Umesh Prasad
Isabella Thoburn PG College, Lucknow, U.P., India.

Impact of Information Technology in the Libraries

Umesh Prasad

Abstract
A library of any type or size implies the close collaboration of the documents, the user and his or her document of interest. The series provided by library staff comprise a series of jobs namely acquiring, preparing and preserving the documents. The activities related to acquisition of documents and making them available to the users, technical processing of acquired documents, circulation and maintenance of processed documents are known as housekeeping operations. These activities are highly labour intensive basically routine clerical chores performed slowly and expensively by human beings. With the advent of Information and Communication Technologies (ICT), Libraries are increasingly attempting to automate some of these activities for minimizing human clerical routines and thereby making library staff more productive and enabling them to provide fast and comprehensive information through services.

The performance of a library largely depends on the organisation of its housekeeping operations. Most of the activities related to library housekeeping follow some definite routines and obviously amenable to computerization. It means a computer or group of a computers can perform clerical chores quickly and cheaply.

Library housekeeping operations are routine chores that are to be performed to maintain day-to-day functions of a library. Application of ICT helps in the mechanization of these labour-intensive works and thereby ensures more productive use of library staff. Automation of library housekeeping operations requires analysis of the library system and subsystems in the terms of procedures, activities and jobs, such analysis would help to identify gaps and overlaps in the existing system. Automation of library housekeeping operations may be divided into four subsystems-computerized acquisition subsystem, computerized cataloguing subsystem, computerized serials control subsystem and computerized circulation subsystem.

Keywords: Information Technology, ICT, Libraries, Information and Communication Technologies

Introduction
InformationTechnology?
Information technology simplifies the coming together of the disciplines of electronic, computer hardware and software, communication (in particular telecommunications), artificial intelligence and human machine interface (Ralstonm 2000). UNESCO has defined information technology as **(**Pearson, 2003).

"The Scientific, technological and engineering disciplines and the management techniques used in information handling and current interaction with men and machines and associated social, economic and cultural matters".

It acts as one of the major tools to shape our society and our institutions – particularly our libraries as one of the most important influences in education, culture and society. Information technology, through the melding of computer technology with communications, digital imaging and full-motion video and sound, can be a powerful ally to improve education and thus improving skills for gainful employment. Cut, in order to do this, libraries and librarians will have to change. If the right changes are made by libraries of every persuasion, there would be a good information technologies. These systems would become major information delivery systems to a wide variety of societal segments (Covey, 2002).

Impact of ICT on Information and Communication Media
The rapid and exponential growth of information has made it necessary for librarians and information scientists to employ new techniques to cope with the massive proliferation of literature in all subject fields (Adigwe, 2012). Research in the science and social sciences has

Correspondence:
Umesh Prasad
Isabella Thoburn PG College, Lucknow, U.P., India.

led to high productivity in document publication. To bring this vase amount of information under bibliographic control and to render it useful and accessible to potential users is a great task (Laurantine, 2011). The information is valuable only if it is retrieved timely and cost effective. The scientific application of knowledge has necessitated to keep abreast of the latest information and makes necessary to keep interaction with working in advanced and frontier areas. So, in this age of information explosion/overload,

keeping track of information resource and managing the same are the key to achievement and success. Acquisition, organization, delivery and storage of information have always been the main tasks of any real library. Emerging new technologies offer new ways of handling these tasks. We can summarize the impact of ever renewing information technology on communication media and information in the following manner:

Work	Technology (Form Old to New)	
1. Communication	• Personal Travel • Postal	• Teleconferencing • Teletext • Satellite transmission
2. Inputting (Primary Format)	• Oral Presentation • Writing & typing	• Word processing • Optical scanning through computer
3. Multiplication	• Printing	• Computer Visual Display Terminals • Video discs and cassettes • Computerized photo printing
4. Storage	• Book shelves & Pamphlet • Microform storage devices	• Computer based digital and analogue storage
5. Information	• Browsing through surrogates in catalogue and through shelves	• Browsing through on-line terminals • Database software

Information Technology Environment

Computers have made possible the availability of information and have brought many benefits in library and information systems and services. The computers' application to the information storage, retrieval and dissemination are the inevitable consequences of the information explosion/overload. The application of computers to information storage and retrieval has brought new possibilities of automatic indexing and free text searching for the words or phrases on the subject, which is likely to occur in any document, and the computer is set to read entire document for the appropriate words or phrases. The development of digital representation of information has made the computer an effective tool for data processing. The qualitative changes in design and architecture of computers and their software have enlarged the sphere or computer applications in library and information centers. The computers are of great significance with the advancement of telecommunication and reprography technologies in the library automation. When computers interconnected by some of the modern communicable vehicles, i.e. through networking one can have information over vast distances in no times. According to Geetika et al. (2008) Information is perceived to be the primary input as well as the final output of a broadcast industry.

Applications of Information Technology

IT systems play a vital role in facilitating efficient data management, enhancing communication networks, and supporting organizational processes across various industries. Successful IT projects require meticulous planning and ongoing maintenance to ensure optimal functionality and alignment with organizational objectives (Hindarto, 2023). Information Technology provides an excellent opportunity for library professionals to manage themselves better. Application of communication technology and electronic data processing of information have made a great impact on libraries and information centres, and the computers and associated facilities have

come to be recognized as indispensable for accurate storage, processing, retrieval and dissemination of information. All librarians should be perfectly familiar with the benefits of modern technology and perform efficiently. The main features of the recent development in Information Technology can be briefed as follows:

▪ Increased reliability of hardware and software
▪ Cheaper data storage, e.g. optical storage media
▪ Increased software knowledge leads to speedier and cheaper computer processing
▪ Wide use of communication (particularly telecommunication) techniques

The following have led to the development of
▪ Local, national and international online systems
▪ Automated library systems
▪ Public Access Catalogue
▪ Electronic journals and electronic knowledge banks
▪ Computerized databases and floppies/diskettes,
▪ magnetic tapes, CD-ROMs, DVD, etc. for storage.

There has been a very considerable increase in the amount of information available in the form of full-text documents, bibliographical references, factual and numerical data and at the same time increase in the complexity of information handling and storage system. Today, there is a need to employ professionals from a variety of backgrounds and skill sets, such as network engineers, programmers, business analysts, project managers and cyber security analysts (TechTarget, 2021).

Computerized databases/Library Software

In this modern scientific world, manual handling of information has become difficult and complicated. This old system is not accurate and speeding to channetise the information. In order to meet these problems, computerized databases like CDS/ISIS and other advanced useful library packages have already been set up in advanced countries like USA, UK, Germany, Japan and other developed countries. In developing countries, cheaper databases like

CDS/ISIS and others are going to be used, in few cases these are widely used but in majority cases, they are still unfamiliar with the utilities of these library software.

Computerization helps libraries to improve their operation and accelerating their working. IT has speeded up the accessing procedure processing work by elimination of a large amount of repetatative work. MARK is easy to manipulate as it can be searched online from which there are available various types of outputs (Chinnasamy, 2010).

In India, along with the use of CDS/ISIS, many purposeful packages like Sanjay, Libsis, Granthalaya, Basisplus, Techlibplus, Libris, Librarian-4 and other relevant packages have come into existence. These innovative software packages are helping the modern librarians in processing and distributing the information and extending the scope of sophisticated kinds of information technology. Many hardware industries like Wipro and Penguin India Ltd. Have come forward in manufacturing library-relevant packages which give users almost instant access to a large portion of scientific and technological knowledge by means of On-line communication technology.

Computerized Services

Since information literature grows at exponential rate causing problem of space for storage and speedy utilization of vast amount of information, the librarians may take advantages of the computer while searching and retrieving the required information useful to users. The computers are being increasingly used in library and information services for information processing and repackaging of information and on improving products and services of Library and Information Centers. In modern days, many librarians prefer to adopt computers because of their following advantages:

- its low-cost
- its fast and constant response
- its availability and portability
- its software
- its freedom from establishment

Recently, there has developed an awareness of the importance of computers and librarians have started using non-book materials for information transfer. Librarians can utilize computers in their various housekeeping activities and information services as mentioned below:

According to Ajani & Buraimo (2021), among the difficulties confronting university libraries are a lack of vendor technical assistance, a lack of financing, staff attitudes, and technophobia. Additionally, some of the biggest obstacles to the usage of ICT facilities in university libraries included a lack of proper funding, slow Internet speed, and inconsistent electrical supply (Ogunbodede & Bobmanuel, 2022; Ogunbodede & Wiche, 2021).

In view of it, the following technical services are included in the libraries:

Computerized Services – Technical section

The technical processing desires occupies significant role in the channel of library administration. Computerization of these services would facilitate the library staff as well as information seekers while searching the relevant information.

Computerized Services – Circulation section:

Computerized information facilitates the librarians to deal with day-to-day operations, planning and decision making. This is an informative package useful to the library managers and other subordinate staff for carrying out their regular work and routine processing of the transactions. For example, facts such as book orders, bills and other matters must be available to them to carry out daily works efficiently. If this information is made available speedily, library staff can do routine duties perfectly and promptly.

Computerized Services Periodical section

The acquisition and processing of periodicals are common functions in academic, special and public libraries. In order to maintain and process the details, a library has to maintain large volumes of various registers. The maintenance of register is tedious and every year a large set of data has to added. Accession registers occupy much space and they are expensive. Manual cataloguing also may not be at uniform standard. It is time consuming and difficult to maintain the large set of data also. Manual calculations are likely to have errors and it is difficult to check all types of errors. To a librarian the modern technology would have a great boon.

Networking And Network Based Services

In this information age, with enormous growth of publication and emergence subject specialization and economic pressures on libraries, it has become essential for the libraries and information centers to think of sharing the information resources among libraries and optimizing the use of existing resources thought the use of computer and telecommunication technology by establishing various networking systems.

Through library networking, users can scan and monitor the information they require, which a particular library doesn't hold but other library holds that particular information, without loss of time and at a minimum cost. Resource sharing networks offer:

- Document delivery and interlibrary loan services
- Shared cataloguing
- Cooperative collection development
- Coordinated acquisition
- Reference assistance
- Consultation and staff training
- Email, facsimile service, bulletin boards etc.

Access through any network in the globe can be obtained virtually through INTERNET which is widely used international network.

Automated libraries can also help sharing of information through CD-ROM networking. With the increasing tend in electronic publications particularly on CD-ROMs and networks, automated libraries are going to be converted into electronic libraries. The introduction of multi-user and multi task CD-ROM systems has made more economic for most of the organizations, especially where the same data or database are required for several users.

It is relevant to monitor that a number of Indian libraries have a status of rich document collection. Through automation and networking, these rich resources can be put to best possible are not only in their respective states but even outside whenever there would be demand for the information.

IT and Automation of Library Housekeeping Operations

Automation of library housekeeping operations is divided into four subsystems:

- Computerized Acquisition Subsystem
- Computerized Cataloguing Subsystem
- Computerized Serials Control Subsystem
- Computerized Circulation Subsystem

The responsibility of acquisition subsystem is selection, ordering, receiving, and accessioning of library resources. It also includes the works related to budget allocation, fund accounting and generation of outputs in relation to MIS support and user services. In an integrated automation package, acquisition and cataloguing works in harmony. The bibliographical data of newly acquired documents are transferred from acquisition module to the cataloguing module. In the cataloguing module, the bibliographical data elements of documents are standardized through necessary addition and modification. The bibliographical data format is based on any internationally adopted content designator scheme to allow exchange of cataloguing data.

Computerized cataloguing includes three groups of work namely, authority control, data entry and downloading. The catalogue records act as the central bibliographic database in a library subsystem. Regular backup of the catalogue database on suitable media and its easy recovery at the time of need is another important area of computerized cataloguing work. The computerization of serials controls activities help library staff in the management of frequent and repetitive record addition and modification related to serials. Serials control module of modern Library Management Software (LMS) attempts not only to mechanize ordering, receiving, claiming, binding and other such functions but also performs predication of arrival of issues,schedule preparation and auto reminder generation. Serials control work starts with the creation of the master database and records of the master database are made available to all the sub-module. It follows three groups of activities – subscription and acquisition, cataloguing and article indexing and circulation and binding. Computerized Serials Control Subsystems are able to generate a variety of outputs and these are very useful for the design and development of information products and user services in the require forms and formats. Apart from the issue, return and renewal of documents; inter library loans, maintenance of statistics and other supportive activities. Computerized circulation systems can manage all these primary operations along with the additional tasks of member card generation, notification of document status (issued or not), reminder generation, automatic calculation of overdue charges, and maintenance of records related to lost, damaged or missing documents. The circulation module of LMSs centre on the transaction file as the central database. It draws necessary dataset from the document file (catalogue database) and user file (member database) . Modern circulation modules extend their support to a variety of data capture devices of which RFID, smart card, barcode reader and other light scanning devices are quite useful.

Conclusion

Information Technology (IT) has revolutionized libraries, transforming them into dynamic and accessible information centers that provide a wider range of resources and services to users. While challenges remain, the benefits of IT for libraries are undeniable, and continued innovation in this area is essential for libraries to remain relevant and responsive to the needs of this age.

References

1. Adigwe, Ifeanyi (2012). The impact of Information and Communication Technology (ict) on News Processing, Reporting and Dissemination on Broadcast on News Processing, Reporting and Dissemination on Broadcast stations in Lagos, Nigeria. Library Philosophy and Practice (e-journal). 861. https://digitalcommons.unl.edu/libphilprac/861
2. Ajani, F. O., & Buraimo, O. (2021). Perceived impact of automation on university library services by library personnel in Southwest, Nigeria. Information Development, 1–13. DOI: https://doi.org/10.1177/0266666921992089.
3. Chinnasamy, K. & Durga, K.K. (2010). Why need automation library. Library Progress (International), 30(1), 33-38.
4. Covey, T. Denise (2002). How and Why Libraries are Changing: What We Know and What We Need to Know. portal Libraries and the Academy 2(1):99-123. DOI:10.1353/pla.2002.0023.
5. Date, C.J., Kannan, A. and Swamynathan, S. (2006). Introduction to Database Systems. Pub. Pearson India, 8th ed., pp. 1-144. ISBN: 9788177585568.
6. Geetika and Rajesh Tripathi (2008). ICT and Strategic Product Management: A Case Study of Newspaper Industry. www.csi-sigegov.org/critical_pdf/28_249-255.pdf.
7. Hindarto, Djarot (2023). "The Management of Projects is Improved Through Enterprise Architecture on Project Management Application Systems". International Journal Software Engineering and Computer Science. 3 (2): 151–161. doi:10.35870/ijsecs.v3i2.1512. ISSN 2776-3242.
8. John Pearsor (2003) Information and Communications Technologies and Teacher Education in Australia Technology Pedagogy and Education 12(1):39-58. DOI:10.1080/14759390300200145.
9. Laurantine (2011). Impact of ICTs on news gathering, reporting and dissemination http://ifumgahlaurantine.wordpress.com/2011/06/08/impact-of-icts-on-news-gatheringreporting-and-disseminating/ Accessed on August 30,2012.
10. Ogunbodede, K. F., & Wiche, H. I. (2021): Nexus of Nigerian academic libraries and online education in the pandemic era. International Information & Library Review, DOI: https://doi.org/10.1080/10572317.2021.1973310.
11. Ogunbodede, K., & Ibisiki, B. (2022). Utilization of ICT in public library operations in Rivers State, Nigeria. Library Philosophy and Practice (e-journal), 7092. Retrieved from https://digitalcommons.unl.edu/libphilpr ac/7092.
12. Ralston, Anthony; Hemmendinger, David; Reilly, Edwin D., eds. (2000), Encyclopedia of Computer Science (4th ed.), Nature Publishing Group, ISBN 978-1-56159-248-7
13. TechTarget. (2021). A brief history of the evolution and growth of IT. https://www. Techtarget.com/

whatis/ feature/ A-brief-history-of-the-evolution-and-growth-of-IT

14. Wikipedia. (n.d.). Information technology. https://en.wikipedia.org/wiki/ Information_ technology.