Digital Libraries Initiatives in India

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ABSTRACT

Information and communication technologies (ICT) have spread over all the fields like the sun rays, which reach all corners of the world. Digital Libraries provide the way to collect and share the information on user's finger tip. This study covers the digital libraries concept and importance and challenge in current age of information sharing. On line resources and print both types of resources were used in the study. The Home pages of the respective institutional websites, online resources and journals are used in the study. This study also reveals the digital library initiative in India. India's top most institutes like IITs, IISERs etc. are cover in this study.

Keywords : Digital Library, NDL, Vidyanidhi

INTRODUCTION

The emergence of digital libraries is a very dominant trend being experienced hundreds of digital libraries are now available and many of them are providing free access. The community at large has started depending on libraries and also demanding libraries to provide better services. The demands of the users require the librarians to enhance their skills and to acquire knowledge about conversion of print version to digital from and make them available to the users. Thus the beginning of 21st century witnessed the creation of electronic resources and digital libraries. Digital libraries, (dl) the contribution of web technology has allowed users to access digital information resources from anywhere in the world. Digital libraries have to be planned, implemented and supported by the library professionals. People who manage digital library must have greater skills regarding computer, telecommunications, negotiations, subject expertise, project management, and a number of capabilities i.e. Capability to work with the different type of users, capability to work under high pressure, capability to learn upcoming techniques and to keep pace in the modern information age provides links to resources of other digital libraries very easily; thus a seamlessly integrated resource sharing can be achieved. Digital library (DL) is a trinity of three elements; i.e. Data, metadata, and processes. Data are library materials, metadata information about the library materials and processes are active functions preformed over library elements. Essentially a digital library deals with organization and access of a large information repository.

REVIEW OF THE LITERATURE

Various studies and surveys conducted, shows that the problems faced by the libraries and information centers in creating digital libraries and providing digital services and also the benefits reaped by digital technologies.

Philipp Mayr…etal had discussed in their study bibliometric, information retrieval (IR), text mining, and natural language processing techniques can assist to address this challenge, but have yet to be widely used in digital libraries (DL).

Sood had discusses digital library (dl) are now emerging as a crucial component of global information infrastructure, adopting the latest information and communication technology. Digital libraries are networked collections of digital texts, documents, images, sound, data, software and many more that are core of today's internet and tomorrow's universally accessible digital repositories of all human knowledge.

Sharma and Singh, Mentioned the experience gained from establishing a process and a supporting architecture for the digitalized library of India, project. The digital library project was started with a vision of digitizing books, map, educational video and making them available online, in a searchable and browse able from the digitization of the books place at geographically distributed locations. This raises many issues related to policy and collaboration.

Goria, Paliwal and Singh, Highlights the practical steps for development of digital library school model through dspace under windows environment. Proposed model is a soft attempt towards building for secondary level and higher secondary level schools with taking care of copyright law.

Manjunath Stresses the purpose, problems and manpower for using digital libraries. Intellectual property right, issues in copyright protection of databases, issue of downloading. Further emphasizes tomorrow's digital libraries and its expected development for the future and also explain how the librarian should be in the age of digital libraries.

Brown, Discusses the importance of preserving digital knowledge over a period of time, the challenges, priorities and the various and principles and strategies for long term preservation. It draws on a risk management framework, using the analogy of who guards the guards to explore the implications of dangers, the roles of those who safeguard digital content and various strategies-technologies, resourcing, and organizational-for mitigating risk over a period of time.

Khan and Makhdumi, addresses activities that libraries and academic institutions can influence publishers to adjust their present copyright policies with regard to the reuse of published articles. The expectation is that there will be many digital libraries, most of which will have specialized collections and will be internet worked together in a way loosely resembling today's internet. Most digital library project planners are aware there are intellectual property issues that must be resolved in order to successfully deploy their libraries. Some proposals for digital library projects express intent to resolve intellectual property issues as part of the overall plan for the library.

Sinha, K And Bhattacharjee, Gives an overview of the latest developments, which have been taken place in the areas of digital library and an attempt is also made to give a brief account of Indian initiatives for establishing digital libraries and also effort taken by university/institutional libraries to transform themselves from the traditional libraries to computerized and ultimately digital or hybrid libraries. In addition to some initiatives taken by north eastern states for the digitization of manuscripts and rare materials, preservation of digital content etc have also been described in brief.

OBJECTIVE OF PRESENT STUDY

The present study based on the followings objectives

- To examine the digital library initiatives made by government of India and Indian institutions.
- To know the technical requirement to develop digital libraries.
- To identify the challenges faced by Indian institutions/ organizations during creating the digital libraries.
- To know the top most institutions of India who are using digital Library
- Finally highlights the suitable recommendation to develop digital library.

Scope and limitations of the study

The study covers only digital library initiatives in India. Need of digital library, hardware and software requirement and challenges with digital library are the main areas which cover in this study.

About digital library

Digital library is system providing a community of users with coherent access to a large, organized repository of information and knowledge. The digital library is not just one entity, but multiple sources seamlessly integrated. The digital libraries endow with a structural and planned entrance to information stuffing in a dispersed environment and assist users in searching evaluating and utilizing resources irrespective of their format. Improved information retrieval and enhanced document delivery capabilities are widely acclaimed strength of digital library in a networked environment through internet and internet in library and information center.
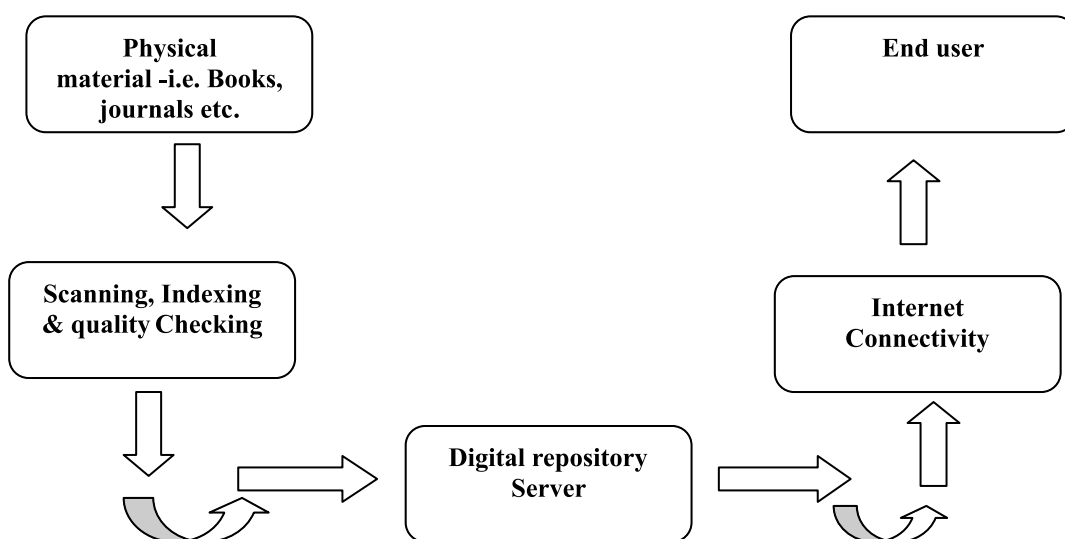
Diagrammatic representation: How digital Library work

Tools of Digital Library

There are various tools through which digital library can be operationalised in a network environment. These tools are e-mails, mailing lists, newsgroups, bulletin board, web form polling instant messaging, chat, conferencing, internet telephony, video conferencing and virtual worlds.

For establishing digital library various hardware, software and digital resources are needs to be integrated for the development and development of digital to access huge collection of digital information in network environment. The basic components for establishing digital library system are as follows:

Hardware requirement

•   Digital Computer powered by Pentium 4 or more with high capacity hard disk for server and clients

•   LAN, web servers and FTP server Etc.

•   Desktop Workstations-PCs:

•   Capture devices such as scanners, cameras cades etc.

•   Cartridge tape or disk for backup.

- High Power UPS (10or 20KV).

- Printers (Laser and latest Model)

- Secondary storage or output devices comprising of CD-ROM / DVDs,

- Scanners and optical character recognizer (OCPR), Data Compression Device;

- High speed local area network (LAN, WAN), (Internet Connectivity Ether Through Dial Up Connectivity Or V-SAT, Or Through Lease Line Or Radio Modem Etc.

Software requirement

- Software: Comprises Of Operating Software.

- Optical Character Recognition (OCR) Software.

- Scanning Software.

- Adobe Acrobat Reader.

- CD-Read/Writer Software.

- Digital Library Software I.E. Dspace, Greenstone, Fedora. Eprints Etc.

- Windows – NT networking Software, SQL Server Software, Database Management Software.

- Web Designing Software Like Java, Front Page, XML Etc.

- RDMBS (relational database) supporting the variety of digital databases like ORACLE,

- SQL, My SQL etc.

- Full text search engines to index and provide access to digital resources.

Digital Resources

Digital refers to any resources, which is in digitized form i.e. which can be read and scanned with the means of electronic media, like conventional forms digitized resources do not require separate space in library, as this can be stored in a computer locally and remotely. Digital resources include a wide range of material such as:

- Collection in which complete content of documents are created or converted into machine – readable form for online access.

- Scanned images of photographic or printed text etc.

- Scientific data such as protein sequences.

- Online database and CD-ROM information products particularly those with multimedia and interactive video components.

- Computer storage such as optical disk juke boxes, CD ROM/DVD.

- Databases accessible through internet and other networks.

- Digital audio, video clips or full length movies.

Digital Library Software's

Several digital library software's are currently available like, Greenstone digital library (GSDL) Dspace, E-prints, Fedora, etc. Which are available freely for download on the internet? There are some commercial

digital library software's available but none has been on large scale in comparison to the ones mentioned above. We will provide here a brief account of digital library software's available in public domain. The description is an outline of the features of the respective software's.

DSpace: Dspace has been developed in partnership between Hewlett Packard (hp) and Massachusetts institute of technology (MIT) development is still in progress but as institutional repository software. Dspace is making its mark, with an increasing number of institutions around the globe installing evaluating, and using the package. The latest stable version is 1.2 available for download at the dspace web site. Currently, the original developers undertake most of the core development, but a growing technical user base is generating suggestions for future releases as well as looking for producing some add-on modules. In addition the dspace federation is guiding the transition of this software to more community – wide open –source development model. Dspace captures, stores, indexes, preserves, and redistributes the intellectual output of a university's research faculty into digital formats.

E-Prints: GNU E-Prints 2.x is a free software which creates online archives the default configuration creates a research paper archive with its origin in the scholarly communication movement, e-print default configuration is geared to research papers but it can be adapted to other purposes and content. it was developed in the intelligent agents, multimedia group at the electronics and computer science department of the university of Southampton. GNU   E-Prints is freely distributed to the GNU general public license. The Latest Version is 2.3.

Greenstone digital library software:

Greenstone digital library is open-source software available under the terms of the GNU general public license. It has the ability to serve digital to library collections and build new collections. It provides a new way of organizing information and publishing it on the internet or on CD-ROM. The Greenstone Digital Library Software is produced by the New Zealand Digital Library project at the University of Waikato, and distributed in cooperation with UNESCO and the humanities library project. The New Zealand Digital Library Web Site : numerous example collections all created with the greenstone software, which are publicly available for anyone to peruse the Greenstone runs on Windows and UNIX platforms. The distribution includes ready-to-use binaries for all versions of Windows and for Linux. It also includes complete source code for the system, which can be compiled using Microsoft C++. Greenstone works with associated software that is also freely available: The Apache Web Server and PERL.

Ganesha Digital Library Software

Ganesha Digital Library Version 3.1 (GDL) is another Open Source Software developed under Indonesian Digital Library Network (Indonesia DLN). Ganesha Digital Library enables institutions or individuals to share their knowledge and also access and utilize available knowledge in the Indonesian 'Giant Memory' through the network of Indonesia DLN   Digital Libraries. The software is available in three publisher Editions: Personal, Internet Café, and Institution released under the terms of the GNU GPL, (GNU General Public License).

Standard file formats for digital library

Standards provide us with the option of how we would like to have our materials displayed online and what formats are available for us to choose. the following tables represent available formats.

File Name	Format	Extended Name
Text Formats	Text.Txt	Plain Text
	RTF. rtf	Rich Text Format
	Word Document.doc	Microsoft Word Document
	Word perfect Document.wpd	Corel Word Perfect Document
	PDF	Portable Document Format
Markup Formats	HTML.htm and html	Hypertext Markup Language
	XML . xml	Extensible Markup Language
	SGML.sgm and sgml	Standard Generalized Markup Language
Image Formats	TGA	Targa File Format
	JPEG .jps and jpeg	Joint Photographic Experts Group
	GIF. Gif	Graphics Interchange Format
	TIFF .tif and tiff	Tagged Image File Format
Video Formats	AVI	Audio/video Interleaved
	MOV	Movie
	MPEG/MP3	Moving Picture Experts Group
Audio Formats	AVI	Audio Interchange File Format
	MOV	Musical Instrument digital Interface
	MPEG/MP3	Moving Picture Experts Group
Retrieval Formats	MARC	American Cataloguing Rules
	AACR-2	American Cataloguing Rules
	CCF	Common Communication Format

Challenges with Digital Libraries

There are umpteen numbers of problems the digital Library development teams face in India while they embark on the digital Library development as well as during the progress phase. Some of the prominent and predominant challenges associated with digital libraries are following.

- **Accuracy of Information**

Most of the digitizing projects employ optical Character recognition (OCR) Technology which is only 95 per cent accurate. About 5 per cent errors remain. Further copying without distorting or losing information is rather difficult. It is everybody's knowledge to encounter compatibility problems with respect to the format of the file downloaded or converted form source software files into target software files.

- **Inadequate Infrastructure**

It is observed that the ICT infrastructure with all these highly essential facilities 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.

- **Rigidity in the Publishers 'Policies**

Most of the publishers put their materials in their own proprietary e-books reader formats, from which the text extraction becomes almost impossible. A vast majority of the scholarly content rests in journal literature and due to copyright issues it cannot easily (almost impossible) find its way into the local repositories of the digital library.

- **Dearth of Technical Skills**

The Human Resources available in the libraries need time –to-time professional enrichment inputs and rigorous training on the latest technologies which are playing around in the new information environment, The kinds of training programmers being imparted in India at the moment are not able to meet the demand in terms of quantity as well as quality.

- **Insufficient Management Support**

For the provision of world class information systems, resources and services the Libraries need the wholehearted support from the respective management. Institutional support in terms of proper funding human resources and IT skills enrichment are prerequisites for the development and maintenance of state-of art digital library systems and services.

Digital Libraries initiatives in India

The concept of digital libraries in India began in the mid 1990s with the spread of information technology, the internet, and the support of the Central Government. In 1996, this concept was recognized during the Conference on Digital Libraries organized by society of Information Science at Bangalore. Though a few libraries have made attempts earlier in this direction, the digital library initiative in India is still at budding stage.

Majority of the Digital initiatives were largely confined to limited uses such as subscribing to e-journals, scanning documents and installing them on the intranet. But there is every need for rapid change in this scenario of libraries in India to use the Information Technology (IY) and ICTs which are confined so far to the prestigious National institutes such as the Indian Institutes of Technology (IIT), Indian Institutes of Management (IIM), Indian Institutes of Science (IIT) Research Institutes under the control of NISSAT and some special Libraries. Some government agencies and institutions, mostly in the public sector are also engaged in digitization of libraries in a limited a way. However, it is evident from the initiative taken so far in this direction that the great potential of ICTs for developing digital libraries has not yet been fully utilized.

National Digital Library (NDL):

Ministry of Human Resource Development under its National Mission on Education through Information and Communication Technology has initiated the National Digital Library (NDL) pilot project to develop a framework of virtual repository of learning resources with a single-window search facility. Filtered and federated searching is employed to facilitate focused searching so that learners can find out the right resource with least effort and in minimum time. NDL is designed to hold content of any language and provides interface support for leading vernacular languages (currently Hindi and Bengali). It is being arranged to provide support for all academic levels including researchers and life-long learners, all disciplines, all popular form of access devices and differently-abled learners. It is being developed to help students to prepare for entrance and competitive examination, to enable people to learn and prepare from best practices from all over the world and to facilitate researchers to perform inter-linked exploration from multiple sources. The pilot project is devising a framework suitable for future scale up with respect to content volume and diversity to become a full-blown National Digital Library of India over time. It is being developed at IIT Kharagpur.

The NDL system is accessible to all users for general browsing. However, one needs to register with a user id and password and login using those for accessing some classified materials. The NDL project is all about knowledge dissemination and there is no fee attached for accessing the digital library. No special hardware or accessories are required to access NDL. NDL can be accessed from devices like PC, Laptop, Mobile devices supporting any web browser. There is no restriction on the accessibility of the NDL system. It can be accessed

by an individual or institute member equally well. However access to full text content in many cases (e.g. Springer publisher content) may require institutional membership.

Access to the NDL system is free of charge. However, this will lead the user to the materials which may reside on other institutions' servers. Accessing these will be determined by the policy of those institutions and their access rules.
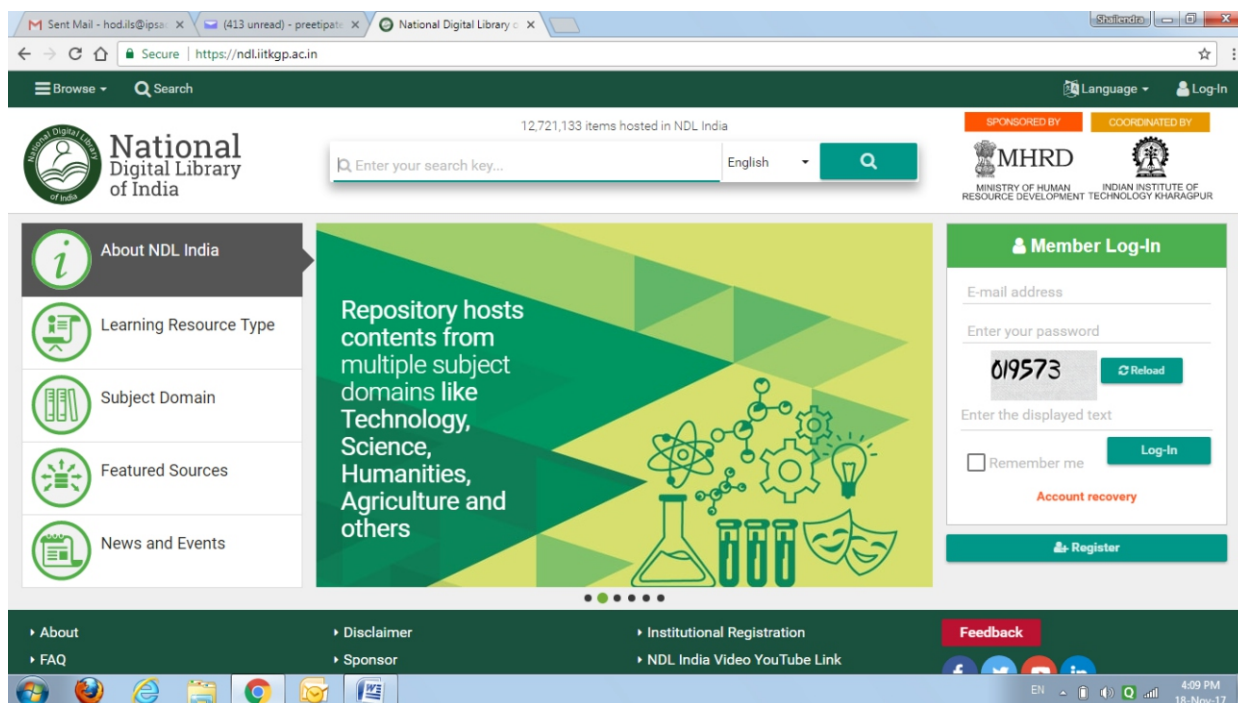
Source: https://ndl.iitkgp.ac.in/ accessed on 18.11.17

Vidyanidhi

Vidyanidhi began as a pilot in the year 2000 with support from the NISSAT (National Information System for Science and Technology) and the government of India's DSRIR (Department of Scientific and Industrial Research).Vidyanidhi demonstrated the feasibility of e-theses programmers in India. With support from the ford foundation and also from Microsoft India, Vidyanidhi is evolving as a national initiative.

The following are mission of Vidyanidhi project.

•   Develop a repository for Indian doctoral thesis.

•   Digitize. Archive and improve access to doctoral theses in India.

•   Make theses available online (As per eth Restrictions desired by the doctoral students) and help enhance the visibility of Indian doctoral research.

•   Offer tools and resources the visibility of Indian doctoral research.

•   Enhance eth quality of doctoral research in India by developing and using standard formats and templates.

•   Mould best practices, in scholarship and scholarly writing among students.

•   Prepare e doctoral students in publishing, e- scholarship and digital library online tutorials.

Source: http://eprints.uni-mysore.ac.in/4778/ Accessed on 12.11.17

Traditional Knowledge Digital Library (TKDL)

TKDL (Traditional Knowledge digital library) is a collaborative project between the NISCAIR (National institute of science communication and information resources), the CSIR (Council of Scientific and Industrial Research) of the Ministry of Science and Technology and the AYUSH (Department of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy) of the ministry of health and family welfare, which is beng implemented at the NISCAIR, New Delhi. An inter- disciplinary team of traditional medicine patent patent examiners, IT experts, Scientists and technical officers are involved in creation of TKDL for Indian systems of medicine. The project TKDL involves documentation of the knowledge available in public domain on traditional knowledge from the existing literature related to Ayurvda, Unani and Siddha, in digitized format in five international languages which are English, German French, Japanese and Spanish. TKRC (Traditional Knowledge Resource Classification), an innovative structured classification system for the Purpose of systematic arrangement, dissemination and retrieval has been evolved for about 10,500 subgroups against one group in IPC (International patent classification), for example, AK61K35/78 related to medicinal plants . At present TKDL contains 11.0 million page of information in five international languages.
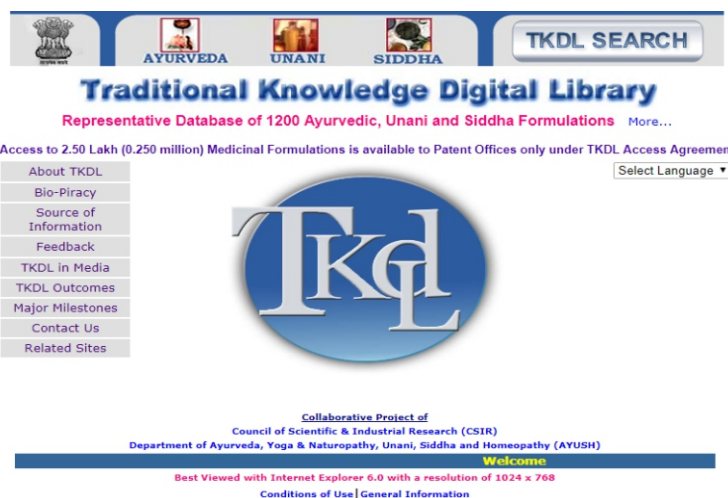
Source: http://www.tkdl.res.in/tkdl/langdefault/common/Home.asp?GL=Eng accessed on 18.11.17

UGC-INFONET Digital Library Consortium

The UGC-INFONET Digital Library Consortium was formally launched in December, 2003 under the UGC-INFONET program. The Consortium provides current as well as archival access to more than 7500+ core and peer-reviewed journals and 10 bibliographic databases from 26 publishers and aggregators in different disciplines. The program has been implemented in phased manner. In the first phase that began in 2004, access to e-resources was provided to 50 universities who had Internet connectivity under the UGC-INFONET Connectivity program of the UGC. In the second phase, 50 more universities were added to the program in the year 2005. So far 209 Universities including 14 National Law schools and central universities that come under the purview of UGC, have been provided differential access to subscribed e-resources. These e-resources covers almost all subject disciplines including arts, humanities, social sciences, physical sciences, chemical Sciences, life sciences, computer sciences, mathematics and statistics, etc. The program is wholly funded by the UGC and executed by the INFLIBNET (Information and Library Network) Centre, Gandhinagar.

Source: https://www.inflibnet.ac.in/econ/ accessed on 17.11.17

Parliament Library

A Digital Library has been set up in the computer centre to cater to the needs of members of parliament, and officers and staff of lok sabha secretariat. A large numbers of index- based databases of information generated within the parliament which of cater to the instant reference needs of members, offices and research and reference personnel were initially developed by the computer centre. Parliamentary questions from 1985 to 2000, Parliamentary proceedings from1985 to 1993, Government and private members bills from 1985 onwards, Directions, decisions and observations from the chair, from 1952 onwards. President's rule in the states and union territories from 1951 onward and many more records are available in the library.
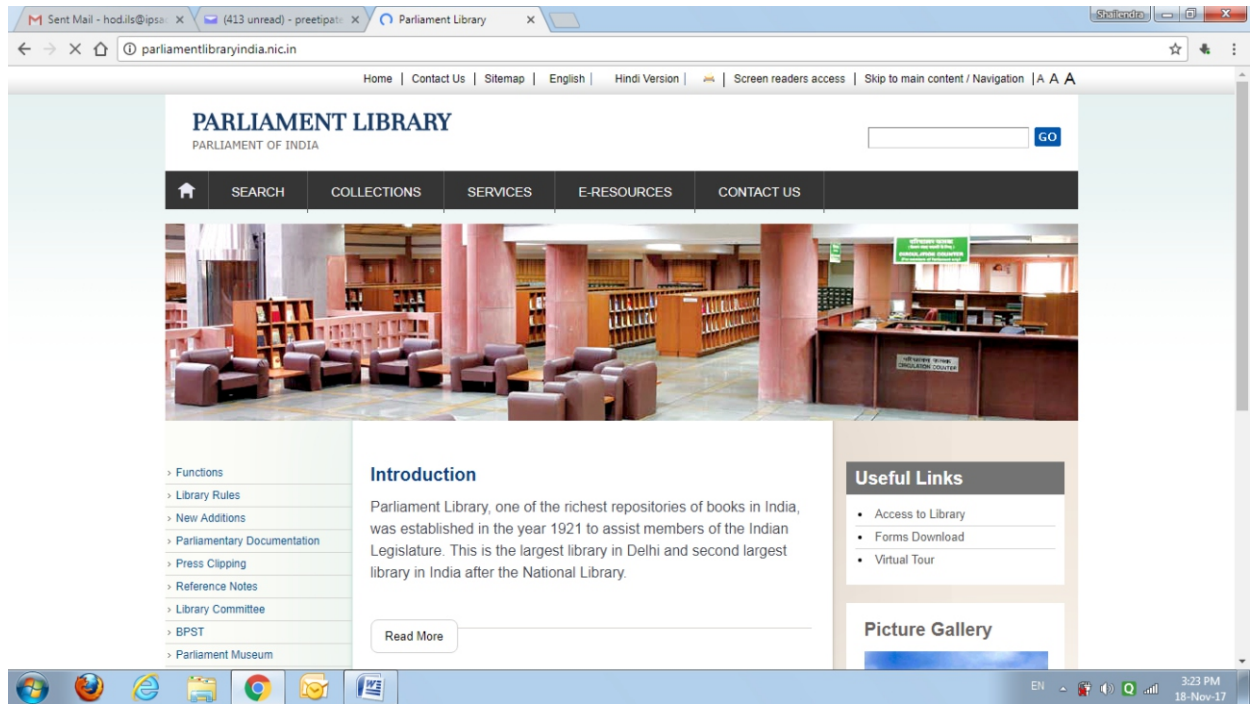
Source: http://parliamentlibraryindia.nic.in/ accessed on 18.1.17

IIT, Delhi

The commitment to digital library initiatives and the emphasis upon web – based digitized collections at the central Library, IIT Delhi commenced in 1998 with the installation of a fiber optics based campus LAN connected to a 2 Mbps VSNL radio link enabling faster internet access for the academic community of the Institute. The availability of the – speed internet connection has led to the launching of a number of sponsored and unsponsored projects for developing network based digitized collections at the central Library, IIT, Delhi.

Sources: http://library.iitd.ac.in/ accessed on 15.11.17

Indian Institute of Science; Bangalore

A project proposal for NSF support under the Indi –US Science and Technology collaboration initiative has been made by IISc. The Bangalore would act as a nodal agency to coordinate amongst various academic institutions and governmental agencies from the Indian side. The Carnegies Mellon University would play the same role the US side. The aim of the project is to digital around a million books in the next three years. This joint initiative is planned to synergistically capitalize on the availability of the state – of- the – art of hardware and software in the US for digitizing, Storing and accessing of information and the quality personnel available in India.
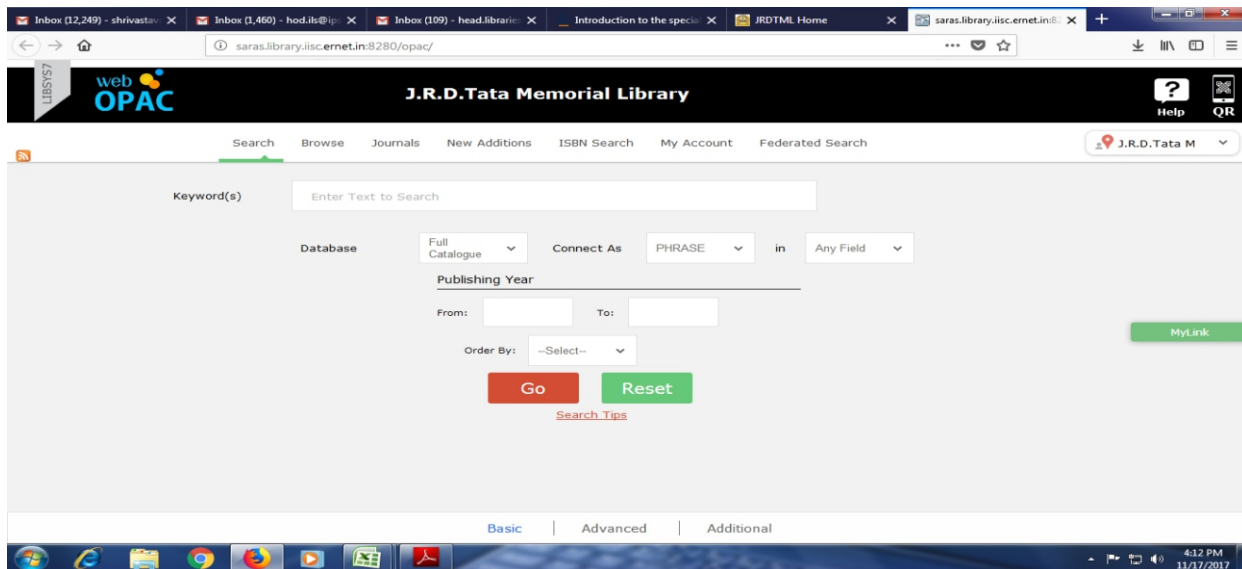
Source: http://www.library.iisc.ernet.in/ accessed on 17.11.17

National Institute of Technology, Calicut Nalanda

The digital Library initiated in 1999 at national of Technology, Calicut, is one of the largest digital libraries in the country, Nalanda serves members of the campus in meeting their academic and research needs by providing timely and up- to= date information with value added services in all the areas of science, engineering and technology, Apart from the digital libraries reading room, members can access the nalanda from the entire campus.
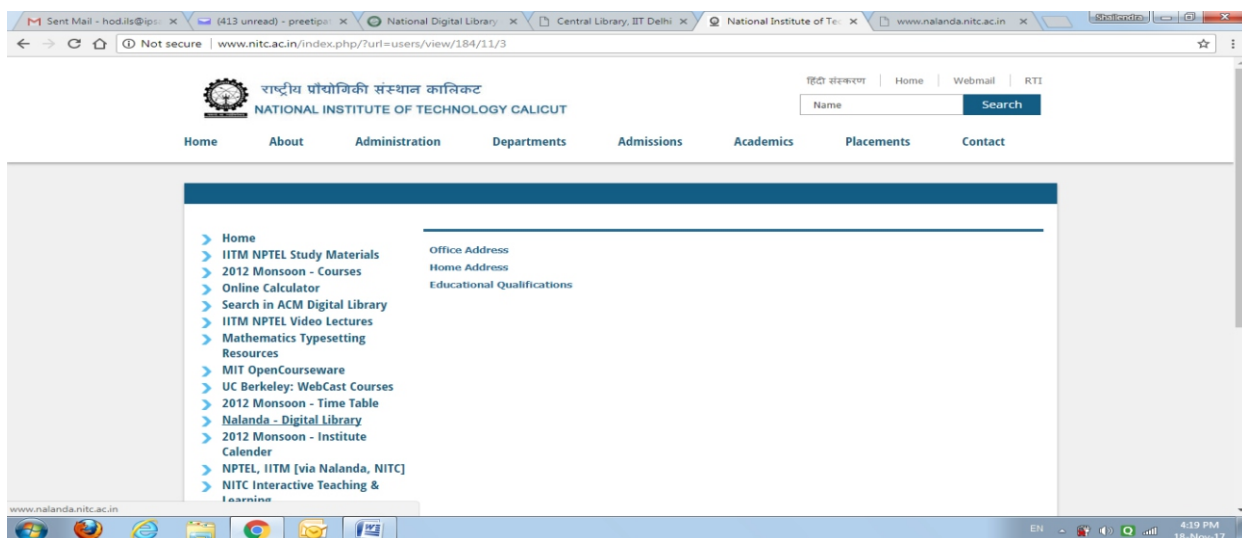
Source: http://www.nitc.ac.in/index.php/?url=users/view/184/11/3 accessed on 14.11.17

CSIR Consortium and NISCAIR

NISCAIR is the nodal organization for developing a consortium for the CSIR laboratories for accessing e-journals. NISCAIR (National Institute of Science Communication and Information Resources) is slowly shifting to electronic libraries that will eventually lead to the establishment of digital libraries with decreasing shelf space and ever growing collections in the libraries. NISCAIR has been advocating the conversion of automated libraries into electronic libraries.

NISCAIR has access to international databases. Information is obtained through online searching from over 1500 international databases. NISCAIR is the nodal agency for developing a consortium for CSIR laborites for accessing e- journals. The activity shall range from creation to monitoring of the access facility of scientific periodicals published by leading international institutions. CSIR Scientist shall be able to access these journals and download material for their use. Such access to worldwide journal resources plays a very vital role and strengthening research and development in CSIR laboratories, thus leading to knowledge generation useful for social-economic development of the country.

Source: http://www.niscair.res.in/ accessed on 17.11.17

National Tuberculosis Institute, Bangalore

On 28 October 203, the national tuberculosis institute, Bangalore under the initiative and with the support of the health inter network project, India – TB, Launched a digital library. This digital library is comprised of CDs on Tb (Tuberculosis), available as ready references tools for programmed workers at the district and primary health centre levels. The CDs on TB have relevant RNTCP (Revised National tuberculosis control programmed) documents and scientific literature on programmed, treatment, drug resistance and control aspects of TB.
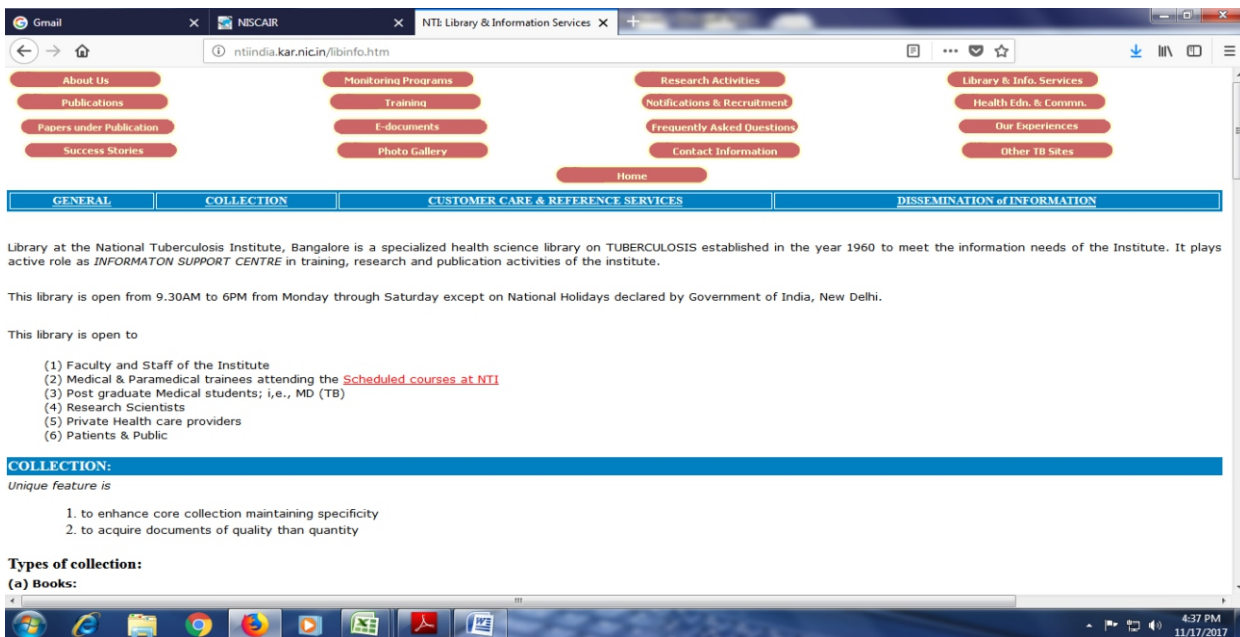
Source: http://ntiindia.kar.nic.in/libinfo.htm accessed on 17.11.17

India Gandhi National Centre for the Arts (IGNCA) – Kalasampada

IGNCA has taken up the kalsasampada digital Library –Resource for Indian Cultural Heritage (DL-RICH) project which is sponsored by MCIT. This project aims to use multimedia computer technology to develop a software package that integrates a variety of cultural information and helps the users to interact and explore the subjects available image, audio, text, graphics, animation and video on a computer in a non –linear mode, by a click of mouse. Kalasampada, a unique project of its kind, will facilitate the students, scholars, artists and the research and scientific community to access and view and materials. These materials include several hundred thousand manuscripts, over a hundred thousand slides, thousands of rare books, photographs, audio and video along with highly researched publications of GNCA, all accessible from a single window.

The system aims to be digital repository of content and information which a user friendly interface. The knowledge base created will help the scholars to explore and visualize th information stored in multiple layers. This will provide a new dimension in the study of the Indian art and culture, in an integrated way, while giving due importance to each medium.

Source: http://www.ignca.nic.in/dlrich.html accessed on18.11.2017

FINDINGS

- The Digital Library provides an excellent platform to present and use the resources available in the library.

- An excellent technical support and customizable architecture are the basic necessity to create online digital libraries.

- Using digital library institutions/organizations can disseminate their research work, manuscripts, or any other digital media for preservations and world over dissemination of digital items.

- The study can be used as a reference guide for creating and showcasing digital collection of the institution using digital library.

- Digital Library free from the time limit. Users can be search and accesses information as per their convenience

- India's top most academic institutes and some cultural organization are using digital library for sharing and disseminating information.

CONCLUSION

The concept of library is changing raping due to impact of ICT. Now libraries not only have printed collection but also digital resources. The emerging technologies have compelled a library to digitize information. Therefore traditional libraries today need to be redefined or re-engineered as they may be named as knowledge management centers, cyberary, e- library, virtual or digital library. Nonetheless technology plays major role in changing the shape of libraries. Thus each effort contributing in the process of digitization of library is highly appreciable.

SUGGESTIONS OF THE STUDY

1. Information available on digital library should be continuous up date regularly

2. Copy right issues should be clearly mentioned on digital Library portal

3. Security of information available of digital library should be on high priority

4. Information which is available on digital library should be authentic and properly collect from the sources

5. Govt. should encourage and provide financial and technical support to develop the digital library on central and state universities.

6. Govt. and public sector both should come together to develop digital libraries at district level. So the quality of research work will be increased and students enhance their research productivity.

REFERENCES

1. Philipp Mayr,Ingo Frommholz,, Guillaume Cabanac, Muthu Kumar Chandrasekaran, Kokil Jaidka, Min-Yen Kan,Dietmar Wolfram(2017).Introduction to the special issue on bibliometric-enhanced information retrieval and natural language processing for digital libraries (BIRNDL) . "International Journal on Digital Libraries" available on https://link.springer.com/content/pdf/10.1007%2Fs00799-017-0230-x.pdf : Accessed on17.11.17

2. Sood, S.K. (2010). Digital Libraries: The Process, Initiatives And Development Issues In India. ETTLIS.KDB Publication New Delhi.

3.   Sharma, P.K. and Singh,Renu. (2010). The Digital Izaelibrary Of India :A Project. 55th ILA National Conference ,Jai.21-24 BIMTECH Greater Noida.

4.   Goria, S. Paliwal, S. And Singhal, M. (2010). Building Library For Schools (DLS) Using Dspace: A Model For India. ETTLIS KDB Publication New Delhi.

5.   Manunath, B. Digital Libraries: An Overview. 55th National Conference, Jan.21-24 BIMTECH Greater Noida(2014).

6.   Brown, H. 2009 Who Guards: Meeting The Challenges Of Digital Preservation . World Digital Library.

7.   Khan, M.H. And Makhdumi, G.(2008). Copyright Fails In Libraries In Digital 6th International CALIBER, Feb 28-29 To March 1, University Of Allahabad.

8.   Sinha, M.K.K.M. And Bhattacharjee, J. (2006). Digital Library Initiatives In India For Open Access: An Overview. 4th International CALIBER, Feb 28-29 To March 1, University Of Allahabad .

9.   Bertin, M., Atanassova, I.: The context of multiple in-text references and their signification. Int. J. Digit. Libr. (2017). https://doi.org/10.1007/s00799-017-0225-7 Google Scholar

10.   Cabanac, G., Chandrasekaran, M.K., Frommholz, I., Jaidka, K., Kan, M.Y., Mayr, P., Wolfram, D.: Joint workshop on bibliometric-enhanced information retrieval and natural language processing for digital libraries (BIRNDL 2016). In: JCDL'16: Proceedings of the 16th ACM/IEEE-CS on Joint Conference on Digital Libraries, ACM New York, NY, USA, pp. 299–300. https://doi.org/10.1145/2910896.2926734 (2016)

11.   Byankatesh, N.S. (2001) Digital Library. Paper Of The National Convention On Library And Information Networking (NACLIN). Hyderabad, University. 6-9 November,

12.   Levy, D.A. (2000). Digital Libraries And The Problem Of Purpose. Bulletin Of The American Society For Information Science.

13.   Grosvenor, M (1997). Reengineering Library services for the Digital Age, APLIS, Dec. 97, Vol.10 (4). pp. 224-235.

14.   http://ndl.iitkgp.ac.in/ Accessed on 10.11.17

15.   http://www.niscair.res.in/ Accessed on 06.04.17

16.   http://eprints.uni-mysore.ac.in/4778/ Accessed on 04.3.17

17.   www.dspace.org Accessed on 11.4.17

18.   http://SoftwareEprinst.Org Accessed on 12.05.17

19.   : http://www.ignca.nic.in/dlrich.html

20.   http://ntiindia.kar.nic.in/libinfo.htm Accessed on 17.11.17

21   http://www.nitc.ac.in/index.php/?url=users/view/184/11/3 Accessed on 14.11.17

22.   http://www.library.iisc.ernet.in/ Accessed on 17.11.17

23.   http://parliamentlibraryindia.nic.in/ Accessed on 18.1.17

24.   https://www.inflibnet.ac.in/econ/ Accessed on 17.11.17

25.   http://www.tkdl.res.in/tkdl/langdefault/common/Home.asp?GL=Eng Accessed on 18.11.17