Institutional Repository: A Proposed Model for Bharati Vidyapeeth Deemed University, Pune

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Abstract

This paper discusses the concept of Institutional Repository (IR), its need, merits, software requirements, benefits and the current trends in India, with special reference to the proposed model for Bharati Vidyapeeth Deemed University, Pune.

Keywords: Institutional Repository, Digital Library, Open Archives.

1.   Introduction

An Institutional Repository (IR) is a digital archive where a university community's intellectual work is made accessible and preserved for posterity. The concept of IR suggests the tantalizing possibility of greater library influence over the full cycle of scholarly communication on campus from research through publication, collection and preservation. Libraries are performing lead role in shaping institutional digital repositories all over the world.

According to Clifford Lynch "a university-based institutional repository is a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members. 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." (1)

According to Barton and Walker of MIT Libraries "Institutional Repositories designed to manage, host, preserve and enable distribution of the scholarly output of an institution" (2)

2.   Importance of Building Institutional Repository

The building of an Institutional Repository for any organization is needed in the present scenario of digital world because of the following certain changes:

♦   Significant increase in the overall volume of research;

♦   Increasing need of archival and access to unpublished information bearing objects;

♦   Increasing demand to access knowledge objects from anywhere at anytime;

♦   Increase uncertainty over who will handle the preservation archiving of digital scholarly research materials.

The importance of the standard IR project may be summarized as below:

1.   It will help to develop a national research repository infrastructure by setting up, populating and linking individual repositories;

2. It will stimulate development of services that draw on research information made available through the repository infrastructure;

3. It will provide a window that gives open access to improve the sponsoring institution's visibility and status;

4. It will support the open-access model of publication.

3.   Benefits

3.1   For the user

♦   Easy access, best quality material in original digital format for the users.

♦   Gray literature, material not easily found through conventional means, will be actively recruited for the repository. This can include material such as working papers, pre-prints, white papers, conference presentations.

3.2   For the contributor

♦   Greater citation, digital platform to publish publications, preservation of the publications in digital form, easy to reuse.

3.3   For the Organization

♦   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.

♦   Documents reflecting the institutional history of the university, both scholarly and non-scholarly, are preserved for future use, much like a traditional archive preserves paper material.

♦   Material that is not traditionally published is included in the repository, including drafts of unpublished articles or book chapters, unpublished research, student works, learning objects, and creative works.

3.4   Other Benefits

1. Increased visibility to the Library
2. Responsiveness to local user needs and preferences
3. Showcase and preserve scholarly output and historic documents
4. Support teaching and learning
5. Provide curatorial stewardship for disorganized and scattered digital materials

3.5   Institutional Repositories and Five Laws of Library Science

five laws of library science are devised by Dr. S. R. Ranganathan Father of Library and Information Science movement in India. Five laws are principle guidelines for Libraries, Library Professionals and its Users.

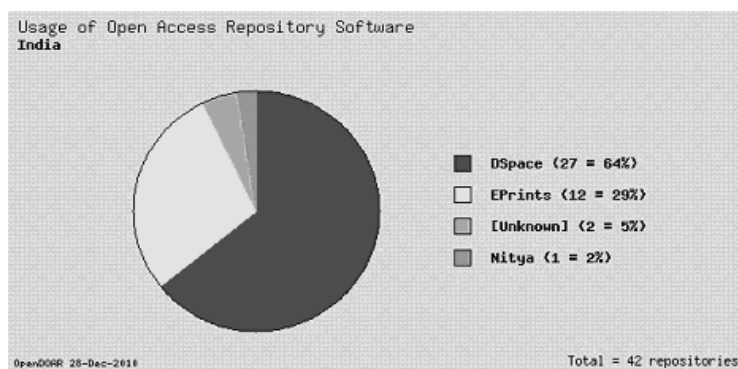Considering the expectations of the five law's,

1   IR's can make available Books/ Documents/ Information to its user in a appropriate form at the users desk.

2   IR's can offer several types of Information searches/ retrieval facilities which enable user to reach his/ her desired information and enables documents/ information to meet its right user.

3   Features of user friendly IR can save the time of its user enabling him E-documents, and several communication modes like downloading, e-mailing etc.

4   Library Space is a significant issue for all type of libraries. Day by day growth in collection, staff, users, user needs, etc creates problems in daily routine and affects library services. Here IR enables to store huge collection in a small storage device in size. It helps to overcome all the concern problems and preservation of the collection.

4.   Present scenario of IRs in India

There are 42 repositories in India which are listed by OpenDOAR and run by various types of organizations such as universities, institutes, research organizations, government and non-government organizations, etc. These repositories contain various types of items, with various types of dissemination policies.
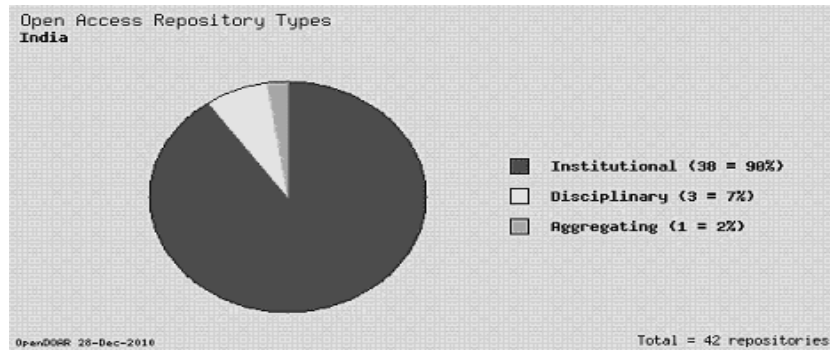
The repositories have been studied considering repository software used, repository type, operational status of the repository, Content types in repository, languages, subject area, meta-data reuse policy, recorded (full-text) data reuse policy, recorded content policy, submission policy, preservation policy, year wise growth in number of repositories etc.

4.1   Repository Software Used

Usage of Open Access Repository Software
India

- DSpace (27 = 64%)
- EPrints (12 = 29%)
- [Unknown] (2 = 5%)
- Nitya (1 = 2%)

OpenDOAR 28-Dec-2010   Total = 42 repositories
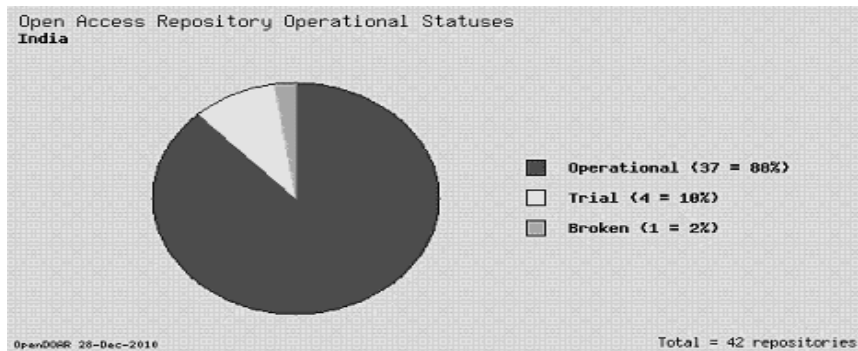
There are number of open source software available for building repositories. Therefore studying the used software is significant and it is useful to point out which is preferred to use. Generally user friendly and customizable software's are preferred to use. Use of repository software is DSpace(64%), Eprints(29%), Nitya(2%), remaining are using unknown software in India. It explicitly shows that DSpace is most accepted Open Source Software for building repositories.
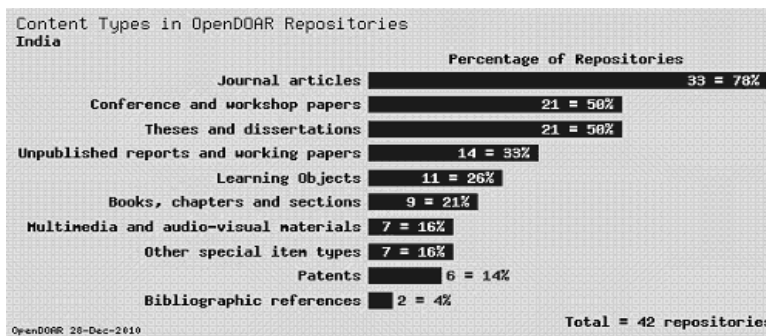
4.2   Types of Repositories

By the types of repositories, among all the Indian repositories, 91% repositories are falls under Institutional, 7% repositories are falls under Disciplinary, remaining are falls under other repositories.

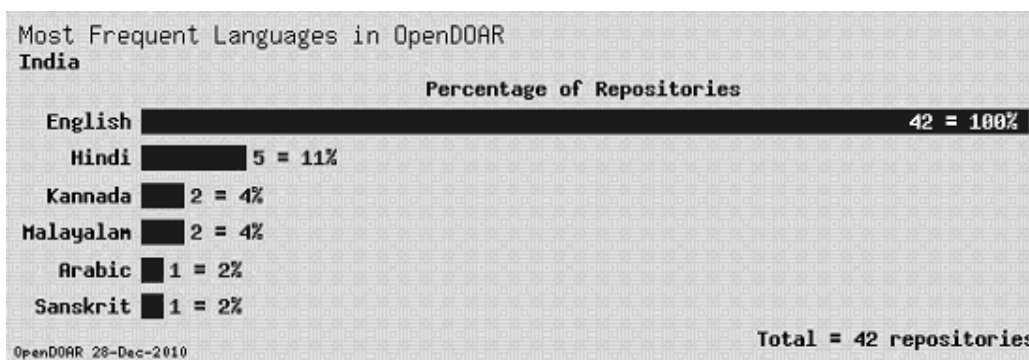## 4.3   Operational Status of the Repositories

Above graph shows the operational status of the Indian repositories. 88% repositories are fully functional / operational, 10% repositories are in developing / trial process. It shows a good picture of Indian repositories considering their operational status.

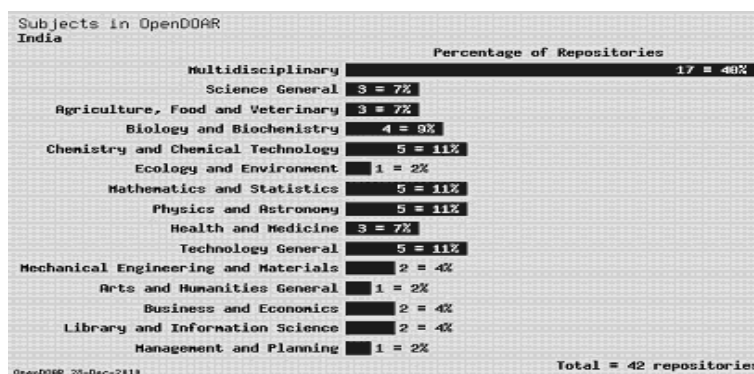## 4.4   Types of Content in Repositories

This graph shows, what are the content type available and mostly available contents are Journal articles (78%), conference papers (50%), theses and dissertations (50%), unpublished reports and working papers (33%), learning objects (26%) etc. Here summation of percentage is exceeding 100 because each IR contains several content types.

4.5   Languages in Repositories


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Most Frequent Languages in OpenDOAR
India
                        Percentage of Repositories
  English |████████████████████████████████████ 42 = 100%
    Hindi |████        5 = 11%
  Kannada |██ 2 = 4%
Malayalam |██ 2 = 4%
   Arabic |█ 1 = 2%
 Sanskrit |█ 1 = 2%
OpenDOAR 28-Dec-2010              Total = 42 repositories
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Unity in diversity is a specialty of India. Has diversity in religion, language, wears, traditions etc. considering the language diversity 100% repositories are using English, 11% are using Hindi, 4% repositories are using Kannada & Malayalam, 2% repositories are using Arabic & Sanskrit language.
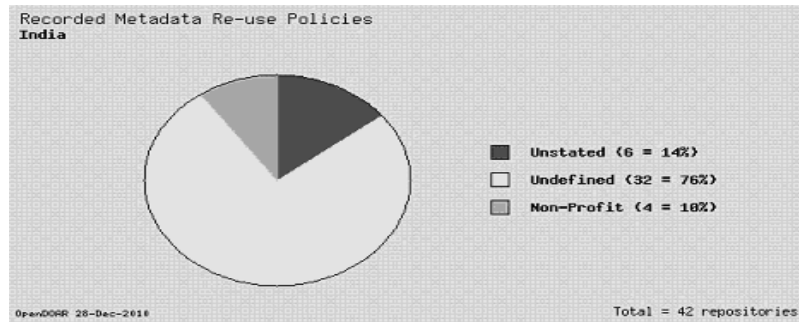
4.6   Subject Area Wise Repositories


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Subjects in OpenDOAR
India
                                  Percentage of Repositories
              Multidisciplinary |████████████ 17 = 40%
                Science General |███ 3 = 7%
Agriculture, Food and Veterinary |███ 3 = 7%
        Biology and Biochemistry |████ 4 = 9%
Chemistry and Chemical Technology |█████ 5 = 11%
        Ecology and Environment |█ 1 = 2%
        Mathematics and Statistics |█████ 5 = 11%
            Physics and Astronomy |█████ 5 = 11%
              Health and Medicine |███ 3 = 7%
              Technology General |█████ 5 = 11%
Mechanical Engineering and Materials |██ 2 = 4%
      Arts and Humanities General |█ 1 = 2%
          Business and Economics |██ 2 = 4%
Library and Information Science |██ 2 = 4%
        Management and Planning |█ 1 = 2%
OpenDOAR 28-Dec-2010                Total = 42 repositories
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Multidisciplinary (40%), Mathematics and statistics (11%), Physics and Astronomy (11%), Chemistry and Chemical Technology (11%), Technology General (11%), Science (7%), Agriculture Food and Veterinary (7%), Biology and Biochemistry (9%), Library and Information Science (4%) etc.
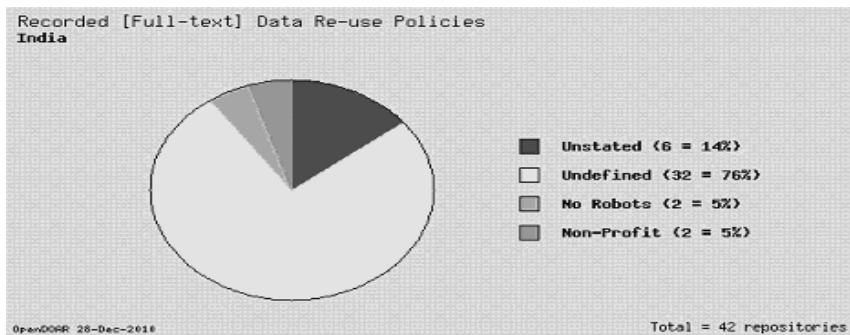
There are maximum repositories which contain multidisciplinary literature in it. Therefore, it can be stated that, Indian repositories are keeping bias to cover multidisciplinary literature than specific subject area.

4.7   Meta-Data Reuse Policy

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Recorded Metadata Re-use Policies
India


            Unstated (6 = 14%)
            Undefined (32 = 76%)
            Non-Profit (4 = 10%)

OpenDOAR 28-Dec-2010              Total = 42 repositories
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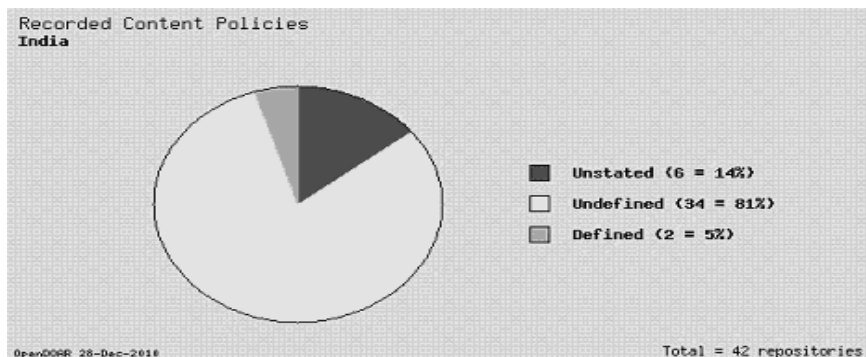
Among all the Indian repositories not a single repository has fixed their Meta-data Reuse Policy, though it is significant. Indian repositories and authorities are not serious to Meta-data Reuse Policy.

4.8   Recorded (Full-Text) Data Reuse Policy

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Recorded [Full-text] Data Re-use Policies
India


            Unstated (6 = 14%)
            Undefined (32 = 76%)
            No Robots (2 = 5%)
            Non-Profit (2 = 5%)

OpenDOAR 28-Dec-2010              Total = 42 repositories
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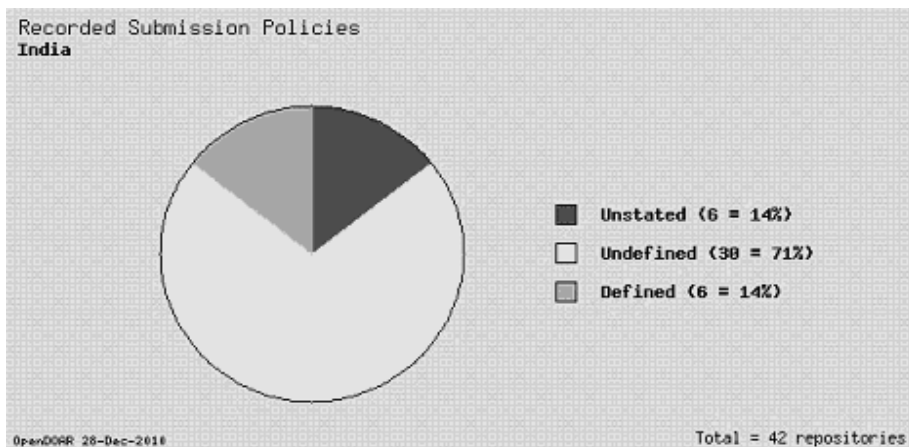
Among all the Indian repositories not a single repository has fixed their Recorded (Full-Text) Data Reuse Policy, though it is significant. Indian repositories and authorities are not serious to towards Data Reuse Policy for Full Text.

4.9   Recorded Content Policy

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Recorded Content Policies
India


            Unstated (6 = 14%)
            Undefined (34 = 81%)
            Defined (2 = 5%)

OpenDOAR 28-Dec-2010              Total = 42 repositories
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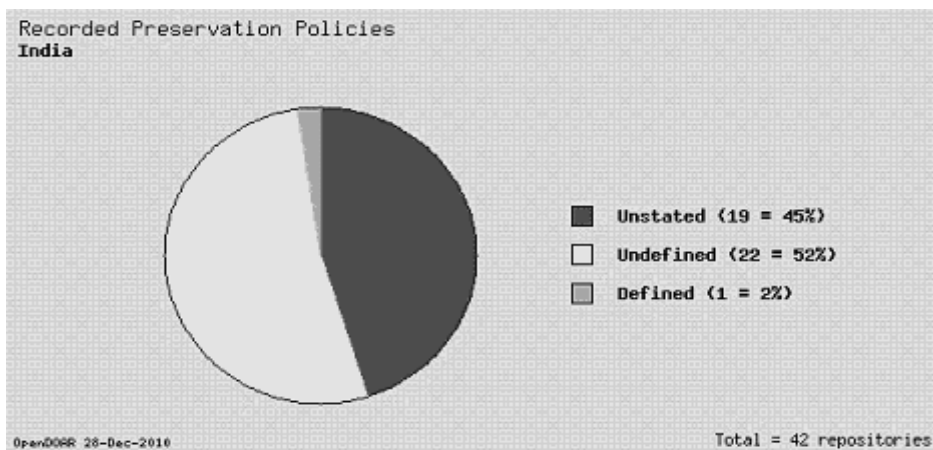
81% repositories have not defined their Recorded Content Policy and 14% repositories have not stated their Recorded Content Policy.
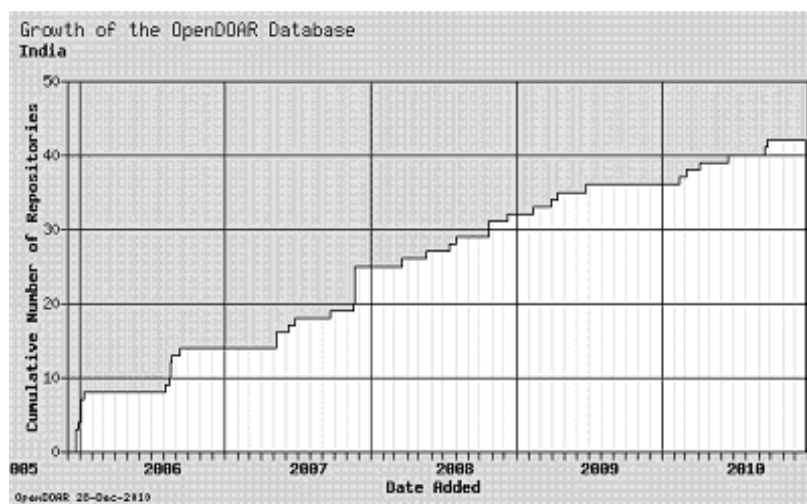
4.10   Submission Policy

Submission policy of any repository is always significant. It should be mentioned and decided carefully. Here in above graph, 14% repositories have not stated their submission policy, 71% repositories have not defined their submission policy and only 14% repositories are defined their submission policy.

4.11   Preservation Policy

45% repositories have not stated their preservation policy, 52% repositories have not defined their preservation policy yet and only 2% repositories have their defined preservation policy. Preservation policy should be mandatory to each repository because this issue or policy ensures, what information will be available to future generations of human being.

4.12   Year Wise Growth in Number of Repositories

Above graph show us figures of increasing number of repositories in India and is satisfactory.

5.   Bharati Vidyapeeth Deemed University

Bharati Vidyapeeth Deemed University founded by Dr. Patangrao Kadam on 26th April 1996 having slogan "Transformation Through Dynamic Education" and with the objective of bringing about intellectual awakening and all round development of people of our country through education. Bharati Vidyapeeth Deemed University is now a leading educational and research institution in the country which has created history by establishing 165 educational and research institutions imparting education from pre-primary to post graduate stage within a short span of 44 years.

Research activities are continuously going on under the various faculties of Bharati Vidyapeeth Deemed University like Medical Science, Pharmaceutical science, Faculty of Management Studies, Social Science, Science, Law etc. There are number of research papers presented by the faculty & researchers of Bharati Vidyapeeth Deemed University in various Journals, conferences, seminars at National and International level. Bharati Vidyapeeth Deemed University has also huge collection of Thesis, Dissertation and Patents etc. Annual Reports, Syllabus, Newsletters, and several research journals are also published by the university and its constituent units.

The above mentioned collection of intellectual asset should be well organized to ensure its use in future and preservation of the same necessary.

5.1 Publications of Bharati Vidyapeeth Deemed University

1.	Thesis Submitted to Bharati Vidyapeeth Deemed University.	-	133+
2.	Annual Reports of Bharati Vidyapeeth Deemed University.	-	14
3.	Bharati Vidyapeeth Deemed University Research Journal Published by the University since last 6 years.	-	01
4.	Research Journals published by the constituents units.	-	03
5.	Abstracting journals published by constituents units.	-	01
6.	Research Papers/Articles Published by Faculty	-	2045+
7.	Patents	-	45+
8	News Letters published by constituent units	-	5+
9	Other publications	-	12+

5.2 Research Projects

In 2008-09 the university had more than 500 researchers engaged in various research projects. This year 41 research projects have received handsome grant of Rs. 4,25,23,145 from authorities such as AICTE, CSIR, UGC, AYUSH etc.

5.3 Teaching Faculty, Students, Courses and Learning Facilities

Bharati Vidyapeeth Deemed University has more than 1349 teaching faculty members out of which 959 are Post Graduates and 106 are with Ph. D. The total number of students enrolled in different constituent units is around 15000out of which 381 are enrolled across the world. They are from 36 different countries. BVU offers a comprehensive range of undergraduate and postgraduate courses. BVU has running total 203 courses in different subjects at various levels. Thus, University hosts excellent academic environment, student-centric education and superior learning facility.

6. Bharati Vidyapeeth Deemed University Digital Library Project (DnyanBharati)

In case of Bharati Vidyapeeth Deemed University (32 Constituent Units/ Colleges/ Research Centers including Medical, Dental, Pharmacy, Engineering, Management colleges) more than 1349 faculty members and 500 Research Scholars several research projects funded by UGC, AICTE, Ministry of HRD etc. having distance education and engineering colleges imparting graduate and post graduate education in different subjects) there is no mechanism for holding intellectual output of the University for scholarly communication. The objectives of making Institutional Repository for Bharati Vidyapeeth Deemed University are to organize and preserve Ph.D. theses, faculty publications (Research Articles, Papers, working papers)Research Journals Published by colleges, Patents, Annual Reports Newsletters and other Publications. In some disciplines institutional repositories may play significant roles in

disseminating both unpublished and published research results. Development of such an Institutional Digital Repository (IDR) requires in-depth study in terms of policy issues management techniques workflow pattern submission procedure long-term preservation, multi-script records management global access and retrieval mechanism.

The repository approach of organizing and consolidating information makes it possible for all of its potential users to access it easily and also enables information and knowledge sharing. The repository approach also makes it possible for management to organize and access information by specific area of interest and to make it available to employees more easily in any situation.

The main objective of the "DnyanBharati" is to support information needs of the university stakeholders. It is the way (IR) by which we can promote our research work globally and earn recognition for us and for the University. It also increases the visibility and prestige of the institution. It will provide an alternative digital platform to its stakeholders for publishing preprints, post-prints, working papers, technical reports, conference papers and other kinds of intellectual outputs. From Bharati Vidyapeeth Deemed University's view point Universities across the world will gain a more efficient and cost-effective system of scholarly communication. This type of repository would definitely solve the problems of the researchers, faculties, officers, students by satisfying their diverse needs of information.

6.1   Collection of the Publications

The constituent unit's research & statistics cell, faculties and researchers are communicated by the Registrar office of Bharati Vidyapeeth Deemed University via E-mail and official circular to submit their various publications. Thesis submitted to university annual reports are available in the Central Office of the university. All the constituent units and teaching faculty members are also communicated and asked to submit research articles, papers, research journals, patents, newsletters etc with immediate effect. Herein items in born digital format will be preferred.

6.2   Proposed Design of Institutional Repository for Bharati Vidyapeeth Deemed University

Considering the number of Publications with various types 32 constituents units having teaching faculty as contributor and the users above is tentative screen shot of IR to give a clear view.

6.3 Technical Processing/ Uploading of Digital Documents

An ICT laboratory with sufficient tools and power backup established for this project. Here the server, scanner, and internet connectivity using fiber optic is installed and this is named as "DnyanBharati".

This ICT laboratory performs, Collection of publications, organization, manipulation digitization of the publication design of IR Uploading of files verification testing etc.

6.4 Proposed Software and Hardware for IR

There are more than 60 Digital Library software's are available in various type. Top 3 software's used in world and India are as below

1. DSpace (Digital Space)

2. GNU eprint ,

3. GSDL (Green Stone Digital Library)

As DSpace installation is very easy and stores all types of data like Ph.D. theses, patents, research article, paper of faculty, research journals, annual reports of university news letters, lecture notes, learning objects, question papers links to open knowledge objects grey literature, unpublished theses, necessary photographs etc. successfully and enables the upload from every terminal with fantastic user interface so we select DSpace for digitization project.

DSpace is a suite of software which has the ability to serve digital library collections and build new collections. It provides a new way of organizing information and publishing it on the Internet or on CD-ROM. DSpace is produced MITHP, DSpace Federation. It is open source software available from http://www.dspace.org/ under the terms of the GNU General Public License. The necessary Software and Installation of DSpace include the followings

- ♦ UNIX-like OS or Microsoft Windows or Linux
- ♦ Sun Java JDK 5 or later (standard SDK is fine, you don't need J2EE)
- ♦ Apache Maven 2.0.8 or later (Java build tool
- ♦ Configuring a Proxy
- ♦ Apache Ant 1.7 or later (Java build tool)
- ♦ Relational Database: (PostgreSQL or Oracle)
- ♦ Servlet Engine: (Jakarta Tomcat 4.xJettyCaucho Resin or equivalent)
- ♦ Perl (required for [dspace]/bin/dspace-info.pl)

Required hardware listed below

- ♦ Server (IBM Server, Web Server)

- ♦ Scanner (HP 8300)

- ♦ Storage device (HDD, Pen drive)etc.

6.5 Workshop, Training and Awareness Programme

Bharati Vidyapeeth Deemed University shall conduct workshop, training and awareness programme for its users to create awareness and to increase use of this IR for their study/ research. An online support cell will be there to immediate help and to answer FAQs from the users as well as contributors. Said programmes will be user centric.

6.6 Forum/ RSS Feed

A forum shall be available on web which will assist us to receive valuable suggestions changes in the IR. The same will also assist to offer outstanding services and best quality of the proposed IR.

7. Conclusion

As the DSpace and other allied software's are available through open source and free of cost so if you have the training or acquire some knowledge from anybody regarding installation of this software and uploading of data then it can help you to work with digitization. For this purpose, scanner, digital camera, internet connection (for internet data upload and web hosting of this project) some dedicated skilled manpower etc. will help you to carry on the digital library project as well as to help the internal and external users enormously.

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