Web based Institutional Repository Futuristic Approach: A Model in Anna University of Technology Tirunelveli

Mr.V.Srinivasan[1], Dr.K.Vinitha[2],
Research Scholar, M.S. University, Tirunelveli,
Librarian, St. Mary's College, (Autonomous) College,

Abstract: *The term "Repository" does not simply mean one of the software tools discussed later. Repository library is present trend of collecting the academic and research oriented literature available on the web. This article is narrates the web based institutional repository and to initiate the concept at academic institution 'A model study of Anna University of Technology Tirunelveli' for the benefit of faculty and research scholars. Now a day the knowledge explosion is uncontrollable at the same time new ideas concepts are scattered. As such to capture and preserve the literature may be descriptive or on multimedia is the progressive trend in the IT environment. Institutional Repositories contain a wealth of information which could benefit from the application of this technology. The tool used for Establish the Web base Institutional Repositories is " Space" software. The Institutional Repository uses the Space Open source digital library software (OpenOffice.org) developed jointly by the Massachusetts Institute of technology libraries and Hewlett-Packard (HP). It is freely available for research institutions worldwide as an open source system. Material in this repository includes Theses, Projects Reports, Annual Reports etc.. This article gives an idea to initiate the web based repositories in Higher learning Institutions.*
Key word: *Institutional Repository, Open access, Higher learning Institutions, Hardware*

I.   Introduction:

An Institution Repositories is a digital collection of an institution's intellectual output. It provides a web based mechanism for researcher to depositing the digital material and access their research publications. The repositories of AUTT collects, preserves and makes available in digital format the scholarly output of the AUTT community which contains 150 faculty, 320 employees and 1300 students. The interface of the IR provides for essay self-archiving by faculty, and organists the documents in a logical and easily retrievable fashion. Digital collections in IR capture and preserve the intellectual output of university communities. Now a day many academic libraries are migrating to digital library. Web based Institutional Repository is expected with technology and process improvements for digital collection. Higher learning institutions are very interest in establishing institutional repositories. The use of student community is identified as a key factor in establishment of institutional repository. Best practices and recommendations for future developments such as early stakeholder groups and the need to educate both librarians and faculty about open access collections are also discussed in this article. This study contributes how to establish the web based institutional repositories in higher learning institutions.

II.   Benefits of Institutional Repositories:

Repository can interoperate with other university systems and maximise efficiencies between them by sharing information a repository can increase the visibility and prestige of institution depending on content contained. Repository content is readily searchable both locally and globally allows an institution to manage their intellectual property by raising awareness of copyright issues and facilitating the recording of relevant rights information. A repository that contains high quality content could be used as shop window or marketing tool to entice faculty, staff and students funding. Repositories can store other types of content that is not necessarily published, sometimes known as "grey literature". Repositories may be an important tool in managing an institution's research assessment or quality assessment submission. Repositories could provide cost savings in the long run provided that a significant amount of content is deposited in them, it offers greater flexibility over websites with better security and preservation of various kinds of digital materials through the collection of standardise metadata about each item.

Software for Institutional Repository's

For establishing institutional repositories many open source software are available on public domain. The most widely used are : GSDL (green stone digital library), Eprints, Dspace, Fedora, Ganesha, VITAL, Alexandria, dLibra, MiTOS ETD-db(electronic Theses and Dissertations database), CDSware and many more

software's have different features for building the institutional repositories. To design an institutional repository the institution has to select the software according to their need and purpose.

III.   Comparative study of Institutional Repository:

Features	GSDL	Eprints	Dspace	Fedora
Developed by	University of Waikato, New Zealand	University of Southampton, UK	MIT Libraries and Hewlett-Packard, USA	Cornell University and University of Virgina, USA
URL	www.dsdl.org	www.eprints.org	www.dspace.org	www.fedora.org
Open source	Yes	Yes	Yes	Yes
Operating system	Linux and Windows	Linux. Ms window	Linux	Linux and windows
Language	Perl	Mod-perl 1.0	Java 1.3 JSP	J2SDK v,1.4
Database	yes	yes	Yes	Yes
Metadata format	Dublin core	Dublin core	Qualified Dublin core	Dublin core
Web Server	Apache/IIS	Apache 1.3	Apache 1.3/2.0 and/or Tomcat	Tomcat 2.4
File Format	MS-Word, PDF, HTML,PostScript,JPEG, GIF	MS-Word, PDF, HTML,JPEG,GIF	MS-Word, PDF, HTML,JPEG,GIF	MS-Word, PDF, HTML,PostScript,JPEG, GIF

Table:1 The institutional repositories in India is gaining popularity and majority of the science and technology university libraries and information centres are involved in creating such services in higher learning institutions.

Name of the institution repositories	IR Used
ARIES, Digital Repository	Dspace
DeepBlue Knowledge Repository@PDPU	Dspace
Delhi College of Engineering Repository	Dspace
Dhananjayarao Gadigil Library	Dspace
Digital Knowledge Repository of Central Drug Research Institute	Dspace
Digital Library at Indian Statistical Institute, Bangalore	Dspace
Digital repository of Cochin University of Science & Technology	Dspace
Digital repository of West Bengal Public Library Network	Dspace
DigitalLibrary@CUSAT	Dspace
DRS at National Institute Of Oceanography	Dspace
DSpace @ GGSIPU	Dspace
dspace @ sdmcet	Dspace
DSpace at IBS Ahmedabad	Dspace
Dspace at IIT Bombay	Dspace
DSpace at Indian Institute of Management Kozhikode	Dspace
DSpace at IUCAA	Dspace
DSpace at M S University	Dspace
DSpace at NCRA	Dspace
DSpace at Vidyanidhi	Dspace
DSpace@IMSC	Dspace
DSpace@INFLIBNET	Dspace
Dspace@NITR	Dspace
DSpace@TU	Dspace
eGyankosh	Dspace
Electronic Theses and Dissertations at Indian Institute of Science	Dspace
EPrints@IITD	Dspace
IACS Institutional Repository	Dspace

IIT Roorkee Repository	Dspace
Indian Institute of Astrophysics Repository	Dspace
Indian Institute of Petroleum Institutional Repository	Dspace
Institutional Repository of Intectual Contributions of Delhi Technological University	Dspace
Institutional repository@VSL	Dspace
Kautilya Digital Repository at IGIDR	Dspace
Knowledge Repository of Indian Institute of Horticultural Research	Dspace
Knowledge Repository Open Network	Dspace
Librarians' Digital Library	Dspace
Management Development Institute - Open Access Repository	Dspace
National Science Digital Library	Dspace
NISCAIR Online Periodical Repository	Dspace
Osmania University Digital Library [OUDL]	Dspace
Raman Research Institute Digital Repository	Dspace
ShodhGanga: A reservoir of Indian theses	Dspace
Vidya Prasarak Mandal - Thane	Dspace
Catalysis Database	EPrints
CMFRI Digital Repository	EPrints
DIR@IMTECH	EPrints
DU Eprint Archive	EPrints
Eprint@NML	EPrints
Eprints @MDRF	EPrints
Eprints@IARI	EPrints
ePrints@NII	EPrints
Eprints@SBT MKU	EPrints
Etheses - A Saurashtra University Library Service	EPrints
ICRISAT Open Access Repository	EPrints
Indian Academy of Sciences: Publications of Fellows	EPrints
Institutional Repository@CSIO	EPrints
IR@CECRI	EPrints
IR@NPL	EPrints
National Aerospace Laboratories Institutional Repository	EPrints
NIRT Institutional Repository	EPrints
Open Access Repository of IISc Research Publications	EPrints
OpenMED@NIC	EPrints
Sardar Vallabhbai National Institute of Technology EPrints	EPrints
University of Mysore - Digital Repository of Research, Innovation and Scholarship (ePrints@UoM)	EPrints
Indian Institute of Management Kozhikode Digital Library	Greenstone

Table:2 Institutional Repository in India listed by DOAR

Software	No of repositories use Dspace/Eprints/GSDL	Percentage	Rank
Dspace	42	60.46	1
EPrints	21	30.54	2
GSDL	1	09.00	3

The comparative study between dspace, eprints, and GSDL of the above table shows Dspace repository ranked in first position. The Dspace predominates in science and technology repositories in higher learning institutions.

IV. Findings
There are 74 repositories listed in table 2. It was taken from DOAR, based on the table following conclusion as been drawn.
- Total number of repositories in India is 70
- Total number of repositories belongs to science and technology is 44
- Total number of IR belongs to multi-disciplinary subjects is 30
- Out of 74 repositories 42 Dspace, 21e-prints, and 1GSDL.

Therefore the study shows majority of higher learning institutions are using Dspace software used to establishing web based institutional repository in India.

Interoperability

Interoperability is the ability of two or more systems to exchange information and to use the information that has been exchanged. There are different kinds of different kinds of interoperability discussed such as technical interoperability, semantic interoperability, political Human interoperability, Inter-community interoperability, legal interoperability, international interoperability, However this article is more concerned with technical interoperability and search interoperability technical operability is all them hardware and software components of networks and information system can physically communicate and transfer information successfully whereas search interoperability is as the ability to perform a search over diverse set of metadata records and obtain meaningful results.

Materials Included in the Repositories:

Registered Research scholars and faculty members and students of AUTT may submit their documents to the IR. Each community has four distinct classes of collection:
- conference papers
- faculty publications
- project report and Theses
- Question papers/class lecture notes/convocation address/annual reports.
- E-books

Submission process in IR:

A new user must register in IR and became a member to submit the document in the repository. The following steps should follow for submitting the collection.
(i) Collection type
(ii) Content description by adding metadata and keywords
(iii) Upload the file
(iv) verification is done for submitting items
(v) Licence policy and IPR

Chain process of submission:
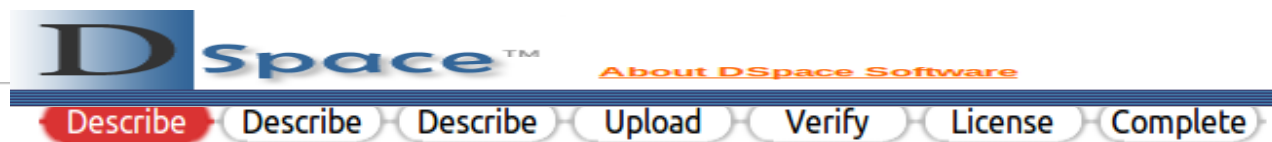
There are seven steps in submission process the first three steps are described about the collection. The fourth step shows the upload the collections. The fifth step verifies the collection allocate the location. The sixth step is licencing the document and the final steps gives a message that your collection is successfully submitted.
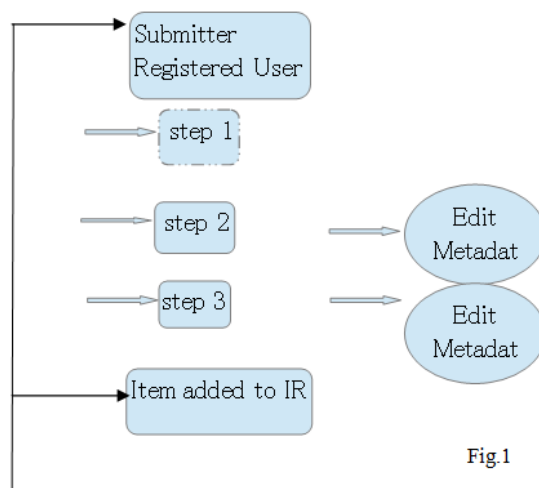
Fig.1

Hardware requirements:
The server specification for IR at AUTT is given below

Specifications	Description
Server	Dual CPU capable Xeon server
CPU	Intel Xeon 3.6 GHZ, dual CPU
System Bus	800MHZ
Cache	1 MBL2
Chipset	Intel E7520
Memory ECC DDR II	4GB (4×1GB) ECC DDR 2SDRAM memory, memory mirroring and sparing should be supported
Memory slots	Eight DIMM slots
HDD	4×146 GB hot swappable ultra 320 wide SCSI HDD, 10,000 rpm, Seagate/Hitachi
HDD bays	Eight hot swappable HDD bays
SCSI controller	Dual channel: two Ultra 320/LVD channels with on-board RAID 0&1
RAID controller	Intel Chilito-2 dual channel RAID 0,1,5, and 10
DAT drive	36/72 GB (72e) HP sure store external DAT drive
Monitor	17" TFT LCD color monitor
1.44 MB FDD	Board 1.44 MB FDD
Combo drive	Combo drive (16 × DVD, 52/32/52 × CD writer)
Keyboard	107 key keyboards
Mouse	Optical mouse (five button)
Ethernet	Dual Intel gigabit Ethernet controllers with teaming feature
Graphics	ATI RAGE XL SVGA PCI video controller with 8MB of video memory.
I/O slots	3 PCI slots: two 64 Bit/133 MHz (hot pluggable) and one 64 Bit/100 MHz PCI express: one 4 × slots and one × 8 slot (both should be hot pluggable)
I/O ports	2 serial, 2 PS/2, 2 USB
Power supply	650W redundant power supply (1+1)
Antivirus	Antivirus preloaded
Operating system-licensed	Red hat enterprise Linux

Table.3

Software requirements:
In addition the other software was needed to run Dspace:
*Operating system Name: Linux (3.8.0-29 generic)
*Operating System Architecture: i386

*Java 1.6
*Apache Ant 1.5 or later (java make-like tool)
*Postgre SQL 7.3 or later, an open source relational database and
Jakarta Tomcat 4×/5.× or equivalent.
In addition to an acrobat PDF maker was acquired to convert MS document files to PDF.

V.   Intellectual Property and institutional repository:

Intellectual Property for open access repositories of scholarly resources is simply over by the ease with which content can be copied and redistributed on the network. They are available to all free of cost at the point of use. It is those who create rather than those who consume control the scholarly communication process. It has been proved a useful adjunct to the published literature rather than a replacement for it and these are heavily used. Of course it depends on the data provides, and they may have to follow Intellectual property issues carefully so as to provide the service for a longer period of time.

VI.   Conclusion:

The study recommended that there is a need to establish institutional repository in higher learning institutions. Therefore, this article shows how to Establishing the Institutional repository in organizations to set up a resource centre to harvest data from their respective institutional repositories, particularly in web based higher learning institutions. The repository manager or otherwise the trained IR staff to take the responsibility of technical aspects to ensure proper harvestable metadata and its standards. It is required to encourage exchange of best practices and knowledge about the implementation and support of institutional repository, based on proper guidelines. It is a timely article to capture the resources instated of resource sharing. Today the higher learning institutions are independent to accumulate the advanced knowledge in higher education and reducing the resources sharing concept of traditional libraries. Every scholar is independent to develop his own web based digital library as per his/her convenience. It is known as boost to the micro digital libraries.

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