

BUILDING DIGITAL REPOSITORY OF PROJECT REPORTS : A PROPOSAL FOR CUSAT

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The effective organization and utilisation of resources produced by the students, faculty and research scholars in university departments assume greater significance. Institutional repositories are developed by many institutions to provide resources and materials that support students in their studies. The present study recognizes the value of such a repository in the Engineering and Technology discipline in Cochin University of Science and Technology. The paper explains the need for a digital repository of project reports. The authors present a model for digital repository, and the organization and administration of such a repository. The study also analyses the various other factors associated with the proposed depository.

1 INTRODUCTION

The Cochin University of Science and Technology (CUSAT), Kochi, Kerala. was established in 1971. The mission of the university is to prosecute and promote research in applied science, technology, industry, commerce, management and social science for the advancement of knowledge and for the betterment of society, and to provide facilities and offer opportunities for graduate and postgraduate education in these subjects.

2 CUSAT LIBRARY SYSTEM

CUSAT University library system is an automated one, connected with campus LAN. The library has a 2 mbps leased line Internet connectivity and offering online services to the user community. It has web enabled OPAC and windows based library software ADLIB to enable the house keeping operations. CUSAT has vast amount of resources, that include the journals, books, theses, abstracts, project reports,

databases purchased by the university, and online journals and databases available through the consortia basis. University has membership in INDEST consortia and UGC Infonet programme. The university provides access to IEEE Electronic Library, Proquest Applied Science & Technology database, ASCE (American Society of Civil Engineers) and ASME (American Society of Mechanical Engineers) databases through INDEST consortia. The IEEE Electronic Library (IEL) is providing full text access to articles from more than 4000 publications, including journals, conference proceedings, and IEEE standards with original charts and graphs from 1988 onwards.

3 ENGINEERING USER COMMUNITY

The Engineering faculty in Cochin University of Science and Technology offers a variety of B.Tech programmes in Civil Engineering, Computer Engineering, Electrical Engineering, Electronics Engineering,

Information Technology, Mechanical Engineering and Safety and Fire Engineering . Under the faculty of Technology the University has seven Departments namely Computer Application, Computer Science, Electronics, Instrumentation, Polymer Science and Rubber Technology, Ship Technology and the International School of Photonics. Majority of the Departments offer B.Tech and M.Tech programmes in the concerned subjects. All the Departments offer Ph.D programmes also thus produce a large amount of research materials, mainly consisting of project reports and research papers.

4 INSTITUTIONAL REPOSITORY

An institutional repository is a database with a set of services to capture, store, index, preserve and redistribute a university's scholarly research in digital formats. Lynch defines institutional repositories as in the following way: "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 organisational commitment to the stewardship of these digital materials, including long-term preservation where appropriate, as well as organisation and access or distribution"[3].

5 WHY INSTITUTIONAL REPOSITORY IN CUSAT

Institutional repositories are being constructed today to address the needs of scholarly communication in a digital environment[1]. During the past decades colleges and universities have witnessed an exponential growth in digital information available for teaching and learning. As the quantity of information continues to increase and these

collections expand, there is need for a repository that can provide appropriate storage and access to all these valuable material in a flexible and extensible manner for the foreseeable future. This need has led many organizations to select a digital library solution that can assimilate current collections and accommodate new materials, as they become available[2].

The completion of the course in Engineering and Technology in the University requires the preparation of a project report on a subject selected by the student and approved by the Supervising teacher. So each student wants information on the topics of projects, list and details of previous projects submitted, factual data for the current projects etc. If the library builds a digital resource base for project reports it shall be of immense benefit to the students for accessing large amount of data. The depository will also help the staff to achieve bibliographical control of project reports and ensure full text accessibility to the reports being completed.

5.1 Building Digital Repository

The development of policies that govern content acquisition, distribution, and maintenance are the first steps of building any repository. There are many factors to be considered like, what is the mission of the repository? what kinds of contents will be accepted for building the collection? who are the key users of the repository? who can deposit contents in the repository? who will provide metadata?

The mission of the CUSAT project repository is to provide necessary resources essential for engineering undergraduates for their projects. The model is designed as a centralised one, controlled by a team of university library staff. Students can submit their project reports to the library in digital form. The team

of staff who manage the repository review the reports and create metadata and submit the contents to the repository.

Another important thing in the repository is installation of the software platform. There are a number of software platforms for building institutional repositories. The following are some of the leading institutional repository software platforms: Archimede, an open source software for building institutional repositories developed by the Laval University Library; Bepress, developed by the Berkeley Electronic Press; CDSware developed by CERN, the European Organization for Nuclear Research, based in Geneva; CONTENTdm of DiMeMa Incorporations; Dspace, jointly developed by MIT and Hewlett Packard Labs. Eprints, a free, open source software developed at the University of Southampton. Fedora jointly developed by the University of Virginia and Cornell University; Greenstone Developed by the New Zealand Digital Library Project at the University of Waikato, and Open Repository a commercial software service for building institutional repositories developed by BioMed Central. Research institutions worldwide widely use DSpace for a variety of digital archiving needs including institutional repositories to learning object repositories, electronic records management, and more.

5.2 Workflow

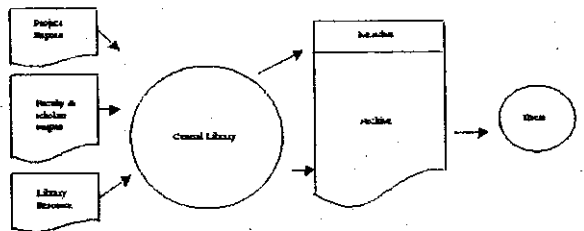
The following diagram shows the workflow of the proposed study. The first step begins with the resource development of the repository. The contents of the repository come mainly from three sources. The major part of the repository is built by adding the project reports produced by the students in digital format. The students send the reports to the collection centre of the university library and the selection teams review the contents of the reports based on the policies

formulated for the purpose and add them to the repository. Metadata are created by the team for enhancing access to the repository through different terms.

The second source of the digital repository is coming from faculties and research scholars in the form of guidelines, teaching aids, preprints, post prints learning objects, full text of original articles etc. This type of resources may guide the students on how to conduct a study, what are the methods of searching the literature and collecting data, and the production of a final project report.

The third source of the digital repository includes the selected articles on recent developments in the areas of Engineering and Technology appeared in online journals and databases. For this purpose the selection team can seek the help of the faculty for inclusion and deletion of certain materials. These resources will help the students to select a problem for their study, literature search, image search, etc.

When the repository is ready with contents and selected software platform, it is put to use by the students, who can access the depository from their labs through the campus wide network. The end-user or public interface will supports search and retrieval of items by browsing or searching the metadata.



5.3 Metadata, Standards, Protocols / Interoperability

A digital repository exists to preserve the ability to use the intellectual content of the digital objects within it. For this to happen, the

repository will need to preserve the object itself, but it must also preserve the metadata describing the object. Dspace uses a qualified Dublin Core metadata standard for describing items intellectually. Interoperability requires that repositories employ standards developed to handle issues associated with open access. These standards include the Open Archival Information System (OAIS) Reference Model and Open Archives Metadata Harvesting Protocol (OAI-PMH)

5.4 Intellectual Property Rights

Librarians and administrators responsible for operating and maintaining repositories need to ensure that all legal requirements are met. These requirements include appropriate software and content licenses.

5.5 Preservation Strategies

Digital information stored in the repository may lose its authenticity due to many reasons. So it is essential that the system should be prepared to apply different strategies and techniques for the preservation of digital resources in the repository. Without intervention, an e-print may be subject to media degradation within a few years. Even if the e-print is securely backed-up, in a few more years will see the e-print's content become inaccessible as software and hardware change[4]. There are a number of preservation strategies like technology preservation, refreshing; migration and reformatting, emulation etc.

5.6 Evaluation

Regular assessment is necessary for any system. It is desirable that the system uses different methods to evaluate the functions of the repository from time to time. Feedback from the students may be collected and used to understand the functioning of the system.

5.7 Training

Trained manpower is essential for maintaining quality of the system. So continuous skill development programmes for every staff member in the team is critical. Attending of workshops and tutorials shall help the team to apply new strategies and methods for collection, processing and retrieval of digital resources.

6 CONCLUSION

An institutional repository of projects reports in Engineering and Technology shall be an effective way of storing and making the documents produced by the students, faculty and research scholars in the area. The resources are organised and well maintained in a system that identifies the information requirements of students and achieves bibliographical control of projects reports. The CUSAT project reports repository will be a valuable source of information for the current and future users of the university.

References

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