

Review Article

Library Automation and Networking of An Academic Library: An Overview

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A B S T R A C T

Information technology encompasses not only hardware and software but also the importance of human beings. Unless we train manpower, the implementation of IT to set the goals for the technology cannot be achieved. Thus, the role of human beings is paramount, as human beings control IT and are subsequently enriched by it. In other words, technology is a servant, and humans are masters. So long as we treat technology as our servant, we will keep receiving benefits from it. On the contrary, if we allow technology to rule over us, the situation will be alarming. Therefore, careful planning is needed to reap benefits from technology. The purpose of this descriptive study is to highlight the steps involved in the planning and implementation of a library automation project. Notable steps involved in the library automation project are hardware, software, networking, training, documentation, finance, and time framework.

Keywords: Library Automation, Library Software Package, Hardware, Software, Libsys, Alice For Windows, Koha, Virtua

Introduction

Information technology is a generic term used to denote all the various activities connected with the location, acquisition, storage, processing, and communication of information. When the emphasis shifts from micro-documents to macro-documents, from information of all times to nascent information, and from general to specialist, library science becomes information science, and information science in turn is transformed into information technology. When extensive use of mechanical, electronic, or micro-electronic equipment is made in the processing and communication of information. Thus, the extensive use of telephones, satellite transmission, computers, microprocessors, etc., in information communication has transformed the information science of yesterday into information technology. The term information technology has thus evolved out

of information science. Though both are concerned with information handling, the former, nevertheless, is more comprehensive and much wider in scope.

Information Technology

We are living in an age in which people have a computer in their study room, a laptop in their bedroom, and another in the office. People check e-mail more than a dozen times every day and surprisingly cannot think to survive without a smart mobile phone. Technology has made us its slave, and work stalks us wherever we go. The impact of technology is seen almost in all walks of life, and libraries are no exception. In this paper an attempt is made to provide a brief description about information technology followed by the discussion on various aspects of library automation. In the end, some important steps with regard to planning and implementation of library automation will be discussed.

Seldom in history has any term become so common in such a short time as has happened with 'information technology.' Surprisingly, a British opinion poll that was published on 14th January, 1982, in the famous newspaper the Times indicated that eighty percent of those interviewed then had never heard of the term 'information technology'. Later on, information technology (IT) has revolutionised the media and modes of computing, storing, and communicating information.

Definitions of IT

Dictionary for Library and Information Science defines information technology as "a very broad term encompassing all aspects of the management and processing of information by computer, including the hardware and software required to access it."¹

While according to the ALA Glossary of Library and Information Science, information technology is "the application of computers and other technology to the acquisition, organisation, storage, retrieval, and dissemination of information."²

Harrod's Librarians' Glossary and Reference Book defines information technology in a little more elaborate way as follows: "Information technology; a generic term that covers the acquisition, processing, storage, and dissemination of information of all types—textual, numerical, graphical, and sound—all in all application areas, e.g., banking, business, science, and technology—not just librarianship and information science. The term is restricted to systems dependent on a micro-electronics based combination of computing and telecommunications technology."³

Rowley⁴ had listed some of the definitions as below:

The acquisition, processing, storage, and dissemination of vocal, pictorial, textual, and numerical information by a micro-electronics based combination of computing and telecommunications.

The scientific, technological, and engineering disciplines and the management techniques used in information handling and processing, their applications, computers and their interaction with men and machines, and associated social, economic, and cultural matters.

Information technology means the collection, storage, processing, dissemination, and use of information. It is not confined to hardware and software but acknowledges the importance of man and the goals he sets for this technology, the values employed in making these choices, and the assessment criteria used to decide whether he is controlling and being enriched by it.

Among all the above-mentioned definitions, Rowley⁵ has rightly mentioned the importance of human beings while

defining the term "information technology". It is a well-known fact that the role of human beings is paramount not only with respect to computers but also related to other tools. As a matter of fact, man always makes endeavours to invent any machine or equipment to be ultimately served by these machines and equipment. Due to this reason, man is supposed to be the controller, and thus, so long as he keeps on receiving benefits from these things, his aims and objectives are fulfilled. On the contrary, if he loses control, he becomes a slave. The application of IT facilitates innovation, free flow of information, creative expression, and effective management. The use of IT in libraries has tremendously increased because it enhanced user satisfaction, cost-effectiveness, faster and simpler programs, rapid responses, and easier operational procedures.

Library Automation

Before taking up definitions regarding library automation, it seems pertinent to briefly discuss the automation. According to Webster Dictionary, "The techniques of moving in apparatus, a process, or a system that operates automatically are called automation."⁶ Encyclopaedia Britannica defines automation as "the name given to an automatic system of working. The difference between automation and mechanisation, a related term, is mainly one of degree."⁷ Automation is a technique to make a system or a process self-active. The main base of automation is the computer. We may say in simple terms that automation is the application of computers and utilisation of computer-based products and services. When we talk of library automation, we mean the application of computers to perform the several routines, repetitive, and clerical work involved in different library functions and services. Before the birth of computers, other types of machines, e.g., punched cards and unit records, were used to automate library functions. Different authors have stated library automation in different ways. For instance, Haisey, in Collier's Encyclopaedia, describes library automation as the processing of certain routine clerical functions in the library with the assistance of computers or other mechanised or semi-automatic equipment.⁸ Significantly, the application of computers to libraries first appeared in the 1950s in the United States of America. Notably, pioneering work in the application of computers to libraries was done in the USA, followed by the UK and other countries of Europe, due to the availability of the best infrastructure in telecommunications and other technologies. However, in India, library automation had started around the 1970s.

Why automation in Libraries

To fulfil the demands of various quarters of the society, there is an acknowledged need to automate the functions

of the library. The primary objective of any library/documentation centre is to provide readily available, up-to-date information in an appropriate form. A few of the main reasons for automating library activities are:

- To provide better services at an affordable cost or free;
- To increase the retrievability of the resources;
- To improve the existing services and to introduce new services;
- To avoid duplication of the work;
- To facilitate the sharing of resources;
- To generate enthusiasm among staff and make them acquainted with the information technologies in libraries.

Some of the factors, which force automation of library functions, are listed below:

- Information explosion.
- Space saving.
- Time saving.
- Availability of information in electronic form.
- Economy in library automation.
- Data manipulation.
- Exploitation of computer readable databases.

Advantages of Automated Library

Libraries are using IT to automate technical services, to provide efficient reference and information services, and to network operations, such as cataloguing, authority control, interlibrary loan, and international bibliographic projects. If properly utilised, IT helps the growth and development of libraries in different directions. Cochrane⁹ has mentioned the advantages of IT applications to libraries as follows:

- Allows easy integration of various library activities
- Facilitates co-operation and the formation of library networks
- Helps to avoid duplication of efforts within a library and between libraries in a network
- Eliminates some uninteresting and repetitive work
- Helps to increase the range of services offered
- provides marketing opportunity of its services
- Ultimately may save and/or generate money
- Increases efficiency

Information technology also provides numerous benefits and advantages to library users. Some of the other advantages by Henderson¹⁰ include:

- Provides speedy and easy access to information;
- Provides remote access to users;
- Provides round-the-clock access to users;
- Provides access to unlimited information from different sources;
- Provides more up to date information;
- Provides information flexibly to be used by any individual according to his or her requirements;

- Provides increased flexibility;
- Facilitates the reformatting and combining of data from different sources.

Need and Purpose of Library Automation

Technological advances have made automation feasible, but apart from this factor, the changed scenario of the libraries has encouraged them to go for automation. Funds have become much scarcer, yet in many cases the workload has increased. This has been especially apparent in academic libraries where student numbers have increased considerably, but unit cost has been reduced. The knee-jerk reaction to such circumstances is to cut down services.

However, librarians always try to provide the best possible services to their users. Automation has been seen as a way of reducing manual routines, improving the accuracy of the routines that replace them, and redeploying resources to enable services to be retained and even to provide new services. In some ways, recent developments by some other service providers, such as banks and insurance companies, are analogous to changes in libraries. Automation has allowed these services to provide automated cash points, whilst automated libraries provide OPAC terminals along with other facilities.¹¹ More attractive and helpful publicity materials are provided for those users who like it. Moreover, libraries are also improving publicity and directing it to client groups. Independent services are able to pay for expansion not only through the savings provided by automation but also by increased use of their services. Publicly supported libraries have been able to reflect their importance through improved services to a greater number of users, including those who did not hitherto heavily use the libraries. Thus, automation has played its part in helping libraries to solve the prospect they faced—reduced services giving them lower profiles in their communities and therefore less importance.

The arguments used above can be adapted to provide cases in favour of automation. Furthermore, automated systems usually provide much-improved management information. Rawley also refers to the advantage of being able to make use of centralised data. One element in many computerisation programs is the availability of external data, which can be exploited to have a greater effect on a computer-based system. Centralised data and its availability are significant factors in the move to computerised cataloguing systems. The ability to share records and some of the burdens of planning and designing a system has had a significant effect on most housekeeping operations.⁵

Barriers of Library Automation

Following could be the few possible barriers of library automation:

- Fear of adverse impact on employment
- Apprehension that the technology could be too expensive

- The library staff has to undergo extensive training
- Lack of support from the management, may be owing to budget constraints
- Tedious job of retrospective conversion particularly in big libraries.

Manjunath has examined each of these points. Analysing the various jobs, such as book acquisition, technical processing, circulation, and reference service, it is necessary to have a human intermediary everywhere at each and every step. The only area where substantial manpower can be saved is the cataloguing. The data entered at the time of ordering can be used for cataloguing, and some updates would eliminate card preparation and subsequent filing. The manpower thus saved can be utilised in retrospect and later on for analytical cataloguing or introducing new services. Therefore, there will be no adverse impact on employment.¹²

Steps involved in Library Automation Project

In the 2nd half of the 20th century, information technology has made its presence felt in many segments of society. Libraries have also embraced computerisation like many other sectors. Though library automation was first initiated in the developed countries, it has gradually also been witnessed in the developing countries like India. In the following paragraphs several important steps have been described with regard to library automation by Haravu:¹³

Selection of Hardware

This is the first step towards the process of library automation. Libraries that wish to automate their activities must procure hardware. It is important to mention here that branded hardware must be procured in the libraries so that library staff should not face problems at regular intervals. Usually, people have peace of mind once they purchase any branded product. On the contrary, if assembled computers are purchased, it is more likely that these will be relatively more unstable, and library staff, being technically not that competent, will find themselves helpless for the required troubleshooting purpose. Therefore, assembled computers should not be purchased. Hence, computers and other hardware like printers, scanners, and other products should be branded.

Selection of Software

As far as the selection of software is concerned, different categories of library software are available in the market. Notably, some library software are proprietary products such as LIBSYS, Alice for Windows, etc. However, some other library software like SOUL has been developed by a government agency and thus is available at a lower and affordable cost. Besides these categories, open-source software like Koha has significantly become very pop-

ular in recent years. Significantly, it depends upon the library to decide the library software as per the need and requirement. However, the availability of finance plays an important role, and therefore, the library should give utmost consideration to the available budget.

Networking

Due to networking, we are living in the global village; in other words, we may say that networking has made the whole world a village. In order to get maximum benefits from automation, libraries should also connect different sections mutually, and this is possible only with networking. Therefore, a Local Area Network (LAN) must be established in a library for the benefits of staff as well as users. Notably, this is one of the most important steps, as it brings economy with the help of sharing the digital and electronic devices.

Staff Training

At the time of finalisation of the purchase of the library automation software package, detailed discussion should be made, in particular, with regard to staff training. In order to perform well, staff should be trained in hardware as well as software. Therefore, training must be given to all the staff working in libraries. There must be elementary as well as advanced levels of training. Furthermore, training programmes must be organised on-site and off-site.

Documentation

It has been seen that even after completion of training programmes, staff of libraries need some written material. Therefore, there is a need for comprehensive manuals. Library staff usually have less understanding as far as information technology is concerned. In other words, we may say that library staff are not information technology savvy. Thus, there is a need that library staff should be supported with manuals that have screenshots. These manuals should have substantial illustrations and figures. The primary aim of the documentation is that whenever any library staff member is stuck with any problem, he or she may consult manuals in order to remove the problems.

Budget

It is important to mention that library automation needs a budget almost every year. On the one hand, a one-time payment will be made for the purchase of hardware and application software. On the other hand, annual maintenance charges (AMC) are also required on a yearly basis. Therefore, there must be an allocation of adequate funds in order to support the library automation project. This budgetary allocation and financial need must be brought to the notice of management so that there may not be any problem with the continuation of the library automation project.

Time-Frame

Every budget has a particular tenure, which is usually estimated in the beginning of the project. Likewise, the implementation of the library automation project must also have some time limit. Significantly, it is a continuous and unending project that needs to be done on a daily basis all year round. However, the creation of the existing collection should have some time limit. It is also important to note here that the time period will vary from libraries having a larger collection; it will take more time in comparison to those libraries that have a smaller collection. Time period is also related to the availability of staff. Obviously, the greater number of staff for database creation will take a lesser amount of time.

Conclusion

Significant advancements have been made in all spheres of life, primarily due to the application of information technology. We have witnessed the application of information technology in railways, airways, bank sectors, etc. Libraries are no exceptions and thus have embraced information technology. Due to the application of information technology, new terms such as digital library, automated library, and electronic library have emerged. With the application of computers, libraries have been able to provide a wider range of services to a large academic population. Notably, the library automation project is very important to increase the productivity of the staff. Therefore, due consideration should be given to get maximum benefits from it.

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