Manipal University Digital Repository: A Study

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ABSTRACT

The information and communication technology has given various ways of storing and providing scientific information to the libraries. A digital collection maintained by the university or an academic institution to capture and preserve the intellectual output of its staff and faculty members is called as an institutional repository (IR). The concept of maintaining the IR by academic libraries for the information created by an institution in the form of conference articles, journal articles, audio-video lectures, educational powerpoint presentations, books, patents, etc., is one such way to provide the institutional scientific information openly (with some restriction for the copyrighted articles). The IR has been given a new role to the librarians to be a part of creation of information apart from storing and dissemination of information. Manipal Usniversity (MU) has used EPrints open source software to maintain its IR. This paper describes the elaborative study on Manipal University Digital Repository (MUDR) and its collection growth. Some suggestions that can be implemented to improve the strength and visibility of MUDR are presented, which can be equally applicable to any institutional repository.

Keywords: Manipal university, institutional repositories, EPrints, open-source software

1. INTRODUCTION

Libraries have always adapted themselves and experimented with new technology developments to preserve the information and provide better services to their users. The advancement in information and communication technology (ICT) has brought tremendous changes in the function and service of libraries. The growth in ICT has given various method to the libraries to create, store, maintain, access, preserve and disseminate the information to their users[1]. The concept of IR is one of such methods developed by academic libraries to preserve the scientific inputs of their institution. This has helped the libraries to become the creator of the information apart from storage and dissemination. Today, where Google can store and index major portion of the information, the role of IRs cannot be neglected as the information created by an institution in the form of conference articles, some copyrighted journal articles, audio-video lectures, educational power point presentations, etc., can be searched and accessed through IRs only.

Dr S.R. Ranganathan's five laws of library science enforce on the thought of providing the right information to the right users on right time by making the document available to the user irrespective of users and the place of the document. The Budapest open access initiatives transformed and magnified the thought put forward by Dr S.R. Ranganathan in a small meeting convened in Budapest Open Society Institute during 1-2 December 2001. The idea behind that meeting was to make available the research literature of all academic fields on the internet free of cost.

Budapest efforts have blessed the world with wonderful open source solutions in the name of open access both for information retrieval and management. The IR is also a part of open access initiative[2].

2. REVIEW OF LITERATURE

The literature was reviewed, having three main objectives:

- To understand the basic concept of IRs, its role and development

- To investigate knowledge, practice and opinions about the IR from the institutions having IRs

- EPrints open source software

Relevant literature on all three aspects were consulted.

Institutional repository (IR) contains the various scientific outputs of the institution. Usually a library holds an institutional collection, and hence IR is

maintained by the libraries. A repository may also be an instrument of the institution to publish its output. The IRs give a single platform to the users to search the scientific inputs of the institution. It could be a journal article, book, book chapter, monograph, conference paper, audio-video lecture, etc. In short, institution can preserve and disseminate the worthy scientific information with its user community through IR. According to Clifford Lynch[3] "A university-based IR 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 organisational commitment to the stewardship of these digital materials, including long-term preservation where appropriate, as well as organisation and access or distribution".

The objective of the IRs depends on the goal of institution maintaining it. Some of the main objectives of IR[4] are to:

• Provide the institutional research work through a single platform

• Provide open access to the institutional research output

• Enhance the visibility for both institution and institutional research work

• Enrich the access to the research literature

• Help the researcher to find out the gap by making available the grey literature beforehand[4].

In the recent time the implementation of IRs and the publication on IRs has grown rapidly. Narayana[5], et al. in their article have pointed out the role of internet which has given tremendous opportunity to make research result available through digital communication to anyone at anytime, anywhere in the world. They have conducted case study on National Aerospace Laboratory's IR which has included the repositories of: Information Centre at NAL (www.icast.org.in) and NAL-IR (www.nal-ir.nal.res.in)

They found that NAL-IR has used GNU EPrints open archive software (version EPrints 2.3.6).The staff of the information center are collecting the documents available both in soft copy and hard copy form and uploading them to IR. Training is provided to scientific staff so that they can contribute their publications and other documents directly to IR by themselves. The high-end scanners with back to back and batch mode facility have been deployed in Aerospace laboratories to facilitate the digitisation job more specifically for the documents published earlier.

In their study, they found that between 15th January to 25th June, 2006, more than 13,500 downloads to the full-text of NAL-IR has been recorded (statistics do not include the downloads within NAL). The Aerospace Center is planning to move to DSpace for archiving and maintaining the NAL-IR. The metadata harvesting facility is still in experimental stage.

Hashim & Rashid[6] conducted a research with the purpose of identifying the strength and limitations of open access repositories. For their research they have taken five web-based open access repositories, using pre-defined standard parameters. They found that the repositories are credible and are equipped with rich sets of functionalities to facilitate depositing, accessing and retrieving scholarly materials.

Thorat[7], et al. discussed the concept of IR, its need, merits, software requirements, benefits and the current trends in India, to propose an IRs model for Bharati Vidyapeeth Deemed University, Pune. They have studied 42 repositories in India, which are listed by open DOAR and run by various types of organisations such as universities, institutes, research organisations, government and non-government organisations, etc. They have studied the various repositories considering repository software used, repository type, the operational status of the repository, content types in the 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 the number of repositories, etc. They found that the increase in the number of repositories in India is satisfactory. There is a number of open source software available for building repositories. It is found that 64 % of organisations uses DSpace, 29 % use EPrints and 21 % use Nitya, remaining are using unknown software in India. They have proposed the DSpace for the creation of IR for Bharati Vidyapeeth Deemed University and the project is named as DnyanBharati.

Jayakanth[8], et al. have shared their NCSI's (National Center for Science Information) experiences in creating and maintaining the open-access IR of IISc (Indian institutes of science, Bangalore) using GNU EPrints.org software. EPrints@IISc (http://EPrints.iisc.ernet.in) setup by IISc is the India's first interoperable, open-access IR. Since early 2002, NCSI has been using this software. With the passage of the time as per the requirement certain amount of customisation and value additions to the software has been done by NCSI to meet the local requirements. The repository is hosted on a Terabyte server running on the latest version of Red Hat Enterprise Linux. The GNU EPrints.org software version 2.3.13.1 is being used. In their study, they found that GNU EPrints.org software is an excellent tool for creating and maintaining OAI-compliant repositories.

Pai[9] has elaborated the initial stage of MUDR started by Manipal University, Manipal. It has used the OSS Eprints for their repository creation. She

has lined up the workflow of uploading the article in an MUDR. According to which the faculty member will submit the document to the library as per the instructions and then library staff will upload the article on his/her behalf. Finally, librarian will move the document to the repository after proper verification. She has simultaneously mentioned the areas where libraries can implement OSS like: Library management systems, digital libraries, e-publishing, etc. She has concluded stating that the digital repository of MU is definitely going to be of great use to the academic community all over.

Kumar[10] has discussed IRs in India giving reference to Indian Institute of Management, Lucknow (IIML) which is using Green Stone software for creation of digital repositories. IIML has started its repository in 2007 which is accessible on the intranet. They have restricted the browsing and downloading within the campus. The IIML is planning to open its repository for public access and will start uploading faculty thesis and dissertations. He strongly stated that IR is a most powerful tool to publish and provide the useful services among the community of the institution.

All these articles, chapters and studies indicate that a considerable work has been carried out by different institutions on IRs using different open source software available. There is sufficient literature to understand the IR concept, presenting deep and exhaustive studies on its history, developments, merits, demerits, etc. But as the MUDR was recently developed in the year 2011, there is no article, chapter or study that has been made to understand its progress, development, growth, its impact on Manipal University literature. Thus, this literature will be pertinent for carrying out a study on MUDR.

3. OBJECTIVES

This study may serve as a preliminary guide for those (faculty, staff, student of Manipal University) who want to understand the concept of digital repositories and want to become a part of this element of Manipal University (MU) on the way to digital libraries. This study may also go to serve as a baseline study that can be used over time to assess the development, impact, and viability of Manipal University Digital Repository (MUDR) in later studies. Formerly Manipal University was known as Manipal Academy of Higher Education (MAHE), branded as Manipal University is a deemed university located in Manipal, Karnataka, India[11].

The specific objectives of this study are to:
- Study the EPrints software used in the creation of the MUDR
- Know the document deposit procedure in MUDR

- Find out the total number of publications, document types in which the collection is available in MUDR.

The terms used in the study means: Digital– Relating to, using, or storing data or information in the form of digital signals[12], Repository–A place, building, or receptacle where things are or may be stored[12], Study–A detailed investigation and analysis of a subject or situation[12].

4. MANIPAL UNIVERSITY DIGITAL REPOSITORY

The MUDR is an IR for the Manipal University institutions. This runs on EPrints, open source software. The research output created by the MU faculty, students, and staff community are preserved and disseminated in digital form through MUDR. The institute community can deposit their pre-prints; post prints and other scholarly publications using a web interface. The MUDR helps to organise these publications for easy retrieval. Presently, the university offers the access up to the abstract level to the copyrighted documents. The provision of requesting a copy of the full-text is available via e-mail. The EPrints at MU repository is accessible over the internet. The submission of documents to this repository is limited to the MU community only[13]. This repository has emerged as a best possible way for the researchers to publish their scholarly work and make it accessible to the fellow research community.

The EP3.2.7 version of GNU EPrints.org software is used by MU to develop their repository, which is a freely distributable archive system available from EPrints.org. This software is developed by the University of Southampton, England[14].

The MUDR maintains the collection of documents from the three campuses of MU, i.e., Bangalore, Mangalore, and Manipal. The administrative control of the MUDR is with all the libraries of three campuses of MU. The list of libraries includes:
- Health Sciences Library, Manipal
- Health Sciences Library, Mangalore
- Manipal Institute of Technology (MIT) Central Library
- Welcome Group School of Hotel Management (WGSHA) Library
- School of Communication (SOC) Library
- School of Management (SOM) Library
- Manipal Centre for Philosophy and Humanities (MPH) Library
- Manipal Centre for Natural Sciences (MCNS) Library

Each library is responsible for depositing the documents of their institution. Library staff and

the authors both are responsible to maintain the copyright policies of the publishers. The visibility of copyrighted articles is channelised through the concerned library. However, open access documents can be accessed directly from the repository.

4.1 Interface of MUDR

The MUDR can be accessed via the MU website (Fig. 1) and can also be approached on the intranet by logging to MU library's webpages. At present, KMC Health Sciences Library, Manipal; Manipal Institute of Technology-Central Library; and Manipal Centre for Natural Sciences (MCNS), library has given links to MUDR through their webpages. This is accessible on the intranet of MU and by selecting the library (Fig. 2).

4.2 Document Uploading Procedure

Presently, MU has given the right of submission of documents to the librarian/library staff. The willing faculty member of MU can submit his/her document as per the guidelines and conditions (available on MUDR) of the MU through the mail. Then these will be uploaded to the repository by concerned library and notification will be sent to the concerned person. One can reach the home page of EPrints at http://www.manipal.edu or http://eprints.manipal.edu.

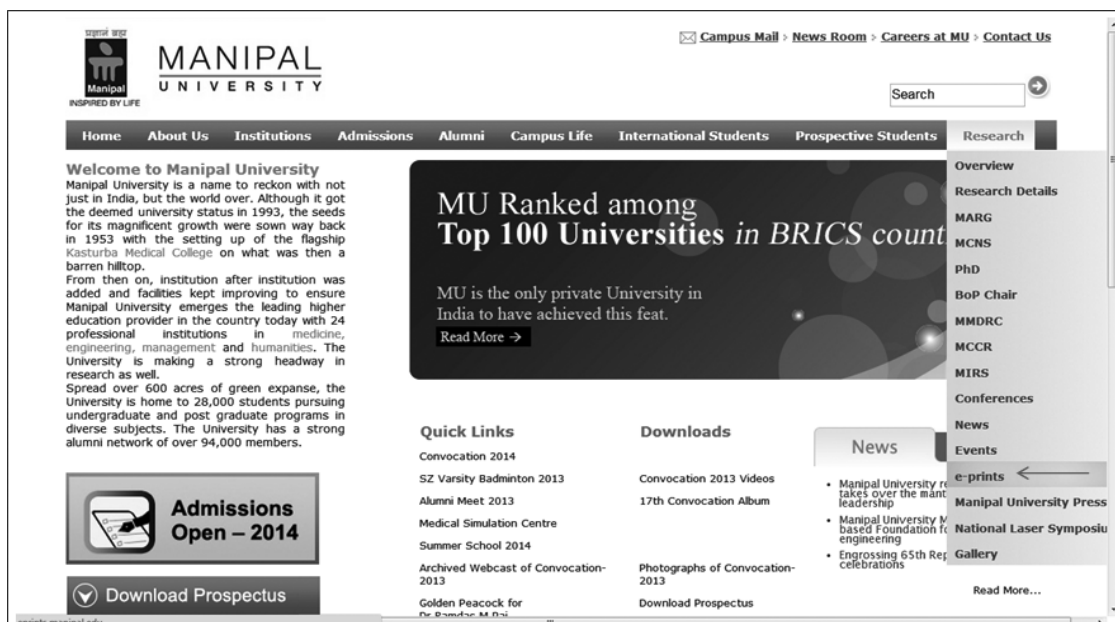Figure 3 shows the five steps in uploading the document in EPrints:

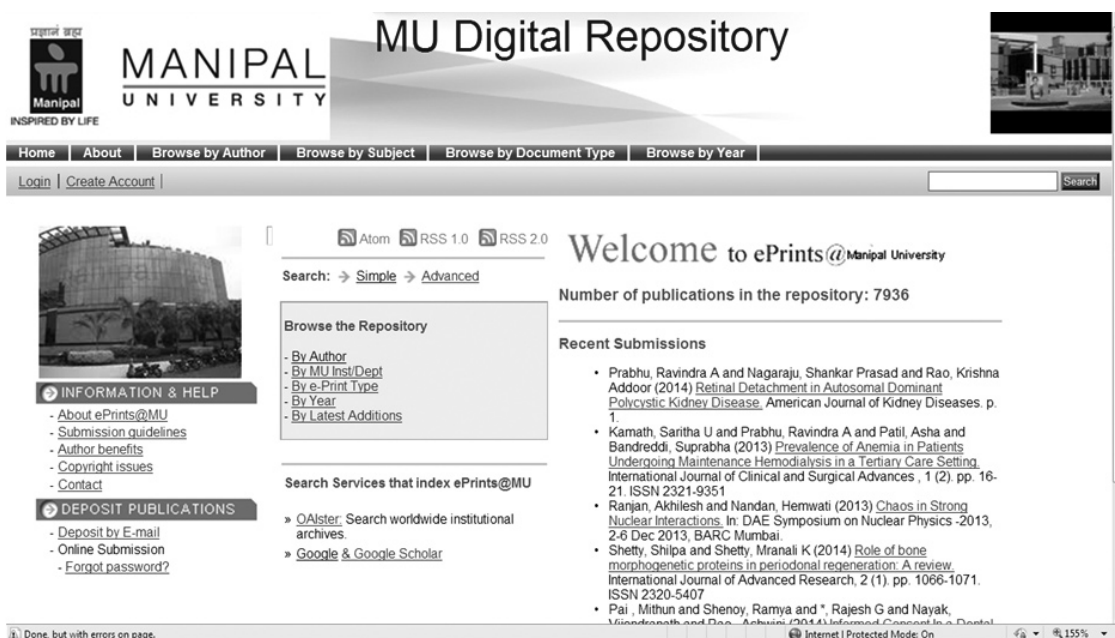Figure 1. Access to EPrints under 'Research' option on the Manipal University website.

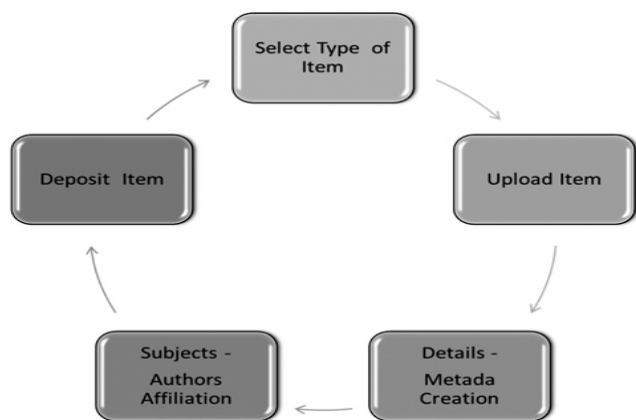Figure 2. Manipal University Digital Repository (MUDR) interface.

Figure 3. Uploading steps of article in EPrints.

Once a user (library staff) completes uploading of the article then the administrator (Librarian) will review the item deposited, by using administrator password. By checking the correctness of all the fields entered, he can move the document to the repository. The entry will be visible on IR collection after 24 hours, as it has to be indexed by websites- Google, Google Scholar, and OAIster.

4.3 MUDR Collection

Institution-wise collection in MUDR as on 6 February 2014 is:

Table 1. Institution-wise collection in MUDR

Subject	Institution-wise	Collection
Allied Health	MCOAHS, Bangalore	15
	SOAHS, Manipal	314
	MCOAHS, Mangalore	119
Architecture	MSAP, Manipal	13
Communication	SOC, Manipal	53
Dentistry	MCODS, Mangalore	552
	MCODS, Manipal	458
	MMMC, Melaka	05
Engineering	MIT, Manipal	1404
European Studies	MCES, Manipal	07
Health Sciences	KMCIC	51
Hotel Management	WGSHA, Manipal	61
Humanities	MCPH, Manipal	32
Information Sciences	MCIS, Manipal	18
Life Sciences	MLSC, Manipal	281
MU Libraries	Health Sciences Library, Manipal	29
	MIT Library, Manipal	05
Management	MIM, Manipal	24
	T. A. Pai Management Institute	02

Medicine	KMC, Mangalore	1121
	KMC, Manipal	2301
	MMMC, Melaka	18
	MMMC, Manipal	399
Nursing	SON, Bangalore	03
	SON, Mangalore	10
	MCON, Manipal	218
Pharmacy	MCOPS, Manipal	927
Regenerative Medicine	MIRM, Bangalore	66
Departments at MU	Atomic Molecular Physics	56
	Geopolitics and International Relations	65
	Library and Information Science	39
	Manipal Centre for Natural Sciences (MCNS)	39
	Manipal Centre for Virus Research	04
	Public Health	06
	Statistics	104
	Sciences	01
Total		**7831**

4.4 Document-wise MUDR Collection

Document-wise collection in MUDR as on 6th February 2014 is:

Table 2. Document-wise collection in MUDR

Documents	Collection
Article	6800
Book	21
Book section	86
Conference or workshop item	810
Teaching resource	03
Thesis	76
Video	35
Monograph	04
Patent	02

5. ANALYSIS AND SUGGESTIONS

After studying the MUDR following suggestions are offered as a guide to MU for their digital repository development, which can be equally applicable to any IR:

(a) Enhancing the Self-Archiving

The concept of self-archiving by authors (academicians/ researchers) has to be promoted. At present, only the administrators have the authority to deposit the materials in the IR. The best practice methods

such as seminars, workshops and tutorials should be conducted to make authors more comfortable with the repository, which will mobilise the scholarly content.

(b) Promotion and marketing of IR

The MU library professionals have to adopt certain awareness programme in making the academicians and researchers aware of the benefits of IR. During the study it was found that MU has promoted digital repository through MU portal. However, MU website (www.manipal.edu) is also used to provide access to its repository. This is definitely increasing the awareness of the institution's repository. Librarians can use ways like handouts, brochures or pamphlets to market and promote the repository among their user community.

(c) Awareness about RSS feed

The facility of RSS (Really Simple Syndication or Rich Site Summary) feed is available in MUDR. Programme need to be developed to create awareness among its users for RSS feature. This will provide a way to MUDR to reach to the email ids/web browsers of the users. So that the information regarding every newly added documents to the repository can be brought into the notice of users of the library, which can also be viewed/used by the user through his/her ID itself. These will definitely increase the usage of documents of the MUDR.

(d) MUDR logo

Humans place a great amount of reliance on their sense of sight. For that simple reason, logos are considered the most important component of a branding strategy of any product. A logo is the identifying element of the brand for a company, business, and product designed to create immediate recognition by the viewer. Individuality and the uniqueness of a logo are necessary to avoid confusion among users. Developing a logo for the repository will give a separate identity and uniqueness to this service of the university.

The reasons for importance of logo are:

- Representation–As we remember people by their faces, the logo can be for IR. A good logo can give an image and appeal to the IR that other awareness programs cannot provide.

- Remembrance–Human being is the creature that tends to remember logos better than the names, as good logo will often be easier to remember than the name. Faculty member of the university will use the logo given to IR to remember the repository service provided by that university.

- Uniqueness–In an environment where the university is providing various services to its family member, a good logo will help the service

to stand out. A logo can be a very important tool to differentiate the service from other at first glance than virtually anything else[15].

Having a separate logo for IR will give the ability to the MUDR to be separate, to be easily identified by users.

MU DIGITAL REPOSITORY

MU Digital Repositories

Figure 4. Suggested sample logos[16] for the MUDR.

(e) Separation of other campus departments

The departments of Mangalore and Bangalore campuses are together listed in the same sequence with Manipal campus. This creates confusion and disturbs the listing of the departments of a particular campus. The user has to scroll through all department lists to find out his campus department. It is also difficult to know the total collection of those campuses other than Manipal with a glance. Hence there is a need to separate the page campus wise and to provide links to various departments of those campuses.

(f) E-mail configuration

In MUDR, access is restricted to the copyrighted articles. Though the facility of requesting of full-text article is available in the software, it is not configured. Hence, the user cannot request the copy of the full text of an article, which is useful for him. The e-mail ids through which one can ask for full-text are not active. The MU can think to open this service at least for their own community, so that information preserved through repository will be used by its users.

(g) MUDR registration

There are a number of resources which allow cross-searching of collections of IR. The MU should think of registering its digital repository into those resources after a valuable analysis of them. Following are some of the web places were registration can be done[17].

- Association of Learned and Professional Society Publishers (ALPSP)

- BASE (Bielefeld Academic Search Engine)

- Guide to Electronic Theses and Dissertations

- OAIster

- OpenDOAR (Directory of Open Access Repositories)

- Repository66 Map
- SPARC Repository Resources
- WorldWideScience.org
- ROAR (Registry of Open Access Repositories)

(h) Assessment methods to measure success of a repository

After a considerable study, it was found that there is no feature in the EPrints software used by MU to measure the success rate of the deposited document. Such type of analysis will help to know where the repository stands and also will give an idea about the field where libraries can focus for improvement. It also gives the data to find how far the repository has been successful both in terms of the collection and its awareness among the users.

(i) Option to save searched document

The facility is available in the EPrints software where a user can save the documents he/she has searched for future reference/use. But to avail that facility, user has to log in to the MUDR, which is at present not allowed except for administrators. If MU wishes to follow the present method, then it should think to add new features to the EPrints software, which can be used to save the searched documents.

(j) MUDR App development

As today student and faculty are e-savvy. MU can develop an app for its digital repository. It can develop the mobile application for its digital repository. This will help to bring the repository collection more close to its users and even gives a proud feeling for the author whose documents are included in the repository. An app which will provide a direct link to EPrints will definitely save the user time.

After creation of application MU has to make it available either on any of the web options like Google play, Amazon Appstore, Android Tapp, PocketGear or can distribute it separately to the user through proper channel.

After downloading the app, one can click on the icon of the repository, which will lead him/her to the home page of the app. The app page may display the options like:

- About
- Contact
- How to deposit
- Request for copy, etc.

These options are just an example and may differ with the creations of the app. The touch on the link option in the phone will directly link the user to the MUDR website, and user need not to visit the website of MU to reach to MUDR or has to type the URL of MUDR.

6. CONCLUSIONS

A resourceful library can be created by using IR and the MU has realised their importance and usefulness of IR being a reservoir of faculty literature.

Text cannot live without communities of readers. A text resting in a repository is no exception to this rule[18]. So, it is time for MU librarians to appraise faculties and students the importance of repository in teaching and research. Librarians should take the opportunity to organise information literacy programs to spread the knowledge of the repository. In addition, repository software should also be constantly updated, and customised to meet the library's and the user's needs. While at present the MUDR looks fine and dandy, and sounds like the win-win solution to preserve faculty information. There are still pitfalls and hurdles MU libraries need to overcome.

"In an institution, man may come, a man may go, but his/her knowledge has to be preserved by libraries for both, to remember his/her contribution and to see that it should be used by present and future generation".

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