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Study of Role of Government in the Growth of Digitization of Libraries in ICT Era in India

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ABSTRACT

The emergence of Internet has added a new dimension to information technology which gave birth to the new concepts of Digital Libraries (DLs), Knowledge Management (KM), and archiving of indigenous culture and heritage materials. The Digital Libraries have emerged as a crucial component of global information infrastructure, adopting the latest Information and Communication Technology (ICT) to promote an organisational structure that encourages communication and resource sharing between the academician and scholars across the nations. In India, a number of digital library initiatives and digitization programmes have been initiated across the country. Most of the digital library initiatives are government funded. The Ministry of Communications and Information technology has also established the Digital Library of India. This paper discusses various problems, challenges and issues involved in design and development of digital libraries in India.

1. Introduction

Information is considered as the fulcrum for power and prosperity and very essential for economic and social development of the society. The revolution in Information and Communication Technology has bridged knowledge gap by providing free flow of information. With this technology driven revolution, information was started delivering in digital format with greater speed and economy which triggered in development of digital library. It has provided wider opportunities in archiving accessing digitizing and preserving the traditional knowledge. The open source software movements added weightage in proliferation of digital libraries worldwide. Traditional knowledge available in one and another form was being explored, documented preserved and made accessible through networks of digital archives. The formal project of digital library under the Digital Library Initiative (DLI) was started in 1994 as a joint initiative of the National Science Foundation (NSF), Department of Defense Advanced Research Projects Agency (DARPA), and the National Aeronautics and Space Administration (NASA), in 1994. Six universities were given the funds for investigation and development of underlying technologies for digital libraries. The second phase of the project was initiated in February 1998. (Devika, 2003). The landmark initiatives that led the path towards the Digital Library movement are the CMU, MERCURY project; CORE project at Cornell Universitythe TULIP project and ENVISION, Cornell Institute of digital collection, Yale University Open Book Project, Networked Digital Library of Theses and Dissertation (NDLTD), National Science, Mathematics, Engineering and Technology (SMET) Education Digital Library (NSDL), National Policy, Digital Library development in emerging country like India is taken up with preserving art culture and heritage of India in mid 1990s. India became de-facto signatory of the UNESCO Universal Declaration on Cultural Diversity, adopted unanimously by the UNESCO General Conference at its 31st session held on 2 November 2001 to strengthen the access to diverse cultural resources available across the country. Indian state and non-state agencies in collaboration with the Carnegie Mellon University, Universal Digital Library project of the US-NSF (under and Indo-US Science and Technology Collaboration initiatives) have taken significant initiatives in digitization and preservation of vast pool of knowledge available in the physical forms of manuscripts, rare books, out-of-print books and archival materials and also with neighboring South Asian countries and shared to a networked community using an online platform. Indian universities are participating as members in the Networked Digital Library of Theses and Dissertations (NDLTD). Library and information centre of higher education and research institutes have taken up task for creating website with in- house digital content like research reports, publications of researchers, theses and dissertation etc. Later on eminently practical approach was evolved for building operational digital library, their maintenance, operations and services. The problem encountered for digitization initiatives in India, National Policy and existing digital library initiatives of India are discussed below.

2. National Policy on Digital Library

The National Task Force on IT and Software Development (2003) has given some valuable recommendations for development of DLs in the country related to development of pilot project on Digital Library, preservation of vast wealth of Indian traditional knowledge, digitization of Indian Theses and Dissertations and copyright protection. However, there is no any clear cut national policy on Digital Libraries. In India digitization initiatives are in need of national policy on Digital Library to indentify framework and best practice in all spheres for development of Digital Libraries. There is also need of preservation policy, Intellectual Property Rights policy for content development, collection development policy, digital information rigidity in the publishers' policies and data formats etc.

3. Current Digital Library Initiatives in India

Government institutions of national importance, national level institutions, research organization, universities, state government institutions, financial institutions, private

institutions are key player for initiating digital libraries in India. Some of the important digital library initiatives and programmes initiated across the country are as follow:

3.1 Digital Library of Books

3.1.1 Digital Library of India (http://www.dli.ernet.in/):

Digital Library of India was formally launched by the then president of India Dr. A. P J. Abdul Kalam in 8th September 2003 to preserve knowledge and cultural heritage of India. It is part of Universal Digital Library Project of the US-NSF and Million Books Project envisaged by Carnegie Mellon University, USA. The project is supported by Ministry of Communications and Information Technology, Government of India and coordinated by Indian Institute of Science, Bangalore. It digitizes and preserves all significant library, artistic and scientific works in its three regional mega scanning centre and 21 scanning centers and makes it freely available to world for education and research. The structured metadata of scanned document is created and uploaded to Digital Library Portal which provides searchable interface to access full-text contents. At present, Digital Library of India hosts 4,80,335 books containing about 168 million pages. The books came from about 48 different languages in various subjects. Participating Institutions are Indian Institute of Information Technology Hyderabad; ERNET (Education and Research Network) India; Centre for Development of Advanced Computing (CDAC)

3.1.2 VigyanPrasar Digital Library (http://www.vigyanprasar.gov.in/digilib/)

VigyanPrasar, an autonomous organization under Department of Science and Technology, Government of India, was established in 1989 for communication of science and technology. VigyanPrasar maintains an open access digital library to spread scientific knowledge, where the digital collection contains digitized full-text versions of all significant scientific works that are being published by VigyanPrasar.80 books in English, 49 books in Hindi and 17 books in other languages and audio video scientific content in CD ROM are available in this digital library. Dream 2047, a popular science magazine and an open access periodical, is also archived in VigyanPrasar Science Portal from volume one issue one. Participating Institutions are National Council for Science & Technology Communication (NCSTC), New Delhi; NCSTC Network, Delhi; National Children's Science Congress.

3.1.3 NCERT Online Text Books (http://www.ncert.nic.in/textbooks/testing/Index.htm)

National Council of Educational Research and Training (NCERT) was established by the Government of India in 1961 as an autonomous organization to assist and advise the state and central governments in the implementation of their policies for education, especially to bring about qualitative changes in school education. The NCERT has initiated a national portal where school textbooks, based on the National Curriculum Framework 2005, are freely available on the Internet for students and teachers. This portal provides easy navigation to textbook chapters by title/subject of the book for a particular class. The entire book or individual chapters can be downloaded as per the terms of use as mentioned in the Copyright Notice. The service provides easy access to textbooks of all subjects published by NCERT for classes I to XII in Hindi, English and Urdu.

3.2 Digital Library of Manuscripts

3.2.1 Kalasampada: Digital Library Resources for Indian Cultural Heritage (http://www.ignca.nic.in/dlrich.html)

The Indira Gandhi National Centre for the Arts (IGNCA) in collaboration with the Ministry of Communication and Information Technology initiated a digital library on indigenous cultural heritage named Kalasampada (Digital Library: Resources of Indian Cultural Heritage (DL-RICH)) for the development of a databank of cultural heritage. DL-RICH provides online access to digital images of cultural heritage resources such as manuscripts, rare photographs, rare books, rare painting, sculptures, handicrafts, monuments, artifacts, festivals, as well as varieties of textual, graphical, audio-visual and multimedia resources. This portal provides access to different segments of its collection with English interface and English transliterated metadata information. Kalasampada facilitates scholars' access to the materials including 272,000 manuscripts, 100,000 slides, thousands of rare books, 4,000 rare photographs, 400 hours of audio and video along with research publications, fifty tutorials produced by the IGNCA. It also hosts a Sanskrit text repository, called GaudiyaGranthaMandira that covers more than 400 chapters from different oriental texts. Kalasampada received the 'Golden Icon: Award for Exemplary Implementation for e-Governance Initiatives' under the category, Best Documented Knowledge and case study, given by India's Department of Administrative Reforms and Public Grievances in 2005.

3.2.2 National Databank on Indian Art and Culture (NDBIAC) http://ignca.nic.in/ndb_0001.htm)

In its second phase of digitization project, INGCA started National Databank on Indian Art and Culture (NDBIAC), a pilot project of Department of Information Technology, Ministry of Communication and Information Technology (MCIT), andArchaeological Survey of INDIA, Government of India with an aim to enhance the accessibility of Indian cultural resources using digital technology. NDBIAC provides access to digitized images and audio-visuals provided by ASI and state archaeology departments. It also gives access to virtual walkthroughs of archaeological monuments, back issues of ASI journal "Indian Archaeology - A Review", ASI reports and rare books in Indic languages (Hindi and Sanskrit) and English. The project is pilot project and aim to cover over 1 lakh visual, 1000 hours of audio and video, 25000 rare books on art and culture and walk-through of some of the archaeological monuments.

3.2.3 National Mission for Manuscripts (http://www.namami.org/index.htm)

The Department of Culture, and Ministry of Tourism and Culture, Government of India, launched the National Mission for Manuscripts in February 2003 with an aim to locate, document, preserve and render vast collection of manuscripts which are available in variety of themes, textures and aesthetics, scripts, languages, calligraphies, illuminations and illustrations. NMM established a network of 47 MRCs (Manuscript Resource Centres), 32 MCCs (Manuscript ConservationCentres), 32 MPCs (Manuscript Partner Centres

)and more than 200 MCPCs (Manuscript Conservation Partner Centres) across the country for identifying, inventorying, preservation and conservation of endangered documentary heritage collections available in the form of manuscripts. NMM maintains a National Database of Manuscripts named 'Kritisampada'. At present total 20 lakh data are available on NMM Website.

3.2.4 Muktabodha: Digital Library and Archiving Project (http://www.muktabodhalib. org/digital_library.htm)

The Muktabodha Digital Library and Archiving Project is initiated by Muktabodha Indological Research Institute in July 2003 to preserve scriptural texts related to the Tantric and Agamic traditions, as well as India's oral tradition of Vedic chanting and the ritual and philosophical knowledge associated with it. The goal of the Digital Library is to preserve rare Sanskrit manuscripts and texts in multiple digital formats, and make them accessible through website for study worldwide. Paper Transcripts of ShaivaSiddhanta, from the French Institute of Pondicherry including 210,000 digitized pages in over 2,000 texts, Vedic Manuscripts of Gokarna, 24 volumes of the ShaivaSiddhantaParipalanaSanghaDevakottai in the South Indian scripts, 75 volumes texts of the Kashmir Shaivism.

3.3 National Digital Library of Electronic Thesis & Dissertation

3.3.1 Shodh Ganga: Indian ETD Repository (http://shodhganga.inflibnet.ac.in/)

Shodhganga is a national repository of electronic theses and dissertation. It was launched on 20th May 2010 by INFLIBNET Centre under support of University Grants Commission with an aim to facilitate open access to Indian theses and dissertations to the academic community world-wide. UGC in its notification dated 1st June 2009 mandates submission of electronic version of theses and dissertations by the researchers in universities..Shodhganga stands for the reservoir of Indian intellectual output stored in a repository hosted and maintained by the INFLIBNET Centre. 151 Universties have signed MoU with INFLIBNET Centre to join in Shodh Ganga project and deposit their theses. INFLIBNET Centre also maintain repository of approved synopsis submitted by research scholars to the universities for registering themselves for the Ph.Dprogramme called Shodh Gangotri (http://shodhgangotri.inflibnet.ac.in/) with an aim to measure trends and directions of research being conducted in Indian universities and to avoid duplication of research. ShodhGanga provides access to more than 11000 electronic theses and dissertations. Shodhganga Received the eINDIA JURY CHOICE Award for Best ICT Enabled Higher Education Institute of the Year 2011. ShodhGangotri provides access to more than 1712 synopsis submitted research scholars.

3.3.2 Vidyanidhi Digital Library (http://www.vidyanidhi.org.in/)

Vidyanidhi is a portal of doctoral research in India. Implemented by Department of Library Science, University of Mysore. Supported by NISSAT, DSIR, Government of India, Ford Foundation and Microsoft India. It began as a pilot project in 2000 with support from government , the Ford Foundation and Microsoft India archive of dissertations, as well as a set of resources for doctoral research in India. Vidyanidhi also has strategic support from the UGC (University Grants Commission). The Vidyanidhi Digital Library has two layers: a metadata database and the full text of theses. More than 5000 full text and 50,000 bibliographic records of theses submitted to the universities in India have been hosted in Vidyanidhi.

3.4 Digital Library of Institutional Repositories

An Institutional Repository (IR) is a digital collection or archives of a university's intellectual output. Universities and other institutions are producing digital information base of their Ph.D. theses& dissertations, articles, reports, conference proceedings, lecture notes, presentational, audio-video records using open source software and making them available to their end users. There are 92 institutional and subject wise repositories have been registered in Registry of Open Access Repository (ROAR). Institutional repositories initiated in India can be viewed at http://roar. eprints.org/

3.5 Digital Library of Journals-Initiatives by Scientific Society and Publishers

3.5.1 Indian Academy of Sciences (www.ias.ac.in/pubs/journals/)

The Indian Academy of Sciences (IAS) is a scientific academy funded by the Government of India. Digital platform is developed to provide online access to 11 peer reviewed journals with all backfiles and other publications including reports, newsletter, patrika, year book and annual report etc. published by Indian Academy of Science. It provides access to 11 journals with back files.

3.5.2 Indian National Science Academy (www.insa.ac.in)

The Indian National Science Academy (INSA) was established in 1935. It is funded by Government of India. INSA, under the support of NISSAT, has initiated e-journal@insa project in 2002 to facilitate conversion of INSA journals from print to digital format and host these materials online. This portal provides access to current and back volume full-text literature of INSA journals, organizes scientific discussions, proceedings and monographs annual report, year book etc. It provides access to 7 journals with back files.

3.5.3 NISCAIR Research Journals (http://nopr.niscair.res.in/)

NISCAIR has developed Online Periodicals Repository (NOPR) to preserve its 7 research journals, working papers, preprints, technical reports, conference papers and data sets in various digital formats. All publications can be access full-text in PDF format through NOPT platform. National Science Digital Library (NSDL) was then established to provide comprehensive S&T information to students of science, engineering and technology. NSDL provides curriculum based access to e-books and lecture notes, presentation for the undergraduate students of science.

3.5.4 Indian Medlars Centre (IndMED@NIC: http://indmed.nic.in) (OpenMED@NIC: http://openmed.nic.in)

National Informatics Centre (NIC) and Indian Council of Medical Research (ICMR) had collaborated to setup Indian Medlars Centre to provide information support and services to

medical research community. The Centre produced two important resources; the first is INDMED@NIC, which indexes more than 100 prominent biomedical journals of India from 1985 onwards. This bibliographic database is accessible online. The second resource is MEDIND@NIC that provides open access to the full text articles of 62 Indian biomedical journals. Different publishers, mainly learned societies in the respective specialized areas, publish these journals in print-on-paper format. The new project entitles "National Databases of Indian Medical Journals" is in process for maintaining, updating and improvising these two important national resources.

3.5.5 Open Journal System @ INFLIBNET

Open Journal System @ INFLIBET Centre provides digital platform for hosting of electronic version of journals into open access mode with all processes of submission, peer-reviewing, editing, layout designing and publishing built into it. It encourages universities and institutions that are publishing journals in print format to use the OJS @INFLIBNET for hosting electronic version of their journals free-of-cost on server at the INFLIBNET Centre. The OJS@INFLIBNET provides full-text access to 14 journals published by universities and higher education institutions. It provides access to 14 open access journals.

3.5.6 Indianjournals.com (www.indianjournals.com)

IndianJournals.com implemented by Divan Enterprises, New Delhi. It provides single window access to multidisciplinary Indian journals published by different scholarly societies and institutions. It provides access to eleven open access journals and periodicals. This journal gateway also provides access to subscription-based content.

3.5.7 Medknow Publications Pvt. Ltd. (www.medknow.com/journals.asp)

Medknow Publications Private Limited is a publisher of high-quality peer-reviewed scholarly open access journals in India. It publishes, maintains and hosts 48+ open access peer reviewed scholarly journals, mainly in the biomedical subject areas on behalf of learned societies and associations. It provides access to 48 journals.

3.5.8 Kamla-Raj Enterprises (www.krepublishers.com/KRE-New-J/index.html)

The Kamla-Raj Enterprises is a Delhi-based publisher established in 1933. Kamla-Raj publishes seven print-based peer-review scholarly journals mainly in the areas of social sciences which are also available in electronic format on open access. These journals are OAI-compliant. The publisher maintains an archive of each of these open access journals starting from volume one.

3.6 Digital Library of Online Courseware

3.6.1 NPTEL (www.nptel.iitm.ac.in, http://youtube.com/nptelhrd/)

The National Programme on Technology Enhanced Learning (NPTEL) (www.nptel.iitm.ac.in) is an open courseware initiative by seven Indian Institutes of Technology (IITs) and the Indian Institute of Science (IISc). This initiative is funded by the Ministry of Human Resource Development (MHRD). The main objective of this programme is to enhance the quality of engineering education in the country by developing more than 200 curricula-based video and web courses.

3.6.2 e-Gyankosh (www.egyankosh.ac.in)

Indira Gandhi National Open University (IGNOU) is a mega open university that offers distance and open education to millions of learners in India and other countries. It produces self-instructional study materials for various programmes and also hosts a number of educational broadcasting channels. IGNOU has initiated the establishment of a National Digital Repository of learning resources eGyankosh. This repository envisages to store, index, preserve, distribute and share the digital learning resources of open and distance learning (ODL) institutions in the country: The repository supports seamless aggregation and integration of learning resources in different formats such as self-instructional study materials, audio-video programmes, and archives of radio and television-based live interactive sessions.

3.6.3 Learning Object Repository CEC (www.cec-lor.edu.in)

Consortium for Educational Communication (CEC) is an inter-university centre on electronic media, established by the University Grants Commission (UGC). The CEC in coordination with its 17 Educational Multimedia Research Centres, has been producing television programmes in various subject categories in English, Hindi and regional languages. Some of the audio-visual programmes are based on syllabus-based topics at the school, polytechnic, college and university levels. CEC established the Learning Object Repository (LOR) and the Digital Video Repository (DVR) to provide worldwide access to these qualitative learning resources. The LOR is a bank of short duration reusable learning objects for special benefits to students and teachers for face to face learning as well as to other users globally. The streaming video technique is used for online viewing of these learning objects. The LOR portal can be searched by subject, topic, title of the learning object, and keywords. This portal can also be navigated through subject categories.

3.6.4 ePGPathshala (http://epgp.inflibnet.ac.in/about.php)

The MHRD, under NME-ICT has allocated funds to the UGC for development of e-content in 77 subjects at postgraduate level. The INFLIBNET Centre is assigned the responsibility for technical and administrative coordination of the programme as per the guidelines of Standing Committee, e-PG Pathshala. High quality, curriculum-based, interactive content in different subjects across all disciplines of social sciences, arts, fine arts & humanities, natural & mathematical sciences, linguistics and languages is being developed under this initiative named e-PG Pathshala.

3.6.5 Indo-German e Gurukul on Digital Libraries (http://drtc.isibang.ac.in/mmb/)

The Indo-German eGurukul on Digital Libraries is a collaborative project of DRTC and Goethe-Institut in New Delhi to facilitate self-paced learning on digital libraries.

3.7 Library Consortium in India

Beside, accesses to e-resources to Indian institutions are also available through Library Consortia. Some of the major

example of library consortia in India which provides access to peer reviewed journals to their member institutions is as follows.

3.7.1 UGC-INFONET Digital Library Consortium (http://www.inflibnt.ac.in/econ)

The UGC-INFONET Digital Library Consortium was launched by A. P. J. Abdul Kalam, the then President of India, in December 2003. The consortium provides differential access to e-resources to 206 universities and 150 institutions covered under associate membership prgramme. These e-resources covers almost all subject disciplines including arts, humanities, social sciences, physical sciences, chemical sciences, life sciences, computer sciences, mathematics, statistics, etc. It provides current as well as archival access to more than 8,500 core and peer reviewed electronic journals and ten bibliographic databases from 28 publishers, scholarly societies and aggregators, including university presses in different disciplines.

3.7.2 INDEST-AICTE Consortium (http://www.Paniit.iitd.ac.in/indest)

The Indian National Digital Library in Engineering Sciences and Technology (INDEST) Consortium was set-up by the Ministry of Human Resource Development (MHRD) in year 2003 to provide access to selected electronic journals and databases to technical institutions including IISc, IITs, NITs, IIMs and a few other centrally-funded Government institutions. The total number of members in the Consortium has now gone up to 325 including 65 core member institutions, 60 AICTE supported engineering college and 200 members under self-supported categories. It provides access to 20748 peer reviewed journals and 10 bbilographical database to its member institutions.

3.7.3 National Knowledge Resource Consortium (NKRC) (http://nkrc.niscair.res.in)

The National Knowledge Resource Consortium (NKRC), established in year 2009, is a network of libraries and information centres of 39 CSIR and 24 DST institutes. NKRC's origin goes back to the year 2001, when the CSIR set up the Electronic Journals Consortium to provide access to 1200 odd journals of Elsevier Science to all its users. Over a period of time, the Consortium not only grew in terms of the number of resources but also in terms of the number of users as more like-minded institutes evinced interest to join the Consortium. Currently, NKRC facilitates access to 8000+ e-journals of all major publishers, patents, standards, citation and bibliographic databases. Apart from licensed resources, NKRC is also a single point entity that provides its users with access to a multitude of open access resources. It provides access to 8061 peer reviewed e-journals and 7 bibliogapgical database

3.7.4 MCIT Consortium (http://www.mcitconsortium.nic.in)

The Ministry of Communication and Information Technology (MCIT) Consortium caters to the information requirement of 9 institutions including NIC, CDAT and CDOT (with its offices in multiple locations). Set up in 2005 with funding from the Ministry of Communication and Information Technology (MCIT), the Consortium subscribes to 5 electronic resources including IEL Online, ACM Digital Library, Indian Standards, Science Direct and JCCC. Other activities of the Consortium include establishing institutional repositories, national making union catalogues, creation and maintenance of library automation software called e-Granthalaya. It provides access to 1818 e-journals and 14,000 e-books to its member institutions.

3.7.5 DAE Consortium

The Department of Atomic Energy (DAE) Consortium, set up in 2003, caters to the information requirement of 36 institutions including BARC, TIFR and SAMEER. Funded by the Department of Atomic Energy (DAE), Govt. of India, the Consortium subscribes to 2,000 e-journals from 4 publishers including Science Direct, Springer and MathSciNet. The Consortium is administered by one of the DAE intuitions by rotation. It provides access to 2,000 peer reviewed e-journals from four publishers to its member institutions.

3.7.6 ERMED Consortium (http://ermed.jccc.in/)

Electronic Resources in Medicine (ERMED) Consortium, set up at 2008, is an initiative taken by Director General of Health Services (DGHS) to develop nation-wide electronic information resources in the field of medicine for delivering effective health care for all. The Consortium is being coordinated through its headquarter set up at the National Medical Library (NML). DGHS provides fund for the purchase of electronic resources under the ERMED consortium for Government medical colleges and institutions. Private medical colleges and institutions can join the consortium under its self-supported category. ERMED e-journal consortium has 98 members including ICMR, DGHS, AIIMS, NTR Health University and government medical colleges / institutes across the country.

3.7.7 DRDO E-journal Consortium (www.dsl.drdo.gov.in/ejournals)

Defense Research and Development Organization (DRDO), Ministry of Defense is the largest government funded research and development organization in India with a chain of over 50 laboratories and establishments spread across the country. DRDO e-journal consortium was established on January 2009 to provide access to e-resources to S&T community of DRDO. The Consortium is governed by a Monitoring Committee having the representatives from different subject clusters and headquarters. It provides access to 568 full text e-journals to 50 DRDO Labs. JCCC service was added to facilitate access to contents of all the journal titles subscribed by 20 major DRDO labs. It provides access to 568 and 1 bibliographic database to its member institutions.

3.7.8 DeLCON (http://delcon.gov.in)

DBT e-Library Consortium (DeLCON) is funded by Department of Biotechnology. Established in 2009, the Consortium provides access to more than 600 journals and bibliographic database to 33 member institutions which includes 14 DBT institutions and 18 institutions located in North Eastern Region (NER) and Biotechnology Industry Research Assistance Programme (BIRAP). It provides access to 682 e-journals to its member institutions.

3.7.9 CeRA (Consortium for e- resources in Agriculture) (http://cera.iari.res.in & http://cera.jccc.in)

CeRA (Consortium for e- resources in Agriculture), an ambitious initiative from IARI, aims to provide scholarly information in the broad spectrum of agricultural sciences to foster academic quality research amongst its institutes and other agricultural universities. It was established in 2008 by ICAR as a sub-project of NAIP, funded by the World Bank. The Consortium is managed by IARI and promoted by ICAR. It covers about 3,000 scholarly journals (comprising consortium-subscribed, Library-subscribed and open access journals) from seven major publishers. The Consortium has 134 member institutions comprising of deemed universities, national research centres, agricultural institutions, national bureaux, ICAR institutions, etc. It provides access to 1766 peer reviewed e-journals and 3 bibliographic databases.

3.7.10 NLIST (http://nlist.inflibnet.ac.in/)

The Project entitled "National Library and Information Services Infrastructure for Scholarly Content (N-LIST)", being jointly executed by the UGC-INFONET Digital Library Consortium, INFLIBNET Centre and the INDEST-AICTE Consortium, IIT Delhi, provides for access to scholarly content to colleges, universities as well as centrally-funded technical institutions through its four distinct components, i.e. i) UGC-INFONET e-resources to technical institutions (IITs, IISc, IISERs, NITs, etc.); ii) INDEST e-resources to universities; iii) E-resources to 12,000 Govt.-aided and non-aided colleges; and iv) National Monitoring Agency at the INFLIBNET Centre to manage access, monitor, promote and impart training to promote optimal usage of e-resources and for monitoring all activities involved in the process of providing effective and efficient access to e- resources to colleges. The N-LIST programmes provides access to Web of Science for universities, Annual Reviews (33 journal titles), Nature (27 journal titles), Project Muse (400+ journal titles), Taylor & Francis and JSTOR (2000) journals for 35 technical institutions including selected IITs, IISc, IISERs and NITs. Besides, provides access to more than 6,000 e-journals and 97,333 e-books to colleges. DAE Consortium, IIM Consortium, RGUHS-HELINET, FORSA Consortium are also in operation in India.

4. Conclusion

With the availability of advanced information and communication technologies (ICTs) and information infrastructure, India becomes an active contributor in digital library movement by digitizing and providing free access traditional knowledge, century-old publications and rare documents, theses and dissertation and journals available in Indian libraries. The Digital Library of India is one major initiative that is striving to create a truly digital library. Online availability of electronic theses through centrally-maintained digital repositories called ShodhGanga does not only provide easy access and archiving of Indian doctoral theses, it also helps in raising the standard and quality of the research. Open courseware and cross-archive search services are also being developed by different organizations, including the apex higher education agencies. India has spearheaded the digital library movement in developing countries.

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