

DIGITAL TRANSFORMATION OF LIBRARIES

Ashish Singh Yadav

ICAR-Indian Institute of Sugarcane Research

Email: aashishsingh84@gmail.com

Brahm Prakash

ICAR-Indian Institute of Sugarcane Research

brahm_prakash53@rediffmail.com

Kamini Singh

ICAR-Indian Institute of Sugarcane Research

kaminipkv@gmail.com

M.K. Tripathi

ICAR-Indian Institute of Sugarcane Research

manoj.tripathi2@icar.gov.in

Abstract: The electronic or digital resources are assuming more and more significance in the digital libraries. Now, digitalization of already printed resources have led to enhanced availability of journals and books in digital format. The electronic books have proved their worthiness due to their easy portability and storage in a single pen drive or hard disc. The concept of digital libraries could be possible due to the great contribution of information and communication technology and discovery of internet that have helped in easy and user-friendly information processing, storing, searching and dissemination. Now, digital technologies are available at our doorstep with capability of effectively creating and capturing information in different formats, so that it can be made available to the end users. Electronic or digital resources are now available with enhanced accessibility beyond time and space. E- Books, E-Journal, E-Newspaper, E-Magazines, Indexing and Abstracting Databases, Full text database, Reference Database, Statistical Database, Image collection, Multimedia products, E- Theses, E- Clippings, E-Patents and E- Standards are few examples of digital resources. Digital resources have several benefits such as user friendly interface, working round the clock, seven days a week, access from any place, simultaneously access by number of user, huge reservoirs, saving of physical storage space, easy searching of e-resources to find articles on a particular subject from many different publications at the same time at one click, .no restriction to geographical limitation, easy for distance learning and online education. But there are few limitations of digital resources like reading only on the computer screens causing obesity, fatness, heart ailments, diabetes, eye strain, poor vision, wrong posture, neck pain and physical as well as mental stress and poor physical health to the readers, less permanent in nature due to their reliance on software and hardware, higher cost for their retrieval, issues regarding revision of the licenses and copying and distributing of resources, recording of upward trend in cyber-crimes and extra-marital affairs and watching of unwarranted website and prohibited contents. . It is being estimated that more than 90% of the material would be in digital form by 2025. In such a situation and future trend, library professionals should acquaint themselves with the new emerging digital environment and evolve the best possible technology and method of efficient and effective management of these resources for their improved availability and accessibility.

Keywords: Digital resources, e-books, e-journals, e-newspapers, characteristics evaluation, digital library.

1.0 Introduction:

Information and data have been considered an integral part of human being and its existence play an important role in keeping the human alive in the present environment. Information has been termed as the sixth basic requirement of human beings. Libraries are the major source of origin and providing access to information, as the libraries have been established with the following two objectives:

- a) Sharing the knowledge enlightens and educates society.

- b) Sharing of knowledge accelerates the process of creating new knowledge.

Present-day libraries not only preserve the knowledge of the past but they also play an important role in present for access and use by the present generation along with generations to come. Initially, when the paper and printing press were not invented, the knowledge was being disseminated through different physical forms like parchment, vellum, stones and a number of other physical materials. But when paper and printing press came into existence, the printed information in the form of books etc., dominated for a pretty long time as a viable medium for preservation and dissemination knowledge. Libraries were transformed from time to time to better options for preserving any type of knowledge resource for posterity, irrespective of their physical medium. The library professionals played a very significant role in devising newer improved techniques, procedures and methods for managing and organizing the information resources to meet the continuously transforming requirements for the access and delivery of knowledge. Thus, library professionals continuously evolved better options for information resources. Sincere efforts are being attempted to provide digital library services for the past few decades. However, these efforts were limited to the building digital collection and technical infrastructure, including intuitive interfaces to support search and browsing, networks and telecommunication, computing infrastructure, digital rights management, standards and protocols, metadata schema, etc. for enabling digital libraries for efficient and effective functioning. The digital resources and associated technical infrastructure are only means to provide services keeping its potential users in consideration. In the traditional libraries, printed resources are provided to the readers by the library staff. But in digital library, the digital resources are used for providing library services to the readers through software driven web-based interfaces.

2.0 Methodology

The paper is based on the information collected from various libraries located at Lucknow, Uttar Pradesh and the secondary data.

3.0 Results and Discussion

Initially in the digital libraries, the library research and development was focused mainly towards providing search and browsing interface to its collection. However, in the traditional library, providing access to its resources is only one of the various services provided by a traditional library to its stakeholders include acquisition, cataloguing, classification, reference services, circulation of physical documents, document delivery services, inter library loans, selective dissemination of Information, current awareness services, bibliographic services and reprographic services.

In the present digital era, the electronic resources (e-resources) or digital resources have assumed great significance in the digital libraries and amongst the academic library users. Now, the digital libraries are evolving round the globe to collect, store and communicate the information through electronic media which could be possible due to the information revolution (Arora, 2001; Aday, 2015, Jones, 2006 and Hargreaves, 2011).

The electronic or digital resources are assuming more and more significance in the digital libraries. Now, digitalization of already printed resources have led to enhanced availability of journals and books in digital format. The electronic books have proved their worthiness due to their easy portability and storage in a single pen drive or hard disc. For the quick and easy dissemination of emerging academic knowledge, the electronic journals among all academic electronic resources have revolutionized the knowledge delivery system. Now, abundance electronic resources are available individual or package deals from the large number of publishers.

The concept of digital libraries could be possible due to the great contribution of information and communication technology and discovery of internet that have helped in easy and user-friendly information processing, storing, searching and dissemination. Now, digital technologies are available at our doorstep with capability of effectively creating and capturing information in different formats, so that it can be made available to the end users.

Electronic or digital resources are now available with enhanced accessibility beyond time and space. There is no need to visit any digital library now, as you may access to any book or journal available in digital library through email. Even digital libraries can be established in a small room, as it does not require huge space to store thousands of books, journals, reference books and newspapers. While initially, the information seekers have to visit physical libraries.

Definition of Electronic or Digital Resources:

An electronic or digital resources can be defined as requiring access on any electronic product that delivers a collection of data, be it text referring to full text bases, electronic journal, image collection, other multimedia

products and numerical, graphical or time based, as a commercially available title that has been published with an aim to being marketed. These many be delivered on CD-ROM, on tape, via internet and so on.

During the past few decades, good number of techniques and related standard have been evolved which permits documents to be created and distributed in electric form. Therefore, to deal with the current situation, libraries are transforming towards new media, viz., electronic or digital resources for their collection development for fulling the demand in a better way.

Shukla has described electronic or digital sources “Digital resources are electronic information resources that can be accessed on the web, on or off campus. User can get the information what him or her want, when it is needed”.

4.0 What are digital resources?

1. Books, journals, databases, magazines, newspapers, archives, theses, proceedings of Seminars/Symposia/Conferences etc., government policy papers, research reports, scripts, and monographs in a digital form.
2. Information available in electronic format.

5.0 Types of Digital Resources

Electronic or digital resources can be defined as the resources that require accession by computer or any other electronic device that delivers an output, like e-journals or any radical text or other multimedia products, may it be time based or graphical in commercial products with the thought of being marketed (Mukherjee et al, 2020). E-resources are broadly divided into two major types viz., online e-resources like E-journal, E-books, online databases and websites and other electronic resources like CD ROM, diskettes and other portable computer databases. Some of the types of digital resources are described below:

- **E- Books:** A book publication made available in digital form, is known as an electronic book which consists text, images or both, readable on the flat panel display of computers or other electronic devices. In short, we can say that E-Book is an electronic version of printed book.
- **E-Journal:** A periodicals which is published in electronic format, usually on internet is known as E-Journal.
- **E-Newspaper:** An online newspaper or web newspaper that exists on the World Wide Web or internet is called as E-newspaper is also known as
- **E-Magazines:** An online magazine is a magazine published on the Internet, through bulletin board systems and other forms of public computer networks.
- **Indexing and Abstracting Databases:** Reference sources which provide bibliographic information about journals including abstracts of the articles are known as Indexing and Abstracting Databases.
- **Full text database:** A database containing the complete text of books, dissertations, journals, magazines, newspaper, or other kind of textual document is known as a full text database or complete-text database.
- **Reference Database:** Many dictionaries, almanacs, and encyclopedias, available on internet in electronic form are called Reference Database.
- **Statistical Database:** Statistical database contains the numerical data useful for the mass community.
- **Image collection:** Such databases are developed due to advent of e-image facility.
- **Multimedia products:** Images, videos, audios and text etc. are included in such type of databases.
- **E- Theses:** PhD thesis and dissertation published through e format are covered under E-Theses.
- **E- Clippings:** E-clipping are developed for retrospective search and comprehensive analysis of new items.
- **E-Patents:** E-patents are the exclusive right granted by the government for using of an invention for a specific period of time.
- **E- Standards:** Written definition, limit rules, approved and monitored for complains by authoritative agency.

6.0 Benefits of Digital or Electronic Resources

- Electronic resources have unique characteristic feature of user friendly interface.
- In the traditional libraries, there are office timing, during which any library use can visit the library and avail the library facility. But digital libraries work round the clock seven days a week (24x7). There is

weekly as well as holidays when traditional libraries remain closed. But in digital databases, there is no restriction on library users. Any library user can visit any digital library any time from any place. They don't have to wait for the library e information to open to access them (Anuradha, 2018).

- In the traditional libraries, if there are two copies of a book, then only two library users can use the same. But in case of digital library, e- resources can be accessed by several users simultaneously.
- E- Resources are huge reservoirs.
- Books in physical form needs more storage space as well as almirahs or book shelves. But in the digital library, e-resources save physical storage space. Many volumes of a particular journal and thousands of full text articles with graphics can be stored in one single CD ROM.
- Articles/ issues appeared online before printed version is available.
- Any traditional library cannot afford to procure number of copies of a particular book due to financial constraints. Similarly, the traditional library cannot possibly subscribe several copies of journals in paper format. But in digital library, e-resources provide access to literally thousands of e-journals, e-books, etc.
- If a user has to search different articles published on a particular subject, he has to visit number of libraries and consult number of books which consumes lot of time. But a digital library user can search e-resources to find articles on a particular subject from many different publications at the same time without having to search each publication separately within a short span of time or at the click of the mouse.
- In traditional library, a user has to get issued limited number of books at a time which cover the space on the table. But in the digital libraries, multiple and remote access makes it available at one's desk. This is really a boon for a huge campus where there are thousands of readers with number of departments.
- E-Resources interactive rapid turnaround time means articles can be read, commented by the readers, amended quickly and greater feedback through the web.
- The printed journals used to take a lot of time to reach the library from the printing press. In contrast, electronic journals do not require more timing for publishing and distributing process, therefore save time of the users.
- Digital or electrical resources are not restricted to geographical limitation. With the online availability of the information, there is hardly any need of being physically present in the library. It has led to distance learning and online education. The digitalization of education has crossed all boundaries for students who are knowledge thirsty (Rastogi 2020).

7.0 Shortcomings of Electronic Resources:

- Electronic or digital resources are to be read only on the computer screens. Readers face lot of difficulty in reading on computer screens: Similarly, electronic journal has the limitation of the computer monitor which causes strained eyes to the readers due to studying on the computer screen for pretty long period.
- Less permanent: One of the most common shortcoming with electronic or digital version of online journal is less permanent in nature as they are easy to lose due to their reliance on software and hardware.
- Higher Cost: When electronic or digital resources are lost due to any reason, their retrieval is quite costly.
- License/Copyright issues: Issues regarding revision of the licenses and copying and distributing of resources.
- Due to continuous use of digital resources for seeking information, the users use the computers or mobile phones for the number of hours which often leads to their poor physical health and poor vision.
- Spending number of hours on computers, laptops or mobile phones compel the users to develop obesity which is global killer. Lack of physical activity by using digital resources lead to obesity, fatness, heart ailments, diabetes, eye strain, wrong posture, neck pain and physical as well as mental stress.
- There is no doubt that internet has played a significant role in reducing physical distances between people. But it is equally responsible for creating a vast distance between the society. Due to more spending of time on digital sources, the cyber-crimes and extra-marital affairs have recorded an upward trend.
- Digital sources do not help the users to express their feelings, reducing face to face communication to bare minimum which is essential for developing understanding and confidence between two persons.
- The dark side of the vast sweeping information technology is that the students are watching unwarranted websites and prohibited contents at the tender age which pollutes their tender minds, enhancing the criminalization in the society.

8.0 Characteristics of Digital resources:

- Digital resources have the unique characteristics of easy and quick access to each and every document by any one from any part of the globe.
- On number of occasions, it is not easy to search print resources. But digital resources can be accessed or retrieved very quicker at the click of a mouse.
- The digital resources are very easy to access as the users can be guided by the library staff to the document by providing a link.
- Digital resources are very easy to search text.
- The collection available in digital format can be of any media.
- Ownership not that important.
- In digital era, the interaction between the users and librarians is very frequent.
- There is no defined user groups for digital resources.
- The software can help the users in retrieving the desired information, hardly intermediate can help users.

9.0 Evaluation of Digital or Electronic Resources:

According to Devi & Devi, the following points should always be kept in consideration while evaluating electronic resources:

- To identify the electronic version, have the retrospective data
- To check the content of the e-resources with significance to the users as well as to collection as a whole.
- To check the information about updation or otherwise.
- To identify the method of accessing of available e-resources.
- To identify the e-resource required to maintain and redesign the library website identified.
- To check the staffing needs for training of recruiting with the existing technology.
- To determine the e-resources with affordable price (Maceviciute, 2011).

10.0 Conclusion

Digital or electronic resources face large number of challenges at each and every level of their selection, acquisition, preservation, maintenance and management. In spite of that, electronic resources have its own advantage over print resources. The e-resources have number of benefits, providing solution to various professional constraints such as space, providing remote access, convenience in use, increased readership with better services, offering new opportunities for productive research output and academic excellence with in minimum possible time. Recent studies also revealed that in researcher's view, better and quick access to e-journals has positively influenced the activities of researchers by saving lot of precious time and money. Development of e-resources could be possible due to evolution of technology and the same technology and the same technology may be able to provide better solution and more opportunities to have complete bibliographical control over global literature which could not be possible under printed resources. It is being estimated that more than 90% of the material would be in digital form by 2025. In such a situation and future trend, library professionals should acquaint themselves with the new emerging digital environment and evolve the best possible technology and method of efficient and effective management of these resources for their improved availability and accessibility.

11.0 References

1. Adav, R. (2015). Digital Libraries and Intellectual Property Rights. International Conference on Digital Libraries. 1177-1187.
2. Anuradha P. (2018) Digital transformation of academic libraries: Opportunities and challenges, IP Indian Journal of Library Science and Information Technology 3(1):8-10.
3. Arora, Jagdish. (2001). Web Based Digital Resources and Services: Trends and Innovations. trends.ifla.org
4. Hargreaves, Ian (2011) Digital Opportunity, A review of Intellectual Property and Growth, An independent report. May 2011, page 18.
5. Jones, M. (2006). The Digital Preservation Coalition: building a national infrastructure for preserving digital resources in the UK. The Serials Librarian, Vol. 49(3). 95-104.
6. Maceviciute, E. (2011). Education for Digital Libraries: Library Management Perspective. World Digital Libraries, 4 (1): 49-61.

7. Mukherjee Amitrakshya, Das Suman and Chatterjee Avick (2020) E-resources and higher education in India. In: Empowering libraries with Emerging Technologies for Common Sustainable Future (Editors: M.P. Singh, P.K. Jain and Debal C. Kar), Variety Books Publishers Distributors, Delhi 110 092. Pp. 44-50.
8. Rastogi, Himanshu (2020) An analysis of merits and demerits of the use of ICT in education system – Indian perspective. In: Empowering libraries with Emerging Technologies for Common Sustainable Future (Editors: M.P. Singh, P.K. Jain and Debal C. Kar), Variety Books Publishers Distributors, Delhi 110 092. Pp. 33-43.