academicresearchJournals

Vol. 3(11), pp. 310-316, December 2015
DOI: 10.14662/IJALIS2015.052

ISSN: 2360-7858
http://www.academicresearchjournals.org/IJALIS/Index.htm

International Journal of Academic Library and Information Science

Full Length Research

Knowledge Sharing Practices Through Institutional Repositories in Indian Research Institutions: An Empirical Study

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Accepted 6 December 2015

Creation of Institutional Repositories (IR) for knowledge sharing in a research institution of the developing country like India is a growing need of the present time. IR facilitates sharing of research, innovations produced in any institution in digital form in a digital library environment. This paper will give a clear understanding of the knowledge sharing practices of all the online Institutional repositories in Indian research institutions developed so far. For the present study survey design method has been adopted. Survey of all the Indian Research Institutions websites have been made by the researcher themselves for authentication of the data. The study results found that in India thirty-eight (38) research institutions have created web-based IR for sharing their institutional knowledge to the global scholarly community. Out of the thirty-eight repositories 28 repositories are registered with Open DOAR database, 27 are with ROAR database and 23 are common to both. Study result also founds that online IR of Indian Academy of Sciences: Publications of Fellows is the largest repository in terms of size among all the thirty eight repositories.

Keywords: Institutional Repository, Research Institution, Open DOAR, ROAR, Open Access, Knowledge Sharing.

Cite This Article As: Sarmah M, Bhattacharjee N (2015). Knowledge Sharing Practices Through Institutional Repositories in Indian Research Institutions: An Empirical Study. Inter. J. Acad. Lib. Info. Sci. 3(11): 310-316.

INTRODUCTION

Now a day's open access to research through institutional repositories is an emerging and significant trend. Conception about institutional repository as a location to gather, manage and keep the knowledge output of an institution has been changed now; repositories are now also acting as a medium of communication and knowledge sharing. IR's are now become an indispensable component for information and knowledge sharing in the scholar world. In global world knowledge sharing practices by building institutional repositories are happening rapidly at all levels, governments are also funding projects to develop guidelines and standards to speed up the development of institutional repositories. Also in developing country like

India creation of institutional repositories in research and academic institutions for making the institutional research globally accessible are gaining momentum gradually due to the fund constrains and high price of the subscription research journal offered by publishers.

OBJECTIVES

The main aim of this study is to explore the institutional repositories which are created at Indian Research Institutions so far for sharing knowledge purpose. There are some other goals also;

i. To know the number of institutional repositories in Indian Research Institutions.
ii. To know the size of the repositories i.e. number of documents archived by the respective repositories;
iii. To explore the subject wise contents of the repositories;
iv. To know the digital repository software used for creating the repositories;
v. To know the content types and language diversity of the repositories;

RESEARCH METHODOLOGY

To conduct this study survey method was used. Surveys of all the Institutional repository website of Indian Research Institutions have been done by the researcher themselves for authentication of data. First of all, an attempt was made to find out the number of Research Institutions of India then, a list of all the Institutional Repository websites of the same has been prepared and examined. The data for the present study was collected during last two week of July 2014.

SCOPE AND LIMITATIONS

Present study has been delimited with the web based Institutional repositories of Indian research institutes. The limitation of the study lies in the fact that although there are many research institutes which have created in house IR i.e. in Local area Network but for the present study only the web based repositories have been counted and generalization beyond this population is restricted.

REVIEW OF LITERATURE

Bhattacharjee and Sarmah (2015) did a study on “Open access repositories in global context” and found United States as the highest with 439 repositories created so far and India in 10th position with 70 repositories. The researcher also opines that in comparison to developing countries developed countries are more concerned with Institutional repositories. Kennan and Kingsley (2009) conducted a web-based survey to investigate the status of Australian institutional repositories. Their study result reported with a very high percentage of institutional repository implementation (84.2%) that derived from 97.4% response rate of a total of 39 Australian universities. They also opined that it is expected due to the Australian government who has been supportive of the Open Access development through funding and establishing policies to make their research output more accessible. Krishnamurthy and Kemparaju (2011) reported a study of Institutional Repositories in use in Indian Universities and research institutes. In their study the researchers have found 28 repositories, out of which maximum were created on UNIX and Linux platform. Another study by Prabhat and Gautam (2009) in their study on Indian institutional repositories found that forty nine (49) repositories (22.2%) out of the 221 Asian institutional repositories were deployed by India. Institutional repositories in India have received much coverage from both the academia and librarians. They also mentioned in their paper that Indian institutional repositories are mainly from research institutions and D Space digital library software is the popular among all for creating IR’s.

INSTITUTIONAL REPOSITORY

Wikipedia states that: “An institutional repository (IR) is an online archive for collecting, preserving, and disseminating digital copies of the intellectual output of an institution, particularly a research institution.”

An Institutional Repository (IR) is a collection of born digital or digitized documents of an institutions intellectual output. IRs is a key infrastructure module in the digital environment because they offer better access to digital objects and ensures that digital objects should be managed correctly. IR facilitates easy sharing of resources universally to the global level.

KNOWLEDGE SHARING

Knowledge which are creating in an institutional level throughout the world in the form of scholarly research output i.e. journal article, conference papers, book and books chapter, annual report, multimedia content, these and dissertations etc. should be captured, organized and preserve for sharing to the scholarly world.

Knowledge sharing is an activity through which knowledge (i.e. information, skills, or expertise) is exchanged among all people irrespective of caste and community.“Knowledge sharing is the communication of all types of knowledge, which includes explicit and tacit

Table 1: Status of registered repositories

Online Database Repository	No of registered repositories
DOAR	28
ROAR	27
Both	23

Table 2: Content type-wise institutional repositories

Content Type	No. of Repositories	Percentage (%)
Journal articles	31	81.57%
Conference and Workshop paper	25	65.78%
Unpublished report and Working paper	19	50.00%
Theses and Dissertation	18	47.36%
Book,Book chapters and section	12	31.57%
Multimedia and Audio-visual material	11	28.94%
Learning object	08	21.05%
Patient	05	13.15%
Software	04	10.52%

Table 3: Software usage in institutional repositories

Software	No. of Repositories	Percentage (%)
DSpace	21	55.27%
EPrint	16	42.10%
Unknown	01	2.63%
Total	38	100%

knowledge, the “know-how’ and “know-who” (Hansen 2002).”

Knowledge sharing is a fundamental key for success of all knowledge management approaches. Sharing knowledge requires a different kind of environment, a unique combination of human and information system to cut the knowledge gap. In this present technological era institutional repositories are emerged as a useful tool for knowledge dissemination. IR gives boon to the knowledge sharing practices throughout the world by organizing and preserving and making available the research output of an organization to the scholarly world.

FINDINGS OF THE STUDY

The major findings of the study are;

i. Study result founds that so far thirty eight online institutional repositories (38)have been created by various research institutions of India for sharing the Institutional knowledge to the scientific community of the world (Annexure-I).

ii. Out of the 38 repositories 28 are registered with Open DOAR database, 27 with ROAR database, 23are common to both Open DOAR and ROAR database and 10 repositories are not registered with any database directory.

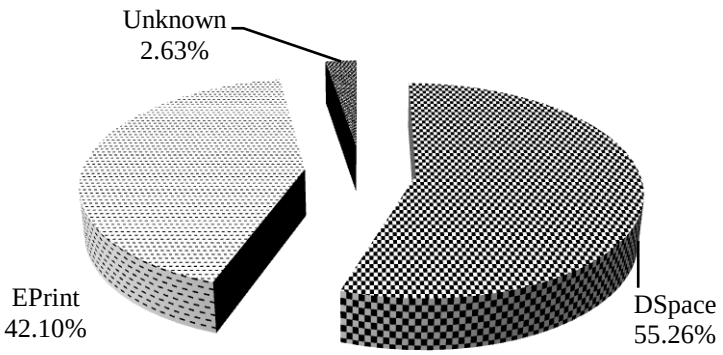

Figure 1: Institutional Repository Software usage

Table 4: *Subject wise IR's*

Subject	No of Repositories	Percentage (%)
Multidisciplinary	14	36.84%
Astronomy and Astrophysics	03	7..89%
Health and Medicine	02	5.26%
Agricultural Science	02	5.26%
Crop and Biotechnology	02	5.26%
Biochemistry/Chemical Biology	02	5.26%
Ocean/Geoscience	02	5.26%
Mathematics and Mathematical Science	01	2.63%
Electrochemistry	01	2.63%
Humanities and Social Science	01	2.63%
Physical Science	01	2.63%
Observational Science	01	2.63%
Building and Architecture	01	2.63%
Development Research/Economics	01	2.63%
Microbial Technology	01	2.63%
Metallurgy	01	2.63%
Instrumentation Engineering	01	2.63%
Fishery Science	01	2.63%
Total	38	100%

iii. The developers of the IR manage the repository contents by type such as journal articles, theses and dissertations, multimedia etc. Study concludes that a large number of IR have more than one content type. Analysis of data shows that 31 repositories preserve journal article which is highest followed by Conference and workshop paper 25, unpublished reports and working papers 23, Theses and dissertations 18, Book, Book chapters and sections 12 etc.

iv. Study results found that DSpace is the most

popular and widely used Digital Repository software among the IR's of Indian research institutes as 21 numbers of repositories were created with this software and 16 were with E-Print software for preserving and disseminating knowledge in digital form.

v. Result of the study shows that contents of all the repositories are in English as it is an international language but only one repository has archived few documents in Tamil language along with English.

vi. Most of the institutional repositories of Indian research institutions were archiving their institutional knowledge in the form of digital documents of multidisciplinary subjects into their respective repositories. Out of 38 IR Fourteen (14) repositories have archived documents in multidisciplinary subjects, Three (3) repository on Astronomy and Astrophysics, Two (2) each on Health and Medicine, Agricultural Science, Crop and Biotechnology, Biochemistry/Chemical Biology, Ocean/Geoscience.

vii. Study shows that out of all the 38 repository "Indian Academy of Sciences: Publications of Fellows" IR is the biggest repository in terms of size as it has archived 91722 items so far in its repository, followed by National agricultural research system-Krishikosh 51216 items, Indian Institute of Science, Bangalore repository 36974 items and so one. **(**Annexure -1). Table 1, 2, 3, 4 & Figure 1

CONCLUSION

An institutional repository plays an important role for sharing and disseminating the knowledge in academic and research institutions. IR provides better access provision of full text scholarly documents for the research and facilitates provision of control over the intellectual output of research institutions. Open access to research gives boon for the development of IR. Due to information explosions and fund constraints open access practices in the field of research and development are now being adopted in whole world for easy sharing of idea, resource and expertise in a large scale. With the availability and rapid advancement of the information and communication technologies and by creating necessary infrastructure in Indian research and academic institutions, this will becomes an active contributor to global open access literature. From the present study it has been clear that many of the Indian research institution have realized the usefulness of IR towards sharing the organizational knowledge to the scholarly world and created online IR but Open access to knowledge and information has far to go in India.

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Annexure: 1. List of Web Based Institutional Repositories (IR) of Indian Research Institutes

SL. No.	Name of the Research Institute	Web address of IR's	Size
1	Aryabhatta Research Institute of Observational Sciences	http://210.212.91.105:8080/jspui/	805
2	CSIR-Central Building Research Institute, Roorkee.	http://krc.cbri.res.in/dspace/	1060
3	Central Drug Research Institute, Lucknow	http://14.139.230.5:8080/dspace/index.jsp	929
4	Indian Association for the Cultivation of Sciences	http://arxiv.iacs.res.in:8080/jspui/	221
5	Indian Institute of Advanced Study	http://library.iias.ac.in/dspace	247
6	Indian Institute of Astrophysics, Bangalore	http://prints.iiap.res.in/	6392
7	Indian Institute of Horticultural Research	http://www.erepo.iihr.ernet.in/	486
8	Indian Institute of Science, Bangalore	http://etd.ncsi.iisc.ernet.in/	2279
9	Indian Institute of Spices Research	http://220.227.138.214:8080/dspace/	714
10	Indian Statistical Institute, Kolkata	http://library.isical.ac.in/jspui/	5842
11	Indian Statistical Institute, Bangalore Centre	http://library.isibang.ac.in:8080/dspace/	191
12	Indira Gandhi Institute of Development Research	http://oii.igidr.ac.in:8080/jspui/	247
13	National Agricultural Research System-Krishikosh	http://krishikosh.egranth.ac.in/	51216
14	National Centre for Antarctic and Ocean Research	http://14.139.119.23:8080/dspace/index.jsp	617
15	National Centre for Radio Astrophysics	http://ncralib1.ncra.tifr.res.in:8080/jspui/	472
16	National Institute for Interdisciplinary Science and Technology (NIIST)	http://ir.niist.res.in/jspui/ http://ir.niist.res.in:8080/xmlui/	1313
17	National Institute of Oceanography (NIO)	http://drs.nio.org/drs/index.jsp	4525
18	Raman Research Institute, Bangalore	http://dspace.rri.res.in/	5581
19	DRTC, LDL Librarians Digital Library	http://drtc.isibang.ac.in:8080/jspui/?locale=en	490
20	Institute of Mathematical Sciences	http://www.imsc.res.in/xmlui	301
21	Institute for Social and Economic Change (ISEC)	http://203.200.22.249:8080/jspui/	4419
22	Inter-University Centre for Astronomy and Astrophysics	http://www.iucaa.ernet.in:8080/jspui/	2539
23	Central Marine Fisheries Research Institute (CMFRI)	http://eprints.cmfri.org.in/	9626
24	CSIR-Institute of Microbial Technology	http://crdd.osdd.net/open/	1330
25	International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), India	http://oar.icrisat.org/	6940
26	National Institute for Tuberculosis Research	http://eprints.nirt.res.in/	830
27	Csir-Central Scientific Instruments Organisation India	http://csioir.csio.res.in/	307
28	Madras Diabetes Research Foundation, India	http://mdrf-eprints.in/	669
29	National Metallurgical Laboratory, India	http://eprints.nmlindia.org/	5688
30	National Aerospace Laboratories	http://nal-ir.nal.res.in/	5661
31	Indian Institute of Science, Bangalore (IISc), India	http://eprints.iisc.ernet.in/	36974
32	Indian Academy of Sciences: Publications of Fellows	http://repository.ias.ac.in/	91722
33	CSIR-Central Electrochemical Research Institute, India	http://cecri.csircentral.net/	2473
34	CSIR - National Physical Laboratory, India	http://npl.csircentral.net	996
35	National Center for Catalysis Research, IIT Madras	http://catalysis.eprints.iitm.ac.in	2327
36	Explorations, CSIR	http://eprints.csirexplorations.com	924
37	CSIR- Indian Institute of Chemical Biology (IICB)	http://www.eprints.iicb.res.in/	1567
38	Central Food Technological Research Institute	http://ir.cftri.com/	6571