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Impact of Digital Libraries on Knowledge Sharing

Puja Thakur, Dr.Anupam Saigal

Ph.D Research Scholar, Department of Library and Information Science, Sunrise University, Alwar, Rajasthan, India

Associate Professor, Department of Library and Information Science, Sunrise University, Alwar, Rajasthan, India

ABSTRACT: The need for the study arises as society continually evolves, accompanied by advancements in technology, education, and information dissemination. Understanding these changes is imperative to adapt policies, strategies, and frameworks to meet emerging challenges. In the future, the study aims to provide insights into the dynamic landscape of digital libraries, analyzing their impact on information access and knowledge sharing. As technology advances, the study becomes crucial for identifying potential gaps in accessibility and addressing issues related to the digital divide. Moreover, with the ongoing shift towards open-access initiatives, investigating the effectiveness of these models becomes essential for shaping future scholarly communication. The study also recognizes the growing importance of collaborative learning and interdisciplinary research in the digital age.

KEYWORDS: Digital Libraries, Knowledge Sharing, digital age, information dissemination, information access.

I. INTRODUCTION

"Information and knowledge is power" and the global information economy is highly dependent on the availability/ accessibility of right information in the right format at the right time and at the right location and now it is possible through digital libraries (DLs) and information and communication technologies (ICTs). A DL is an information system that gives us opportunities we never had with traditional libraries or even with the web. The advancement in information, communication and networking technologies have changed the whole scenario of the world. Libraries have long been early adopter of new technologies and digital technologies are no exception to it to achieve the mission of the organization. The 'share-ability' of digital medium has extended greatly in the development of DLs. Many of the major progammes of DL development are collaborative ones, at local, national, and international levels. Such digital collaborations have brought many advantages to the library world. The mission of DLs is to remove barriers to 'information equity' by bringing the highways of knowledge to every person of nation in particular and globe in general. More and more institutions and organizations are increasingly employing advanced information systems, like digital library, epublications, e-learning management systems and such others. The research libraries across the globe are striving hard to harness technology for achieving scholarly knowledge management, which is fast proliferating, distributed and scattered. Particularly in India, Open digital library (ODL), initiatives are picking up. Unprecedented institutional as well as professional groups are now paying attention owing to a variety of excellent features offered by these DLs. During the past five years, India has been responding to this global trend quite proactively and positively. One of the major reasons being, presently, more than 70 percent of world's scholarly literature are born digital, which can be acquired by the special libraries through consortia or directly from the publishers for providing digital services. DLs have attracted almost all the developed and developing countries due to its multifaceted features and the opportunities it extend to the information providers and information seekers. It is an undisputed fact that DL technology has not only had a considerable impact on information centres and libraries (ICL), its users, and Library and Information Science (LISc) professionals but also on back office procedures.

The need for creation and development of DLs was felt due to explosion of information, to improve the library/ information services, meet the diversified needs of users, empowering them to access digital resources directly to get required information (current or old) within no time, helping libraries in better resource sharing through consortia, etc. The DLs are being developed throughout the world by using suitable current ICTs and networking technologies, etc. In case of DLs, digital contents are suitably organized using various digital library software, formats like PDF, XML, HTML, RTF, etc, metadata extraction standards, like Dublin Core metadata standard, etc, for providing easy and user friendly access to digital resources. DLs are now emerging as a crucial component of global information infrastructure, adopting the latest ICTs. DLs are networked collection of multiple forms and formats, viz, digital texts, documents, images, sounds, data, software, and many more that are the core of today's internet and tomorrow's universal accessible

digital repositories of all human knowledge. Consequently, management and organization of these multiform digital content/ information resources in DLs is the cornerstone of LISc profession. The main challenge for management of a DL is to provide effective and easy access to its resources/ information by using suitable techniques/ tools for content organization and provide support for concurrent integration of different types of contents. Hence, there is an urgent need to know various pros and cons of DL management challenges and opportunities. The benefits of DLs cannot be appreciated unless they are easy to use effectively, efficiently and conveniently.

II. INSTITUTIONAL REPOSITORY INITIATIVES

The Networked Digital Library of Theses and Dissertations (NDLTD) is an international effort aimed at ensuring that the future scholars are more effectively prepared for the information age by understanding publishing and digital libraries. The NDLTD streamlined the entire theses process, not only simplifying searching and retrieval, but also making submission and approval easier. Individual universities play a key role in the development of the NDLTD. It is an open initiative, with all educational institutions invited to join and other organizations encouraged assisting as appropriate. The authors discussed about the NDLTD, its software support, role of universities and information professionals, pilot initiatives, and collaboration. Virginia Tech has been supporting the NDLTD.

The University of Florida Libraries is a nexus for the distribution of agricultural information and it provides access to print and other formats through all appropriate technologies. The authors suggested for fully integrated functionality of the semantic web with the rich content of institutional repositories for better searching of information. The different kinds of repositories offer an opportunity for Open Access Publications. The author pointed out that the repositories exist worldwide for various disciplines in almost every scholarly institution. In order to take repositories to higher quality and greater level of acceptance, the author emphasized for the networking of these repositories to provide better and more effective information services.

Digital Libraries Consortia

The INDEST compendium was prepared covering its aims and objectives, major activities, different types of memberships, governance of the consortium, electronic resources subscribed by the consortium, methods of using e-resources, and expectations from the member institutions, tutorials on specific e-resources, etc. INDEST Consortium was set-up by Ministry of Human Resource Development (MHRD), Government of India, for centrally funded Government institutions including 11Ts, IISc, Bangalore, NITS, and few others institutions. Its headquarters was set-up at the IIT, Delhi. A white paper on "library consortia and resource sharing initiatives in India" was prepared covering the consortia needs and gains, consortia initiatives in India, consortia types and models, access and pricing models, governance, funding, operations, and management, etc. also included history and development of e-journals consortium in the world and India, and lessons from Indian experience.

Digitization & Digital Preservation

Digital libraries have been built all over the world. Libraries are engaged in creating and maintaining digital libraries. One of the main challenges in maintaining digital libraries is the digital preservation aspect. The aim of digital preservation is to ensure that digital records are filed and made available through time. Transition from print format to electronic format has given various issues in preserving the digital form. Preservation problem is complicated due to rapid obsolescence of the hardware and software and other technologies required for preservation of digital information. This study highlighted the necessity of preserving the digital form, preservation requirements, standards for digital preservation, and open formats in digital preservation, etc. It also described storage management as applicable to digital preservation repositories and suggested microfilming and digitization as hybrid solution for reliable preservation.

III. PERSPECTIVES ON DLS

A review of definitions reveals that the term "DL" has been used to describe a variety of entities and concepts. In general, researchers focused on DLs as content collected on behalf of the users, while librarians focused on DLs as institutions or services. Some researchers were focusing on practical problems related to institutions and services, and some practitioners were participating in research teams addressing issues of content, collections, and communities studied the research perspectives of DLs and information access.

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IV. DIGITAL DEVELOPMENTS

The documents and other materials available in libraries are found in many forms and formats, from hand written manuscripts on paper, vellum, papyrus, hirch bark, wood, and may other substrates; photographs on glass plates, to printed books, journals, reports, and other publications, negative film, microfilm, microfiche, audio-visual materials, to digital, etc. Librarians are used to dealing with hybrid world of documentary formats, and to providing the technologies through which these can be accessed. The main problems in digital development are the long term data preservation and providing continuous access to digital content. Du Preez (2008) presented various theoretical approaches to understand digital information in his study.

V. FEATURES OF DLS

The basic principles of management of a DL, which should be taken into account while creating DL, are the selection, quality, integrity, preservation, longevity, strategies, and access to digital resources. DLs have attracted almost all the developed and developing countries due to their features and the opportunities they extend to the information providers and information seekers. The DL has the information in the electronic form and electronic media facilitates the access to information available in digital fom at different places. DLs offer new levels of access to broader audiences of users and new opportunities for LISc field to advance both theory and practice. The DLs contain information collections predominantly in digital or electronic form. Electronic publications have some special problems of management as compared to printed document. They include collection development, infrastructure, acceptability, access restrictions, readability, standardization, authentication, preservation, copyright, policy and strategic issues, user interface, funding, etc. But still the advantages are more. Consequently, the importance of DLs has been recognized by all nations of the world. India has indeed recognized the importance of DLs and lots of initiatives are on the move for developing state-of-art DLs. However, DLs do enable the creation of local content; strengthen the mechanisms and capacity of the library's information systems and services. They increase the portability, efficiency of access, flexibility, availability, and preservation of content. DLs can help move the nation towards realizing the enormously powerful vision of anytime, anywhere access to the best and the latest of human thought and culture, so that no class room, individual, or a society is isolated from knowledge resources. It also brings the library to the users, overcoming all geographical barriers.

Digital Library of India (DLI)

DLI is hosted by Indian Institute of Science (IISc), Bangalore in cooperation with Carnegie Melon University (CMU), IllT, NSF, ERNET and Ministry of Communication and Information Technology (MCIT), for the Government of India and 21 participating centers. For the first time in history, the DLI is digitizing all the significant works of mankind. DLL provides access to books over 3.5 lakh running into more than 12 crore pages (books from Rashtrapati Bhavan library, CMU, Sanskrit, TTD, Tirupati, Tibetan, Gurumukhi etc); Manuscripts (Tamil Heritage Foundation, Anna University, Saraswathi Mahal, Tirumala Tirupathi Devasthanams (Telugu, sanskirit), etc); journals (Astrophysics, Astronomy, Biosciences, Current science, Resonance Proc., INSA, etc); News Papers (Times of India, Indian Express, The Hindu, Deccan Herald, Eenadu, Vaartha, Regional, etc). Searches can be performed by various approaches such as title of the books, author of the books, year of publication, etc.

National Digital Library

In India, besides DLI or Million Book Universal Digital Library Programme, many other DL initiatives have been under taken by different Ministries / Departments/ organizations of Government of India for digitizing and preserving data available in physical form. However, this activity has been restricted mostly in the area of the work / interest of the organization. Department of Information Technology, Government of India, too has in the past, supported projects in the area of D L initiatives. The initiatives have been essentially of two types: (l) Setting up of Mega Centers and Scanning Centers in collaboration with IISc, Bangalore and CMU, USA- under the collaborative Programme, scanners for these centers were provided by C M U, USA, under Million Book Universal Digital Library Programme. Il sc, Bangalore has been coordinating this Programme. The digital data generated by these scanning centers under this activity is web enabled on "Digital Library of India "web site http://www.new.dli.ernet.in. This site in addition to above scanning centers, has data from other scanning centers too that were supported by IISc.

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DESIDOC Digital Library Institutional Repository

DESIDOC developed DRDO institutional Reposit01Y-Gyansrota using DSpace. It IS a centralized scholarly digital archiving facility for acquiring, preservmg, and disseminating the intellectual output (scholarly publications) of S&'l' cornmunity of DR DO. DESIDOC is the nodal agency for creating the IR of DRDO. It is a database of research papers published by DRDO scientists in various national and international journals, technical reports, learmng materials, images, audio and video (DRDO InvaQ[i] e (Gallery, DR DC) heritage collection), patents, book- chapters, biographical sketches (eminent scientists of DR DO), etc. It is searchable by title, author, subject, laboratory' establishment, keywords, date of publication, etc. The IR is full text metadata searchable and available on DRDO intranet for DRDO scientists (Sharma & [M]agoch, 2008) (403).

DESIDOC has also established a knowledge repository (KR) of over 15000 digitized technical reports issued by DRDO laboratories establishments on their projects DSpace open source DL software is used. It is searchable by title, author, subject, laboratory establishment, keyvv ords, date of publication, etc. The KR is full text metadata searchable and ailable on DR DO intranet for DRDO scientists (Singh and Sharma 2013) (410). DL of DR DO publications under open access initiative. DRDO publications DL has also been developed which includes 29 monographs written by experts in various specialized areas of S&T having direct relevance to defence and published during 1993-201 1, popular science and technology series (15 books), DESIDOC Bulletin of Information Technology (DBJT) nmv DESIDOC Journal of Library and Information Technology (DJLIT) all issues, and Defence Science (DSJ), all issues, DRDO Newsletter, DRDO Samachar (in Hindi), Technology Focus and DRDO Science Spectrum (2()()9 and 2010 issues).

National Science Digital Library (NSDL)

It is developed by National Institute of Science Communication and Information Resources (NISCAIR), New Delhi. NSDL aims at providing comprehensive S&T information to students of science, engineering, and technology in the country. Begun as a Tenth Five Year Plan Network Project of Council of Scientific and Industrial Research (C SIR), NSDL is the only one of its kind that provides curriculum based content to address the information needs of the undergraduate students of science. The content creation and development for NSDL has gone through rigorous procedures to make available quality content for the students. Authored by eminent teachers and validated by renowned faculty jn Imjian universities and colleges, NSDL envisages bringing finest content to the students. The discussion forum has been provided for interactions amongst NSDL users. The objectives of NSDL are to create an open distributed, publicly accessible DL in the area of science and technology(S&T) as well as to facilitate access to students of S&T at undergraduate and post graduate levels. NSDL includes free downloadable e-books on subject areas like agriculture. anthropology, biochernistry, botany, chemistry, geology, horticulture, industrial chernistry, library science, space research, statistics, and zoology NSDL selected DSpace. the open source software for creating, browsing, and searching infonnatlon. NSDL provides facilities for browsing through communities and collections, titles, authors. subjects, by date and tor searching through siluple as well as advanced search.

VI. CONCLUSION

The libraries particularly special libraries/ research libraries have shown a rapid transformation from print to DLs via hybrid due to their adaptation to latest ICTs in content creation, collection development, preservation, and delivery of information to their users. The libraries had quickly adopted the developments in ICTs to their advantage and started delivering information to their users over internet and intranet. For large libraries, digital/ e- resources have proved as a boon in space saving, easy access to information and less administrative work, etc. The developments in ICTs have also enabled the users to access and search digital resources from library directly without visiting library and seeking help from library staff However, the DLs are growing very fast throughout the world due to their various benefits and attracting attention of all people such as librarian/ information professional, users/ scientists, library sponsoring organizations/ agencies, etc, for the development of good digital libraries for the users.

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