Collection Development of Digital Archives in India: A Case Study of Jadavpur University

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Abstract

The free flow of information is a fundamental principle for bridging the gaps between have and have not. ICT has a major impact of materials for research. Innovationin ICT has brought radical changes in the way information is generated, stored, processed and disseminated. Recent advances in converging technologies especially Internet and web technology has paved the way to create the open access archives on repositories. The objective of the open access movement is to make scholarly articles freely available in digital form to anyone anywhere in the world. The open access and open archives movement, the need for changes in the scholarly communication to remove barriers to access.

An institutional digital library is the intellectual capital of an institute which recognizes the intellectual life and scholarship of our academic and research organizations. Institutional libraries detail facilitates building the digital collections to be searched and accessed freely by anybody in the world. The institutional digital libraries provide access to research publications and other digital documents of respective institutions. Wikipedia defines an institutional digital library is an online locus for collecting, preserving and disseminating the intellectual output of an institution particularly a research institution. For a university, this would include materials such as research journal articles, before & after undergoing peer review and digital version of these and dissertations, it might also include other digital assets generated by normal academic life, such as administrative documents, course notes or learning objects. Thus, an institutional digital library is a digital archive of the research output created by the faculty, research staff and students of an institution and accessible over the Internet to the end user both within and outside of the institution with few if any barriers to access.

The present study highlights the concept of institutional digital library, its relevance advantages and initiatives in India. The data for present study related to institutional repositories in India have been collected from directory of open access repositories (open DOAR). The data is analysed based on selected parameters like software used, size of the items, content included (collection type), subject coverage, growth and languages. The constraints and suggestion for creating and improvising the IRs in India has been highlighted. As a result, large number of collections will be available to academic community in India. The paper end with the comment that 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.

Key Words: *Jadavpur University, Institutional Repositories, Digital Libraries, Open Access, DOAR, IR, Digital Contents.*

1. Introduction

The free flow of information is a fundamental principle for bridging the gaps between have and have not. ICT has a major impact on materials for research. Innovation in ICT has brought radical changes in the way information is generated, stored, processed and disseminated. The objective of the open access movement is to make scholarly articles freely available in digital form to anyone, anywhere in the world. The open access and open archives movement, the need for changes in scholarly communication, to remove barrier to access and the increasing awareness that universities and research institutions are losing valuable digital and print materials have begun driving the establishment of institutional digital libraries.

An institutional digital library is the intellectual capital of an institute which recognizes the intellectual life and scholarship of our academic and research organization. The popularity of this concept is growing rapidly in 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.

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2. Literature Review

Digitization of documents has become the requirement for the academic libraries, information centres and archives to preserve their own information resources and provide them retrievable to the users. The digitization procedure ensures the protection of original documents in their original formation that can be preserved and conserved by future decades (Mamta,2010). The main reason of the digitization of reading material is to prolong their life and accessibility to the users of resources achieving cost-saving benefits if possible. The importance of a electronic archive mainly relies on cohesive the clienteles both global and internal (Jain,2021). The archives are trading with the problems of handling of bodily archival documents and it has been dreadful for decades. To deal with it, many standards for e-resource management have been promoted which is feasible by using recent technologies, also, it helped in handling not only the resource themselves but also the deal with their difficult interrelationships (Mamta,2010). The digitization of old resources using norm practice opens up new opportunities for both archival professionals and users. It improves the access of collection to the users and handling of resources becomes easier instead to physical records. The search engines enable to search of documents with the summation of chronological and geographical dimensions from the patron's interface and also in the methods the collection is wielded and makes redeemable (Hirwade, 2006).

3. Definition of Institutional Repositories or Digital Libraries

Institutional repositories is a digital archive of the intellectual product created by the faculty, research staff and students of an institution and accessible to end- user both within and outside of the institution with few if any barriers to access (Johnson) institutional repositories are digital collections that capture and preserve the intellectual outcome of one or more University community.

An institutional digital library is an online locus for collecting, preserving, and disseminating the intellectual output of an institution, particularly a research institution. For a institution, this would include documents such as research articles, book chapters, journal paper before &after going to peer review and digital versions of these, it might also include other digital aspects generated by normal academic life, such as administrative documents, course notes or learning objects (Wikipedia).

Thus, IR stores and make accessible the educational, research and associated assets of an institution. An IR is a digital repository of the research output of an institution.

4. Objectives of institutional digital libraries

- The four main objectives for having an institutional digital library are:
- To make worldwide view for an institution's scholarship.
- To stock and maintain institutional digital assets with unpublished or Gray literature.

5. Why Institutional Digital Archive

There are a number of reasons for building institutional digital library. The following are the certain reasons for building IR:

- Practical, cost effective and statistic means for academic institutions for built partnership with their faculty to advanced scholarly communications.
- Gives tools the help teachers, students and scholars proclaim their job to audience outer the institution.
- Serve as complement to the traditional forms of publication or as an alternative.
- Concentrates the intellectual product created by students, researchers, faculty members to demonstrate its scientific social and financial value.

6. Advantages of institutional depositories or digital libraries

IR Have many benefits such as:

- Organizational support for faculties seeking innovative approaches to research dissemination.
- Improved citation of research publications as the repository will be interoperable (comply with OAI-PMH) and accessible globally.

- Demonstrate the quality and scientific, social and economic relevance of an institution's research.
- Control and preservation of one's own publications.
- Increase the institute's visibility, status and public value. Facilitates more timely access to research publications of faculty members and research scholars.
- Improved research knowledge management.

h. Provides the access digitally and simultaneously facilitates painting facility.

7. Contents of institutional Digital libraries

An institutional repository may contain a variety of materials generated by student, faculty, researchers of the institution and the contents are concealed of research report or articles submitted for publication. The contents of institutional digital libraries are technical reports, white papers, research data, conference papers, thesis dissertation, work in progress, important print and image collections, teaching and learning materials, documenting institutional heritage etc.

8. Open-source software for institutional repository

Open-source software is a free software for all which permits users to use, modify, improve and redistribute it in modified form and made available its source code under a copyright license, that meets the open-source definitions.

There are many worlds renewed open-source software is available for creating or developing institutional digital repositories. They can be downloaded from their own sites or open-source software directories such as source forge. According to aim and recruitment, the institution has to select the most suitable and compatible open-source software. Some useful open-source software for managing and archiving digital repositories are:

(a) **Dpace**: Provides the tools for management of digital assets and is commonly used as the basis for an institutional digital repository. In April 2004 the software was developed and released by MIT and Hewlett Packed Company.

(b) **Greenstone:** Greenstone is produced by the New Zealand Digital Library project at the University of Waikato distributed and developed incorporation with human info NGO and UNESCO. It provides a new way of organising information and publishing it on the internet or CD-ROM.

(c) **Eprint:** It is the most flexible platform for building high quality, high value repositories. It has the largest and most broadly distributed installed bare responsibility software system. It is developed at school of electronics and computer science, University of Southampton, U.K.

(d) **Fedora:** The Fedora digital object repository management system is based on the flexible extensible Digital object Repository Architecture (Fedora). Fedora is a digital assets management architecture, open which many types of digital library institutional repositories, digital archives and digital libraries systems might be built. It is jointly developed by the University of Virginia and Cornell University.

(e) **i-Tor:** i-Tor-Tools and technologies for digital repositories was developed by the Innovative Technology *Applied* (IT-*A*) section of Netherlands Institute for Scientific Information Services (Dutch acronym: NIWI). i-Tor development concentrates on four areas e-publishing, repositories, the content management system and collaborators.

(f) **MyCoRe:** MyCoRe grew out of the MILESS Project of the University of Essen. The MyCoRe system at present being developed by a consortium of universities to provide a bunch of software to support digital archiving (or content repositories, hence "CoRe"). The bundle is designed to be configurable and updatable to local recruitments (hence, "My"), without the need for local programming efforts.

(g) **CERN Document Server Software (CDSware):** This Software (CDSware)was developed to support the CERN document Server. The software is maintained and made publicly available by CERN (the European organisation for nuclear research) and supports electronic reprint servers, online library catalogues, and other web-based document depositary systems.

(h) **Archimede:** Developed by Laval University Library in Quebec City, Canada, the Archimade project was designed and accommodated electronic preprints and post prints from the institution's faculty and research staff.

(i) **ARNO:** The ARNO project-Academic Research in the Netherlands Online- has developed software to support the implementation of institutional repositories and link them to distributed repositories worldwide (as well as to the Dutch national information infrastructure).The project is funded by IWI(Dutch acronym for "Innovation in Scientific Information Supply").

(j) **OPUS:** OPUS-Online Publications of the University of Stuttgart was developed in 1998 by the university library and the Computing Centre of the University of Stuttgart. Main aim of the project was to provide a system by which users at the academic institutions could manage their electronic publications, including published and unpublished articles.

9. Institutional repositories in India

(a) **NDLI (National Digital Library of India):** NDLI is a project of Ministry of Education, Government of India. Its headquarter is in IIT, Kharagpur. NDLI has created a metadata which provides textbooks, articles, videos, audio books, lectures, simulations, fictions and all other kinds of learning media in 10 different languages. NDLI is available in the internet on free of cost for anyone from anywhere in the world.

(b) Directories of Open Access repositories: To know and enumerate the institutional repositories in India, the data related to these, have been collected from Directory of Open Access Repositories (Open DOAR). The data is analysed based on selected parameters like software used for repositories, size of items, content included (collection type) subject coverage and languages.

Presently there are 98 institutional repositories in India as per list given in Open DOAR (http://www.opendoar.org) accessed on. The list of institutions in India having institutional repository is shown in Table 1.

Table-1
Institutional Repositories in India

Name	Institution	URL	Software	No. of Collection
AIJR Preprints	AIJR Publisher	*https://preprints.aijr.org/index.php/ap/preprints*	Other	9935
AMU Repository (Knowledge Repository)	Aligarh Muslim University	*http://ir.amu.ac.in/*	Eprint	10930
ARIES, Digital Repository	Aryabhatta Research Institute of Observational Sciences (ARIES)	*http://210.212.91.105:8080/jspui/*	Dspace	807
Architexturez South Asia	ABA-NET | Anand Bhatt, Architect.	*http://www.architexturez.net/*	Other	200
Bhagirathi	IIT Roorkee Repository	*http://bhagirathi.iitr.ac.in/dspace/*	Dspace	1102
BhogawatiMahavidyalaya Institutional Repository	BhogawatiMahavidyalaya, Kurukali	*http://61.1.85.128:8080/xmlui*	Dspace	4448
CSIR-NAL	Information Centre for Aerospace Science and Technology (ICAST)	*http://nal-ir.nal.res.in*	Eprint	6666
CSIR-NCL Digital Repository	CSIR-National Chemical Laboratory	*https://dspace.ncl.res.in/oai/request*	Dspace	9612
DIR@IMTECH	Council of Scientific and Industrial Research, Institute of Microbial Technology (CSIR-Institute of Microbial Technology)	*http://crdd.osdd.net/open/*	Eprint	1800
DRS at National Institute Of Oceanography	National Institute Of Oceanography (NIO)	*http://drs.nio.org/drs/*	Dspace	7665

DSpace @ GGSIPU	Guru Gobind Singh Indraprastha University	*http://14.139.60.216:8080/xmlui/*	Dspace	135
DSpace @ P.E.Society's Modern College of Arts, Science and Commerce (Autonomous)	Progressive Education Society's Modern College of Arts, Science and Commerce (Autonomous)	*http://125.99.47.158:8090/jspui*	Dspace	9988
DSpace at IUCAA	Inter-University Centre for Astronomy and Astrophysics (IUCAA)	*http://repository.iucaa.in:8080/jspui/*	Dspace	3912
DSpace at Indian Institute of Geomagnetism	Indian Institute of Geomagnetism	*http://library.iigm.res.in:8080/jspui/*	Dspace	1140
DSpace at Indian Institute of Management Kozhikode	Indian Institute of Management Kozhikode (IIMK)	*http://dspace.iimk.ac.in/*	Dspace	810
DSpace at M S University	Maharaja Sayajirao University of Baroda	*http://14.139.121.106:8080/jspui/*	Dspace	834
DSpace at Vidyanidhi	University of Mysore	*http://dspace.vidyanidhi.org.in:8080/dspace/*	Dspace	5482
DSpace@GIPE	Gokhale Institute of Politics and Economics (GIPE)	*http://dspace.gipe.ac.in/*	Dspace	25449
DSpace@IMSC	Institute of Mathematical Sciences	*http://www.imsc.res.in/xmlui*	Dspace	365
DSpace@INFLIBNET	Information and Library Network Center (INFLIBNET)	*http://ir.inflibnet.ac.in/*	Dspace	1777
DSpace@TU	Thapar University (TU)	*http://dspace.thapar.edu:8080/dspace/*	Dspace	3645
Deccan College of Medical Sciences - CRIS	Deccan College of Medical Sciences	*http://183.82.11.228:8282/jspui*	Dspace	9470
Digital Knowledge Repository of Central Drug Research Institute	Central Drug Research Institute (CDRI)	*http://dkr.cdri.res.in/xmlui/*	Dspace	1140
Digital Repository of Smt. AkkataiRamgondaPatil KanyaMahavidyalaya, Ichalkaranji	Smt. A.R.P. Kanya College, Ichalkaranji	*https://earpkmi.in*	Unspecified	4354
Digital repository of West Bengal Public Library Network	West Bengal Public Library Network	*http://dspace.wbpublibnet.gov.in:8080/jspui/*	Dspace	33905
DigitalLibrary@CUSAT	Cochin University of Science and Technology (CUSAT)	*http://dspace.cusat.ac.in/jspui/*	Dspace	10058
Dspace at IIT Bombay	Indian Institue of Technology, Bombay (IITB)	*http://dspace.library.iitb.ac.in/jspui/*	Dspace	20783
Dspace@NITR	National Institute of Technology, Rourkela (NITR)	*http://dspace.nitrkl.ac.in/dspace/*	Dspace	2850
Dyuthi	Cochin University of Science & Technology (CUSAT)	*http://dyuthi.cusat.ac.in/*	Dspace	4721
dspace @ sdmcet	SDM College Of Engineering and Technology Dharwad	*http://210.212.198.149:8080/jspui*	Dspace	60
E Knowledge Center	Foundation for Democratic Reforms	*http://ekcenter.fdrindia.org/*	Drupal	3383
E-Repository@IIHR	Indian Institute of Horticultural Research (IIHR)	*http://www.erepo.iihr.ernet.in/*	Dspace	486
EPrints@IIT Delhi	Indian Institute of Technology, Delhi (IITD)	*http://eprint.iitd.ac.in*	Eprint	6776
Electronic Theses and Dissertations at Indian Institute of Science	Indian Institute of Science (IISc)	*http://etd.ncsi.iisc.ernet.in/*	Dspace	3779

Electronic Theses and Dissertations of The Tamil Nadu Dr. M.G.R. Medical University	Tamil Nadu Dr. M.G.R. Medical University	*http://repository-tnmgrmu.ac.in*	Eprint	16199
Eprint@NML	National Metallurgical Laboratory	*http://eprints.nmlindia.org/*	Eprint	6555
Eprints @MDRF	Madras Diabetes Research Foundation	*http://mdrf-eprints.in/*	Eprint	100
Eprints@CMFRI	Central Marine Fisheries Research Institute (CMFRI)	*http://eprints.cmfri.org.in/*	Eprint	12536
Eprints@IARI	Indian Agricultural Research Institute (IARI)	*http://eprints.iari.res.in/*	Eprint	230
Eprints@SBT MKU	Madurai Kamaraj University (MKU)	*http://eprints.bicmku.in/*	Eprint	89
Etheses - A Saurashtra University Library Service	Saurashtra University	*http://etheses.saurashtrauniversity.edu/*	Eprint	1064
eGyankosh	Indira Gandhi National Open University (IGNOU)	*http://www.egyankosh.ac.in/*	Dspace	31971
ePrints@ATREE	Ashoka Trust for Research in Ecology and the Environment	*http://eprints.atree.org/*	Eprint	572
ePrints@AzimPremji University	Azim Premji University	*http://publications.azimpremjifoundation.org*	Eprint	2136
ePrints@Bangalore University	Bangalore University	*http://eprints-bangaloreuniversity.in/*	Eprint	6043
ePrints@MoES:Open Access Digital Repository	Ministry of Earth Sciences, Government of India	*http://moeseprints.incois.gov.in/*	Eprint	3118
ethesis@nitr	National Institute of Technology, Rourkela (NITR)	*http://ethesis.nitrkl.ac.in/*	Eprint	6543
IACS Institutional Repository	Indian Association for the Cultivation of Science	*http://arxiv.iacs.res.in:8080/jspui/*	Dspace	8074
ICRISAT Open Access Repository	International Crops Research Institute for the Semi Arid Tropics (ICRISAT)	*http://oar.icrisat.org/*	Eprint	9702
IIT Gandhinagar Digital Repository	Indian Institute of Technology Gandhinagar (IIT)	*https://repository.iitgn.ac.in*	Dspace	3989
INFLIBNET's Institutional Repository	Information and Library Network Center (INFLIBNET)	*http://ir.inflibnet.ac.in/*	Dspace	1777
IR@CECRI	CSIR-Central Electrochemical Research Institute	*http://cecri.csircentral.net/*	Eprint	2640
IR@CGCRI	CSIR - Central Glass and Ceramic Research Institute	*http://cgcri.csircentral.net*	Eprint	4255
IR@CLRI	Central Leather Research Institute (CLRI)	*http://clri.csircentral.net*	Other	41
IR@Goa University	Goa University	*http://irgu.unigoa.ac.in/*	Dspace	3939
IR@NEERI	CSIR - National Environmental Engineering Research Institute (NEERI)	*http://neeri.csircentral.net*	Eprint	796
IR@NEIST	North East Institute of Science and Technology (NEIST)	*http://neist.csircentral.net*	Eprint	340
IR@NITK	National Institute of Technology Karnataka (NITK)	*https://idr.nitk.ac.in/jspui*	Dspace	9607
IR@NPL	CSIR - National Physical Laboratory	*http://npl.csircentral.net/*	Eprint	2425
Indian Academy of Sciences: Publications of Fellows	Indian Academy of Science	*http://repository.ias.ac.in/*	Eprint	106351
Indian Institute of Astrophysics Repository	Indian Institute of Astrophysics	*http://prints.iiap.res.in/*	Dspace	7071

Indian Institute of Management Kozhikode Digital Library	Indian Institute of Management Kozhikode (IIMK)	*http://www.iimk.ac.in/gsdl/cgi-bin/library*	Greenstone	2283
Indian Institute of Management Kozhikode Scholarship Repository	Indian Institute of Management Kozhikode (IIMK)	*http://eprints.iimk.ac.in/*	Eprint	151
Indian Institute of Petroleum Institutional Repository	Indian Institute of Petroleum, Dehradun	*http://library.iip.res.in:8080/dspace*	Dspace	481
Institutional Repository - University of North Bengal	University of North Bengal	*http://ir.nbu.ac.in*	Dspace	9936
Institutional Repository of Intectual Contributions of Delhi Technological University	Delhi Technological University (DTU)	*http://dspace.dtu.ac.in:8080/jspui/*	Dspace	841
Institutional Repository of Vidyasagar University	Vidyasagar University	*http://inet.vidyasagar.ac.in:8080/jspui*	Dspace	1427
Institutional Repository of the Anjuman-I-Islam's Kalsekar Technical Campus	Anjuman-I-IslamsKalsekar Technical Campus	*http://www.aiktcdspace.org:8080/jspui/*	Dspace	940
Institutional Repository@CSIO	CSIR-Central Scientific Instruments Organisation (CSIR-CSIO)	*http://csioir.csio.res.in/*	Eprint	655
Institutional repository@VSL	Indian Institute of Management, Ahmedabad	*http://vslir.iimahd.ernet.in:8080/xmlui*	Dspace	18554
KRISHI Publications and Data Repository	Indian Council of Agricultural Research (ICAR)	*https://krishi.icar.gov.in/jspui*	Dspace	4380
Kautilya Digital Repository at IGIDR	Indira Gandhi Institute of Development Research (IGIDR)	*http://oii.igidr.ac.in:8080/xmlui*	Dspace	334
Knowledge Repository Open Network	University of Kashmir	*http://dspaces.uok.edu.in:8080/jspui/*	Dspace	1210
KrishiKosh	Indian Council for Agricultural Research (ICAR)	*http://krishikosh.egranth.ac.in/*	Dspace	130760
Learning Resource Centre: Digital Repository of Chitkara University	Chitkara University Punjab	*http://dspace.chitkara.edu.in/jspui/*	Dspace	4441
Librarians' Digital Library	Indian Statistical Institute, Bangalore Centre (ISI)	*https://drtc.isibang.ac.in/*	Dspace	510
Mahatma Gandhi University Theses Online	Mahatma Gandhi University	*http://www.mgutheses.org/*	Other	2550

Management Development Institute - Open Access Repository	Management Development Institute (MDI)	*http://dspace.mdi.ac.in/dspace*	Dspace	649
NIRT Institutional Repository	National Institute for Tuberculosis Research	*http://eprints.nirt.res.in/*	Eprint	962
NIRTIR	National Institute for Research in Tuberculosis	*https://eprints.nirt.res.in*	Eprint	10038
NOPR	National Institute of Science Communication and Information Resources (NISCAIR)	*http://nopr.niscair.res.in/*	Dspace	40470
National Repository of Open Educational Educational Resources	Central Institute of Educational Technology, NCERT, New Delhi	*http://nroer.gov.in/*	Other	3487
National Science Digital Library	National Institute of Science Communication and Information Resources (NISCAIR)	*http://nsdl.niscair.res.in/*	Dspace	579
OneWorld South Asia Open Archive Initiative	OneWorld South Asia (OWSA)	*http://open.ekduniya.net/*	Eprint	91
Open Access Repository of IISc Research Publications	Indian Institute of Science (IISc)	*http://eprints.iisc.ac.in*	Eprint	50668
Open Access to Odia Books	National Institute of Technology, Rourkela (NITR)	*http://oaob.nitrkl.ac.in/*	Eprint	779
Osmania University Digital Library [OUDL]	Osmania University	*http://oudl.osmania.ac.in/*	Dspace	24507
openagri	Indian Institute of Technology Kanpur (IIT Kanpur)	*http://agropedialabs.iitk.ac.in/openaccess/*	Unspecified	904
RAIITH	Indian Institute of Technology Hyderabad	*http://raiith.iith.ac.in/*	Eprint	3822
RRI Digital Repository	Raman Research Institute	*http://dspace.rri.res.in/*	Dspace	5942
Research Archive of Indian Institute of Technology Hyderabad	Indian Institute of Technology Hyderabad	*http://raiith.iith.ac.in/*	Eprint	7141
SHIV DNYANSAGAR: Institutional Repository of Shivaji University	Shivaji University	*http://ir.unishivaji.ac.in:8080/jspui*	Dspace	10030
SSRN	Pandit Deendayal Petroleum University (PDPU)	*https://papers.ssrn.com*	Unspecified	182

ShodhGanga: A reservoir of Indian theses	Information and Library Network Center (INFLIBNET)	*http://shodhganga.inflibnet.ac.in/*	Dspace	196538
Social Science Cyber Library	Aligarh Muslim University	*http://socsccybraryamu.ac.in/*	Other	14782
University of Mysore - Digital Repository of Research, Innovation and Scholarship (ePrints@UoM)	University of Mysore, Mysore University Library	*http://eprints.uni-mysore.ac.in/*	Eprint	8660
VidyaPrasarak Mandal - Thane	VidyaPrasarak Mandal	*http://dspace.vpmthane.org:8080/jspui/index.jsp*	Dspace	3144
WeSchool Digital Repository	Welingkar Institute of Management Development and Research	*http://dspace.welingkar.org:8080/jspui/*	Dspace	241

10. Data Analysis

10.1. Software used: It is observed that the D-Space and E-print software is most commonly used open-source software for institutional repositories in India. Out of 98 institutional repositories in India more than 53 IR's using D-Space while 33 IR's using E-print.

10.2. Numbers of documents: Maximum number of items 196538 are posted by Shodh Ganga: A reservoir of Indian theses. It has also been observed that out of 98 IR's only 37 having number of items more than 5000. 4 IR's having less than 100 items posted and they are:

- One World South Asia Open Archive Initiative
- Eprints@SBT MKU
- dspace @ sdmcet
- IR@CLRI

10.3. Subject coverage:

- It is observed that multidisciplinary and science and technology subject is the dominating feature of coverage.
- Few exclusively subject-specific IR's are existing. For example, Librarian's digital library of DRTC and open Med@NIC of NIC.
- Only 4 IR provide digital resources on Library and Information Science.
- Few IR cover humanities, arts, business economics and management subject.

10.4. Languages included in IR: It is observed that English language is the most common language for IR. In the total Institutional Repositories there are many languages used e.g., Hindi, Kannada, Malayalam, Arabic, Sanskrit, Marathi, Persian, Gujarati and so on.

10.5. Policies: It is observed that in the total numbers of IR's maximum of them have not any policies e.g., metadata policy, data policy, content policy, submission policy, preservation policy etc.

10.6. Constraints of IR's: Some of the major constraints of IR's are:

A. Lack of institutional norms and policy related to repository is a serious constraint for IR development.

B. Scarcity of IR expert.

C. Lack of sufficient financial support for building IR.

D. Apathy of authors and ignorance of users.

11. Case Study of Jadavpur University

This digital repository of Jadavpur University, India is developed to capture, organize disseminate and preserve the research publications of JDU. It also includes the in-house annual reports, technical reports created within the institute. Any can search, browse and access full text of these applications from the repository. (http://jadunivdspace.jdvu.ac.in/)

11.1. Name of the communities in institutional repository:

D-Space is an open source institutional repository software, all data are stored under communities in D-Space. Also we can store many types of documents using sub community under community in open source institutional repository software D-Space.

11.2. Name of the communities in institutional repository of Jadavpur University

- affiliated institutions
- central archive
- centre for studies
- departments
- institutions (courses affiliated)
- OLD and RARE COLLECTION
- Ph.D coursework
- Schools

In Jadavpur Universitie's institutional repository uses as a communities like Affiliated institutions, Central Archive, Centre for Studies etc. as a community.

11.3.Number of Digitized Resources of Jadavpur University

Previous years examination question papers or old question papers are the most important documents for an institution.

Table -2

Question Papers of different Faculty / Department School / Institute

Sl. No.	Faculty / Department School / Institute	Quantity
1.	Institute of Business Management	306
2.	Smt. J. D. Birla Institute	2281
3.	Yoga	33
4.	Faculty of Arts	5663
5.	Faculty of Engineering and Technology	17220
6.	Marine Engineering and Research Institute	291
7.	Schools	2122
8.	Commerce	0
9.	Faculty of Science	2751
10.	Post Graduate Question Papers (UG and PG distance mode all subjects)	0

Table 2 represents the number of questions papers of different Faculty / Department / School Institution. In Jadavpur Universitie's institutional repository store hues number of documents like Institute of Business Management - 306 , Smt. J. D. Birla Institute – 2281, Faculty of Engineering and Technology – 17220, Marine Engineering and Research Institute - 291 etc.

11.4. **Doctoral thesis in institutional repository**

Doctoral thesis is important documents for researcher. Researcher can access doctoral thesis according to user's needs, from Jadavpur university institutional repository.

Table -3

Number of Doctoral theses facultywise.

Sl. No.	Name of faculty	Quantity
1.	Faculty of Arts	328
2.	Faculty of Science	0
3.	Faculty of Commerce	0
4.	Faculty of Engineering and Technology	368
	Total	696

Table 3 explain the faculty wise distribution of doctoral thesis in institutional repository. In Jadavpur University's institutional repository's faculty wise distribution in Faculty of Arts 328, Faculty of Science 0, Faculty of Engineering and Technology 368.

The role of institutional repository in digital environment to store and dissemination of data or information. In institutional repository store many types of documents like thesis, journal article, question paper, audio lecture etc. but Jadavpur university's institutional repository are stored only text data there are no image, MP3 or video files. Jadavpur university's institutional repository store 31,419 documents. Jadavpur University elect open-source institutional repository software D-Space to store their data. Dublin Core field use for theses metadata in institutional repository PhD thesis and as well as question papers total number of doctoral theses in Jadavpur University is 696.

12. Suggestions

Some of the suggestions for developing and setting of IR are as follows:

12.1. IR must provide total collection in their home page.

12.2. The government and the government agencies must take a policy decision or initiation of the earth in their respective organisation.

12.3. There is a need to set up a Registry of Indian Repositories in line with ROAR and OPENDOAR.

12.4. All IR must further categories their collection into types.

12.5. An intensive awareness should be brought for librarians and the users highlighting the benefits of IR.

12.6. There is a need to conduct workshop and training programme for creating and developing IRs.

12.7. R&D institute in India dominants in developing IRs, it is suggested that higher academic institutions must develop IR.

12.8. Customizing the Access Software to suite local needs.

12.9. There must be either encouragement or mandatory at individual institutional level for contributions of research output.

12.10. Institutions must give financial support and requisite manpower for setting up of IR.

13. Conclusion

The institutional repositories initiatives in India are under development phase which needs trust. Institutional repository is the most powerful tool to publish and provide the efficient service among the community of institutions. In fact, IRs are sometimes referred to as open digital libraries, open models, such as open archives, have emerged at every level of intellectual property sharing. Thus, IRs are one of the most promising developments that utilize new web technologies to offer available and sustainable alternative to the current model of scholarly publishing.

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