Digital Age:
Challenges for Libraries

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Abstract

Information technology and globalization are the two most influential forces of the modern times. IT has given new meanings to the transmission, dissemination and storage of information; whereas globalisation is reducing the importance of geographical boundaries. Libraries as an important social institution have been affected by these changes. Information retrieval, information storage and information transmission are the core competencies of the libraries. Digital age characterized by efficient graphic user interface, digital imaging, efficient transfer and storage of texts, is presenting important challenges for the libraries. Information privacy, copyrights, and information security are some of the challenging issues faced by the libraries in digital age. This paper is an attempt to present as well as to discuss the implications of these issues so that strategies can be devised to address them effectively and efficiently.

Introduction

The advent of the World Wide Web (WWW) in the 1990's and the rapid development of information communication technologies (ICTs) have revolutionized the role of various institutions. Digital age, an age that is characterized by efficient and effective conversion, storage, diffusion, and dissemination of data to users, is posing new challenges to the libraries. The traditional role of libraries as repositories of the printed material has been changed, and in the current times libraries are witnessing a transformation from traditional libraries to hybrid libraries (providing access to both digital as well as print materials) in most cases and to digital libraries (provision of access to data that is in digital form) in few cases.

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Though (WWW) and (ICT) are providing new opportunities for libraries, but on the other hand there are some emerging concerns too. Information privacy, information security, and copyrights are among some of the concerns that need to be addressed in order to ensure the structural and functional stability of the libraries as a social institution. It is important to note that concern for privacy among users is an important hurdle in the expansion of virtual communication, transfer and use of information.

This paper is an attempt to bring various issues to spotlight that can impede the digitization process in libraries. It is hoped that this exploratory effort would help the researchers as well as practitioners to devise strategies that could address the challenges associated with the digital age in an effective way.

Literature review

Digital age started with the advent of computers and virtual networks. The increased use of the WWW and rapid developments in Internet technology enabled the libraries to offer various services by using digitization of the printed material. It is interesting to note that various terms have been used interchangeably to describe the libraries in the digital age, e.g., virtual library, hybrid library, electronic library, and digital library (Cleveland, 1998). The term "digital library" was started to be used in early 1990s (Cathro, 1999). Digital libraries are becoming a necessity in order to keep up the pace with the technological revolutions. Academic, special or public libraries all have to transform their functions, which are mediated by the digitization, so that services can be provided to users according to standards that have been changed because of digitization.

What is a digital library? Conceptions, approaches and realisations differ (Saracevic, 1999). As far as 'digital library' is concerned, there are different definitions of digital library, and most of the definitions have tried to encompass the various functions that are associated with the provision of various services in digital age. According to Digital Library Federation, a digital library can be defined as follows: "Digital libraries are organizations that provide the resources, including the specialized staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collections of digital works, so that they are readily and economically available for use by a defined community or set of communities" (Digital Library Federation, 1998).

Digital libraries in their true essence would be the institutions that would have all the data in the digital form. Though at present we have what we can call "hybrid libraries", that is, the libraries that have printed materials as well as information in digital form (Bawden & Rowlands, 1999). However there are some definitions that consider the information in digital as well as in print form, as a domain of digital library (Cathro, 1999).

Digital age has reshaped the structure as well as the form of libraries. The emergence of network society or information society has given birth to different user needs. Digital library, which is an organizational response to different user needs, is a concept of great social and economic significance (Bawden & Rowlands, 1999). Librarians have to acquire not only the skills for librarianship, but also the skills of IT for the adequate provision of services to users.

Digital age has also brought with it the challenges of information privacy, information security, copyrights, censorship, and data preservation. It is important to note that the concerns for information privacy, information security and copyrights have been addressed by various researchers, e.g. (Kohl, Lotspiech & Kaplan, 1997; Newby, 2002; Butler, 2003; Fifarek, 2002; Ravi & Kumar, 2004).

Though digitization would enable the speedy flow of information to various users at various geographic locations, but there is a growing concern for ever increasing digital divide also (Byrne, 2003). The access to digital documents is dependent on the presence of infrastructure, and financial affluence; however in most parts of Africa, South Asia and South America the lack of financial and technological resources can enlarge the digital divide. A new paradigm has been emerged for the libraries (Berring, 1993), but the libraries need to take into consideration the provision of access to users at the grass root level also.

Discussion

Information Privacy

"Privacy is a condition of limited access to identifiable information about individuals" (Milberg, Smith & Burke, 2000, p. 37). Privacy has become more important in the virtual environment. Breach of privacy has been stated as one of the most important hurdle in the expansion of the virtual trade (Bakke, Faley, Brandberry & Troutt, 2005). In a library environment, where users are increasingly utilizing the resources of library in a virtual environment; the privacy of users is at risk. Libraries in the past, that is, before the digital age usually had the user's record in the form of reader's borrowing cards (Sturges, Iliffe & Dearnley, 2001). In addition to reader's borrowing cards, interlibrary loan was another form, of record about the readers. Between these two type of records, interlibrary loan record could have reveal the private information of the reader. In the current times, however the nature and amount of information that a library can collect about a user, is enormous. Users' names, addresses, website logs, e-mail logs are archived by the computerised management system of the libraries automatically (Sturges *et al*, 2003). This data can be accessed either by intruders in case of privacy breach or this data can be provided by a library staff to an outside functionary.

It is therefore important for the libraries to protect the privacy of users extraneously. The protection of privacy includes but not limited to the protection of network from outside intrusions to the information of users, but also includes the maintenance of data integrity within the network of the library. The user privacy issue arises also when a library provides access to databases housed by the publishers. In this case a library will be an intermediary between the user and the publisher. Being an intermediary it is incumbent on the library to protect the transactions between content owners and users, as well as to protect the privacy of the users, who are using the network of the library in order to complete a virtual transaction (Kohl, Lotspech, & Kaplan, 1997).

Information Security

'Information security is the means and methods of protecting data from unauthorized access, theft, alteration, or deletion; and insuring continued ability to access data

whenever required' (Ravi & Kumar, 2004). There is a difference between computer security and information security. Computer security is limited to securing computing systems, whereas information security includes information management, information privacy and data integrity (Newby, 2002). Maintenance of information security in a digital environment is one of the most important challenges for the libraries. In the digital age availability of secure, efficient and cost effective networks of access, would be the core competency of the libraries. Availability, integrity and preservation of data are the core functions of libraries in the digital age (Brainstorming Report, 2001). It is important to note that the information security includes primarily two types of security: a) security of users' privacy b) security of the networks from external as well as internal intrusions. As far as security of users' privacy is concerned, it is necessary that the users' data, e.g., names, addresses, e-mail logs, website logs etc... must be protected from sharing by any employee of a library without a legal justification. Users still place a lot of trust in the ethics of library employees and show a little concern about the possibility of data sharing by a library employee (Sturges et al, 2003). In addition to the security of users' privacy, the second important challenge for the libraries is to secure the networks. It is a well known fact that with the passage of times the external intrusions in particular and internal intrusions in general have grown in number considerably. The external intrusions can take various forms, for example, viruses, worms, Trojan horses, hacking… etc. can disable the network of a library and can also get access to the personal data of users, employees and to databases developed or stored within the network of a library (Ravi & Kumar, year). It would be vital for the libraries to protect the networks so that the integrity of data can be maintained. Information security would require the mechanisms that could ensure the verification of users' identity, preservation of data integrity, and privacy of users (Kohl, Lotspiech, & Kaplan, 1997).

Copyrights

Digital age is posing another important challenge for libraries, and the challenges is to protect the intellectual property rights in a networked world. The issue of copyrights also includes information ethics (Capurro, 2001). The use of library networks for access, copying, and printing of a copyrighted material without permission can have serious repercussions for that library. In the digital age it has become difficult to protect the intellectual property rights, because of the lack of understanding among users that copying of a stream of bits without necessarily reducing the availability of that stream to other users, can potentially be considered as the breach of intellectual property rights (Seadle, 2004). Globalization of virtual networks has further complicated the situation. There is still lack of a global legal framework that can be enforced in any part of the world in case of breach of intellectual property rights. The concept of "fair use" can be helpful in determining the common grounds for the enforceability of the copyright laws in the digital age. Under the concept of "fair use" a user can reproduce from a copyrighted material, for non-profit, educational, or personal reasons, depending on a) purpose of use b) nature of work c) part being copied, and d) work's marketability (Butler, 2003). However in order to develop the common grounds for the enforceability of law, there would be a need to educate the users as well as the librarians about the importance of ethical and moral behavior.

Conclusion & Implications

Though digital age is providing lots of new opportunities for various institutions including libraries, but there are some challenges too. Information privacy, information security, and copyrights are some of those challenges. In addition to the above mentioned challenges, the challenges of information ethics, information impacted-ness and digital divide also forcing the libraries to reshape the operational as well as structural environment. There is a great need that these various challenges should be addressed both from a theoretical as well as practical (technical) perspective so that a holistic approach can be developed to address these challenges with complete zeal and zest.

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