

14. Collection Development in Digital Information Repositories in India

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ABSTRACT

The institutional repository (IR) is a contemporary concept that captures and makes available through Internet and intranet the institutional research output and other relevant documents to the users by way of digitizing the output. The IRs have already started emerging in India. This study highlights the importance of IR, delineates the scope and methodology projects the findings. Most of the repositories are using open source information repository software like DSpace, Greenstone Digital Library Software and GNU EPrints. It is observed that generally documents like theses and dissertations, seminar papers, journal articles, etc., are being found more in the repositories. Some of the problems of the repositories have been highlighted and suggestions offered.

KEYWORDS

Institutional repository; Information repository software; Digital libraries; Collection development; India.

INTRODUCTION

In India there are a number of internationally reputed institutions, which are producing a good number of research documents that are expanding the frontier of knowledge and scope for technological innovation. The recent phenomenon of outsourcing of scientific research, applications development as well as business-intelligence-related research to India, has generated a good deal of enthusiasm in advanced studies. Recently some internationally famous journals published cover stories on Indian scientific and technological research. The success and achievements of these institutions can give rise to promising research environment in India that may attract sponsored or collaborative research in all major disciplines of study. These institutions essentially use modern information and communication technologies for information management and dissemination. Other than their

research activities, these institutions also produce intellectually mature graduates and scholars in some scientific, technological and business disciplines. Other areas of studies in India are also getting international attention proportionately. Some of these institutions provide access to their research documents and learning materials initially to the Indian scholars in other institutions as well as to external scholars in institutions across the globe. The sharing of knowledge may lead to further development in the same discipline or related disciplines. Institutional repository, which may be called an extension of digital library, is now becoming a platform for the sharing of knowledge.

INSTITUTIONAL REPOSITORY

The Institutional repository (IR) is a contemporary concept that captures and makes available as much of institutional research output as possible to the users. It is a sort of a database of digital information resources, accessible through Internet or Intranet. In the first instance this might include electronic versions of documents such as research papers, project reports, patents, theses and dissertations [1]. It may also include many of the digital assets generated by an institution such as working papers, lectures, conference proceedings, learning objects, administrative documents, course notes, etc. The learning objects may include among others study materials, assignments, question papers, audio-video materials and multimedia presentations such as interactive e-learning modules. Advancement of information and communication technologies has made the institutional repository a reality. Institutions both in developed as well as developing countries have started establishing institutional repositories.

Importance of Institutional Repository

Institutional repository is the marquee of an institution to the world, where institution displays its worthwhile research programmes, projects, and initiatives to the broad spectrum of audience in the

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world. An institution outreaches its findings that in turn encourage other institutions and organizations to collaborate and to share their knowledge, expertise and skills. An institutional repository offers seamless access to documents that reflect past and present research interests of the institution as well as its future research goals. It makes the publications more usable by contemporary and future scholars as well as other professionals like policy makers and social workers. The pace of scholarly communication would be highly accelerated if the IR holds research papers, research reports, etc as soon they are made public. This also helps publications in receiving more citations, since the research findings are quickly available to the fellow scholars. The institutional repository can be used throughout the institution and collaborative institutions. Some institutional repositories in India are only providing access to metadata to the external communities who are accessing these repositories through Internet, whereas internal members who are accessing these repositories through Intranet are getting access to full-text information besides metadata. These restrictions exist due to various reasons involving copyright issues, bandwidth issues, permissions from the grant providing agencies (GPAs), and so on. In India, there are a number of research grant providing agencies. Sometimes some areas may overlap with each other. Using institutional repositories, the GPAs can

evaluate the novelty of a research proposal and come to know whether any study has been already undertaken in a particular area or discipline.

SCOPE AND METHODOLOGY

The present study covers selected institutional repositories in India accessible through Internet. Most of the repositories are using open source information repository software like DSpace, Greenstone Digital Library Software and GNU EPrints. Some institutions presently are not using any IR software, but providing direct access to their documents through their respective websites. For this study authors have visited respective institutional repositories using Internet and gathered information that are presented in Table 1. The Figures 1 to 4, depicted here, are drawn from the data as on 1st July 2005. **(Footnotes)**

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Table 1: Selected Institutional Repository Initiatives in India

Name of IR	Institution	Website address	Type of Documents available	Whether Full text	Number of documents as on 15/07/2005	Software Used
DRTC Seminar Volumes 1998-2002	Documentation Research and Training Centre, Indian Statistical Institute	http://drtc.isibang.ac.in/DRTC/greenstone.html	Seminar proceedings	Yes	118	Greenstone
LDL: Librarians' Digital Library	Documentation Research and Training Centre, Indian Statistical Institute	https://drtc.isibang.ac.in	Articles, conference papers, theses	Yes	188	Dspace
ICRIER	Indian council for Research on International Economic Relations	http://www.icrier.org/publications.html	Working papers, lectures	Yes	180	-

eprints@iimk	Indian Institute of Management, Khozhikode	http://eprints.iimk.ac.in	Articles, conference papers	Yes	19	GNU EPrints
ETD at IISc	Indian Institute of Science	http://etd.ncsi.iisc.ernet.in/	Theses and dissertations	Yes	83	Dspace
ePrints	Indian Institute of Science	http://eprints.iisc.ernet.in	Articles, conference papers	Yes	2099	GNU EPrints
Prabhavi	Indian Institute of Science	http://vidya-mapak.ncsi.iisc.ernet.in/cgi-bin/library	Articles, conference papers, theses, patents	No	6 sets of collection	Greenstone
ETD@IITB	Indian Institute of Technology Bombay	http://www.library.iitb.ac.in/~mnj/gsd/cgi-bin/library	Theses and dissertations	No	2200	Greenstone
Eprints@IIT Delhi	Indian Institute of Technology, Delhi	http://eprint.iitd.ac.in/dspace	Convocations addresses, faculty research publications	Yes	310	Dspace
ETD@IIT Kanpur	Indian Institute of Technology, Kanpur	http://library.iitk.ac.in:8080/examples/thesis/index.html	Theses and dissertations	No	8867	-
INSA Digital Library	Indian National Science Academy	http://drtc.isibang.ac.in/insa	Articles, books, seminar reports	No	760	Dspace
Digital repository of NCL	National Chemical Laboratory	http://dspace.ncl.res.in/	Theses, patents, project reports	Yes	180	Dspace
OpenMed@NIC	National Informatics Centre	http://openmed.nic.in/	Articles, conference papers	Yes	136	GNUE Prints
DSpace@nitr	National Institute of Technology-Rourkela	http://dspace.nitrkl.ac.in/dspace/	Conference Papers, journal articles, preprints	Yes	88	Dspace
Vidyanidhi	University of Mysore	http://www.vidyanidhi.org.in	Theses and dissertations	No	220	Dspace
Archives of Indian Labour	VV Giri National Labour Institute and Association of Indian Labour Historians	http://www.indialabourarchives.org	Historical documents	Yes	9	sets of collection Greenstone

FINDINGS

It has been already pointed out that the institutional repositories in India are using open source software

like Greenstone Digital Library Software, DSpace, GNU EPrints and so on. Using Greenstone, chapter-wise or section-wise representation of document is possible. Using DSpace or GNU Eprints software,

self-archiving of digital documents is possible after usual peer review process. This saves the time of information professionals for metadata creation. These software efficiently organize metadata of documents, maintaining international metadata standards. Metadata helps in representing a document and later on helps in retrieving a document from the database. Institutional repositories in India mostly provide an interface of browsing the collection subject-wise, title-wise, document type-wise and so on. These also provide simple and sometimes advanced search options with single or multiply search criteria for precise retrieval. Some repositories permit users to view and download full-text documents (e.g. EPrints@IISc), whereas some others permit users to view metadata and abstracts only (e.g. ETD@IITK). In the case of some repositories document collection is growing rapidly (e.g. EPrints@IITD). On the other hand in certain cases document collection is either slowing down or remaining static (e.g. Archives of Indian Labours).

A few **subject-specific institutional repositories** are there where scholars of a particular subject can contribute their documents on the subject. Librarian's Digital Library (LDL) of DRTC, Bangalore is a subject-specific repository that provides access to articles, conference papers, dissertations, tutorials and other learning materials pertaining to library and information science. The submission of documents by the professionals from other institutions is permissible in LDL.

A few **document type specific institutional repositories** also exist where scholars of different subjects can contribute their documents according to the type. Vidyandhi of Mysore University, Mysore is a document type repository that provides access to theses and dissertations of PhD, M.Phil, MA, M.Sc, M Tech, ME, MD, M Com., MBA, MCA, MLIS, M.Ed., MSW, etc.. The submission of theses and dissertations by the scholars from other institutions is permissible in Vidyandhi.

Document types in institutional repositories vary significantly and comprise among others textual, graphical, photographic, audio-visual and multimedia documents. The documents commonly available in Indian institutional repositories are

preprints, unpublished as well as peer-reviewed articles, seminar presentations, theses, dissertations, research reports, patents, learning objects, computer files, and so on.

From the past few years, Council for Scientific and Industrial Research (CSIR) is encouraging CSIR research fellows to submit theses both in print format and electronic format (CD-ROMs). Other research scholarship providing agencies are also encouraging so. Thus, the academic and R&D institutions are receiving electronic theses and dissertations in various disciplines which can be part of institutional repositories in India. National Chemical Laboratory, Indian Institutes of Technology, Indian Institute of Science, and a few universities have initiated institutional repositories to make these worthwhile research documents accessible throughout the world.

Documents available in institutional repositories are many a time distributed across different divisions or departments within the institution. Figures 1, 2 and 3 depict distribution of documents across various divisions or departments. Figure 1 shows that in IIT Delhi repository Centre for Energy Studies account for the highest number of electronic documents (22.5%), followed by Department of Physics (13.5%). Figure 2 shows that in IISc's electronic theses and dissertations repository, Division of Electrical Sciences accounted for the highest number of electronic theses (50%) followed by Division of Biological Sciences (17.6%). On the other hand, in IISc's e-Prints repository, the largest number of documents are from Division of Physical and Mathematical Sciences (26.2%) followed by Division of Biological Sciences (25.4%) [Fig. 3].

The institutional repositories, if available in Internet, can be accessible throughout the world. If an institutional repository offers quality research publications, well-defined metadata elements and user-friendly search interface, it would be popular amongst researchers the world over. Also the role of metadata harvester is crucial here that accelerates access to documents of an institutional repository through various web search engines and search services. Interoperability is to be achieved for platform independent information exchange and harvesting. Figure 4 shows that ePrints of IISc is mostly accessed

by the US-based scholars (39.4%) followed by India-based scholars (7.7%). The data of country-wise access was generated by IISc for top 100 publications accessed during 21 May 2004 to 15 Mar 2005. [2]. During this period total accesses was 122,330 (IISc: 363, Others: 121967), excluding access by web crawlers and metadata harvesters. This figure would encourage other institutional repositories in India and they will have to adopt rational approaches and policies in collection development.

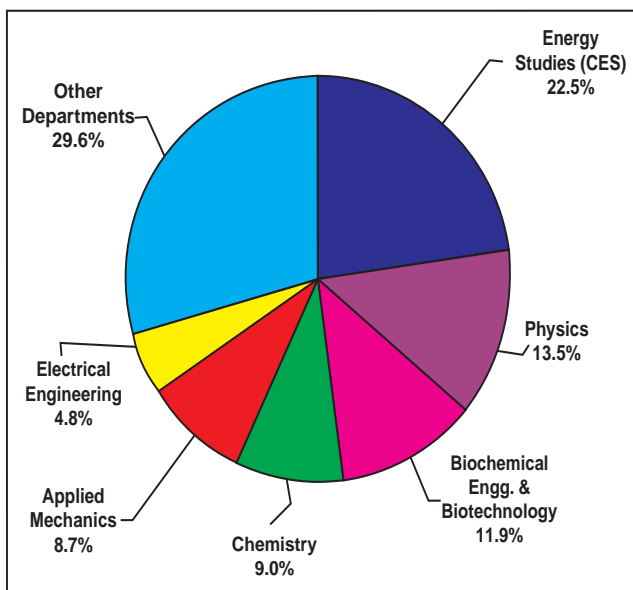


Figure 1: Distribution of ePrints across Departments in IIT Delhi

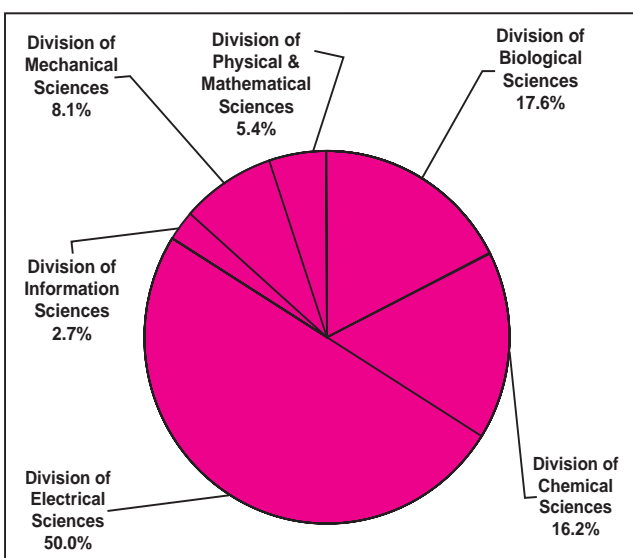


Figure 2: Distribution of ETD across Divisions in IISc

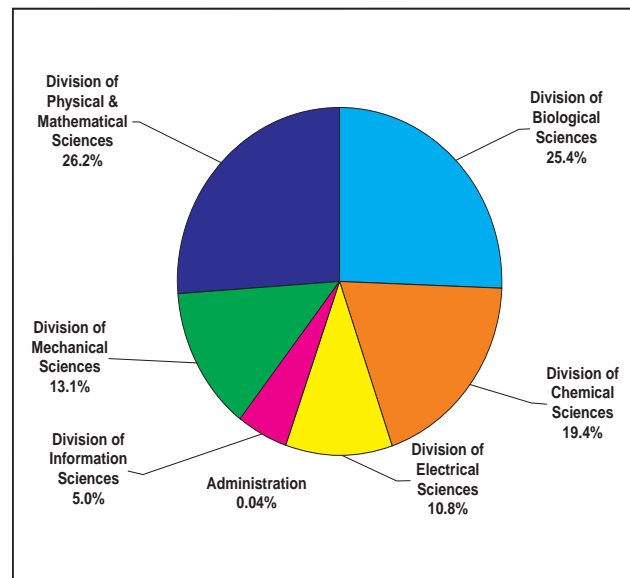


Figure 3: Distribution of ePrints across Divisions in IISc

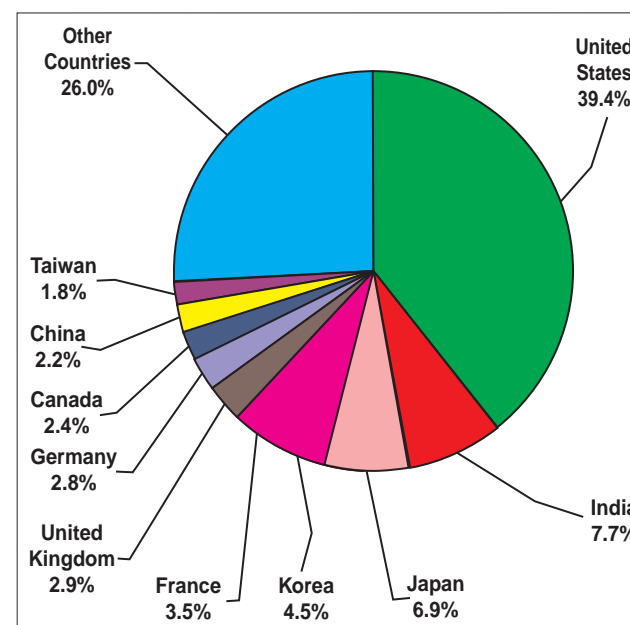


Figure 4: Use of ePrints@IISc across the World

Problems of Institutional Repositories in India

When an institutional repository initiative is undertaken, it is first planned keeping in view the objectives of the respective institution as well as of the initiative. Then a prototype is developed, tested and implemented. After achieving satisfactory results, the information repository is developed and implemented at a higher scale and again tested. Some institutional repositories that have been visited to gather information are not presently accessible through Internet due to various reasons. Some of them seems to be are:

- The uniform resource locator (URL) has been changed in due course of time, but other web pages link to the earlier URL (i.e., dead link).
- The web server is not operational on 24/7 timeframe that makes it inaccessible to the scholars across the world. To be a globally acclaimed information repository, this should be accessible and operational on 24/7 timeframe.
- The service has been discontinued but the web pages that are linked to this IR are not updated.
- The web server is down for the time being.

The information professionals responsible for institutional repositories should regularly review their accessibility in order to minimize these problems. They can invite feedbacks from users to provide more user-friendly access to collection.

CONCLUSION

The institutional repositories provide access to research publications and other digital documents of respective institutions. The popularity of this concept is growing rapidly in the higher educational and research institutions to disseminate newly emerged knowledge and expertise. When an institution shares its own knowledge resources that not only accelerates knowledge generation and scholarly communication process, but also increases its visibility across the national and international domains. The collection development of an institutional repository is a crucial point for its success and its long-term sustainability. The collection development policy of institutional repositories needs to be reviewed regularly and users' feedback obtained from the user communities. Some institutional repositories in India have just started its operation. Their popularity can be increased through postings in list servers, web search engines, metadata harvesting services and publicity campaigns. The repositories should be linked from the institutions' respective websites. They may include data on ongoing research projects as well as completed research projects. That will reduce duplication of research efforts by other organizations and also save the precious resources of funding agencies. If the works of an individual researcher get an international attention, his or her

publications would be accessed more through institutional repository and would be of great value to its collection. This factor needs to be assessed on regular basis.

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