

A STUDY ON AUTOMATION OF LIBRARIES

Kapadiya Girishkumar Mohanlal

Research Scholar, Calorx Teachers' University

ABSTRACT

In this paper, the need for automation in libraries has been discussed. Reasons for automation has been regrouped and discussed in detail. Computer systems have been categorized on the basis of their use in libraries. Each category has been designed and the state of art has been discussed in brief. Next, a detailed study of the use of computers for different functions such as acquisition and circulation in the library has been presented. Possible operations of each Library function have been listed. Facilities offered by the software to handle each function and the activities /operations are discussed in detail.

KEYWORDS: Library, Automation, India, Functions, University, and library science.

INTRODUCTION

Rang Nathan, Father of Library Movement in India, has enunciated five laws of library science, the fifth law states that the Library is a growing organism. The growth of a library is continuous in every dimension such as size, documents, users, building, equipment and staff. The growth results in increased number of routine, operations and Transactions.

Every library has to increase the staff to handle the increased number of routine activities and transactions in a specified ratio. But it is not affordable to any library. The outcome is increased work load to the existing staff, which tells on the quality and efficiency of work output. As a consequence, the users are bound to suffer. All this will Have an impact on the library's image and success.

To overcome the hurdles and difficulties, many libraries world over have automated their routines. Earlier, certain mechanical tools were used to automate the routines, but in recent times automation mainly means using modern technology i.e. IT, which includes computers and communication. Libraries are using computers mainly for housekeeping operations and management information.

Almost all university libraries in developed countries are using computers, which have become part

and parcel of daily routine. The use of computers has improved efficiency and helped to overcome the staff limitation. On the basis of documentary evidence, one can say that automation is successful in the university libraries in developed countries. By looking at the success of automation in developed countries, all the libraries in developing countries want to use computers. In these circumstances, it may be useful to look into need and justification for automation of libraries.

NEED AND JUSTIFICATION

Shortage of financial, documentary and human resources are creating several problems for the libraries. Library managers are finding it difficult to manage and provide efficient and effective services to the satisfaction of their users. Even some libraries are turning into warehouses and consequently their image is at stake. To achieve the stated objectives and improve the services, libraries felt the need for computers. The use of these machines helped to improve the existing services and also supported additional features, which would have been unthinkable, had these libraries depended totally on manual methods.

As per Clayton (1987:1) the reasons for consideration of automated library systems are as follows:

- There is a problem with the existing manual systems.
- Which knowledge and experience tells the librarian.
- Might be solved by automation. However, it is.
- Increasingly the case that systems are sought in order.
- To expand the automated services already offered or to.
- Replace existing systems which have reached the end of.
- Their useful life.

The factors (or reasons) identified by different authors overlap and all these factors can be regrouped into the following categories. i) economy; ii) improvement of services; iii) management information; iv) co-operation and centralization's) prestige; and VI) research.

ECONOMY

The workload in university libraries is increasing from time to time. This is due to an increase in the number of students, acquisition of increased number of documents, and also due to increased utilization of resources. Tedd (1984) has rightly pointed out that many libraries were unable to recruit more staff even though there is multifold increase of workload. To cope with this situation many

librarians have decided to use computers. It was felt that computers are economical to complete all demands of workload (both Existing and increasing) quickly and accurately.

There is a general feeling that computer operation, workout cheaper than manual operations. But it is very difficult to make real comparison; as such it may not be easy to state that computers workout cheaper. It is generally believed that automation is not cheaper. In this context, Tedd (1984) observes that it may be difficult to assess and compare real cost of computerized operations with that of manual operations.

Kimber (1974:24) is of the opinion that rarely is it possible to say with any degree of Generality that the unit cost of a computer system is lower than that of its cheapest manual counterpart. The author further states that the computer system costs will be up to 50% higher than manual system.

Clayton (1987:4) also feels that "change to a mechanized system may not be cost effective". An automated system often is radically different from a manual system, so it is difficult to obtain accurate cost figures for a comparison between the two. ... Installation of an automated library system is expensive, and the costs of maintaining the system could be more expensive.

The computer systems seem to be economical probably due to two main reasons:

1) With the computer systems, manipulation of data, coping with increased work, higher productivity and introduction of new services are possible. They can help speed up the existing transaction and take on extra workload without increasing the staff. If the number of operations and speed is taken into consideration, probably it may work out cheaper.

ii) As Kimber (1974:26) argues the unit costs are likely to change slowly in favour of computer systems. For labour costs tend to rise steeply while computer costs tend to drop in real terms. Because there is a larger labour component in manual systems than in mechanized ones, with the passage of time the latter may be more economical.

It may be concluded that the use of a computer-based system may not be cheap initially; in addition, there is also a need for considerable investment. Computer system may work out to be cheaper provided that their utilization is optimum over longer period of time.

IMPROVEMENT OF SERVICES

Every library wants to provide a qualitative service, but the quality depends on several factors. The factors that are considered to assess the quality are: First, the efficiency of the service; Second, the accuracy, reliability and updating of information; and Third, quickness of service.

It may be possible to improve all these factors by using computers. It is an accepted proposition that computers support the libraries in the improvement of their existing services. Computers not only support the services but also help to avoid human error. It is possible to have increased control of the library system. Further computers also support the completion of tasks accurately and quickly. Even the work-flow will be rapid and systematic. In addition to these, the libraries could also complete a lot of pending Work with no extra staff.

In addition to the improvement of existing services, new services such as preparation of bibliographies and Current Awareness Services can be offered to the users at a Little extra cost. These services are offered by manipulation and rearrangement of the existing data. The management information which is vital for managers can be provided without any financial commitment. All these additional services can possibly be introduced with the existing staff.

MANAGEMENT INFORMATION

Statistics are essential tools of management. It is the main component of management information. They help to take better decisions and, in turn, improve the efficiency of management.

Librarians are interested in having the statistics to modify or improve their day-to-day activities, collection and services. Statistics that are useful for the libraries are:

- Average cost of book;
- Number of books borrowed (by subject/borrower);
- Books never borrowed;
- Popular or more used books; and
- Number of times a particular book is borrowed.

It is difficult to provide such statistics by manual methods, whereas computers support collection and analysis of statistics. Analysis is possible either period-wise or category- wise. These machines can monitor the routines and provide the data for the purpose of measurement. Continuous assessment and evaluation of statistics provide an opportunity to review the management decisions. Statistics

can help to correlate acquisitions and circulation. Computers also help in achieving the right blend of selection and acquisition. Collection of statistics through manual methods is very expensive, time consuming and may not be accurate, and so the library may not like to make a survey or sample study of its activities / routines. A common practice in Indian university libraries is the purchasing of several copies of a book, most of which may be unused. This is nothing but mismanagement of funds, which can be reduced, if real demand and use of books is assessed by using computers.

Computers provide an opportunity to make collection of statistics and converting the data into information, which is vital for management of libraries. It may be worth quoting Corbin (1985:15) who says that the Use of a computer to support a library system should result in better control over materials and services through the availability of more current and comprehensive files and faster and more accurate notices and reports than in manual system.

COOPERATION AND CENTRALIZATION

Libraries cannot afford to procure and provide all the information and documents useful to its users. Availability of centralized databases such as OCLC and MARC reduces the Workload by copying the bibliographic information of the document. Cooperation among libraries can expand the horizon of access to a large number of documents as well as their Services. It not only reduces the burden but also increases work output.

It is easy for computerized libraries to have a network which makes provisions for easy access to other library databases or a centralized database. Records can be shared by the libraries through the network and can be used for selection, cataloguing and ILL. They reduce workload and help to maintain uniformity / consistency / standardization of data / record structure. Computerization paves the way for centralization and cooperation among several libraries located at different places either in a region or a country.

PRESTIGE

Libraries can aspire for good reputation only when they offer good collection, efficient service, and quick response to users' queries. Every library wants to attract users to make the optimum utilization of their documentary resources. Thus reputation is an important motivating factor for increase in work efficiency. Libraries use computers to improve their services, which, in turn helps to increase their prestige or image. In developing countries like India people generally feel that the organizations

using computers can provide better services. The same feeling is applicable to university libraries also.

Clayton (1987:1) states that it is "the desire to be fashionable or to achieve the personal and / or institutional kudos which the installation of computer system can bring".

This feeling makes the librarians to go for automation. Further, prestige directly influences the library management and resources mobilization.

4.2.6 RESEARCH

Use of computers in libraries has influenced the research in two areas: Computers and libraries. Applied research was seriously conducted for two decades for the use of computers in libraries. This research has resulted in the development of integrated systems and Networks.

Research was carried out on libraries to study the implications for the structure and organization of library services, record and file structures and standardization. But, research is a continuous process for further improvement of the existing procedures and practices. Research also contributes for the optimum utilization of resources and the accomplishment of goals, objectives and tasks.

Computers are used in every activity of the library. Their contribution has been well recognized and appreciated. Several long pending problems were taken up and solved with the help of computers. Computers are not biased and do not shirk work as human beings do, as long as the necessary pre-requisites are provided.

Duns hire (1991) considers income generation as one of the potential benefits from automation. The libraries contain well-organized resources and are centres of excellence. These resources can be used to organize training courses and consultancy services to generate income. It may be appropriate to quote the statement by Clayton (1987: 1) in support of automation It may seem more difficult to give reasons why systems should not be Automated than it is to give reasons why they should be.

Parekh (1992:4) has stated two reasons justifying the library automation. They are:

- i)** It reduces the costs of doing something, and
- ii)** It allows one to perform new and additional Activities which were otherwise not possible. If we desire to provide relevant and useful services at a reasonable cost, automation seems to be inevitable.

There is a feeling that in India, the labour is cheap and the infrastructure is expensive. Hence computers may work out to be expensive than manual methods. In this context it may be necessary to state that the Government has imposed ban on recruitment for a few years now and a total freeze on increase of budgets from this year, due to which the libraries are forced to cater to their own needs with the existing staff. Further, it may be difficult to get efficient services even with increased manpower.

All these reasons strongly support the need for computers in libraries. It is therefore necessary to examine the areas of their utilization. The use of computers may be the best alternative to improve the existing services in terms of their efficiency and effectiveness, as well as to boost the image. In this context it may be worth to emphasize that both professionals and users have accepted that computers can create a new atmosphere in the libraries. This new atmosphere provides an opportunity for the libraries to function with new vigor.

The development in the field of computers and communication technology has promoted their use extensively in several library operations. Initially their use was in limited areas dealing with one or two areas / functions such as acquisitions or circulation and now the use extended to almost all the other areas. The operations concerning with every activity / function are being handled with the help of computers. Also computers are able to provide an opportunity to have more and more facilities, which could not be possible through manual methods. Continuous research in this area is an added advantage.

The system categories, areas of automation and various functions that are possible through computers are discussed below. This discussion presents a view of the use of computers in the library as well as their impact on library management.

SYSTEM CATEGORIES

The computer systems that are used in libraries can be categorized into two on the basis of the use in different areas of operation, the categories are: stand-alone systems, and integrated systems.

STAND-ALONE SYSTEM

Stand-alone Systems are the systems dedicated to one function only. The function may be either Acquisition or Circulation control or Cataloguing or Serial control. According to Leaves (1987:3), Stand-alone Systems beggar with Systems dedicated to one function only, usually circulation control,

working on a short bibliographic record appropriate for such a purpose. Such Systems Were Online Systems, usually with real time updating.

Software operates in isolation from all other software the library might use; information in its online files is not shared with any other automated function, stand- alone software is neither economical nor efficient for the library in the long run although it may be sufficient on a short term basis.

The Stand-Alone System was initially used by the libraries, but libraries are now opting or switching over to multi-function systems. This is mainly due to development in the hardware and software.

Vendors in this country are able to offer the multi-function systems for the use of libraries.

INTEGRATED SYSTEMS

Single function systems were used with success and the experience of the librarians created a need for computers in other areas to handle other functions, following which Multi-function systems were developed and these are known as Integrated Systems. Corbin (1988:5) explains that an integrated library software for functions such as Acquisition, cataloguing, circulation and serial control, which are interrelated and interacting and which share common information and files.

These systems support use of a single file or record for various activities whenever information of the same record is used, immaterial for which function it is used. For example, one bibliographic record is used in acquisition, cataloguing and circulation. This supports economy, uniformity efficiency and consistency. There is no need to create a different record with the same information for every function.

Present systems are also available in modules. Libraries can opt for one or more modules and they can add the remaining modules in the future depending on the availability of resources. Further it is observed that suppliers offer integrated systems; Where the integration varies considerably. Some systems are designed as integrated systems with all or most functions operational. Others are originally designed as one function systems, and subsequently other modules are added to it. E.g.: Cataloguing, Acquisition is added on at a later date to an automated circulation system. Such systems often hold separate files of records to be accessed by the different functions. E.g.: A short title files for circulation control and full MARC for cataloguing. A true integrated system holds only one bibliographic record, which is accessed by all functions.

CATALOGUING

Cataloguing activity is considered as one of the primary and basic functions and it is traditionally given a lot of importance by Indian libraries. Cataloguing System is concerned with recording books added to stock in the library in such a way that users of the library are able to identify them and have some means of locating them. To this end a catalogue entry is created for each book passed on from the Acquisition section. This entry in effect describes those aspects of the book which a user will be likely to find useful when consulting the catalogue.

Cataloguing activity in a library consists of two basic functions: i) Preparation of catalogue, and ii) Access and catalogue provision (making available the catalogue). To prepare a catalogue, one needs knowledge of cataloguing rules and with the help of rules the books are described in the entry. A main entry is prepared for each book and the required number of additional entries is also prepared. Wood (1986:362) assesses the number of cards / entries for each book in a University as "A total of 12 cards per volume were not unusual, the average being 3.5". The author further states that in manual methods, "these cards have to be drafted, checked, typed, proof read, corrected, sorted, filed and filing checked. If the volume was moved to a new location, withdrawn or lost, all the cards had to be found and corrected". If the library opts for automation, it is easy to copy the entry from a computer file and to create as many entries as necessary. In the Indian context, at present, the databases are not available to copy the entries, but in due course of time they bound to be developed. Filing, which is time consuming in a manual method does not require time in the automated system. Even the microform copies of the catalogue can be easily prepared.

In manual methods, most of the professional staff is involved in cataloguing work which is very common in Indian university libraries and automation can save a lot of staff time in this regard. Wood (1986:363) feels that with automation "half of the staff can be redeployed to reader services work where their knowledge of the stock is invaluable". Consistency and uniformity is possible in automated catalogue system.

A cataloguing module is offered by several software companies and existing software products provide several features which make cataloguing work easy and quick. BLCMP (1991) software provides the following features in its cataloguing module:

Online cataloguing with full screen editing; Extensive database for online searching including music and non-book material; Tailored formatting; Integration with circulation and acquisitions; Authority control; Catalogue production printed, microform and Online Public Access Catalogue (OPAC).

Leeves (1989:206) gives a list of facilities that can be expected from automation of cataloguing work. The author divided the catalogue work into three sub-areas and stated activities / operations of automated function. The sub- areas are: Data Entry (input of data to create records); Authority controls (authoritative list of subject Headings and reference entries) and Down loading (information from outside databases).

ACCESS AND CATALOGUE PROVISION

Public Access Catalogue is available either in register or card form and in automated libraries it is available 'online'. On line catalogue is popularly known as Online Public Access Catalogue (OPAC).

OPAC is generally integrated with acquisition, cataloguing, serials and circulation in integrated systems. A document or item can be searched with author, title, subject approach. The search and display of bibliographic details could be achieved with a single hit. While making subject search books of the same class mark (subject) are displayed for browsing. Whereas in manual methods, the A check-list of activities/operations for each sub-area of automated cataloguing function as stated by Leaves (1989:2 06) is given in Appendix-A. User has to spend considerable time in searching for a document. It also facilitates search by title, author approach individually and with combination of both.

Automation provides an additional facility to its users, namely Community information and library news, covering a wide variety of subjects which is available on OPAC. It is very difficult to provide such a facility through manual methods. These provisions are available in several commercial software packages. Subject searching using keyword; Boolean search Facilities (Boolean = by using and, or, not); Borrower enquiry and public reservations to list the Books borrowed by a particular user and reservation of a book for borrowing); Community information and library news files; and related works searching (related works of a book);

CIRCULATION

Circulation is one of the key functions and popular services in university libraries. It involves maximum time of both the staff and the users either to issue or return books. The routine work

involved in circulation system is as follows: Circulation system exists to record every loan of a book and to maintain loan records in such a way that information may be supplied on every book borrowed, reservations may be recorded; and recalls of overdue and required books initiated; and that the loan received may be cancelled for every book.

The circulation counter is generally busy throughout and due to the pressure of work; mistakes are more likely to be made in filing the borrower cards or book cards. These problems tend to increase in university libraries due to continuous increase of documents and users. It is an accepted truth that largest proportion of staff is engaged in circulation work. Automated library system can save the staff time considerably. Every circulation system should provide answer to several questions for efficient management. Automation of circulation system changes the whole environment. The files will be accurate, updated with a minimum possibility for errors and at the same time these files provide management with accurate information. The service will be improved and staff economy will be a reality. Further-more the automated systems are easy and simple to operate and user and book information is easily ascertainable. It provides a facility for trapping reserved books and specified users. (Trapping = the system does not allow to issue a reserved book, unless cleared by a staff member).

SERIAL CONTROL

Serials provide nascent micro thought useful for higher study and research. Every university subscribes to a number of journals from different parts of the world. Especially, in India, university libraries subscribe to a large number of foreign periodicals. Periodicity of the periodicals varies. Even if the periodicity is the same the expected time may not be consistent. Most of the libraries find it difficult to manage the periodical section due to the complexity of periodical publications. They spend considerable time on placing orders and generating reminders for individual issue not received by the library. Many libraries send reminders after the lapse of the stipulated Period, due to which the replacement of missing issues is not made by the vendors.

The problems encountered by the libraries can be solved to a large extent if the system is automated. The automated systems integrate with the acquisition module to provide funds accounting, subscription control and OPAC module to provide access to serial holdings information. The systems provide a facility for searching serials either by title, International Standard Serial

Number (ISSN) or corporate body (sponsor). Software has a facility for prediction of issues (i.e. in terms of expected time). Automation provides for a quick, accurate check-in and search facility. Several software systems provide this module and libraries are opting for this module in preference to other modules.

MANAGEMENT INFORMATION

Information is a basic tool for management. Every manager needs considerable amount of information to run the organization efficiently and effectively. The information helps to evaluate the existing services and activities. Libraries which use manual methods ascertain required information at the cost of staff time. It is also expensive and time-consuming and even the information may not be up- to-date and accurate. Presently the libraries are managing with available information, which naturally influences the management activity and even affect the optimum utilization of resources.

Automation provides facilities to collect and provide all the information. The information could be even generated on the basis of requirements / questions from time to time. The computers provide management information reports relating to several functions / operations.

Flexible report generator with access to all files; Tailor made reports for all applications, e.g. Audit; Automatic generation of standard reports; Select and retrieve facilities for MARC based files; Formatting of printed output according to library requirements by using powerful query language.

INTER LIBRARY LOAN

In addition to the basic library function few software packages provide additional functions / facilities. The additional features include:

- Local information file;
- Inter Library Loan (ILL)
- Word Processing;
- Office automatic facilities;
- E mail.

Community information module provides an online database with a wide subject coverage including advice and support organizations, clubs and societies, entertainments, Local history and tourist information. Even the latest information relevant to library functioning is made available. This

module is very useful for public libraries. Some of this information is vital for academic libraries also.

The facilities provided by BLCMP software in its module are as follows:

Parameterized displays; Public access; Key word, name and title searching (by the user);

Online creation and editing of records (by the staff); and Flexible record structure. They find it difficult to provide this service as the latest information about availability of a particular document in other libraries is not readily available. When the libraries are automated and linked by a network, they will be able to get access to other library databases / catalogues (OPAC) through the network. It becomes easy for the libraries to know the availability of the document. It is also easy to search and send online requests to other libraries, if possible through Electronic Mail (E-Mail).

It shows that computers can be used in almost all the areas of library activity. They provide a distinct opportunity to integrate various activities. The software producing organizations are developing additional features from time to time. A possibility for the future could be further development of communications and Compact Disk read Only Memory (CD-ROM) interface,

Automation needs planning and implementation. Better planning helps to make the optimum use of computers for the growth and development libraries. Corbin (1985:1) states that automation requires the planning and coordination of many activities and events involving a variety of people within and outside the library. It is important that each of these individuals has a basic understanding of the concept of an automated library system.

CONCLUSION

A library is a growing organization. The growth results in increased number of documents, users as well as routines, operations and transactions. To handle the operations and transactions there is an increasing need for professional staff. Stagnant staff may adversely affect the quality and efficiency of work output. To meet the continuous demands on staff as well as to improve efficiency and effectiveness, computers are being used by the libraries in developed countries to automate their operations.

Automation provides improved services and offers other added benefits. Computers are used for various reasons, such as economy, improvement of services, and efficient management with the help of management information, co-operation, centralization and research.

The library has to invest huge amounts on automation. It may not be economical but there is a possibility for effective and faster operations. Optimum utilization of the facilities, increased number of operations and services may work out to be economical.

The computers initially used for a single function is known as standalone-system. Now the software supports multi-function systems known as integrated systems. The integrated systems are inter-related and interact to share common information and files for all the functions. Now the software is available in modules, so that the library can opt for one or two modules initially and subsequently add the remaining modules, in future, depending upon the availability of resources.

Every library is composed of a number of sets of related activities called functions, such as acquisition, circulation and serial control. Initially the software supported limited operations (that are possible in manual methods). Continuous research and development of software supported extension of computer-use to several other functions and operations. At present, automation is supporting several operations that are difficult in manual methods. The operations that are possible and being carried out with the help of computers were never thought of as possible in earlier days. Results of continuous research and development in Information Technology (IT) are extended for practical application, and as a result the libraries are able to offer better services. Application of computers can contribute to bring about a change and enhance the image and status of the university library, particularly in the Indian context.

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