From Automation to Transformation: Impact of ICT in LIS: Major Shifts & Practices

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Abstract

Application of ICT in libraries has become inevitable in an era of information explosion and widespread use of digital information resources. Effective application of ICT in libraries helps in performing their operations and services most efficiently. The modernization of libraries and information centers enabled information transfer and access, meeting objectives and there by establishes a network of libraries and information centres. This initiative saw a major shift in resource development, resource sharing and their utilization at various levels. They subscribe to e-journals, CD-ROM databases, online databases, web-based resources, and a variety of other electronic resources. They participate in library consortia and build digital libraries.

Keywords: ICT, Automation, e-resources, Intranet, Internet, Portal, Web resources, Technostress, Cyberphobia

1. Introduction

Today libraries are shifting their role from the custodian of traditional information resources to the provider of service-oriented digital information resources. Widespread use of computers, increased reliance on computer networks, rapid growth of Internet and explosion in the quality, and quantity of information compelled libraries to adopt new means and methods for the storage, retrieval and dissemination of information.

Library automation, development of digital libraries and application of innovative information and communication technologies (ICT) have tremendously increased because it provides enhanced user satisfaction, cost effectiveness, rapid responses, and easier operational procedures. Libraries and Information Centres have been employing ICT and electronic information resources and services to satisfy the diverse information needs of their users. E-journals, CD-ROM databases, online databases, e-books, web-based resources, and a variety of other electronic media are fast replacing the traditional resources of libraries.

The changing dimensions of LIS have left a lasting impact in the arena of Web and Electronic publishing. A revolutionary change in publishing industry has brought major changes with respect to Authors, Users, Journal editors, Publishers, Libraries and Subscription Agents in LIS domain. Though 1990s saw major use of web-based products and services, today's digital revolution mainly depends on internet and web technologies with electronic journals as their major content.

The Technology has evolved past thirty years and currently in fourth revolution with Innovation and transformation began with Internet technologies, World Wide Web, Internet Browsers and evolving

Web technologies like CGI, ODBC; JDBC; Servlet, Applets, server-side scripting. This gradual migration towards electronic resources enhanced contents in electronic version and increase in local contents with provision for electronic repositories to host them locally and increase in in-house digitization activities. Major factors Influencing Changes were Collection, Services, Users, Staff.

The objective of automation to transformation is to facilitate information amongst scientist, engineers, social scientists, academics, faculties, researchers and students through electronic mail, file transfer, computer, audio, video conferencing, etc. The objective of information and communication technology in Library and Information Science is to establish a communication network for linking different libraries and Information Centres.

The objective is also to promote and establish communication facilities to improve capability in information transfer and access that provide support to learning and research pursuit through cooperation and involvement of different stakeholders.

The modernization of libraries and information centers enabled information transfer and access, meeting all above said objectives and there by establishes a network of libraries and information centres. This initiative helped in resource development, resource sharing and their utilization at various levels. They subscribe to e-journals, CD-ROM databases, online databases, web-based resources, and a variety of other electronic resources. They participate in library consortia and build digital libraries. However, these libraries have been hampered by many constraints to embark on successful application of ICT for their operations, resources, and services.

2. Automation of Library and Information Centres

The automation of Libraries is an important activity as it is a pre-requisite for networking of libraries and resource sharing. It enables promotion of e-Learning for remote users, usage of e-Journals/e-Books remotely, digitization of contents including non print materials, creation of Centre of Excellence in library, information and computer sciences, creation of e-Archives, creation of institutional repositories. Almost all the operations in a library can be automated to achieve more efficient and effective functioning and for providing excellent library and information services.

ICT infrastructure would involve hardware, software, and telecommunication. Sufficient infrastructure is very essential for the successful application of ICT in libraries. The ability of computers to store and process vast amount of information coupled with the ability of communication technology to transmit this information from one location to another has revolutionized storage, retrieval, and dissemination of information in libraries. The value of ICT-based resources and services are that it can be easily shared, distributed, updated, manipulated, and rapidly searched. These resources are available in static physical forms such as CD-ROMs, or in a fluid form like the Internet.

ICT awareness of library users is an important factor that enables them to become more effective end users. Training is an integral component of staff development and well-organized institutions

have staff development as a central hub in their personal policies. Training on library automation and use of ICT-based resources and services are very important that enable the library professionals to provide value added services to their users. Training is suggested as an appropriate means of enabling staff to cope effectively with technological change. Successful training needs to appreciate that staff have different needs and so prefer different training methods.

Example: At Wipro Technologies, training is part of the profession. If any new technology is implemented, training will be provided to orient the library staff with system. Ex: LibsysX Software integration. When the database LibsysX was integrated for 8 Information Centers spread across India, all Wipro librarians were trained on the same, which helped in finding out due books/journals/ CDs against an employee from different locations across India.

Likewise Wipro's Information Center subscribes to ebrary (e-books) and Proquest, Emerald Insight and EBSCO categorized under e-resources. A monthly statistics of EBSCO site reveals that it is accessed 2750 numbers by Wipro employees. The usage to all electronic resources is quite high and well appreciated.

Harvard Manage Mentor is a just-in-time online learning courses on Coaching skills, Performance management, Budgeting etc. These online courses help managers to equip themselves with these skills whenever they need. They need not attend any class room sessions for the same, as they are offered thro' intranet portals and Corporate gateway.

ICT objectives include the provision of electronic access for users such that online access to library catalogues should be available and workstations for public use. In addition, every static service point is to provide public Internet access. To be able to provide this level of service the Standards require that qualified staff must have appropriate ICT qualifications.

The technological impact in terms of collection has moved from print to electronic resources in terms of journals, books etc. Services are started rendering in terms of databases and online search with shift from quantity to quality. Today's challenges and expectations from LIS professionals involve managing and providing access to digital sources, organizing and preserving the same in print and electronic form. In addition to it, cataloguing, internet resources, evaluating and selecting internet information resources, building subject gateways/ portal as a part of library portal.

Ex: At Wipro Technologies, Information Services Division [Library] has exclusive intranet portal and all subscribed e-resources are listed. Wiproites can access the same through intranet and Wipro Gateway on need basis. These e-resources facilitate the employees to search/ access independently without relying on Librarians.

3. The effects of technological change

The advent of new technology into the workplace and into society generally, can be very frightening for some people. The media and academia have contributed to the discussion as to why people are

frightened of new technology, from dishwashers to computers, giving rise to expressions such as "technophobia", "cyberphobia", "computer anxiety" and "technostress" to describe such fears. The research of Rosen and Weil (2000) in the USA has explored human reactions to the introduction of additional technologies into the home and the workplace in recent years. They studied the responses of clerical and support staff, managers and executives in businesses across the USA and found that, although there are people who are genuinely excited by new technology and enjoy using it, there are a substantial number who are resistant to technology.

Human fears of technology may emerge because of its introduction, or increase in use, appears to threaten the status quo. That could be a change in the routine at work that was happily undertaken for the past 20 years, or the fear of being left behind, or replaced by others who have the relevant technology skills. Change generally can bring both uncertainty and discomfort into our lives (Burton, 1992). It may provoke strong emotional reactions in people ranging from the confusion, fear and stress (Cooper, 1998) often associated with loss and bereavement.

The effects of automation on library staff have been a focus of research for the last 20 years and the introduction of automated library systems was a major point in the working lives of library staff since it involved learning new technologies, new processes and procedures. Years of routine were overturned instantly with the introduction of a computer for staff to work with. More recently, change might have involved moving to a more modern library management system or the acquisition of CD-ROMs and e-journals all of which might prove very intimidating for staff in libraries with little or no prior experience of such innovations (Hudson, 1999). Hudson argues that libraries generally "are in a period of general uncertainty" which can be worrying for staff and might provoke hostility or resistance to the introduction of new technologies.

4. Attitudes to technology

Attitudes – chiefly positive attitudes – are assumed to be fundamental in the acceptance, implementation and success of new technologies. Literature relating to people's views of technology is expressed in terms of attitudes to technology or attitudes to change. For ICT systems to be successful, it is suggested staff need positive attitudes to ICT (Fine, 1986; Evald, 1996).

5. Attitudes of library staff to echnological change

Research, which explored the influence of the attitudes of library staff, found that attitudes towards computers were positively associated with computer use and were also predictive of the number of hours of work performed on a computer. The authors suggest, "Attitudes towards computers are an appropriate focus for organizations attempting to increase the number of hours that their employees use their computers" (Winter et al., 1998).

Example: A study carried out in 1989 investigated the impact of information technology (IT) on staff deployment in UK public libraries and found that the introduction of IT had been a positive experience in general, although some staff had found it to be an initial barrier. The authors suggested "all

library staff would need to have a positive attitude towards IT in future" (Craghill et al., 1989). A study by Jones et al. (1999) noted that focus group participants had expressed negative attitudes towards technology, whilst a review of the literature had suggested attitudes are important in relation to both ICT and to the success of training.

Information Services Center at Wipro releases many e-Newsletters on monthly basis in consultation with experts heading different domains/ technologies. These e-Newsletters are found quite useful by experts and their team and serves as an SDI services which is through ICT. They are hosted on ISD portal and as well sent to concerned team from ISD.

6. Training and Library staff

Training is generally acknowledged to be essential in introducing successful change in the workplace. Furthermore, it is a key strategy in overcoming any resistance to change and in providing staff with the requisite skills as both New Library and Building the New Library Network identified (Library and Information Commission, 1997, 1998). Training appears to affect perceptions of technological change and attitudes to ICT and change (Craghill et al., 1989; Biddiscombe, 1997; Gilmore, 1998; Cooper, 1998; Jones et al., 1999). Good training is shown to have beneficial effects on staff and their reactions to new technologies. Respondents in a study of university library support staff saw training as a means of building staff morale, curing technostress and reassuring them of their ability to do the job (Jones, 1999).

Training without the necessary skills or understanding of staff fears might reinforce anxieties about using ICT. Training, then, must not take place for the sake of training and must provide the necessary skills, be of the right amount, of good quality and may have to combat fears, as well as promote understanding and confidence in using ICT.

Time is a vital for good training. It is important that staff have the opportunity for hands on practice during a training programme, such as taking time away from the desk to practice. Similarly, once staff have undergone training, they should be able to put their skills to use straight away. Different training methods suit different people. Small (2001) notes that library staffs prefer training which includes self teaching with support within a specific framework and training programme.

7. Conclusion

Above points reveals that libraries and society in general through technological changes poses challenges for both staff and users of libraries particularly those new to using ICT. Research indicates that training has a positive role to play in acclimatizing people to the changes taking place around them. It can assist in the process of demystifying technology, although it is important to note that technophobes – those with an extreme fear or anxiety of computers – may need specialized training prior to general ICT training if they are to lose their anxiety. Training may also indicate areas requiring improvement within a library organisation, such as increased communications during the change process.

Attitudes to ICT are an appropriate area for further research since their relationship to actual ICT use remains a topic of debate. Although some research would seem to suggest that positive attitudes

to ICT are desirable on the part of library staff, their influence on intentions and behaviour remains in question. Use of the Technology Acceptance Model is illuminating since it can consider the intention to use, which may be of more use to library managers in understanding whether staff are willing to use the technologies. The relationship between training and attitudes is less controversial and training is seen as an appropriate technique to change attitudes towards ICT.

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