Building Digital Collection: An Action Plan for IGNCA & ECI Library

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Abstract

This paper will discuss about action plan of IGNCA &ECI Library and explains the infrastructure (Hardware, Software and Network) and the most common issues which are arise in requirement for creating and managing the E-collections. It provides web based mechanism to deposit and access the same to the user community on to their desktop through intranet. It also illustrates how to build up digital repository using the DSpace software and creating the community, sub-community. This paper also focus about how IGNCA Digital Library provides cost effective facility for systematic archiving of research results and others documents of the institution.

Keywords: IGNCA, Digital Library, Multimedia Digital Libraries, Digital Collection

1. Introduction

Indira Gandhi National Centre for the Arts (IGNCA), New Delhi is a premier research organization in the field of Indian Art and Culture, established in the memory of Smt. Indira Gandhi Late prime minister and national leader of India, is visualized as a center encompassing the study and experience of all the arts- each form with its own integrity, yet within a dimension of mutual interdependence, interrelated with nature, social structure and cosmology. This view of the arts, integrated with and essential to the larger matrix of human culture, is predicated upon Mrs. Gandhi's recognition of the role of the arts as essential to the "integral quality of a person, at home with himself and society." It partakes of the holistic worldview so powerfully articulated throughout Indian tradition. The arts are understood to comprise the fields of creative and critical literature, written and oral; the visual arts, ranging from architecture, sculpture, painting and graphics to general material culture, photography; the performing arts of music, dance and theater in their broadest connotation; and all else in fairs, festivals and life style that has an artistic dimension.

The Library & Resource Centre (LRC) of Election Commission of India is a unique information resource centre, which provides an access to documentation on all aspects of the subjects of democracy, election and electoral related subjects. It conceived as major repository of reference material, primary and secondary, relating to various dimensions of election. This Resource Centre came into existence with the inception of Election Commission in 1950 devoted to dissemination and documentation services through innumerable activities such as newspaper clipping, indexing and development of database, library automation, providing access to national/international information source and consultancy services etc. The core activity of the LRC is to collect/store and disseminate electoral information, which are needed to the Commission for the benefit of different segments of the society.

LRC has a rich collection of latest materials like books, Census, monographs, government reports, seminar and conference proceedings, international publications on democracy and allied disciplines.

2. Digital Collection

A digital collection may include two types of information resource, first one comprises as "digital original" resources, which sometimes referred as resources, which are "born digitally" and other type comprises "digital surrogates", which are created from traditional information resources through format conversion. While both types of resource have the same access and management requirements, they raise different issues of selection and acquisition, and their preservation imperatives are also different.

In India currently the concepts 'digital Library' is being practiced by and large loosely or even confused by many information systems. It is therefore imperative that the concept is properly understood so that there is no ambiguity while we progress with the work of designing or developing a digital library which is fully justified in the technical sense of the word. It is embarking on a digital library project is something which will take away substantial amount of time. Money, energy, manpower and of-courses the hard earned money being pumped into it- be it for system development or towards development and maintenance of the collection, in a meaningful way. There is consensus all over that there exists a very large quantum of digital information scholarly as well as trade, which are scattered and distributed throughout the internet and also being stored in numerous other database and repositories spread across the world. Also there is an unprecedented technology support and availability for digital library.

3. Features

Digital library have attracted almost all the developed and developing countries due to it features and the opportunities it extended to the information providers and information seekers. The digital library has the information in the electronic form and electronic media facilities the access to information available in digital form at different places. It offers new levels of access to broader audience of users and new opportunities for library and information science field to both advance theory and practice.

They contain information collection predominantly in digital or electronic form. Electronic publications have some special problems of management as compared to printed document. They include infrastructure, acceptability, access restrictions, readability, standardization, authentication, preservation, copyright, user interface, etc. but still the advantages are more and therefore the importance of digital library has been recognized by all nations in the world. Digital library do enable the creation of local content, strengthen the mechanisms and capacity of the library's information system and services. They increase the portability, efficiency, flexibility, availability and preservation of content. And the most important is 'anytime, anywhere access to the best latest of human thought and culture.

4. Challenges in the Development of the Digital Collection

A) Lack of Information & Communication Technology: Internet connectivity with sufficient bandwidth, High end and powerful Servers, Structured LAN with Broadband Intranet facilities are the highly essential for an ideal digital library environment. It is observed that the ICT infrastructure in most of the Institutions. Organizations, barring exceptions, are not up to the desired level so as to run advanced digital library services to the optimum level.

B) Metadata Standards And Protocol: Metadata, or "data about data," is a critical element for searching information through a database especially, when the information available in an invisible space like the Internet, unlike a conventional library. The function of metadata is to standardize the structure and content of indexing or cataloging information. At present, in order to build digital library one can use of Dublin Core for web-based publications, Encoded Archival Description (EAD) for archiving and Visual Resources Association (VRA) for visual data. Consortia such as the INFLIBNET and INDEST are involved in developing Indian metadata standards and software applications as part of the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH). This would be used to automatically extract metadata information from digital libraries and enhance interoperability between systems.

C) Digital Rights Management : Due to vulnerability of materials accessible over the public access networks like the Internet, the issue of IPR of material over the digital domain has become a serious concern. Digital Rights Management involves ways in which the digital library operators manage issues of IPR, those of ownership of material made available on the digital library, how one controls access to as well as dissemination of copyrighted material.

D) Data Formats and Publishers Policy: Variations in the data format like Digital library software's usually accept and process all popular and standard digital formats such as HTML, Word, RTF, PPT, or PDF. And most of the the publishers put their materials in their own proprietary e-book reader formats, from which the text extraction becomes almost impossible and One has to obtain publisher's consent and copyright permissions for the same which is a challenging tasks.

E) Lack of Technical Skills: The Human Resources available in the libraries need to be trained with latest technology for implantation of digital library concept which is playing around in the new information environment. The kind of training programmes given in India is not able to meet the demand in terms of quantity as well as quality.

5. Digital Collections At IGNCA Library

Rapid growth of digital libraries together with professional publications and the popular press have created a lot of hopes as well as myths about digital libraries. The increasing popularity of Internet and developments in web technologies is a catalyst to the concept of the digital library. Kalanidhi Division of IGNCA is a National Information System and Databank of the arts, humanities, Cultural Heritage etc. A fully supported Reference Library of multi-media collection, the information system in databank for research in humanities, in the arts and disciplines of archaeology, anthropology,

philosophy, literature, art and craft etc. is under the disposal of all researchers in India & abroad is the said field. Collections of about 2 lacs cultural archival material along with 1700 rare books are some of the unique collections at Kalanidhi Division. 2.5 lacs manuscript in microfilming format, 1 lac visuals more than 1000 hours of Audio Video recordings, 9 personal collections of eminent scholars and artists, photographic collection of eminent photographers such as Lala Deen Dayal are some of the other points of attraction at Kalanidhi.

Today's availability of software, hardware and networking technology, its ever increasing usage and highly evolved browsers have paved the way for the creation of a global digital library. The increasing popularity of Internet and developments in web technologies is a catalyst to the concept of the digital library.

The IGNCA library is conceived as a major repository of reference material, primary and secondary, relating to the humanities and the arts. One of the Prime aims of IGNCA is to serve as a major resource center for the Arts, especially primary material, written oral and visual. The various digital resources available at IGNCA are shown in table below:

Collection			**Digital Collection**
Printed Materials	2 Lacs	**DIGITAL COLLECTION at IGNCA**	8 lacs pages
Manuscripts: (in) Microfilm Rolls Microfiche	2.5 Lacs 19000 1,50,000		1.5 Lacs 12,000 50,000
Slides	1.05 Lacs		1.05 Lacs
Photographs	10000		8000
Audio/Video	10000 hours		1000 hours
Art Objects ➢ Mask ➢ Paintings ➢ Puppets	20000		20000 **Metadata:** • Books - 1.5Lacs • CAT-CAT • MANUS • PICTO • KKTERMS • SOUND
Others: • Archival materials • Exhibited materials			**On Web:** • Newsletter • Periodical • Bibliography

5.1 Printed Material (Multilingual)

- **Rare Books:** Acquisition of rare books is a special feature of the Library. It has acquired books published in 18th and 19th centuries. We have about 3800 rare books. Many of the books in various personal collections in Reference Library may also be put under the rare book category. Some of the books are in damaging condition.

- **Personal Collections:** A unique feature of the library is the Personal Collection of eminent scholars and artists. Already five major Collections have been gifted to the library. These include (1) 20,000 volumes of Dr. Suniti Kumar Chatterjee Collection; (2) 1200 books on Philosophy and music from the Thakur Jaideva Singh Collection; (3) 1500 books and original paintings from the Krishna Kriplani Collection; (4) 15000 volumes largely on Sanskrit and modern India languages of Acharya Hazari prasad Dwivedi Collection and (5) about 10000 books and other archival collections of Dr. Kapila Vatsyayan.

- **Micro Film/Microfiche:** Millions of India manuscripts are no longer accessible to research scholars in the original. It is proposed to develop a microfilm/microfiche library of unpublished manuscripts in India and foreign collections. This is a long-range programme, which will cover private and public libraries in India and abroad. Steps have been initiated to acquire on a selected basis microfilm/microfiche, from the collection of Durbar Library, Nepal; the Staas Bibliothique, Berlin; the Bibliothic Nationale, France and British Library, UK. Manuscripts already available in microfilm or microfiche form such as Tibtetan Collection and other Sanskrit manuscript in the IASWR programme have been acquired. Presently the microfiche collection of IGNCA reference library comprises a large number of back volumes of research journals in microfiche form. Important amongst these are British Burma Gazetteer; Bulletin de I' Ecole Francaise de Extreme Orient; Journal of Royal Asiatic Society of Great Britain; New India Antiquary; and Tamil Culture.

- **Visual Library and Slide Collection:** Non-book material has assumed greater importance in the total resources of a library in which slides form an important storage medium for art and museum libraries. A concerned effort is being made to establish a large photograph and slide library. Here also the focus is on developing a resources center where Documentation on India and Asian art is easily accessible. The Reference Library of the IGNCA has built up selected and valuable visual material, particularly with emphasis on slides of Indian Art, painting, Architecture, and Performing Arts etc. The library has acquired important slide collection from the Victoria & Albert Museum, Chester Betty Collection through the courtesy of INTACH. The American Association of South Asian Art has also gifted a complete set of 8000 slides.

With the prime aim of collecting the Indian Art were approached and material collected in reprographic form (slides) to build up the history of Indian art. The process, which started seventeen years ago, has yielded great results. At present our collection has not only grown in quantity but also in content and quality wise. With our present infrastructure of slide production, duplication and scanning and with the introduction of computerized information, the Centre is one of its kinds in the whole of

south East Asia. The slide unit of the Reference Library has been in existence since 1989 and over the years it has acquired and generated over 76,737 carefully selected slides from 17 centres in India and 15 centres abroad. The growth rate of the collection is approx. 3,000 slides per year. In addition to the slides there are 300 photo-negatives on Himachal Pradesh (Land and people). The slide Unit of the IGNCA has the largest collection of slides on Indian art viz painting, sculpture, architecture, illustrated manuscripts, performing arts in India and it the only library in India which is equipped with the proper infrastructure for archival storage, computerization of data, duplication and scanning of slides

6. Digital Library Initiatives

IGNCA has established the digital information system in a multi-user environment using Linux operating system. Access to information, search and retrieval from client node is made easy with Graphic User interface (GUI) through web based browser. Digital Library in IGNCA is hosted Intranet along with Web OPAC.

6.1 Infrastructure Requirement for Creating And Managing E-Collection

Basic requirement for the e-collection and digital library is well established and planned network environment in an organization. In IGNCA Library almost all the terminals are having the connectivity with 100 Mbps local area network with high –speed multiprocessor servers and powerful workstations for high data transfers and powerful workstations for high transfer rate over intranet.

A) System Requirement

Hardware Requirements: IGNCA at present has Pentium IV processor with 80 GB memory on which E-Collection is hosted.

Software Requirement: The server is running on Linux operating system (Ubuntu 8.10). DSpace digital library software is installed on the server end can be accessed through intranet only. And for slide collection we are using commercial software Libsys 7 which can be accessed

B) Software Selection: A large number of open source software's is available on internet such as:

a) Greenstone: This software is for building and distributing digital library collection. New Zealand Digital Library Project at the University of Waikato has developed and distributed in cooperation with UNESCO and the Human Info NGO. It is open source and can handle multilingual documents, with search and browse facility under GNU General Public License.http:// www.greenstone.org

b) E-Prints: It is the largest and widely distributed, installed software developed by the University of Southhampton, with minimum technical expertise. By its integrated advanced search,

extended metadata and other features, the software can be customized to local requirement. (http://www.eprints.org)

c) CDSware (CDS Invenio): CDS Invenio formally known as CDSware developed and maintained by the CERN (The European Corporation for Nuclear Research); supports the electronic preprint servers, online library catalog and web repository of different format. http://cdsware.cern.ch

d) DSpace: It is the joint effort of MIT (Massachusetts Institute of Technology) and HP (Hewlett Packard)in order to mange the digital content of intellectual output in a organization. This software supports digital preservation, planning and managing institutional repository in a large organization. (http://www.dspace.org)

e) Fedora: (Flexible Extensible Digital Object Repository Architecture) maintained by the Dura-Space not for profit organization. Originally this software was developed by the Cornell University. It is the robust open source software which provides core repository services like expressing the digital objects asserting the relationships and linking behavior. (http://www.fedora-commons.org)

7. Scope of the Digital Collection at IGNCA

The library resources are of heterogeneous in nature apart from the format also. The IGNCA information system has played a major role in delivering the contents efficiently and effectively to the desktop of users through intranet and internet through out the India.

In order to well aware about the rare collection of eminent personality; the IGNCA decided that they should go for a Pilot project under which nearly 2800 Rare Books, received either on CDs or DVDs which are already digitized with best quality scanner and then converted into searchable PDF format; need to be upload in digital repository with can be which can be retrieved by the date, title, and keywords in full-text. Contrary to this; IGNCA further decided to link the slides collection nearly 1 lakhs which are on DVD to the commercial software Libsys 7.

7.1 IGNCA Digital Library

To build the digital repository in IGNCA DSpace is chosen for a number of reason a) available as an open source license, i.e. they are available for free and can be downloaded, customized as per the institutional requirement and can be upgraded, b) Comply with the latest version of OAI metadata harvesting protocols which helps in global participation across the various networks.

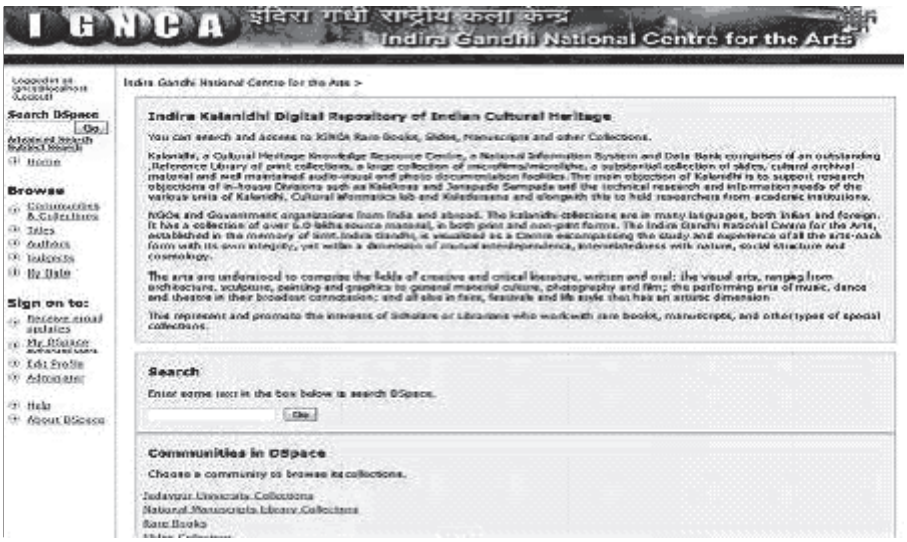


Figure 1: IGNCA Digital Library

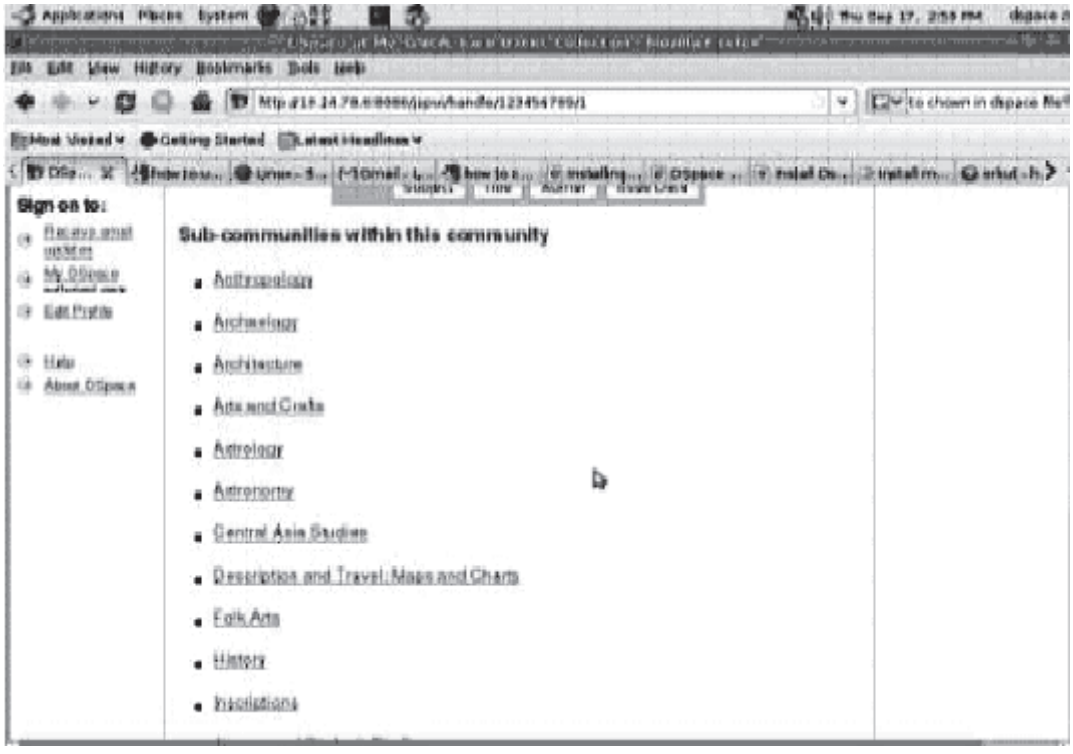
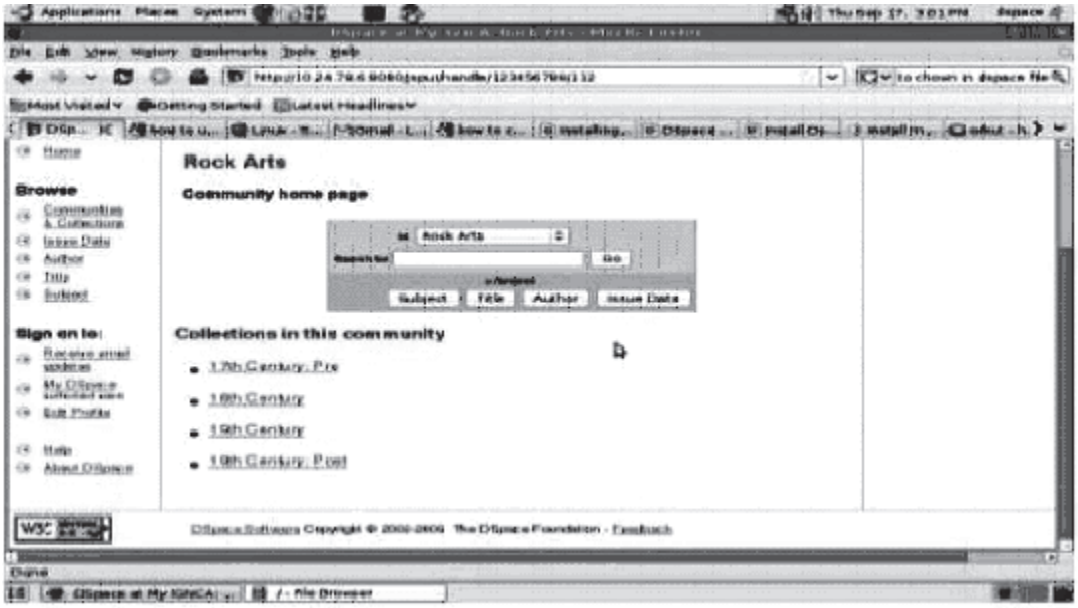


Figure 2: Sub Communities



7.2 Linking And Access Of Slides Collection To Libsys-7

The slides collection is in adobe photo format on DVD so after converting it into JPEG/JPG files are uploaded to server through the client machines by using the open source SSH Client. Then the file title or URL is linked in Libsys under the module CatalogingàMaintenanceàMultimedia. The same file can be retrieved via Web OPAC of the Libsys. This can be shown in the subsequent figure.

8. Conclustions

Digital collections are beneficial to all researchers, scholarly institutions, and the entire research community. Major benefits include: cost saving, avoiding duplication of effort, broadening of the communication process, reduction in time in announcing findings, expansion of audience, and above all preserving information assets for the use of future generations.-

IGNCA is in the process of digitization of all its non-print material and some print material. We have already digitized about half of our non-print material i.e. one lacs slides and nine thousand microfilms, audio-video and IGNCA publications. D-space, Open Source Digital Library Software has been installed. Digital software has also been developed by CIL, IGNCA. A digital library of manuscripts in collaboration with National Mission for Manuscripts is another important plan of IGNCA. Through installation of CD mirror server all digitized material will be made available over Intranet. Online catalogue of about 8 lacs cultural resources in MARC 21 is under finalization. Various metadata formats for collection such as photographs, manuscripts, slides and audio-video material are some of the plans

under implementation. Once all the collections of cultural resources at IGNCA is digitized. I am sure the world is going to see one of the biggest digital libraries in the field of Indian art and culture, where the relationship between the different art forms will be represented in hyperlinks. More than that masks collected from various parts of the country and other tangible and intangible heritage material have thrown new challenges for digital library experts to preserve them in 3D digital images. IGNCA is preserving its digital treasure in CD/DVDs, internal & external hard disc and in microform at its headquarter at New Delhi and its Southern Regional Centre at Bangalore.

References

1. Chen, E. 1997. Digitized primary source documents from the Library of Congress in history and social studies curriculum. Library Trends, 45(4), 664-675p.

2. Digital Library. http://bengross.com/dl/ ((accessed April3,2010).).

3. Digital Preservation and Permanent Access to Scientific Information: The State of the Practice. http://cendi.dtic.mil/publications/04-3dig_preserv.html (accessed April14,2010).

4. Duncker, E., et al.. 2000. Cultural usability in digital libraries. Bulletin of the American Society for Information Science, 21-22. http://www.asis.org/Bulletin/May-00/duncker__et_al.html (accessed April15,2010).

5. Digital Library Research. Accessed on 26/10/2009. http://www.dlib.org/projects.html ((accessed April12,2010).

6. Feeney, M. 1999. "Towards a National Strategy for Archiving Digital Materials", Alexandria, Vol. 11 No.2, pp. 107-122.

7. Hirtle, P. (2000), Archival Authenticity in a Digital Age, Authenticity in a Digital Environment, CLIR, Washington, DC, May 2000, :http://www.clir.org/pubs/reports /pub92/ hirtle.html.(accessed April25,2010).

8. Hockx-Yu, H. 2006. "Digital Preservation in the Context of Institutional Repositories" http:// eprints.rclis.org/archive/00007351/01/DPinIRs_Final.pdf. (accessed April4,2010).

9. Jain, P. K. and Babbar Parven.2006.' Digital libraries initiatives in India'. The International information & library Reviews. 38. 161-169p.

10. Jebaraj, F. 2003. "The Electronic Library: An Indian Scenario". Library Philosophy and Practice. V5.N2. www.webpages.uidaho.edu/~mbolin/jebaraj.pdf (accessed April24 ,2010).

11. Magnussen, Amanda. 2003. Creating digital libraries: a model for digital library development Proceedings of the 10th Asia Pacific Special Health and Law Librarians Conference , Adelaide 24–27 Aug 2003, Asia Pacific Special Health and Law Librarians.

12. Marchionini, G. 2001. Research and development in digital libraries. http://www. glue.umd.edu/ ~march/digital_library_R_and_D.html (accessed April4,2010).

13. Muir, A. (2004), "Digital Preservation: Awareness, Responsibility and Rights" Journal of Information Science, Vol.30 No.1, pp. 73-92.

14. Ramdasi, N. Visualizing Indian Heritage Digital Library Model. Center for Development of Advanced Computing. www.cdacindia.com/html/pdf/ramdasi.pdf (accessed April24,2010).

15. Tansley, Robert et al. 2003.`The DSpace Institutional Digital Repository System: Current Functionality'. Proceedings of the 3rd ACM/IEEE-CS joint conference on Digital libraries. Houston, Texas.87 – 97p.

16. The Digital Library of the future by Barbara Quint.http://www.infotoday.com/it/ jul02/quint.htm (accessed April4,2010).

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