

## IMPACT OF DIGITAL LIBRARY AND INFORMATION SERVICES: A USER'S PERSPECTIVE

**Chittaranjan Nayak and Vishwanath Pratap Singh**

Central Library , Indian Institute of Technology Kharagpur.  
School of Life Science, Department of zoology , Guru Ghasidas Vishwavidyalaya,  
Bilaspur, Chhattisgarh.

---

**Abstract:**

*Digital Library redefines the relationships between information providers and intermediaries and potentially, transforms the way that services are delivered to users. Digital libraries are complex systems that stretch institutional resources and capabilities, but also offer unparalleled opportunities for new and improved user services. This paper highlights about the large scale impact of digital library services in present scenario.*

---

**KEYWORDS:**

Digital Library; Digital Reference Service; Digital Preservation; User Orientation Program.

**1.0 INTRODUCTION**

Retrieving information as quickly as possible is important to every researcher. Easy access to up-to-date research information is expected by all researchers. Traditionally, research information has been available in paper or CD-ROM formats, but today the World Wide Web is increasingly viewed by information providers as a more suitable medium for their reference databases and full-text research journals. Through the Web, users can retrieve the research information they need from any location Just-In-Time (JIT). A common question regarding Digital Libraries is "Why not just use existing WWW tools/methods?" Indeed, most Digital Libraries use the WWW as the access and transport mechanism. However, it is important to note that while the WWW meets the speed requirement of scientific and technical information dissemination, it has no intrinsic management or archival functions. Just as a random collection of books and serials do not make a traditional library, a random collection of WWW pages does not make a Digital Library. A Digital Library must possess acquisition, management, and maintenance processes. These processes will vary depending on the customers, providers, and nature of the Digital Libraries, but these processes will exist in some format, implicitly or explicitly.

**2.0 WHY DIGITAL LIBRARIES?**

Digital libraries have their unique advantages. They satisfy the information needs of users in different circumstances. They play a different role and each serves the needs of users in different ways. Digital libraries offer a wide range of new access opportunities that are absent in the traditional environment, including remote access, 24-hour access, and multiple users for single sources. The arrival and proliferation of electronic resources and digital libraries have already influenced and changed the way of academics and scholars usage of print resources and traditional libraries. It has also sparked a new wave of literature on the perceptions and preferences of print and electronic resources.

The purpose of Digital Library Initiative is to advance the means to gather, store, and organize information in digital forms, and make it available for searching, retrieval, and processing via communication networks in user friendly ways. Reason behind so many libraries and other institutions, turned their hands to create digital libraries is to do with advances in information technology - increasingly both academic and recreational materials are being made available in electronic formats, either in addition to or instead of print. The costs of creating, storing, and disseminating electronic information have decreased, and the technology to support distribution and access is widespread. Rising acquisition and subscription fees have forced libraries to seek other ways to make information available and content aggregators and e-book publishers are providing the means. Most significantly, digital libraries support service improvement. Information search and navigation across

electronic information resources is much faster, with enriched points of access, and alternative methods for browsing and exploration. The resources themselves can be segmented, rearranged, annotated, and enhanced in ways that was not possible before, and can be directly integrated with desktop productivity tools for local analysis and processing. A digital environment enables cross-community interactivity and collaboration, regardless of physical location. Also, digitization presents opportunities for long-term preservation of bodies of knowledge, if not in the original carriers of that knowledge.

## 2.1 DIGITAL, ELECTRONIC, MULTIMEDIA

These terms digital, electronic, multimedia etc., are used with abandon, and little precision, in the literature. It is most appropriate to think simply of digital materials, noting that their inter-conversion and media requirements, while in principle straightforward, may in practice be problematic. There is a significant difference between digital objects created in electronic form, and hence amenable to digital processing, and those that have been digitized from printed form. The latter may or may not be so amenable; e.g. a printed book may be digitized by keyboarding, or by scanning plus OCR (optical character recognition), so that its text is searchable, or it may simply be digitized by scanning so that it can only be viewed.

## 2.2 DIGITAL PRESERVATION

Preservation and dissemination of intellectual output and research experiences is a primary concern for all research institutions. The term 'digital preservation' seems to have somewhat two distinct meanings: the preservation of materials created in digital form and the digitization of analogue materials for access and preservation. I take digital preservation here to mean the processes by which a digital library ensures the long-term viability of its digital materials, whatever their source, by protecting them from the threats of physical deterioration and technological obsolescence. It is a problem that many libraries with some digital components are only now beginning to encounter.

The difficulty and expense of preserving digital information is a potential impediment to digital library development. Digital preservation is largely experimental and replete with the risks associated with untried methods. Digital preservation strategies are shaped by the needs and constraints of repositories rather than users, current or future.

Needless to say, digital preservation, whether it is of materials that were born digital or born analog and converted to digital, is a massive undertaking. Text, image, video, and the ubiquitous World Wide Web all need preserving, yet there is little agreement on how to do it, and there are few universally agreed upon standards.

Fortunately, organizations and individuals are rising to the challenge. Publishers, national libraries and other governmental agencies, foundations and research libraries, non-profit organizations, and even some enterprising individuals are all assuming key roles in digital preservation. Publishers have strong proprietary interests in preserving their assets, especially if a possibility exists for reselling one of those assets in the future. Many major publishers, Such as American Geophysical Union, Oxford University Press, and American Physical Society have committed to digital access for some of their core publications.

## 3.0 INTELLECTUAL PROPERTY RIGHTS

Intellectual property rights pertain to images, data, text and other media in digital libraries as much as in any other setting. Managers of digital libraries have to handle with practical matters as intellectual property rights with a view to continuation, expansion, and improvement apart from the underlying architecture, and the development of services for users. Confusion over intellectual property rights in the digital age, the profit motive, the concept of fair use and the development of the global economy have converged to create a vexingly complex set of problems. The migration of information resources to an increasingly digital library infrastructure throws up many legal and policy issues. These relate, to information integrity, document authenticity, user confidentiality, payment systems, security encryption, personal privacy and, not least, to copyright management.

Some commentators argue that the challenge is so great that no amount of tinkering can remedy the problem. Real libraries, with their inherent local limitations, constitute the only means our society has for overcoming the 'what' and 'who' restrictions of virtual libraries. Authentication is a closely related issue. By authentication, we mean the processes and procedures by which user access to information resources is controlled in the digital library environment. In a very real sense, digital libraries are evolving in a legal and policy vacuum and Building the digital library on solid research foundations against a backdrop of commercial and market uncertainty. Libraries embody many attributes, not just the satisfaction of narrow information seeking behavior.

## 4.0 DIGITAL REFERENCE SERVICE

Worldwide few projects are going on to make use of portal-type technology to present an information environment that is personalized to the user's needs and allows user customization. This will allow users to personalize digital library access so that they can view their preferred resources, and hence information is automatically filtered. These projects aim to select automatically a subset of the Digital Library collection based on the nature and characteristics of a user. The user then can add new resources, or delete recommended resources, to his or her page. This will also provide filtered (based on the chosen task of a given user) access to the local digital library collections, to remote digital libraries, as well as to traditional libraries, and, most importantly, to the vast information resources on the university intranet. The system also allows users to create their own personal workspace to store selected information resources for future use. Since the greatest part of reference and information services in the past has revolved around assisting users in their information search, and because of the fact

that in a digital library environment end users need to search information resources all of which are online, it may be wise to take a quick look at some recent studies involving end-users' search behavior in the online and Web search environment.

Google Scholar provides a simple way to broadly search for scholarly literature. From one place, user can search across many disciplines and sources: peer-reviewed papers, theses, books, abstracts and articles, from academic publishers, professional societies, preprint repositories, universities and other scholarly organizations. Google Scholar helps user identify the most relevant research across the world of scholarly research.

Ask.com is useful for complex questions, and is a good choice for searchers that lack Boolean or other searching skills, because of its strong natural language parser and question-and-answer template structure. The strength of Ask.com is the knowledgebase which, according to the site, "contains links to more than 7 million answers, which contain information about the most frequently asked questions on the Internet". The approach taken by Ask.com in the use of templates for storing queries, and the knowledgebase for storing the queries and their answers may be adopted by digital libraries.

Electric Library is an excellent choice for a serious researcher in need of timely content from a wide array of otherwise unavailable sources.

The infoplease is an excellent tool for students and other researchers, as an authoritative source of facts and pointers for further investigation.

A brief review of some digital library research projects focusing on the digital reference and information services reveals that some projects aim to use the agent technology for identification, filtering and categorization of information; collaboration among libraries and various institutions has been considered as a measure to cut the cost and achieve higher performance levels; one project is trying to create models of expert users' information problem solving techniques so as to create some generalized models to be useful for other users.

Digital reference librarian in the new millennium will need the ability to read the situation a user is in and find the right information for that situation. Considering this view and also to keep in pace with the rapid appearances and developments of web-based reference and information services provided by non-library organizations, many library and information science professionals have now turned their attention to the provision of e-reference services.

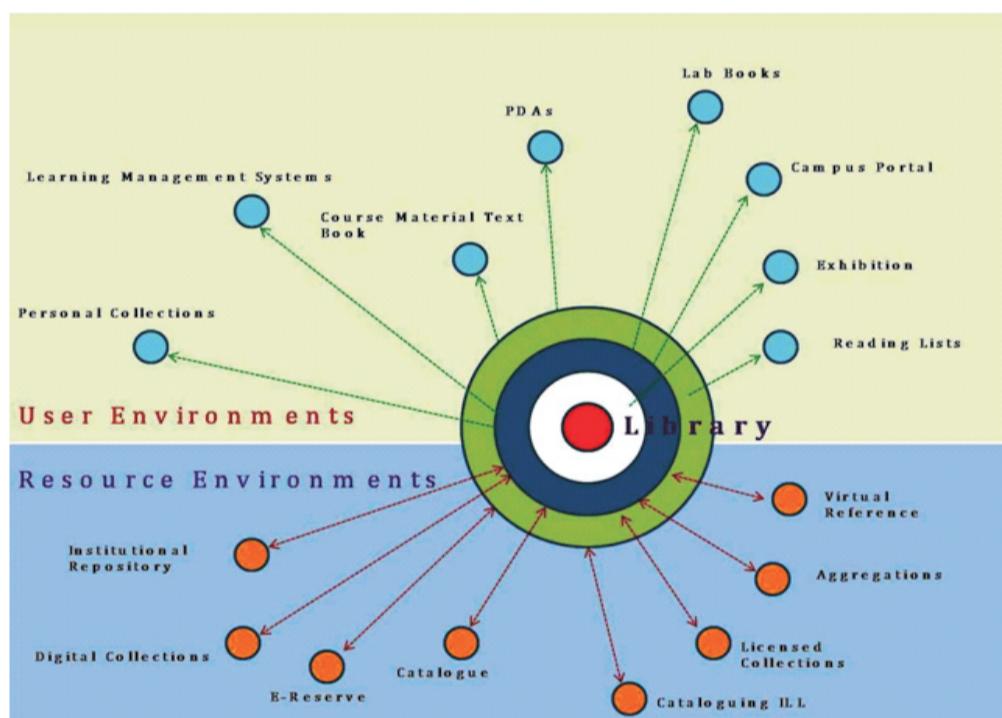


Figure: Libraries in a Flat World

## 5.0 USER'S VIEWS ON THE DIGITAL LIBRARY

The WWW already offer many opportunities for scholars and scientists to communicate the results of their research. Electronic exchange of scientific output through centralized and/or decentralized database is growing rapidly. The times of long visits to the library to browse through books and journals belong in the past for many of us. The personal relationships with experienced library staff who knew users interests has disappeared. This has been replaced by search profiles that supply us with regular updates on new publications in our field of research. The digital library is, however, more than a digitalized version of the old library. Searching has become easy and quick, and the number of full text as well as bibliographic databases that can be accessed has increased significantly. For most users the library is, however, no longer the only, or even the main, road along which information becomes available. It is used in combination with the many resources that have emerged along the digital highway. The main problem for the user is how to manage all these different resources. Although the library information system is relatively easy to use and shows a large number of user-friendly extras, it is not what he/she really

needs. What the user really needs is intelligent assistance in using this combination of local and remote information resources.

## 6.0 USERS ORIENTATION PROGRAM

The library no longer only provides materials which it owns; besides this it provides access to digital networked resources beyond its physical location. Within the context of the digital library it is no longer possible to physically browse through a library collection or an individual book. Different information resources can appear very similar due to the same interface, which has a "homogenizing" effect. For a librarian, it is important to help users to distinguish between different kinds of information resources, especially their functions and purposes.

User training (i.e. bibliographic instruction) can take many forms – guides, tutorials, manuals, pathfinders, workshops, videos, FAQ or one-on-one guidance. User expectations have to be handled carefully. Many users will come to believe that all information is available to their PC, can be found through simple Google Scholar like searching, and will always be up-to-date. It is important to convince them that it is search systems. It is also necessary to be realistic; digital libraries are often better at providing metadata records, and location information, than at giving full-text of everything. This leads to the important role of the librarian as facilitator and helper, but the facilitation and help must be very realistic. Digital libraries will never be as easy to use as automatic machines or one purpose technologies, and what working with them effectively requires some learning. Complex cognitive tasks are involved in the work with them. Connectivity and technology at the user end will vary with respect to speed, capacity, device, and graphic display, and this should be taken into account in interface design. Users may also face physical challenges, restricting their ability to use a keyboard, or requiring the use of an assistive device that translates information into spoken words. For the most part, digital libraries rely on pointing devices and keyboards for interaction, and are primarily designed for display on desktop or laptop computers. A consensus seems to be emerging that learning in digital library environments encompasses two distinct components –

- (a)Learning how to access, evaluate and use information resources; and
- (b)Learning how to master and build on the ideas embodied within those resources.

## 7.0 THE FUTURE OF DIGITAL LIBRARIES

Libraries have always been concerned with the collection, organization, storage and retrieval of materials and information, in order to respond to users' queries. It has also often been noted that new technologies for the generation, distribution, processing and storage of information have brought changes in the nature, volume, and format of that information. The digital library is only the most recent of these.

Experts have different vision and much uncertainty over how the digital library should look like. One thing that is certain is that the digital libraries of the future will be shaped by the technologies, standards and models adopted today. Some commentators believe that the current status of digital library research and development is far too conservative. Discussions of the digital library usually emphasize the transition of scholarly information and libraries to the electronic medium. It is likely that this thinking about 'transition' is itself transitional and merely looks at the past as a way to conceptualize the future. Such thinking may constrain opportunities in the new networked world. In other words, certain features of existing libraries are being unreflectively conserved, as are some features of an idealized and unreal past. The future surely lies in developing understanding between librarians, technologies and users. To participate most fully, librarians need the help of technologists to better understand the possibilities being created by digital technologies and technologists will need the help of librarians to appreciate the richness of traditional librarianship and to identify aspects of it that are most relevant to the continuing evolution of libraries.

## CONCLUSION

Digital libraries are a worldwide success, even though they are barely a decade old. Technology provides unprecedented access to a growing number of digital resources and library services. Digital libraries have spread in many fields, areas and institutions. Growth in their use is extraordinary. Numerous innovative practices have been developed and more are underway that account for this success and increased use globally. In fact, digital libraries are becoming a phenomenon with wide spread effects above and beyond libraries proper.

Apart from the underlying architecture, and the development of services for users, managers of digital libraries have to cope with practical matters such as ongoing funding and maintenance, proper management of intellectual property rights, and assessing the effectiveness of digital services with a view to continuation, expansion, and improvement. The focus among library consortia is gradually shifting from integrated library systems to digital library projects, resource sharing, collective database licensing and document delivery, each of which implies considerable changes to working practice. Indeed, some of the more alarmist pronouncements on the digital library foresee the elimination of intermediaries (searchers, librarians, retailers, distributors and others) who merely 'interfere' in the process of interchange between content creators and readers.

## REFERENCES

- 1.Halm, Johan Van (2002). 'Information gateways'. *New Library World*, Vol. 103 (1177), pp. 222-224.
- 2.Chowdhury, G.G, Chowdhury, S (2000). 'An overview of the information retrieval features of twenty digital libraries'.

---

Program, Vol. 34 (4), pp.341-73.  
3. Matson, L.D. and Bonski, D.J. (1997). 'Do digital libraries need librarians? An experimental dialog'. *Online* 21(6), pp.87-92.  
4. Levy, D.M. and Marshall, C.C. (1995). 'Going digital: a look at the assumptions underlying digital libraries'. *Communications of the ACM* 38(4), pp.77-84.  
5. Weinberger, M.I. (1999). 'Just-in-time learning with electric Library'. *Library Trends* 45(4), pp.623-638.  
6. Ackerman, M. S. (1994). 'Providing social interaction in the digital libraries'. In *Proceedings of digital libraries' 94: First annual conferences on the theory and practice of digital libraries*, pp. 198-200.  
7. Balas, J.L. (2003). 'Is the reference librarian real or virtual'. *Computers in libraries*, 23, pp. 48-51.