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Digital library initiatives: An overview of national and international scenario

Gautam A. Wani^{1,*}¹Netaji Subhashchandra Science College, Mulchera, Maharashtra, India

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ABSTRACT

The emergence of digital technology and computer networking have provided means where by Information can be stored, retrieved, disseminated, and duplicated in a very fast manner. Digital libraries have made considerable advances, both in technology and its applications. The digital library initiatives at international level are many, but in developing countries like India they are still in a nascent stage. But with initiative like Google Books Projects, Million Book Project, initiated by Carnegie Mellon University, the culture of digital library has also made a beginning in India. This paper discusses the various national and international digital library initiatives projects like Million Book Project, Google Books Projects, NDL, NDLTD, WDL, ICDDL, Kalasampada, Shodhganga, KhudaBaksh Oriental Public Library, Vidyavidhi etc.

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1. Introduction

Digital libraries have become the inevitable part of the contemporary information society for storage and access of huge amount of information. Easy access to this vast treasure of knowledge is possible through bit stream or digital content. The DLs inherent advantages like high volume of storage of multiform information, effective search and retrieval, accessible through multiple points at any time, instantaneous downloading, faster addition of information etc. made the Government to initiate digital library projects. Ian Witten et al identified four major roles of digital libraries.

1. Support human development: With increase of information resources on CD/DVD made available in rural / remote areas of developing countries; their cost and maintenance is much lesser than the paper books digital libraries support human development. Ex. UN documents on agriculture, environment, Medicine,

Health etc. reaching to rural areas in Uganda

2. Pushing on the frontiers of Science: Through archival digital libraries that are developed with the contributions of scientists the visibility of scientific research is manifold that lead to increase in research output. Ex. Physics Archival Digital library
3. Preserving traditional culture: Digital libraries preserve indigenous culture of the tradition, language, anthology and traditional music etc. in audio and video formats. These initiatives made endangered documents digitally available.
4. Exploring popular music: DLs archive different music of the various generations.

The digital libraries created with scientific information like e-journals, databases and mission specific information sources play a significant role in information storage and retrieval. Similarly, building digital collections of significant print materials in art and culture has a vital role in preserving the legacy. The digital libraries with content of media and entertainment have already intruded into human life. Therefore owing to its importance, organizations developed

* Corresponding author.

E-mail address: gwani396@gmail.com (G. A. Wani).

at global level to facilitate digital libraries and to maintain standards.

1.1. What is digital library?

A digital library, also called an online library, an internet library, a digital repository, or a digital collection is an online database of digital objects that can include text, still images, audio, video, digital documents, or other digital media formats or a library accessible through the internet. Objects can consist of digitized content like print or photographs, as well as originally produced digital content like word processor files or social media posts.¹ In addition to storing content, digital libraries provide means for organizing, searching, and retrieving the content contained in the collection. (https://en.wikipedia.org/wiki/Digital_library)

1.2. Definition of digital library

The American Digital Library Federation has defined the digital library as “Digital libraries are organizations that provide the resources, including the specialized staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collection of digital works so that they are readily and economically available for use by a defined community or set of communities.” (Waters, D.J)

The definition of a digital library can be given as a set of characteristics as follows:

The digital library is:

1. A collection of services
2. A collection of information objects
3. A supporting users with information objects
4. Organization and presentation of those objects
5. Available directly or indirectly
6. Electronic/digital availability

1.3. Objectives of the study

1. To understand various attempts made for digital libraries initiatives at global level.
2. Study the digital library initiatives undertaken by the Government and other organizations in India.

1.4. Digital library initiatives: International scenario

Some important digital library initiatives at international level are discussed in the following paragraphs

1.5. Digital library federation (DLF (<http://www.diglib.org/>))

The Digital Library Federation (DLF), a program of Council on Library and Information Resources (CLIR), is an international consortium of libraries and related agencies

that are pioneering the use of electronic-information technologies to extend collections and services. Since its formation in 1995, DLF has made a number of significant contributions. DLF’s mission is to enable new research and scholarship of its members, students, scholars, lifelong learners, and the general public by developing an international network of digital libraries.² DLF relies on collaboration, the expertise of its members, and a nimble, flexible, organizational structure to fulfill its mission.

1.6. Google books library project (<http://www.google.co.in/googlebooks/library/>)

The Google Books Library Project was launched in December 2004, when Google announced it would be working with the libraries of the University of Michigan, Harvard, Stanford, Oxford, and the New York Public Library to scan their books and make the full text searchable online. In August 2006, the University of California (UC) partnered with Google to participate in the project. Through the partnership, Google will scan books from the UC libraries and make the items searchable on the Google website.³ UC will also receive a digital copy of each book scanned. Google has expanded its program with a number of research libraries in the U.S. and the U.K. aimed at ultimately scanning all the books in their collections. The result of the multiple-year project would be an online digital library of 30 million volumes. The program will encompass books in and out of print, in copyright, and in the public domain—all available for full-text searching and, for the public domain items, full-image viewing. Initially, the program’s scope varies from participant to participant. The University of Michigan has committed to complete digitization of all 7 million volumes in its collection, excluding its rare books and other fragile material. Three of the participants—Harvard, NYPL, and Stanford—refer to initial efforts as pilot projects.⁴ The Stanford “pilot,” is expected to cover as many as 2 million books, in the first phase. Full digitization would extend to Stanford’s entire 8-millionbook collection. Harvard began a pilot project with 40,000 books randomly selected from the Harvard Depository collection.

1.7. Million book project (<http://www.ulib.org/>)

The Million Book Project (or the Universal Library), led by Carnegie Mellon University School of Computer Science and University Libraries, aimed to digitize a million books by 2007. The mission is to create a Universal Library which will foster creativity and free access to all human knowledge. It worked with government and research partners in India and China. The project has scanned books in many languages, using OCR to enable full text searching, and providing free-to-read access to the books on the web. As of 2007, they have completed the scanning of 1 million

books and have made accessible the entire database from <http://ulib.isri.cmu.edu/ULIBProgressReport.htm>

The million book project provides a wide array of content, but one of its collection strengths is agriculture. In partnership with the United Nations Food and Agriculture Organization, the United States National Agricultural Library, and university libraries with quality agriculture collections, the project is digitizing materials and developing plans for a knowledge network to improve rural community access to critical agricultural information. Significant research is underway in the project, including OCR for Indian and Arabic languages and scripts. The research also includes developments in machine translation, automatic summarization, image processing, large-scale database management, user interface design, and strategies for acquiring copyright permission at an affordable cost. Indian partners have developed a translating and transliterating user interface. Partners in Egypt are developing an interface that supports annotation and highlighting. Partners in China have made remarkable progress on content-based image retrieval and machine analysis of calligraphic scripts. Carnegie Mellon has taken strides in machine translation and automatic summarization.

1.8. Networked digital library of theses and dissertations (NDLTD) (<http://www.ndltd.org/>)

The Networked Digital Library of Theses and Dissertations (NDLTD) is an international organization dedicated to promoting the adoption, creation, use, dissemination, and preservation of electronic theses and dissertations (ETDs). It supports electronic publishing and open access to scholarship in order to enhance the sharing of knowledge worldwide. The website includes resources for university administrators, librarians, faculty, students, and the general public. Topics include how to find, create, and preserve ETDs; how to set up an ETD program; legal and technical questions; and the latest news and research in the ETD community.

1.9. World digital library (<http://www.wdl.org/>)

The World Digital Library (WDL), operated by UNESCO and Library of Congress, U.S.A. The public version was launched at UNESCO headquarters in Paris on April 21, 2009. It makes available on the Internet, free of charge and in multilingual format, significant primary materials from countries and cultures around the world. After more than 10 years of operation, WDL is now celebrating its success as a world-wide collection of cross-cultural treasures by transitioning into a sustainable home for perpetual access on the Library of Congress's main website. This transition is expected to be completed by the end of calendar year 2021, providing a view these resources as a coherent collection, while allowing the WDL material to benefit from ongoing

enhancements to the loc. gov website.

1.10. International children digital library (ICDL) a library for the world's children (<http://en.childrenslibrary.org/>)

ICDL, launched in 2002, is a free online library of digitized children's books in many languages from various countries. Designed specifically for use by children ages 3 to 13, the Library is housed by the International Children's Digital Library Foundation and was originally developed in the College of Information Studies and the Human-Computer Interaction Laboratory at the University of Maryland, College Park. (<http://en.childrenslibrary.org/>) The mission of the International Children's Digital Library Foundation (ICDL Foundation) is to support the world's children in becoming effective members of the global community - who exhibit tolerance and respect for diverse cultures, languages and ideas - by making the best in children's literature available online free of charge. The Foundation pursues its vision by building a digital library of outstanding children's books from around the world and supporting communities of children and adults in exploring and using this literature through innovative technology designed in close partnership with children for children. The ICDL is now the principal activity of the independent not-for-profit ICDL Foundation (founded in 2006), which continues to work closely with the University of Maryland by providing generous support for ICDL related research in the Human Computer Interaction Laboratory and the College of Information Studies. The ICDL Main Collection includes outstanding children's books from around the world. The collection's focus is on books that help children understand the world around them and the global society in which they live. All books are presented in their original language.⁵ The ICDL Special Collections are primarily historical children's materials published before 1923.

1.11. Digital library initiatives — global level

1.11.1. United states of america (U. S. A)

1. University of California at Berkeley — Environmental Planning Library and Geographic Information Systems. <http://elib.cs.berkeley.edu>
2. University of California at Santa Barbara — Alexandria Digital Library project; spatially referenced Map Information. <http://alexandra.ucsb.edu>
3. Carnegie Mellon University Project — Informedia Digital Video Library <http://www.infomedia.cs.cmu.edu>
4. University of Illinois at Urbana-Champaign — Federating Repositories of Scientific Literature. <http://dli.grainger.uiuc.edu>
5. University of Michigan Digital Library Project (UMDL): Intelligent Agents for Information Location.

<http://www.si.umich.edu/UMDL>

6. Stanford University — Interoperation Mechanisms among Heterogeneous Services. <http://www.diglib.stanford.edu>
7. University of Arizona — High-Performance Digital Library Classification Systems: From Information Retrieval to Knowledge Management. <http://ai.bpa.arizona.edu/go/dl>
8. University of California Berkeley — Re-inventing Scholarly Information Dissemination and Use. <http://elib.cs.berkeley.edu>
9. University of California Santa Barbara — Alexandria Digital Earth Prototype. <http://www.alexandria.ucsb.edu/adept>
10. Carnegie Mellon University — Million books project. <http://www.informedia.cs.amu.edu>
11. Columbia University — A Patient Care Digital Library: Personalized Search and Summarization over Multimedia Information. <http://www.columbia.edu>
12. Harvard University — Operational Social Science Digital Data Library. <http://www.thedata.org>
13. University of South Carolina — A Software and Data Library for Experiments, Simulations and Archiving. <http://econ.badm.sc.edu/beam>
14. Stanford University — Stanford Digital Library Technologies Project. <http://plato.stanford.edu>
15. Tufts University — The Perseus Digital Library Project. <http://www.perseus.tufts.edu>
16. University of Illinois, Chicago - Digital Library for Human Movement. <http://arik.uic.edu/vdsearch.cgi>
17. University of Maryland — Digital Libraries for Children: Computational Tools that Support Children as Researchers. <http://www.cs.umd.edu/hcil/kiddiglib>
18. Indiana University — Creating a Digital Music Library. <http://dml.indiana.edu>

1.11.2. Europe

1. The European Library—connecting knowledge (<http://www.theeuropeanlibrary.org>)
2. Europeana (<http://www.europeana.eu/>)
3. DL.org: Digital Library Interoperability, Best Practices & Modelling Foundations (<http://www.dlorg.eu/>)
4. Michael: Multilingual Inventory of Cultural Heritage in Europe (<http://www.michaelculture.org/>)
5. Dieper: Digitized European Periodicals (<http://gdz.sub.uni-goettingen.de/dieper/>)

1.11.3. United kingdom (U. K.)

1. Digital Curation Centre (<http://www.dcc.ac.uk/>)
2. eBank UK (<http://www.ukoln.ac.uk/projects/ebank-uk/>)
3. Semantic Grid and Autonomic Computing Programme (UK) (http://www.jisc.ac.uk/index.cfm?name=programme_semantic_grid)

4. UK Electronic Libraries Program (eLib)(<http://ukoln.bath.ac.uk/services/elib/>)
5. UK Web Archiving Consortium (UKWAC) (<http://www.webarchive.org.uk/ukwa/>)

1.12. Digital library initiatives: National scenario (India)

In India the concept of establishing digital libraries is gaining momentum. Some notable initiatives have taken place with the funding from foreign organization like Carnegie Mellon; Ministry of Human Resource Development and Ministry of Communication and Information Technology, New Delhi. Department of Scientific and Industrial Research, (DSIR), The University Grants Commission (UGC), All India Council for Technical Education (AICTE) have encouraged Institutional Repositories and digitization projects in institutions of higher education.

1.13. Archives of indian labor (<http://www.indialabourarchives.org>)

The archives were created by the V.V. Giri National Labour Institute and the Association of Indian Labour Historians (AILH). The archives in digital form are developed for the cause of preserving and making accessible the depleting documents on the working class and to provide them public access. Digital Archives of Indian Labour formally inaugurated on 1 May 2002. The collections include records and reports of all the Commissions of Labor from 1931 till 1991 (including the complete collection on the First National Commission on Labor, 1969); records and publications of central trade unions such as AITUC, BMS, CITU and INTUC; records and reports on the unorganized sector labor movement in regional centers. Since 2010, the Integrated Labor History Research Programmed has been undergoing a technology up gradation project.⁶

1.14. Digital library of india (Million Book Project in India) (<http://www.dli.ernet.in>)

The project is hosted by Indian Institute of Science, Bangalore in co-operation with CMU, IIIT-H, NSF, ERNET and MCIT for the Govt. of India and 21 major participating centers. The project was started in 2002 under Carnegie Mellon's Million Book Project. DLI is an extension of the same to develop a comprehensive portal that supports free access to literary resources. It includes materials which are free of copyright as per the Indian Copyright Act 1957.⁷ "The mission is to create a portal for the Digital Library of India which will foster creativity and free access to all human knowledge. As a first step in realizing this mission, it is proposed to create the Digital Library with

a free-to-read, searchable collection of one million books, predominantly in Indian languages, available to everyone over the Internet. This portal will also become an aggregator of all the knowledge and digital contents created by other digital library initiatives in India. The portal would provide a gateway to Indian 17 Digital Libraries in science, arts, culture, music, movies, traditional medicine, palm leaves and many more. The result will be a unique resource accessible to anyone in the world 24x7, without regard to socioeconomic background or nationality". (DLI, <http://www.dli.ernet.in>)

1.15. National mission for manuscripts (<http://www.namami.org/>)

The National Mission for Manuscripts was established in February 2003, by the Ministry of Tourism and Culture, Government of India. A unique project in its programme and mandate, the Mission seeks to unearth and preserve the vast manuscript wealth of India. India possesses an estimate of five million manuscripts, probably the largest collection in the world. These cover a variety of themes, textures and aesthetics, scripts, languages, calligraphies, illuminations and illustrations. Together, they constitute the 'memory' of India's history, heritage and thought. These manuscripts lie scattered across the country and beyond, in numerous institutions as well as private collections, often unattended and undocumented. The National Mission for Manuscripts aims to locate, document, preserve and render these accessible—to connect India's past with its future, its memory with its aspirations. The Mission has completed two phases and digitized so far 70,053 Manuscripts (93, 97,422 pages). There are total 58,045 DVDs containing the digital images of the manuscripts collected from various repositories in the country. (<http://www.namami.org/>)

1.16. National library of india –digitization activities (<http://www.nationallibrary.gov.in>)

The National Library of India, a permanent repository of all material produced in India and written by Indians and about India, included digitization work under its conservation activity. The scanning and archiving of old, rare and brittle documents of the Library started during 1998-99. English books and documents published before 1900 and Indian publications preceding 1920 are considered for digitization. 9140 selected books in Indian and English languages i.e. over 3.2 million pages have already been scanned and stored in CDs and DVD and serving the public through the designated clients. The third phase of the Digitization Project started from 31 Jan 2012

1.17. Centre for development of advanced computing (C-DAC Digital library group (<http://cdac.in/html/diglib/>)

The aim of the Digital Library Group of C-DAC is to develop technologies, tools and products for the preservation and dissemination of digital contents through the use of modern digital library technology. Activities of the Digital Library Group are broadly classified as: technologies and tools; infrastructure and services; DL projects. Projects handled so far include Saraswathi Mahal Library Website, Academy of Sanskrit 18 Research, Indian Institute of Astrophysics and Indian Art preservation Research Project. CDAC and HP successfully launched the joint initiative "When ART meets TECHNOLOGY" of digital preservation, restoration and dissemination of art from the National Gallery of Modern Art (NGMA), at Bangalore on the February 04, 2003.

1.18. Kalasampada: indira gandhi national centre for the arts (IGNCA): Digital library- resources of indian cultural heritage (<http://ignca.nic.in/dlrich/>)

Kalasampada, a unique project of its kind, will facilitate the students, scholars, artists and Research & scientific Community to access and view the materials including over couple of lakhs of manuscripts, over a lakhs of slides, thousands of rare books, photographs, audio and video along with highly researched publications of IGNCA, from a single window. The system aims at being a digital repository of content and information with a user-friendly interface. The knowledge base such created will help the scholars to explore and visualize the 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. Kalasampada Digital Library — Resource for Indian Cultural Heritage (DL-RICH) project, which is sponsored by the Ministry of Communication and Information Technology (MCIT). This project aims to develop software that will allow users to interact and explore images, audio, text, graphics, animation, and video in an integrated approach to the study of Indian art and culture.

1.19. Central secretariat library (CSL) — digital database (<http://www.csl.nic.in/>)

CSL under the Ministry of Tourism and Culture, Government of India (GOI), has taken an initiative to digitize the government documents, a project in which the full text of Government of India Gazette notifications, (1950-2002), have been digitized. Other categories of Government publications i.e. Commission and Committee Reports as well as Performance Budget, Demand for Grants, Expenditure Budget, and Annual Report of the Department

of Culture are available in electronic form for the years 1990-91 to 1999-2000.

1.20. Traditional knowledge digital library (TKDL)
(<http://www.tkdl.res.in>)

TKDL is a collaborative project between Council of Scientific and Industrial Research (CSIR), Ministry of Science and Technology and Department of AYUSH, Ministry of Health and Family Welfare, and is being implemented at CSIR. An inter-disciplinary team of Traditional Medicine (Ayurveda, Unani, Siddha and Yoga) experts, patent examiners, IT experts, 19 scientists and technical officers are involved in creation of TKDL for Indian Systems of Medicine. The project TKDL involves documentation of the traditional knowledge available in public domain in the form of existing literature related to Ayurveda, Unani, Siddha and Yoga, in digitized format in five international languages which are English, German, French, Japanese and Spanish. Traditional Knowledge Resource Classification (TKRC), an innovative structured classification system for the purpose of systematic arrangement, dissemination and retrieval has been evolved for about 25,000 subgroups against few subgroups that was available in earlier version of the International Patent Classification (IPC), related to medicinal plants, minerals, animal resources, effects and diseases, methods of preparations, mode of administration, etc. Traditional Knowledge Resource Classification (TKRC), an innovative structured classification system for systematic arrangement, dissemination, and retrieval has been developed for about 10,500 subgroups of a single International Patent Classification (IPC), i.e. AK61K35/78 for medicinal plants. TKDL is India's effort to protect its traditional medicine from foreign pharmaceutical companies who might try to copyright such medicine.

1.21. ETD and institutional repository @ IISc , Bangalore (<http://etd.ncsi.iisc.ernet.in>)

This is digital repository of Theses and Dissertations of Indian Institute of Science, Bangalore. The repository has been developed to capture, disseminate and preserve research theses of IISc. It is developed using open sources software D-Space and complements ePrints@IISc, the research publication repository of IISc. The repository has 2209 theses collections. ePrints@IISc repository collects, preserves and disseminates in digital format the research output created by the IISc research community. It enables the Institute community to deposit their preprints, post prints and other scholarly publications using a web interface, and organizes these publications for easy retrieval. While ePrints@IISc can be accessed by anybody, submission of documents to this repository is limited to the IISc research community only. ePrints@IISc repository is running on

ePrints open archive software, a freely distributable archive system available from ePrints. It complies with the OAI framework allowing publications to be easily indexed by web search and other indexing services

1.22. Vidyanidhi (<http://www.vidyanidhi.org.in/>)

Vidyanidhi is India's premier Digital library initiative to facilitate the creation, archiving and accessing of doctoral theses. Vidyanidhi is an information infrastructure, a digital library, a portal of resources, tools and facilities for doctoral research in India. Vidyanidhi is envisioned to evolve as a national repository and a consortium for theses through participation and partnership with universities, academic institutions and other stake holders. Vidyanidhi enhances access to Indian theses and enlarges the reach and audience for Indian doctoral research works. Develop and build an Online Archive/repository of doctoral theses and dissertations submitted to Indian Universities by forming a consortium of select Indian universities. Provides access to more than 1, 00,000 Indian theses metadata. Being Unicode compliant, it covers English, Hindi, Kannada, Telugu and Urdu languages for full text. Access to 5000 full text doctoral theses — to view, access and download are available in full text searchable PDF format. Vidyanidhi follows ETD-MS: an Interoperability Metadata Standard for Electronic Theses and Dissertations — version 1.00

1.23. Digital library initiatives at CDAC, Noida
(http://www.cdacnoida.in/snlp/digital_lib)

The aim is digital preservation of Indian knowledge base embedded in vast Indic literature; Development of Indian Language Digital Library tools Such as CLIR (Cross Language Information Retrieval), Text Summarization, Searching/Indexing Tools, Crawler, Digital Library Management. The target of the project is 14 million pages of digitization.

1.24. Khuda baksh oriental public library
(<http://kblibrary.bih.nic.in/>)

Khuda Bakhsh Oriental Public Library a unique repository of about 21000 Oriental manuscripts and 2.5 lakh printed books. Though founded earlier, it was opened for public in October, 1891 by the illustrious son of Bihar Khan Bahadur Khuda Bakhsh with 4,000 manuscripts. The digitization of about 1200 manuscripts of the Library was started in September 2005. The work was entrusted to NIC in 2005. 10, 00,000 pages covering 3000 manuscripts, have been digitized.

1.25. *Indira gandhi memorial library, university of hyderabad: Digital library project: (<http://igmlnet.uohyd.ernet.in:8000/>)*

It is being the first fully automated library in India; it was the first to begin a digital library program. Since 2002 the library has digitized around 250,000 pages, primarily theses and dissertations, as well as 300 books in English and Indian languages. The library has access to more than 2000 electronic journals. The library preserves discs that accompany printed books and journals by uploading them to the CD server, which is linked to the digital library system. The library scans printed journals from Indian publishers and maintains them in the digital library as well. The library uses the open source software D-space for its institutional repository. Maintenance of a digital library includes content creation, designing and updating web pages, metadata creation, uploading and linking digital content.⁸ The digital library uses MARC-21 for metadata and PDF for digital content.

1.26. *Shodhganga of INFLIBNET centre (<http://shodhganga.inflibnet.ac.in>)*

"Shodhganga" is the name coined to denote digital repository of Indian Electronic Theses and Dissertations set-up by the INFLIBNET Centre. The Shodhganga@INFLIBNET is set-up using open source digital repository software called D-space developed by MIT. The 22 repository has the ability to capture, index, and store, disseminate and preserve ETDs submitted by the researchers. INFLIBNET Centre, besides maintaining the Central ETD Repository (Shodhganga) would also deploy a central server to harvest the metadata from all such ETD repositories distributed in universities with an aim to provide unified access to theses and dissertations through its harvesting server. The Centre is also developing a semantic web based interface to facilitate subject-based browsing, navigation, search and retrieval of content available in the repository.

Besides a number of higher educational and research Institutes have taken digital library initiatives for various purposes. For example, IIM Kozhikode (www.iimk.ac.in), Nalanda Institute of Technology Calicut (<http://www.nitc.ac.in/>); National Chemical Laboratory (<http://www.ncl-india.org/>); Indian Institute of Technologies, National Institute of Technology, Rourkela (<http://www.nitrkl.ac.in/>); National Institute of Oceanography (<http://www.nio.org>), Indian Institute of Astrophysics, Kodaikanal, Raman Research Laboratory, Bangalore etc. have made digital initiatives to develop institutional repositories or ETDs or digital preservation of rare documents. Further the State Public Libraries are also making efforts to design and develop digital library for resources like Mumbai State

Central Library Digital Centre

2. Conclusion

Digital library initiatives help to provide many social, economic, scholarly, and technical advantages to the knowledge environment. Digital initiatives have their starting in 1990s. The past two decades witnessed the unprecedented advances in technologies and the LIS profession has applied those technologies for the development of digital libraries of one form or the other. Though USA is the leader in this regard the developing countries are also making headway to realize the advantages like equitable access, reduced barrier of distance, timeliness, shared resources and content delivery of digitization. India, a multi lingual democracy, with knowledge inherited from the tradition is trying to preserve the legacy and pass it on to next generations. Similarly it is developing institutional repositories with scientific publications and provides extended visibility to the intellectual output.

3. Source of Funding

None.

4. Conflict of interest

None.

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Author biography

Gautam A. Wani, Librarian

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