Project Management Methodology for Institutional Repository Implementation at Higher Education Institutions in India

P. Arumugam
Ph.D Research Scholar
Dept. of Library and Information Science
Madurai Kamaraj University
Madurai, Tamilnadu India.
Email: sp.arumugam@gmail.com

P. Padma
Assistant Professor
Department of Library and Information Science
Madurai Kamaraj University
Madurai, Tamilnadu, India.

Abstract

This paper provides a set of methods, processes and practices that are repeatedly carried out to deliver effective institutional repository, based on in-depth literature reviews and brainstorming sessions held with 12 participants who have similar experience. The authors conclude with a project management methodology for institutional repository implementation and discuss how such a project may be executed in higher education's institutions in India. The effectiveness of the methodology has been tested in one implementation project. Therefore, more tests/applications will be necessary to generalize this methodology

Keywords

Institutional repository; Digital library; Project management methodology; Knowledge management; Library; Open access
.

Electronic access

The journal is available at www.jalis.in



Journal of Advances in Library and Information Science
ISSN: 2277-2219 Vol. 6. No.1. 2017. pp.45-51

INTRODUCTION

Indian higher and continuing education sectors have experienced remarkable growth in the last decade, and it became the third largest in the world. In terms of number of students enrolled, is the second highest after China. India been considered as a talent pool of the world, having qualified and educated human resources in abundance. It is also well-accepted that providing the right knowledge and skills to the youth can ensure overall national progress and economic growth. Open access movement will ensure providing access to right knowledge for free of charge in electronic formats and free of most copyright and licensing restrictions (Suber, 2012).Budapest Open Access Initiative (BOAI) defines open access as: "free availability on the public internet, permitting any users to read, download, copy, distribute and/or print, with the possibility to search or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself". To achieve open access to scholarly literature, BOAI recommended two complementary strategies such as self-archiving (institutional repository) and open access journals. An institutional repository (IR) is an online archive for collecting, preserving, and disseminating digital copies of the intellectual output of an institution, particularly a research institution. In a university, this would include materials such as research articles, before undergoing peer review or preprints; and digital versions of theses and dissertations. IR also includes other digital assets generated by normal academic life, such as the administrative documents, course notes, or learning objects (Wikipedia, 2017).Institutional repositories are also described as "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" (Lynch, 2003).

Universities and research libraries around the world use institutional repositories in many ways (Barton & Waters 2005) as below:

- Scholarly communication
- Storing learning materials and courseware
- Electronic publishing
- Managing collections of research documents
- Preserving digital materials for the long term

- Adding to the university's prestige by showcasing its academic research
- Institutional leadership role for the library
- Knowledge management
- Research assessment
- Encouraging open access to scholarly research
- Housing digitized collections

Institutional Repository in India:

Indian higher education system has expanded greatly over the last few decades. During the year 2014-15 there were 711 universities and university level institutions and 40760 Colleges, thus registering an increase of 24% in the number of Universities and 14.69% increase in colleges during the 3rd year of XII plan in comparison to the figures at the end of XI plan (University Grants Commission, 2015).As on February 2017, India has 109 of the 3709 repositories registered by the Register of Open Access Repositories (ROAR) which is less than 3%. This number is different in Open Directory of Open Access Repositories (OpenDOAR), it is showing only 76 repositories in India. But developed countries like US has around 15% IR registered.Below are the contributioncomparisons listed in the two leading OA-Repositories worldwide (ROAR and OpenDOAR, having 3709 and 3320 databases respectively (February, 2017).

Country	ROAR	OpenDOAR
United States	737	492
United Kingdom	240	250
Japan	170	211
Germany	219	194
Spain	164	125
France	89	119
Italy	78	110
India	**109**	**76**
Other Countries	1903	1743
Total	3709	3320

The efforts towards adopting open access initiative have already been started in India. But there are some hurdles and misunderstandings about institutional repository among the Indian research community. Many scholars identified lack of digital library expertise is one of the major constraints for IR implementation. As IR being a new discipline in information science, there is serious lack of digital library expertise especially in a developing country like India. Many institutions although serious to set up IR failed due to non-availability of expertise from both library and IT staff (Hirwade and Rajyalakshmi, 2006; Lihitkar et al. 2009).Also few scholars identified that incorporating project managementpractices into IR development will increase the project success (Campbell-Meier, 2008; Greene, 2010). Hence, authors explored various project management practices and attempted to createa custom project management methodology to institutional repository implementation in higher education institutions. Project management methodology is defined as set of methods, techniques, procedures, rules, templates, and best practices used on a project and that are repeatedly carried out to deliver projects. (Project Management Institute, 2008). As a project manager, librarians need a methodology to steer the projects in the right direction and keep them on track. When it comes to choosing a methodology, we have two option. You can choose any existing available project management methodologies as a standard solution usually for a fee or you can choose to develop your own customized methodology. There is an evidence in the literature (Afshari and Jones, 2007) that using standard project management methodologies in library practice can increase internalstakeholder buy-in, from frontline staff, department faculties, admin staff, middle management and senior management. But some scholars argued that no standardproject management methodology can be universally applied to manage all projects across the varioussectors and has few limitations (Charvat, 2003; Cockburn, 2000).Having a customized and appropriate methodology will allow you to extract the most efficiency from your project management activities and it will increase the chances of project success. However, failing to use a project management methodology (PMM) may jeopardize an organisation's efforts and overall effectiveness, in respect to knowledge management, repeatability, comparability, quality, and future impact (Whitaker, 2014). According to the authors' best knowledge, there is no custom project management methodology available for institutional repository implementation, hence authors proposed their own custom methodology. The research problem of this paper is to develop a custom institutional repository implementation project management methodology as a simple, structured, 9 step process to infuse this much needed thinking. The proposed methodology was validated with a case study. The aim of this

methodology is to help information professionals to successfully complete and manage the institutional repository implementation project.

OBJECTIVE OF THIS RESEARCH

There are several project management methodologies and guidelines are available for institutional repository implementation, but most of them will guide only for developer or IT project managers. This study is to develop a methodology for information management professionals who are willing to manage institutional repository implementation project in Indian higher education institutions. Objective of this study is:

- To establish librarian's views concerning their roles in the implementation of digitalrepositories and, particularly, their established institutional repositories
- To develop a simple and user-friendly project management methodology and apply it to one of the institutional repository projects.
- To identify the elements of successful project managementin the academic sector.
- Determining the benefits and importance of the projectmanagement methodology in the project.
- Provides a common language for communicating and planning prior to the start of the project activities.
- Establishes a means for managing projects more effectively.
- Leads to effective project outcomes which achieve organizational objectives.
- In Phase-2, the long-term intent is to build a project management repository for knowledge management along with enterprise search projects to document best practices, lessons learned, tools and templates of various documents that may be developed during a project.

RESEARCH METHODOLOGY

This study is based on secondary research done on available literature and brainstorming session organized with professionals who had previous experience in implementing institutional repository in their organizations (Figure 1). In the first phase, collected literature related to institutional repository through various sources and reviewed the same. Further, we identified and discussed with 12 experts from library, content management, knowledge management, digital library and institutional repository field who have experience in their organizations. Brainstorming is used as methodology for generating and gathering ideas within the expert community. The Crawford Slip Method is a simple yet effective type of brainstorming that helps to create spontaneous ideas, concepts, and expressions related to this research. This method invented in 1925 by Dr. C.C. Crawford, professor of education at the University of Southern California (Crawford and Demidovich, 1983). It is an approach used for obtaining ideas from a large group of participants and organizing those ideas promptly into categories. It comprises of pieces of paper as a data generating and organizing tool.Given sticky notes to the participants and asked them for group ideas on various topic. Conducted 7 sessions and each session collected slips from participants and grouped accordingly. This methodology was put in practice involving one of the respondents institution and was fine-tuned based on his inputs received, post implementation. Below are the sample demographics selected for Brainstorming sessions:

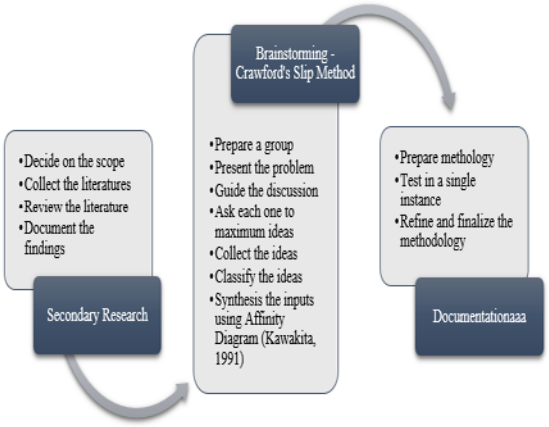


Figure 1: Research Methodology used for thestudy

RESULT

As a result of this research, authors have proposed a systematic project management methodology for institutional repository implementation and management. It explains step by step activities and deliverables which can be considered while implementing institutional repository in any higher educational institutions in India. The methodology described in this paper is intended for people who are willing to implement digital repository in their institutions.

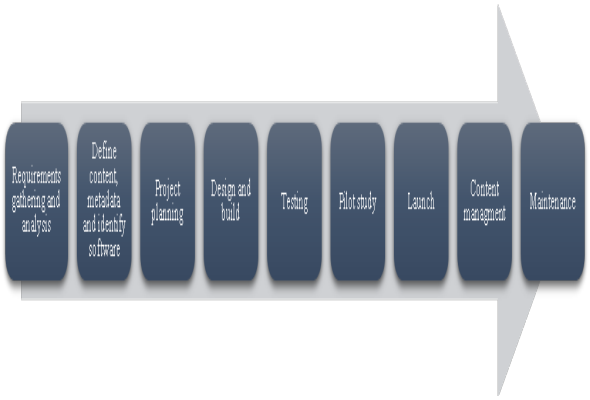
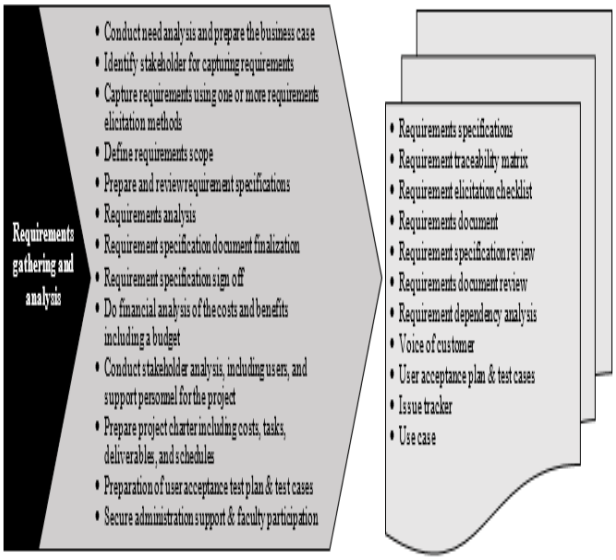
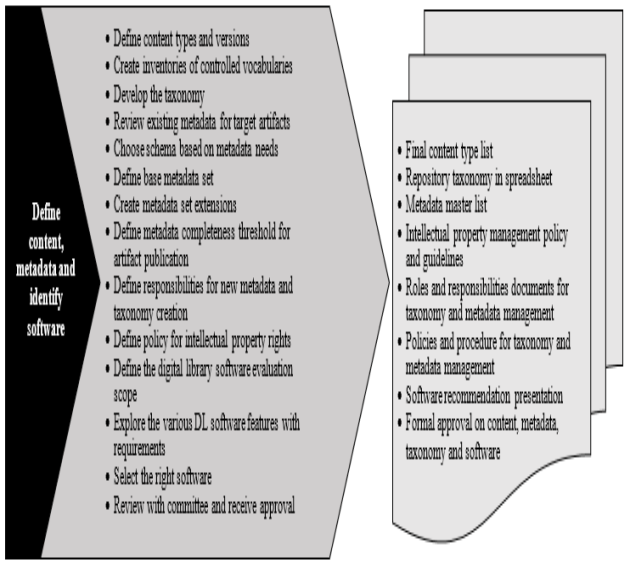


Figure 2: Overall steps involved in IR implementation methodology

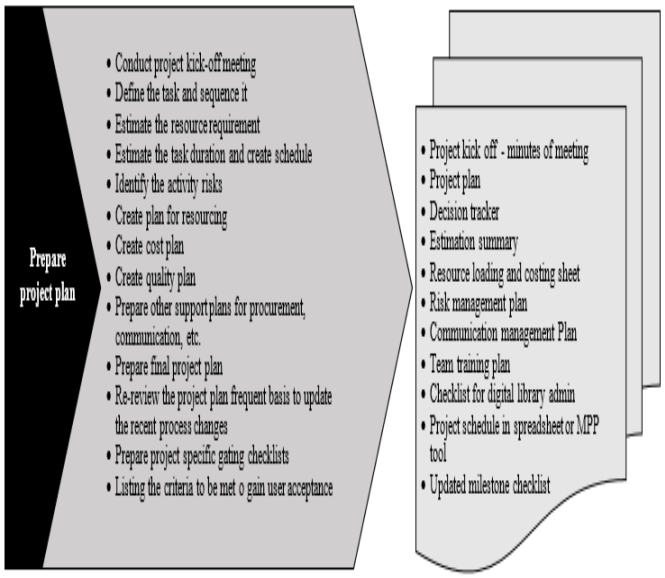
Step-1: Requirements gathering and analysis:
Requirement gathering is a step by step process of collecting and analyzingthe requirements of aninstitutional repository from users, faculty members and other stakeholders.



Step-2: Define content, metadata and identify software:
The second phase of the project is to define the various documents and finalize the metadata & taxonomy. Also, you need to select the open source software for IR project.



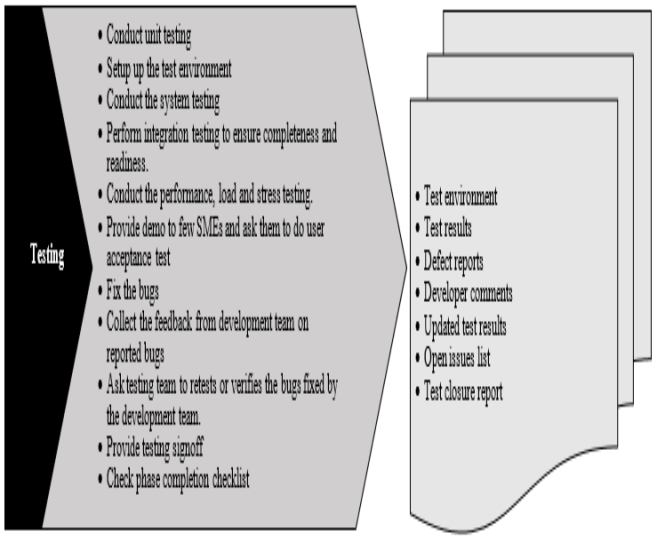
Step-3: Project planning:
During this process, you need to define the procedure in details related to planning activities for project execution.



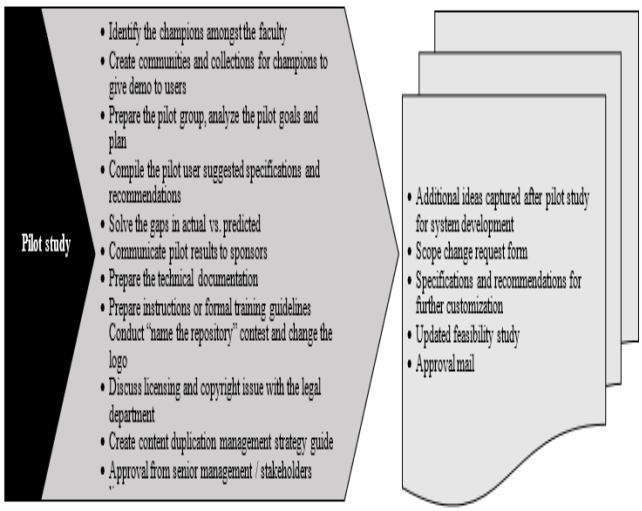
Step-4: Design and build:
This phase involves the execution of each activityand task listed in the project plan. While theactivities and tasks are being executed, a seriesof management processes are undertaken tomonitor and control the deliverables being outputby the project.



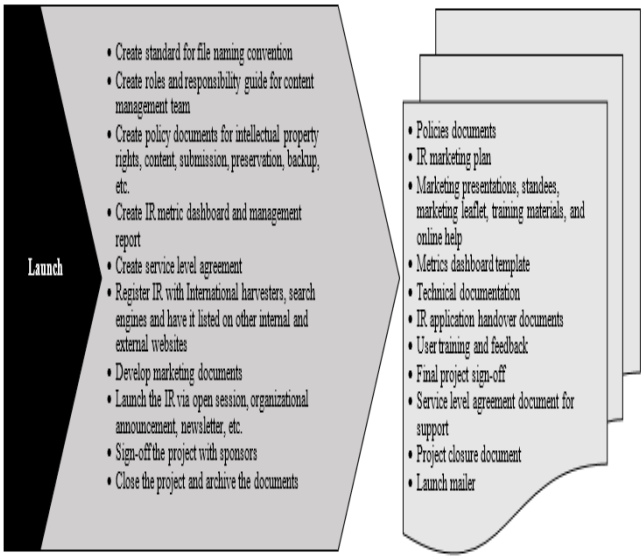
Step-5: Test the IR:
Testing phase involves the activities related to verification and validation of deliverables in the project. Testing should be carried out based on the approved test plan document.



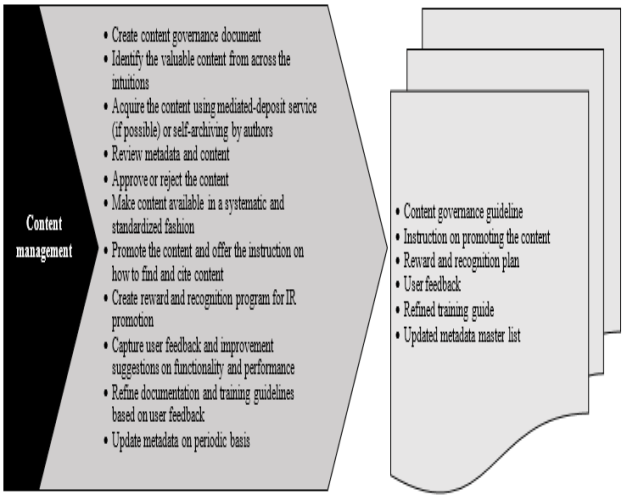
Step-6:Pilot study:
Pilot study is a small scale preliminary study conducted in order to evaluate feasibility, time, cost, adverse events, and effect size in an attempt to predict an appropriate sample size and improve upon the study design prior to performance of a full-scale research project (Hulley, 2007).



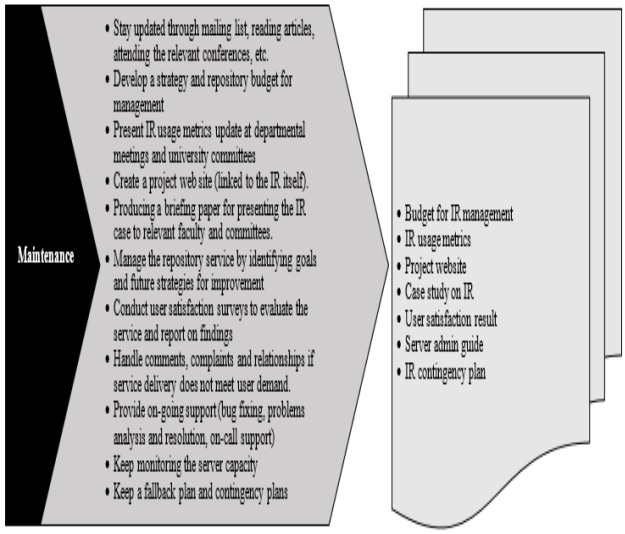
Step-7: Launch:
The practice of IR project launch includes all of the work done before a portal is made available to the user community.



Step-8: Content management:
Content management is a set of processes and practices that supports the collection, organization, managing, and publishing of documents in an institutional repository.



Step-9: Maintenance:
Any successful institutional repository required regular maintenance and support services, these services can be of content update, maintenance and bug fixing of application, new module additions or system update.



Evaluation of IR Implementation Project Management Methodology

In order to validate, this methodology is tested in one of the higher education institution in India. Aim of this project is to implement institutional repository using Dspace. Below the satisfaction survey results received post implementation (Figure 4).

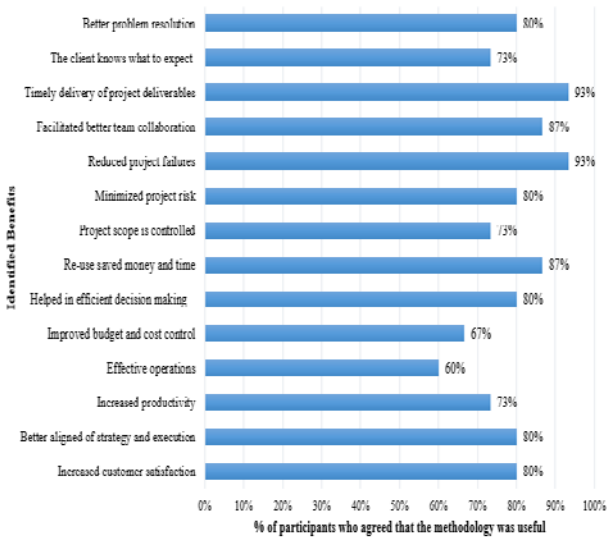


Figure 3: Pilot Study - Satisfaction Survey Result

DISCUSSION AND CONCLUSION:
Based on the interaction during the brainstorming session, it was evident that library and information science professionals does not utilize the custom project management methodology for their project, and most of them agreed that it reduces the project failures and saves money and time. Also, participants agreed that project management methodology should not be confused with software or application development methodology.Because the software development phases are used for customizing the software product. Other available project management methodologies might not fit to the academic environment as most of theseutilized forstandard IT project implementation and it will consume more time to the library professionals who is trying to customize based on their needs. To gain maximum benefit during IR implementation, information science professionals can adapt this structured methodology to any type of the institutions and it substantially improve the likelihood of implementation success. It will save considerable amount of time to the professionals who is going to manage the project in their organization. It is flexible, if anyone wants to utilize this methodology, they can use it as it is or they can customize based on their institution's needs. We are now focusing on creating all supporting tools and templates, and keep it on a public website where every professional will have access to these assets.

RESEARCH LIMITATION AND FUTURE RESEARH

As participants were from the premier institute for advanced scientific and technological research and education in India,likeIndian Institute of Science, Indian Institute of Astrophysics, etc. hence the methodology can be applied as-is to those institutions like universities, research institutions and colleges. Other institutions can modify the method based on their user's requirements and IR system. Also, the effectiveness of the methodology has been tested in one single event. Therefore more tests/applications will be necessary to generalize this methodology.

ACKNOWLEDGEMENT

We are grateful to all respondents who actively participated in the conversation, provided the positive feedback, contributed with highly informative ideas and sharing their experience which helped to build this methodology.

Note:

- In order to preserve the anonymity of individual professionals, the details of their organization is not mentioned in this paper.
- For reasons of confidentiality, the name of the higher education institution cannot be disclosed. XYZ University is a pseudonym.

REFERENCES

[1]. Afshari, F. & Jones, R. (2007) "Developing an integrated institutional repository at Imperial College London", Program, Vol. 41 Iss: 4, pp.338 - 352

[2]. Barton, M.R. & Waters, M.M. 2005. Creating an Institutional Repository: LEADIRS Workbook. MIT Libraries.

[3]. Budapest Open Access Initiative, "Budapest Open Access Initiative," 14 February 2002, http://www.soros.org/openaccess/read.shtm

[4]. Campbell-Meier, J.(2008). "Case Studies on Institutional Repository Development: Creating Narratives for Project Management and Assessment," Ph.D. dissertation, University of Hawaii at Manoa, 2008. Retrieved from: http://hdl.handle.net/10125/4177

[5]. Charvat, J. (2003). Project management methodologies: selecting, implementing andsupporting methodologies and processes for projects: John Wiley & Sons.

[6]. Cockburn, A. (2000), "Selecting a project's methodology", IEEE Software, Vol. 17,no. 4: 64-71.

[7]. Crawford, C. C., & Demidovich, J. W. (1983), Crawford Slip Method: How to Mobilize Brainpower by Think Tank Technology, University of Southern California, Los Angeles.

[8]. Greene, J. (2010). Project management and institutional repositories: a case study at University College Dublin Library. New Review of Academic Librarianship. Vol 16, 98-115

[9]. Hirwade, Mangala Anil & Rajyalakshmi, D. (2006), Open Access: India is moving towards Third world Superpower, 4th International Convention CALIBER, Gulbarga, 2-4 February, 2006, Retrieved from: http://ir.inflibnet.ac.in/bitstream/1944/537/1/8(cal%2006).pdf

[10]. Hulley, S. B. (2007). Designing Clinical Research. Lippincott Williams & Wilkins, p.168-169.

[11]. Lihitkar, S.S., Lihitkar, R.S. and Agashe, A.T. (2009), "A study of major institutional repositories in India", paper presented at 12th International Symposium on Electronic Theses and Dissertations, ETD 2009, Pittsburgh, PA, 10-13 June.

[12]. Lynch, C. 2003. Institutional repositories: Essential infrastructure for scholarship in the digital age. ARL Bimonthly Report, 226: 1–7.

[13]. Project Management Institute (2008). A Guide to the Project Management Body of Knowledge. Fourth Edition (PMBOK Guide). Newtown Square, PE: Project Management Institute