocate the IR to authors and users, getting content in to the IR and getting content out to the public.

She opined that the open access era has brought the following challenges for librarians:

- fear of disrupting existing relationships with publishers
- concerns about the equivalence between institutional repository and journal publishing
- ignorance of copyright law
- reluctance for research to be made public without proper vetting
- reluctance to modify bureaucratic processes
- reluctance to have a university stamp on their scholarly output
- technophobia or mistrust of the long-term viability of digital content
- lack of time to learn how to do something different.

Missingham (2006) reviews the skills needed by library and information professionals in the 21st century and suggests a new approach to key skills:

- Mountain climbing – The World Wide Web is the new mountain of information which has become the largest of Alps, created a new challenge for the library profession.
- Jumping – To leap forward by creating new information resources. Digitizing a wide range of materials, collecting resources in new complex formats that require new infrastructure, access services and delivery. The move to digitize collection material has, in recent years, required libraries to actively work on issues such as standards, services and interoperability.
- Orienteering.
- Endurance.

THE IMPERATIVE FOR INFORMATION PROFESSIONALS TO ENGAGE IN THE OPEN ACCESS MOVEMENT

The development of institutional repositories has typically involved information professionals serving in libraries. It is only natural that information professionals have led the way in identifying the crisis in scholarly communications and taken an interest in developing potential solutions to problems. They have the opportunity to be leaders in the open access movement and are actively addressing their redefined role in the digital world as they are creating a culture of open access in their respective institutions, thus championing one of the most core of librarianship's values, access to information. Open Access repositories need huge involvement to sustain a successful model. The arrival of electronic theses and dissertations (ETDs) and preprint repositories across multiple research domains have created a significant increase in the use of electronic resources over the last few years. In this open access era librarians are providing direct access to scholarly publications via repositories instead of via publishers. Open Archives offer librarians the opportunity to provide free access to scholarly works created by individual institutions. The ability to generate, easily amend and copy information in digital form; to search texts and databases; and to transmit information rapidly via networks worldwide has led to a dramatic growth in the application of digital technologies, and there is a demand for librarians who possess digital collection management and open archive information system management skills.

Institutional repositories are developed and maintained by librarians, who have been playing as active role as they can. Because librarians are subject specialists with liaison responsibilities to specific disciplines, their knowledge of the specialized research needs and scholarly communication patterns of the different disciplines can inform every step of the institutional repository's growth. Initiatives taken by librarians in this open access era include consortial borrowing and new approaches to information discovery. Librarians organize knowledge through the processes of subject analysis and cataloguing, creating 'metadata'. A major challenge exists to develop methods of consistently and uniquely identifying and retrieving networked information, no matter in what format or which location. Evaluating the importance of documents would appear to be another task that requires human understanding.

ACTIONS FOR INFORMATION PROFESSIONALS TO ACHIEVE OPEN ACCESS

Today's information professionals need to wear a number of hats. They are expected to be a researcher, planner, manager, assessor, team member, problem-solver, electronic-resources expert, and above all a versatile leader. The challenges associated with institutional repositories are:

- long term commitment to digital preservation and archiving
- retaining ETDs online and making them available through a publicly accessible server
- best security and archiving practices for multiple institutions to reciprocate online archiving.

The emergence of new scholarly communication models, self archiving services and the concept of institutional repositories have completely changed the whole life cycle within a library, starting with acquisition, exploitation, cataloguing, long-term preservation and retrieval, and created many important new roles to play in this digital era as indicated below.

Formulating Digital Preservation Policies and Defining the Criteria for Long-Term Preservation, Archiving and Open Access Collection Building

Mostly, the repositories are managed by librarians. They need to work out a policy that defines the basis of the technological and long-term approach on how to treat these documents. The acquisition policy of

the institution should be decided on the basis of what type of document will be included and the criteria for software selection. Librarians need to develop strategic policy frameworks for long term preservation and understand how policies need to address the key stages. They need to define the accepted document formats and their conversion tools, oriented towards long-term established standards like SGML and XML.

Setting up an Infrastructure

The development of an infrastructure for the networked resource discovery and retrieval of highly distributed, autonomously created, and diverse electronic information is required. Above all, this infrastructure will need to be managed by professionals who understand information needs and uses.

Open Source Software has come a long way since its inception a few years back; the selection of library-specific open source software is important in the context of libraries' collection size and the services required for user community. Evans (2006) stated that open source software was a snowball in the 1990s, and is developing into an avalanche. He opined there are three softwares which have reached the critical mass of users and developers that ensures their continued survival and refinement:

- Koha, the open source, MARC-based ILS (current version 3.0)
- The Greenstone system based on Dublin Core (current version University of Waikato, New Zealand, <http://www.greenstone.org>)
- Keystone Digital Library Suite (Indexdata A/S, Denmark: <http://www.indexdata.dk>). Indexdata has provided an open source z.39.50 component. Indexdata now makes Keystone available for download as an open source product as well as offering custom solutions to libraries and consortia.

The two most popular softwares adopted by libraries in India are D Space and GNU Eprints for creating institutional digital repositories. Librarians are very upbeat and encouraged by the success of open source software and the number of institutional repositories is increasing day by day.

Resource Discovery

Librarians have another role in supporting resource discovery, one in which digital technologies play only

a small role. This is in providing a 'trusted' service. This trust and authority is based upon librarians' making choices, evaluating information as a part of collection development and with a thorough understanding of what users need. Librarians are the pathfinders and guides for their users.

Self Archiving, Reviewing Submissions for Quality of Content and Allocation of Subject Headings (Keywords)

Information professionals should encourage the faculty to self-archive their papers in the institution's e-print archive. Professionals working in the library need to do 'proxy' self-archiving, on behalf of any authors who feel that they are personally unable (too busy or technically incapable) to self-archive for themselves. Information professionals, collaborating with systems staff, should be involved in ensuring the proper maintenance, backup, mirroring, upgrading, and migration that ensure the perpetual preservation of the institutional e-print archives. Mirroring and migration should be handled in collaboration with counterparts at all other institutions supporting OAI-compliant e-print archives. A key characteristic of institutional repositories is that authors might self-archive their work and when they do, they will also be submitting metadata. Librarians have traditionally been responsible for actually assigning the metadata, but now their responsibility would be to determine the metadata standards that should be used by each community of self-archiving authors. Information professionals have vital roles to play in helping to recruit authors to submit their content to institutional repositories, as well as in educating users to search such repositories effectively and retrieve the scholarly content from them. Librarians need to help faculty archive their past research papers, digitizing them if necessary, and teach them how to archive their future papers.

Librarians as Knowledge Workers

Materska (2004) suggested that librarians need to understand the following questions to succeed as knowledge workers:

- How to harness the power of individuals by supporting them with ICTs?
- How to enhance learning capabilities and sustaining lifelong learning for the community?

- How to prepare/stimulate, maintain and strengthen the knowledge culture?
- What makes certain information highly valuable?
- How is knowledge acquired, constructed, transferred and otherwise shared within the organization or society?
- How to extend the skills of managing knowledge?
- How to manage 'knowledge space' and support innovation?

Jantz (2001) stated that library administrators should foster more innovation in their institutions. He further mentioned that the Scholarly Communication Center (SCC) established by Rutgers University libraries acts as a catalyst to bring together experts in subject content, technology and library services in order to forge new partnerships and prototype new services.

Metadata Related Activities

Metadata related activities offer new opportunities for librarians to communicate with new domains including publishing, recording and content developing and other allied areas concerned with digital object creation and management. The basic skills of librarians in locating, evaluating, collecting organizing and disseminating information would have splendid use in the creation, development and management of digital content. Information quality has enormously increased and the codification and classification of this information to facilitate easy location is best done now, as well as in the foreseeable future, by librarians. Librarians have been creating metadata (catalogues) and dealing with preservation issues for a long time, so there is a track record of success here. However, librarians need extra training to do this in the new context of institutional repositories.

Generating ETD Creation Guidelines

Guidelines for the creation of electronic theses and dissertations need to be formulated. These documents will give guidance to students and faculty members on such aspects of ETDs as guaranteeing the authenticity and integrity of documents and improving digital literacy by organizing users' training.

Emphasizing the Use of Information

The low level of use of information is the biggest problem in developing countries due to information illiteracy

and poor reading habits. Librarians must actively pursue their role as educators to work with the authors of intellectual works who will be contributing to the institutional repository. This is a natural extension of the user training that librarians have provided for decades. Education would include helping the university community learn to use institutional repository software for self-archiving. In addition, the training should include topics related to creating documents that can be more easily maintained in a digital environment.

Copyright Issues and Legal Aspects of Building Open Access Collections

Legal barriers arise from copyright law and licensing agreements. Faculty copyright retention is a necessary precondition for libraries to help disseminate their institution's scholarly output. The technological barriers arise from digital rights management (DRM) software used to block access by unauthorized users, sometimes with the help of software professionals. For open access contents the standard is to use Creative Commons free licences.

Raise Awareness and Join Consortia and OAI Directories

Librarians can help open access journals launched at their institution to become known to other libraries, indexing services, potential fund giving authorities and potential readers. They should join library consortia like the Scholarly Publishing and Academic Resources Coalition (SPARC) to multiply efforts and publicize support for free and affordable journals. They need to make sure that scholars at their institutions know how to find open access journals and archives in their fields, and to make sure that tools are set up to allow them to access these publications efficiently. As open access journals proliferate, and as their usage and impact grow, there is a need to cancel over-priced journals that do not measure up to the needs of the users.

SUGGESTIONS AND RECOMMENDATIONS

Critical library functions require professionals of a high educational background/intellect who must be able to analyze, conceptualize, make judgments, develop and implement policy responses.

In response to the emerging Open Access environment, information professionals have to:

- understand and apply client-centred concepts and principles in the management of traditional and digital information resources and services
- analyze policies, practices, and standards related to collection development and management in traditional and digital environments
- identify and apply principles of service design for virtual information environments
- critically evaluate contemporary issues in information provision and their implications for collection development and management
- understand key aspects and trends of the information technology infrastructure and their implications for collection building and management
- carry out needs assessment and evaluation of virtual information collections, resources and services.

In order to achieve a sustainable Open Access model, the following recommendations may be considered:

Continuing Professional Development, Technologies and Training

Development of the skills occurs through library education and general training programs within the workplace as well as outside the organization. Training and development is very important to any organization to improve the quality and services. Missingham (2006) opined "Conferences and on-the-job training have been the major opportunities for developing skills. Delivering skills development for the future could be through a mix of on-the-job activities and training focused on developing collaborative thinking, negotiation and communication skills".

Librarians have always used their knowledge of information delivery to facilitate information discovery. Now there is an expectation that they will also work closely with academics to develop effective learning environments, both face-to-face and online. This requires a strong grounding in pedagogy and in digital environment, and expertise with information and communications technologies (ICT).

Scholarly Publishing Consultant

A half-time Scholarly Publishing Consultant is appointed by MIT Libraries in Cambridge to support MIT faculty and researchers who have questions about their options and rights in the world of scholarly

publishing, evolved with the advent of the digital repositories. Following are the areas in which the authors need guidance/information:

- What rights the author has over his/her own work, and how he/she can ensure the rights in the future with his/her work.
- Information about standard publisher copyright transfer agreements, including the use of the institution's amendment to such agreements.
- To gain feedback about options and rights related to archiving authors' work on the web, whether via a faculty home page or a discipline-based archive.
- To discuss the options for publishing an article so that it will be openly available, without permission or subscription barriers, whether in a new open access journal or a long-standing journal.
- To ask about open access publication options, and fund or government policies in relation to those options.

Indian institutions promoting scholarly publication and engaging in institutional repositories can take these initiatives as an example and consider similar kinds of appointment in their workplaces.

Restructuring of Library and Information Studies (LIS) Syllabi

Students are beginning to hear about open access in their courses, but soon they will be taught by teachers for whom this is their area of expertise. PhD students in librarianship, for example, are finding open access and related topics an interesting field of study. Practical sessions of library science courses should be converted to 'learning by doing' in the actual professional work environment rather than in a mere simulation of the same in the classroom. It is essential to make it mandatory for students of library and information science to serve a few months of internship in a modern library, preferably under the supervision of an experienced librarian/information scientist.

Staff Training/Development

The All India Council for Technical Education (AICTE) provides grants under MODROBS (MODernization and Removal of OBSolescence) projects to the technological institutes, and similar grants are available from the Ministry of Human Resource Development (MHRD), the University Grant Commission (UGC)

and other funding bodies; a fraction of this grant may be spent on staff training/development, deputing professionals to national and international professional events to apprise them of the state of the art in IT-enabled librarianship and information servicing. It is important to select trained and skilled professionals to handle the institutional repositories.

CONCLUSION

Today's libraries are more interesting, difficult and challenging! Academic librarians have now new roles to play, never previously contemplated. The most significant challenge facing academic libraries undertaking these institutional repository projects is not technical but the major challenge is cultural. The current environment provides an opportunity for librarians to play a key role in developing an open access culture, not only in their institutions, but also globally. The development of digital repositories has become a very important feature in the academic library scene and it is mandatory for information professionals to set up institutional repositories in their respective places. Information professionals working in libraries have to gain experience, not only with respect to the new modes of delivering content and the new genre of digital collections, but also how to effectively deal with access rights and models of open access. There is a need for concerted efforts to maintain the sustainability of the open access models and address the problems of staff shortage as well as investment in retraining staff so that users of the system have access to much more content with the same funding.

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Selected Websites on Open Access

- Open Science Directory. <http://www.opensciencedirectory.net/>: Search tool for open access journals and journals in special programs for developing countries.
- SLA Statement regarding Open Access. <http://www.sla.org/content/SLA/advocacy/OpenAccess.cfm>
- OA LIBRARIAN: Open access resources by and for librarians. <http://oalibrarian.blogspot.com/>
- Open Access News. <http://www.earlham.edu/~peters/fos/fosblog.html>

Abstract

The push for open access is to encourage new avenues of disseminating information quickly and broadly to advance knowledge. Self-archiving in open access repositories, metadata harvesting, electronic resource management, interoperability in searching, etc. are presenting a whole new dimension of the information landscape. Information professionals working in libraries have been facing tremendous challenges in disseminating scholarly material and learning objects emanating from their institutions. Librarians serving in universities and academic institutions can launch a program to help faculty pay for publishing in open access journals, introduced the concept and secured the funding through various means. A proactive approach in information handling and collaboration with IT staff and academics are essential for open access to be sustained. The skills and competencies for information professionals are outlined, along with challenges they may face in developing sustainable models for open access repositories. The paper elaborates the different roles that information professionals have been playing in the development and promotion of digital resources in this open access era and offers recommendations for further improvement.

Keywords: open access; digital repositories; information professionals; librarians; India

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MORE ON OPEN ACCESS IN INDIA

Open access and institutional repositories - a developing country perspective: a case study of India.

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Open access facilitates the availability and distribution of scholarly communication freely, as a means and effort to solve the problem of inaccessibility, primarily due to financial constraints, particularly in the developing countries. In India there has been a gradual realization of the usefulness of open access among various institutions. Various open access initiatives have been undertaken and are operational. Many are in the developmental stage. Some initiatives have also been taken in the area of metadata harvesting services particularly public funded ones. The future of open access in India is dependent upon a proper policy and developing a proper framework. In the implementation of open access, LIS professionals should play a proactive role in the growth of collections in institutional repositories. The paper provides an overview about the present state of open access initiatives by various institutions of the country. (Author abstract)

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