Design and Develop IR of Electronic Theses of Social-Sciences of RTM,Nagpur University, Nagpur

By

Dr. Shalini R. Lihitkar
Assistant Professor and Head
Department of Library and Information Science
Rashtrasant Tukadoji Maharaj, Nagpur University,
Nagpur,Maharashtra,India
Email : shanwaghmare@yahoo.com
And
Dr. Ramdas S. Lihitkar
Librarian
Govt. Institute of Science,
Nagpur, Maharashtra,India
rslihitkar1975@gmail.com

Abstract: In the age of Information Technology it is very important to keep a pace with the rapid changes that has been taking place all over the world. Institutional repository play a vital role in dissemination of intellectual output of the organization hence it is essential to all the organization to develop and digitize their collection and scholarly communication. Keeping in view the technological changes and importance of creating digital repository of electronic theses, the proposal has been prepared for creation of institutional repository of electronic theses of social-sciences of Rashtrasant Tukadoji Maharaj Nagpur University , Nagpur . This proposal is submitted to Indian Council of Social-Science Research, (ICSSR) New Delhi and has been approved recently, now it is in execution stage. The proposal, constraints and measures for Institutional Repository have been also discussed in detail.

Keywords: Digital repository, Institutional Repository, Electronic theses, Social-Sciences, RTM Nagpur University, India

Format : Research Paper

Introduction:

An institutional repository [IR] is a means to collect the intellectual output of an organization. There is a need for digitizing the theses in the faculty of Social- Sciences of RTM, Nagpur University, Nagpur and preserving it for posterity in digital form. Total 1067 student's theses have been awarded Ph.D. under the faculty of Social-Sciences in RTM,Nagpur University, Nagpur. It needs to be digitized to make globally accessible to the Society in digital format. Hence the proposed research topic has been chosen for the study.

Aim of the Project: The broad Aim of the project is to design and develop Institutional Repository with the following objectives

- To digitize the awarded theses in the faculty of Social-Sciences of Rashtrasant Tukadoji Maharaj Nagpur university, Nagpur
- To create digital repository of awarded theses in the faculty of Social Sciences RTMNU,Nagpur
- To make the theses widely accessible by posting it on website.

Overview of Literature: Review of Research and Development in the Subject

- **International status** The open access movement and the institutional Repositories have been changing the information access and communication scenario altogether. 48 institutions have developed their institutional repository at international level.
- **National Status**

Institutional Repositories in India

S.N.	Name of the Organizations	Name of Repositories
1.	National Centre for Catalysis Research (NCCR),	ttp://www.eprints.iitm.ac.in/cgi/oai2
2.	Central Marine Fisheries Research Institute (CMFRI)	EPrints
3.	Delhi College of Engineering	DSpace
4.	Central Drug Research Institute (CDRI),	http://dkr.cdri.res.in:8080/dspace-oai/request
5.	Indian Statistical Institute, Bangalore Centre (ISI)	DSpace
6.	Cochin University of Science & Technology (CUSAT),	http://dyuthi.cusat.ac.in/dspace-oai/request
7.	NICMAS (NIO library), National Institute Of Oceanography (NIO)	http://drs.nio.org/oai/request
8.	Guru Gobind Singh Indraprastha University	http://dspace.ipu.ernet.in:8080/oai/request
9.	CUSAT (Cochin University of Science and Technology),	DSpace
10.	ICFAI Business School,	http://202.131.96.59:8080/dspace-oai/request/
11.	Indian Institute of Management Kozhikode (IIMK),	http://dspace.iimk.ac.in/dspace-oai/request
12.	National Chemical Laboratory (NCL),	http://dspace.ncl.res.in/dspace-oai/request
13.	Indian Institue of Technology, Bombay (IITB)	DSpace
14.	University of Mysore	http://dspace.vidyanidhi.org.in:8080/dspace-oai/request
15.	Indian Institue of Technology, Bombay (IITB)	http://dspace.library.iitb.ac.in/dspace-oai/request
16.	Information and Library Network Center (INFLIBNET)	http://dspace.inflibnet.ac.in/dspace-oai/request

17.	National Institute of Technology, Rourkela (NITR	http://dspace.nitrkl.ac.in:8080/dspace-oai/request
18.	Institute of Petroleum Management, Pandit Deendayal Petroleum Univeristy (PDPU)	http://library.pdpu.ac.in:8080/xmlui/oai/request
19.	Thapar University (TU)	DSpace
20.	University of Delhi	http://eprints.du.ac.in/perl/oai2
21.	Indira Gandhi National Open University (IGNOU),	DSpace
22.	Indian Institute of Science, Bangalore (IISc),	http://etd.ncsi.iisc.ernet.in/dspace-oai/request
23.	National Metallurgical Laboratory,	EPrints
24.	Indian Agricultural Research Institute (IARI),	EPrints
25.	Indian Institute of Technology, Delhi (IITD)	http://eprint.iitd.ac.in/dspace-oai/request
26.	National Institute of Immunology (NII)	http://eprints.nii.res.in/cgi/oai2
27.	School of Biotechnology (SBT), Madurai Kamaraj University (MKU)	http://eprints.bicmku.in/cgi/oai2
28.	International Crops Research Institute for the Semi Arid Tropics (ICRISAT)	DSpace
29.	Mahatama Gandhi Central Library, Indian Institute of Technlgy Roorkee, India	DSpace
30.	The Institute of Mathematical Sciences	http://www.imsc.res.in/eprints/cgi/oai2
31.	Indian Institute of Astrophysicshttp	http://prints.iiap.res.in/oai/request
32.	Delhi College of Engineering	http://dspace.dce.edu/oai/request
33.	IGIDR Library, Indira Gandhi Institute of Development Research (IGIDR)	http://oii.igidr.ac.in:8080/dspace-oai/request
34.	Indian Institute of Horticultural Research (ICAR)	DSpace
35.	Documentation Research and Training Centre (DRTC), Indian Statistical Institute, Bangalore Centre (ISI),	https://drtc.isibang.ac.in/oai/request
36.	Mahatma Gandhi University	Nitya
37.	Management Development Institute (MDI)	http://dspace.mdi.ac.in/dspace-oai/request
38.	Information Centre for Aerospace Science and Technology (ICAST)	http://nal-ir.nal.res.in/perl/oai2
39.	National Science Digital Library (NSDL) NISCAIR	DSpace
40.	NOPR (NISCAIR Online Periodical Repository)	DSpace
41.	Agropedia, IIT Kanpur (Indian Institute of Technology Kanpur),	
42.	Indian Institute of Science, Bangalore (IISc),	http://eprints.iisc.ernet.in/perl/oai2
43.	Bibliographic Informatics Division, National Informatics Centre (NIC)	http://openmed.nic.in/perl/oai2
44.	Raman Research Institute,	http://dspace.rri.res.in/dspace-oai/request
45.	Sardar Vallabhbai National Institute of Technology	http://eprints.svnit.ac.in/perl/oai2

	(SVNIT)	
46.	Vidya Prasarak Mandal	DSpace

(Source : www.opendoar.org)

UGC is funding for developing National digital repositories in different subject areas. Some institutions developing digital repositories in the subject field are Vidyanidhi, DRTC, LIS Gateway, Alighar Muslim University and INFLIBNET theses database etc.

Review of Related Literature:

IR Concept; It is necessary to understand exactly what the term "institutional repository" means to stakeholders. The term repository as it refers to a storage unit is in itself well-known (**Fowler,Fowler and Thompson,1995**).The question is often raised whether or not the term 'institutional repository' is just another name for an old and existing service, be it a library, warehouse, database,or archive. The question that needs to be answered is whether it is as simple as **Rankin (2005)** states, namely, that IR is ' a set of services for storing and making available digital research materials created by an institution.' Rankin's definition is enforeced by that of **Lynch (2003)** who defines IRs as services that are provided to the members of a community for the'.. Management and dissemination of digital material created by the institution and its community members'. It is important to note that these two authors are placing an emphasis on the concept of service rather than on a physical storage area or unit. Crow (2002) extends the definition by referring to IRs as 'digital collections capturing and preserving the intellectual output of a single or multi university community.'

Reasons for creating an IR; Researchers and institutions benefit from IR in the same way the most prominent reason is the increase in visibility and impact of research output(**Crow 2002).** Buidling up and maintaining reputation in the scientific community is essential for academics and institutions. To measure research impact, bibliometric methods like citation analysis e.g. in the filed of academic journals are used. The second reason is due to the change in the scholarly publication paradigm. Self-publishing scientific content and providing free access to these materials are key activities in the Open Access movement. Budapast Open Access Initiative (**BOAI 2001**). Another reason for emergence of IRs is exorbitantly high costs of scholarly journals. **Anuradha (2005)** explains this by stating that IRs ' – were born out of problems with the current scholarly communication model developed by commercial publishers and vendors.

Benefit of IR ; Allard et al. (2005) explain the value of IRs as services that'… provide members of the university community with the ability to add , or self-archive, items they have authored into the repository, therby facilitating instant access to their work'. Anuradha (2005) emphasizes that a successful IR is dependent on the collaboration and cooperation between the generators of the materials.

Planning of IR; ''Building an institutional at Loughborough University : some experiences' , the paper outlines the various decision processes involved during the 12-month pilot phase. These include : choosing appropriate software; customizing DSpace; implementing licences; and

gathering content for the repository. The experiences highlight some of the challenges involved in setting up an institutional repository. This paper gives a direct insight into the different types of work involved in the selling up of an institutional repository and is an example of a system set up outside the boundaries of project funding**. (Barwick Joanna, 2007).**

"Building an institutional repository: sharing experiences at the HKUST Library'the paper deals with Hong Kong University of Science and Technology's (HKUST's) experiences in developing its institutional   repository and to highlight its programming developments in full- text linking and indexing, crosss institutional searching. This paper describes how HKUST library planned and set up its instutional repository, how it acquired and processed the scholarly output, and procedures and guidelines were established. The paper provides a very useful case study for other academic libraries who want to develop their own institutional repositories. **(Ki-Tat Lam and L.H. Diana, 2007).**

Challenges facing implementation of an IR ; **Bjork (2004)** tends to view the situation from an open-access viewpoint, his principles are applicable to all IRs. The competition between an IR and commercial publishers is a major obstacle that cannot easily be overcome. Other typical barriers are the legal framework within which the organization functions, existing organizational IT infrastructures, business models, recognition and awards, marketing, critical mass and the standard of indexing services.

It is essential to explore the benefits and challenges of IR to determine if an IR will be worthwhile to the library as well as the institution. Abbie Starkman explores issues affecting libraries operating institutional repositories, and some of the challenges and benefits to libraries operating an IR. Lastly this paper examines the future of IRs as it relates to issues in sustatinablility and viability. **(Starkman, Abbie,2008)**. **Van Der Merwe and J.H. Kroeze (2008)** in their article "Development and implementation of IR withing a science, engineering and technology (SET) environment'discuss development and implementation of IR. This paper provides an understanding of the complexity surrounding the implementation of an IR. **Gouri Sankar Karmakar, Rumi Das Juli Thakuria (2010)** identifies and outlines the role and importance of various IR in India. The rapid advent us of IT has completely revolutionized the library systems and changed library services. In India open access movement is getting momentum in libraries to overcome the access barriers of scholarly publication. In this paper the authors have tried to compare only two IR software i.e. DSpace and Eprints .Most of the IR in India using DSpace followed by E-prints.

India: Case Studies

The paper "IR movement in India: Tips and Strategies for Success in the Challenging Times" by **Rajeev Vij and Navin Kumaar Soni (2009)** highlights the IRs movement in India updated till Nov 2009. The paper attempts to identify and evaluate IR in India with special reference to initiatives taken taken by twelve DRDO laboratories including DESIDOC. This paper gives a comprehensive listing of workshops conducted in India to promote development of IRs and also list IR developed in India.The paper ' IR , open educational Resources for Distance Education : A case study of India'surveys the efforts of the different organizations in India which have set

up the IR that are accessible to all. **(Tripathi, Manorama, 2009**). **N.Varatharajan and M. Chandrashekara (2007)** describe that digital libraries and digitization paly an important role in preserving and disseminating knowledge in art and culture, education, science and technology, literature and humanities, media and entertainment, cultural heritage, and . This article describes some of the digital libraries and IR of India. **Anup Kumar Das and others (2008)** highlight the importance of IR; the study covers selected IR in India accessible though interent. Some of the problems of the repositories have been highlighted and suggestions offered. The paper "Digital Libraries and repositories in India: an evaluate study' highlights the state of digital libraries and repositories in India in late 2007. It also gives a comprehensive listing of digital libraries and IR in India available in the public domain. **(Mittal, Rekha & Mahesh, G., 2008).**

Conceptual Framework: Information and Communication Technology has created immense methods for creating, storing, maintaining, accessing and preserving the traditional printed documents in digital format. It offers great opportunities to fast, effective and efficient electronic communication. National institutions and organizations are developing their institutional repositories. Therefore department should take initiatives to develop the digital repositories for providing faster scholarly communication to their users. This research project will definitely helpful and useful for Social-Science professionals as well as other professionals from different disciplines. Digital repositories have capability to build up collections for different user's needs and incorporate different forms of documents. This will facilitate the access of research projects and its inclusion in National repositories research projects.

Research Methodology: Descriptive and Investigative method of research will be followed.

- Developing Bibliographic database of Ph.D. Theses in the faculty of Social–Sciences of RTM, Nagpur University, Nagpur
- Digitizing the full text of theses by using either GSDL/D-Space (Open Source Software)
- Posting the metadata on RTMNU website.
- Providing hyperlinks from Metadata to full text.

(a) **Coverage:** Entire awarded 1067 Ph.D. Theses in the faculty of Social-Sciences of RTMNU, Nagpur will be the covered under proposed study. The faculty of social sciences of RTMNU covered the following subjects and the number of thesis awarded in that subject.

Subject	Number of theses awarded
Ambadkar Thought	25
Ancient Indian History	20
Economics	350
Fine Arts	50

Gandhian Thought	15
History	145
Library and Information Science	47
Law	20
Mass Communication	15
Philosophy	54
Political Science	65
Psychology	45
Public Administration	55
Sociology	145
Travel and Tourism	16
Total no. of Theses is to be digitized (figure may be increased)	**1067**

(b) Data Collection: The proposed research will be based on primary data collected through the faculty members of the various departments and from Nagpur University Library. If the need arise then personally theses will be collected from the awardees.

(c) **Data Analysis:** Collected data will be analyzed with the help of statistical techniques, broadly content analysis will be done and categorized the specific content to various subject headings and keywords will be assigned and finally upload the full text data into the software to make accessible to users.

Implications: The proposed research will be of immense value for Research Scholars as well as professionals of faculty of Social-Sciences as it will be accessible in digital format and hosted online. This proposed research will

- Facilitate the access of research output of theses and its inclusion in National repositories research projects.
- to create global visibility for an institution's scholarly research;
- to collect content in a single location;
- to provide open access to institutional research output by self-archiving it;
- to store and preserve other institutional digital assets, including unpublished or otherwise easily lost ("grey") literature (e.g., theses).

Duration of the Project: The duration of the project may be **two years.**

Year-wise Plan of work and targets to be achieved.

1st Year

- **Step 1.** Developing Bibliographic   Database of theses
- **Step 2.** Collection of the theses.

- **Step** 3. Scanning the full text of the theses
- **Step** 4. Preparing metadata and customizing

2nd Year

- **Step 5**. Consolidation by subject wise and digitizing the full text.
- **Step 6**. Uploading the Metadata on Portal.
- **Step 7**. Uploading Full texts of theses
- **Step 8**. Testing of software implementation
- **Step 9**. Providing hyperlinks from metadata to full text.
- **Step 10**. Providing wider access to the globe of end users.

Personnel :

- **Research Associate (RA):** for consolidation and repacking the collected information , presentation of technical content of the research project. RA needed for two years. The qualification of RA will be MLISc, and research experience of any completed project.
- **Research Assistant / Research Investigator:** for collecting the data , organized the data, creation of metadata , uploading the data into the software , providing proper subject heading and keywords. RI needed for two years. The qualification of RI will be MLISc degree , computer science degree and having practical knowledge of any open source software for creation of IR.
- **Typing Assistance**. ; For feeding the data and presentation of report in digital as well as traditional form. For two years. The qualification is B.A./B.Sc/B.Com or any degree with MSCIT and DTP work.
- **Budget:**

Position	No. of Persons	Emoluments	Duration	Amount Required
Research Associate Research Assistant / Research Investigator Typing Assistance	1 (Person)	13,000 Per Month	24 months	3,12000 Rs./-
Travel: for Training to GSDL and for compilation of data :	2 persons	-	-	40,000/-
Data Processing:	-	-	-	50,000/-
Stationery and Printing:	-	-	-	75,000/-
Books, Journals, etc.	-	-	-	60,000/-

Contingency Expenses including Postage	:	-	-	70,000/-
Equipments Computer Flatbed Scanner Digital Camera Laser Printer Internet Charges Hosting the website		2 1 1 2 1		@32000 X 2 = 64,000 @ 40,000 X 1= 40,000 @ 35000 X 1=35000 One Colour Printer x 22000 = 22000 One 10,000 /- 25,000 /-
Overhead charges				50,000/-
			Total =	**8,55,000/-** **(Elight Lakh Fifty Five Thousand only)**

Constraints of Institutional Repositories

The Open Access Movement has a big challenge especially the publishing industry of journals under commercial sector challenging their sovereignty. The management support, availability of IR expertise, willingness of authors to participate are very important factors for the success and sustainability of IR.

- Absence of a well defined institutional policy is a serious constraint for IR development. Uncertainty will exist about the norms to be adopted for inclusion of documents regarding the person depositing the document, the need for review and technical evaluation of the document, types of documents to be included and the level access control.
- IR being a new development, there is serious lack of IR expertise especially in a developing country like India. Many institutions although serious to set up IR failed due to non-availability of IR expertise from both library and IT staff.
- The management and the authors concerned about forms a serious bottleneck in building the content of an IR. Many institutions fail to allocate sufficient funds for IR. The basic necessities like IR infrastructure availability of expertise can not be fulfilled without adequate funds
- Another important constraint is apathy of authors towards time consuming and lengthy deposition procedure.
- Ignorance of users in the absence of appropriate literacy program is another constraint with viz. one cannot expect any developments in IR.
- In case of journals and conference proceedings usually copyright of a research publication lies with the publishers. The publisher's rigid attitude for allowing the published item in IR and the authors concerned in this matter is another constraint to be sorted out appropriately
- A good number of institutions in India although have set up the IRs, but made them available only on the LAN of their institute or on a single system due to various reasons like copyright problem from publishers or reservation of their management to throw open their publications. Apathy of Creators/authors for depositing content
- Customization of open source software is a bottle neck .
- They affect the balance of institutional power as some departments proceed faster than others.

- Nature of content: Classified/restricted and Unclassified/Open
- Diversity of content and the language used in the full texts
- They rely on unproven methods for long term digital preservation.

Suggested Measures

An Institutional Repository is the intellectual capital of an institute which recognizes the intellectual life and scholarship of our academic and research organizations. IRs facilitates building the digital collections to be searched and accessed freely by anybody in world. Above all, IRs preserves the heritage of the institute. Setting up of an IR needs a planned approach for the implementation tasks defined by their governance structure, management framework, operational strategies and a well documented workflow. Adoption of the standards and choice of models are critical factors for developing an IR.

More than 1,100 IRs have been set up in the world, and India with 46 IRs as listed in Open DOAR and ROAR leads the developing countries with in this regard. Most of the IRs particularly in India have neither preferred the governance and management structures nor documented the procedures and practices. A good number of institutions in India although set up their IRs have not made the content open access due to various reasons. There is no perceived growth in the number of documents added to many IRs in the world. Apart from a good number of metadata harvesting services like OAISter, ARC, general Internet search engines like Google, Yahoo and SCIRUS also harvest the metadata of repositories in the world and give the links to the individual IRs for full texts. Among the IR software adopted DSpace and GNU Eprints are very popular and also are open source.

- The government and the governmental agencies including universities, and important research establishments like CSIR, ISRO, DRDO, ICAR, ICMR, ADE, DST, DBT have to take a policy decision for setting up of IRs in their respective organizations.
- An intensive awareness should be brought among both the librarians and the users (contributors and readers) covering the benefits of IR both for the individual concerned and the institution.
- Apart from inclusion of the topic IR as a part of syllabus in Indian L & IS curriculum.
- Need to conduct workshops and training programs leading for creating expertise in setting up of IRs.
- At national level, we need to develop the capability of customizing the Open Access software to suit local requirements.
- It would be nice if one arrives at consensus on standards to be adopted for implementation of IRs in the country.
- While one can think of announcing some incentives for contributions of research output to IR, one can also think of making it mandatory at individual Institutional level for contribution.
- While it is advisable to have IRs at the Institutional level, one can also think of setting up of metadata harvesting services covering different sectors both by organizations and by subject.
- There is a need to set up a Registry of Indian Repositories in line with ROAR and OPENDOAR registries.

- All leading universities and R&D establishments and also consortia coordinators should write to all commercial and societal publishers to allow individual scientist to deposit their research publications from the concerned individual institutional IRs. This would facilitate development of IRs without infringement of IPR of publishers.
- All institutions should provide necessary infrastructure including servers, PCs, scanners, internet bandwidth and software required for setting up of IR and also required funds and manpower.
- It is better for the institution intending to set up IRs to adopt one of the open source software like Dspace or Eprints as they are already popular and satisfy most of the functionalities of IR, open source and comply with all open source standards concerned.
- Apart from developing Institutional repository, the individuals can also think of making available publications through subject based e-print archives and also individual personal websites as another step towards Open access movement.
- Libraries should also try to integrate OPACs with their respective IRs.
- Solutions to be found for restricted reports, Copyrighted material access. Proper review required for unpublished and unreviewed (peer) material.
- There is a need to pick up the manpower training for developing IRs as well motivate the authors to submit their documents.
- There have been few open access declarations by few professional societies and also governments of few countries by legislation. This move is yet to picked up by other countries.
- A collaborative effort by academicians/scientists/users, librarians, IT professionals and archivists is required to develop a successful and sustainable IR.
- The self deposition of documents by the creators is yet to pick up in the world and in particular, India. The copyright restrictions of publishers discourage the authors to submit their papers to IR. However, many publishers including the commercial ones have relaxed their attitudes in this regard by allowing the copy of the final referred manuscript of the paper accepted for depositing in IR. The SHERPA's RoMEo Project serves as a directory of copyright policies of different publishers. Both IR Managers and the users recognize the important role of library professionals in the IR development.

Summary: It's a new technique for digital college building, managing preserving information and creating new information in digital form. By using this repository the institution can offer service like dissemination of information, access to preserve and use information and as well as content submission and organization of information. Libraries and LIS professional should have to take part in Institutional Repositories in developing successful and valuable repositories for their institution.

The Nagpur University is one of the oldest universities in India. It is established in the year 1923 and the premier intuitions of higher education in central India. The name of University changed from Nagpur University to Rashtrasant Tukadoji Maharaj Nagpur University on 9th June 2005 and completed 89 years of its existence . This project will be of immense value for Research Scholars and Social-Sciences professionals as **1067** theses will be accessible in digital format online and will be also deposited at the end in CD form to ICSSR. Descriptive and investigative method of research will be followed which include downloading the open source software and uploading the research output of the faculty members. The broad objective of this research project is to design and develop the institutional repository of theses in the faculty of

social-sciences and make accessible these scholarly communications to all professionals at global level.

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