SCHOLARLY COMMUNICATION THROUGH INSTITUTIONAL REPOSITORIES

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Abstract: Institutional repository is the most powerful online archive tool to provide the efficient service among the community of institutions. Institutional Repositories (IR) are digital collection that captures, collect, manage disseminates and preserves the intellectual output of an institution. IR is a very powerful idea that can serve as an engine for institutions of higher education, and more broadly for the scholarly enterprises that supports academic and research activities. The repositories also serve as a comprehensive publications database of the parent organization, which in turn facilitate better management of research knowledge, better visibility and wider access, rapid communication of research, long-term preservation. Institutional repositories are a practical, cost effective & statistic means for academic institutions for built partnership with their faculty to advance scholarly communications. Institutional repository provides tools that help faculty, students and researchers disseminate their work to audience outside the institution. This paper discusses about the concepts of institutional repositories, their benefits, scholarly communications and open access softwares.

Keywords: Institutional Repositories, Open Access Softwares, Scholarly Communications.

I. Introduction: In this electronic publishing age, academic institutions have increasingly recognized that an institutional repository is an essential infrastructure of scholarly dissemination. Information and Communications Technology (ICT) continues to transform the scholarly environment and management of higher education institutions. ICT has created platforms and opportunities for scholars to work collaboratively through extensive infrastructures, with access to resources and knowledge services in borderless environments. Scholarly communication is the process used by academicians and scholars to share the results of their academic and research work. Usually, this is done through journals, professional magazines and conference papers.

Institutional Repositories are digital archives for collecting, storing, preserving and disseminating scholarly content of an institution. Universities and research organizations world over are building institutional repositories for communicating their research outputs to the community of users worldwide. Institutional Repository is also the permanent deposit of research and conference papers, e-theses, student projects and teaching and learning materials produced by community of staff and students. Repository content can be browsed or searched through the website, wherever possible repository content is freely available for download. In an academic institution, an IR is created from the research output of the faculty, staff and students & made available to the user both within & outside the institution.

II. Definitions: Institutional Repository is a digital collection of an institution's intellectual output. IR is a key infrastructure component in the digital environment because they provide better access to our digital assets and they ensure that digital objects are managed appropriately. There are many definitions given by various experts. According to Clifford Lynch (2003), "An Institutional repository is an organization based set of services which the organization offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members". He further elaborates that, "it is most essentially an organizational commitment to the

stewardship of these digital materials, including long-term preservation where appropriate, as well as organization and access or distribution".

According to Wikipedia, "an Institutional repository is an online locus for collecting, preserving, & disseminating in digital form, the intellectual output of an institution, particularly a research institution". Institutional repositories are "digital collections that capture and preserve the intellectual output of a single or multi-university community" (Crow, 2002).

III. Institutional Repositories – Concept: Institutional Repositories as a means to manage and preserve effectively an institution's knowledge base and intellectual assets results in the content of institutional repositories expanding beyond e-prints to include research data, e-learning materials and other forms of institutional intellectual outputs, which are generally not published or preserved elsewhere. It needs to be ensured that content within the repositories remains accessible and retains its authenticity, reliability and integrity for as long as it is needed.

Attributes of an Institutional Repository: An Institutional Repository is a digital archive of the intellectual product created by the faculty, research staff, and students of an institution and accessible to end users both within and outside of the institution. The contents of an institutional repository should be:

1. **Institutionally Defined:** The institutional repositories preserve the scholarly content and other intellectual property generated by an institution's community.
2. **Scholarly:** Institutional Repository contains work generated by students, researchers and faculty members of the institution. It may include e-version of conference proceedings, institution's annual reports, learning objects, patents etc.
3. **Cumulative and Perpetual:** Cumulative nature of institutional repository implies that it must be able to incorporate successive additions of submissions per year and must ensure preservation of millions of digital objects. By perpetuity, we mean to preserve and facilitate access to digital content for a long-term.
4. **Open and Interoperable:** An institutional repository system must support interoperability to facilitate access through multiple search engines. It must maintain and expose metadata, thereby allowing metadata harvesters to search and collect the content.

IV. Objectives: The four main objectives for having an institutional repository are:

1. to create global visibility for an institution's scholarly research;
2. to collect content in a single location;
3. to provide open access to institutional research output by self-archiving it;
4. to store and preserve other institutional digital assets, including unpublished or otherwise easily lost ("grey") literature (e.g., theses or technical reports).

V. Benefits of Institutional Repositories: The repository makes the University's research and teaching and learning materials more visible and widely available. Students, funding bodies and other researchers can see and have access to the doing work. A repository has the following benefits for an institution:

Benefits to the Institution:

- The most important advantage as opined by both IR system staff is that IRs provide wider access and visibility to the research output.
- The scholarly material produced by the university is available in one place, reflecting the intellectual achievements of the institution, and serving as a valuable marketing tool.
- centralization and storage of all types of institutional output, including unpublished literature.
- support for learning and teaching. Links may be made with the virtual teaching environment.
- The IRs play a vital role in the preservation of institution's heritage as the authorities/ faculty/ scientists would not permanently be in the institution but the IRs once built up, maintained and

updated will continue to be the source for information on the research carried in the concerned institute irrespective of its age.

Benefits to the Authors:

- storage and access to a wide range of materials. Many authors lack time, resources, or expertise to ensure preservation of their scholarly work. Through an organizationally based IR strategy, long-term accessibility and greater security of work is assured. Research items get a permanent URL compared to a personal or departmental web site.
- feedback and commentary from users. Authors are able to receive and respond to commentary on 'pre-prints'.
- added value services; such as hit counts on papers, personalised publication lists and citation analyses.
- Instead of scattered in different databases, all the intellectual output of an individual are kept in a well organized way in a single place.
- IRs provide a new and innovative channel of scholarly communication both for already published documents and the documents falling under the grey literature category. The grey literature like technical Reports, theses, in house publications are not generally published for wider circulation. IRs fill up this gap.

Benefits to Society/Community: As scholarship is shared, society at large benefits. Maximising public access to research findings online, in turn maximises its visibility, usage and impact. It also maximises its benefits to research itself in terms of research dissemination, application and growth, research productivity and progress. Also more sponsors of funded research now have mandates for authors to deposit their articles and other research outputs as a condition for funding. Some policies promote Open Access for funded research. These requirements are intended to increase readership, re-use and dissemination of research outputs.

VI. Challenges of an IR: Lynch, C. has cautioned that an IR should not become a tool for enforcing administrative control over academic work. Despite the numerous benefits of an IR, there are implications and potential barriers to its success as summarized below:

- The initial financial cost for open source software adopted by most institutions for creating IRs is not high but the recurrent costs, especially staff costs may be significant.
- A successful IR depends on the willingness of authors to deposit their work voluntarily and there may be local barriers and hindrances to be overcome.
- There are acknowledged difficulties in generating content, especially at the beginning.
- Difficult to sustain continuous support and commitment from the management and academic staff.

VII. Open Access Source Softwares for Institutional Repositories: Open access is free to access, use, and store, with no purchase, fees, or registration required and unrestricted online access to digital scholarly material. Open access is the literature that should be freely accessible online is that which scholars give to the world without expectation of payment. Open access to scholarly materials means that its free availability on the Internet and any users can read, download, copy, distribute, print, open access documents under creative commons licenses or similar licenses. The basic meaning of OA is that the user can use the material on internet and can take print outs of it and that can be further distributed to others without commercial purpose or any payments or restrictions. There are number of open access softwares available for creating/developing institutional repositories, the brief some of the important softwares are given below;

1. DSpase: DSpace (http://www.dspace.org) was developed jointly by the MIT library and HP. It captures, stores, indexes, distributes & preserves an organization's research data. DSpace support institutional repositories and electronic records management. DSpace indexes digital content, so users can search and retrieve results quickly. DSpace distributes digital content over the World Wide Web

and also searchable through search engines. Dspace preserves and enables open access to all sorts of digital content including text, videos, images, and audio files. DSpace is being used worldwide to meet many digital archiving needs.

2. E-prints: E-prints is a free open source software and developed at the University of Southampton E-prints is the most flexible platform for building high quality, high value repositories, recognized as the easiest and fastest ray to set up repositories of research literature, scientific data, students thesis, project reports multimedia artifacts, teaching materials and scholarly collections. E-prints is the easiest and fastest way to set up repositories of open access research literature, scientific data, theses, reports and multimedia. E-prints were the Open Archives Initiative (OAI) - complaint repository software. It typically supports collections of pre-prints and technical reports often subject based in scope. Recently this software is being used / implemented to manage multidisciplinary institutional archives.

3. Fedora: Fedora (Flexible Extensible Digital object and Repository Architecture) is a digital repository system developed jointly by Cornell University Information Science and University of Virginia Library as project. The Fedora projects goal is to provide open-source repository software and related services to serve as the foundation for many different types of Information Management system. It also promotes the buildings of customs tools to expose the repository in creative ways.

4. Greenstone: Greenstone (http://www.greenstone.org) is software for building and distributing digital library collections. This software is produced by the New Zealand Digital Library Project at University of Waikato and developed and distributed in cooperation with UNESCO. It has been issued a Open - Source, multilingual software under the GNU General Public License.

VIII. Institutional Repositories in India: Many initiatives have been observed in India to digitize and preserve available knowledge. Various institutions have established their IRs to share resources and making their visibility worldwide. Academic institutions have also started preserving and sharing their resources with the help of IRs. The repository can be created and modified according to the needs and use of an institution. To create IR, many open sources software are available which are free and easily downloadable. Institutional Repositories in India some are given below.

S. No	Name of the Repository	Name of the Institution	URL
1	Eprints@CMFRI	Central Marine Fisheries Research Institute	http://eprints.cmfri.org.in
2	Dspace@GIPE	Gokhale Institute of Politics and Economics	http://dspace.gipe.ac.in
3	Eprints@IARI	Indian Agricultural Research Institute	http://eprints.iari.res.in
4	Dspace@iitb	IIT, Bombay	http://dspace.library.iitb.ac.in
5	Dspace@IIA	Indian Institute of Astrophysics	http://prints.iiap.res.in
6	Dspace@IIMK	Indian Institute of Management Kozhikode	http://dspace.iimk.ac.in
7	Eprints@IITD	IIT, Delhi	http://eprint.iitd.ac.in/dspace
8	Dspace@INFLIBNET	INFLIBNET	http://ir.inflibnet.ac.in
9	Dspace@IMSC	Institute of Mathematical Sciences	http://www.imsc.res.in/xmlui
10	Eprints@MDRF	Madras Diabetes Research Foundation	http://mdrf-eprints.in
11	Eprints@SBT MKU	Madurai Kamaraj University	http://eprints.bicmku.in/

12	Dspace@MDI	Management Development Institute	http:dspace.mdi.ac.in/dspace
13	Eprints@NIRT	National Institute for Tuberculosis Research	http://eprints.nirt.res.in
14	Eprints@NII	National Institute of Immunology	http://eprints.nii.res.in
15	Dspace@NITR	NIT, Rourkela	http://dspace.nitrkl.ac.in/dspace
16	Eprints@NML	National Metallurgical Laboratory	http://eprints.nmlindia. org
17	Eprints@SVNIT	Sardar Vallabhai National Institute of Technology	http://eprints.svnit.ac. in
18	Dspace@TU	Thapar University	http://dspace.thapar.edu:8080/ dspace
19	DU Eprint Archive	University of Delhi	http://erints.du.ac.in
20	Eprints@UOM	University of Mysore	http://eprints.uni-mysore. ac.in

IX. Conclusion: Institutions need to set-up IR to make their knowledge output more visible to the outside world. Institutional repository is the most powerful tool to publish & provide the efficient service among the community of institutions. The development of IRs in India is fast and many institutes are taking up initiatives to set up them. Libraries will server their users better, and help them preserve their treasure of knowledge for future. IRs could become a compelling and useful tool for collecting, organizing and disseminating intellectual output of an institute. Institutional repositories are one of the most promising developments that utilize new web technologies to offer a viable and sustainable alternative to the current model of scholarly publishing. The repositories also serve as a comprehensive publications database of the parent organization, which in turn facilitate better management of research knowledge, better visibility and wider access, better impact and citations, rapid communication of research, long-term preservation.

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