

Library Automation

By

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ABSTRACT

Information technology has been one of the major factors causing changes in the way people communicate, locate, retrieve, and use information. The impact of automation on the library is quite obvious and has created new types of work, prompted redefinition of certain functions, influenced interpersonal relationships, and transformed traditional organizational structures into new institutional entities. Libraries today are faced with planning for automation within a rapidly changing and uncertain technological environment. Resource sharing under the circumstances plays a pivotal role. The paper addresses the various issues viz. establishment INFLIBNET and its role in automation of university libraries in India. The new initiative taken by the UGC to establish UGC-Infonet and E-subscription for the Universities gives required boost for the automation activity in the country.

KEYWORDS: Library Automation; Resource Sharing; INFLIBNET; Information technology, Machine Readable Cataloguing, Retrospective Conversion.

0. Introduction

Over the last two decades the libraries have witnessed impact of information technology that has been affecting the structure of the services to a great extent. The Library automation in this conference is dealt in respect of the emerging technologies, standards and formats, software, hardware, resource sharing, library networking, web OPAC's, the role of INFLIBNET in the automation of university libraries in India and to provide the Indian scenario. Many libraries in India have been using computers and advanced telecommunication systems for some time and many more are implementing such systems these years.

An automated library is one where a computer system is used to manage one or several of the library's key functions such as acquisitions, Circulation, Cataloguing, Serials control and the online public access catalog. When exploring the history of library automation, it is possible to return to past centuries when visionaries well before the computer age created devices to assist with their book lending systems. Even as far back as 1588, the invention of the French " Book Wheel " allowed scholars to rotate between books by stepping on a pedal that turned a book table. Another interesting example was the "Book Indicator", developed by Albert Cotgreave in 1863. It housed miniature books to represent books in the library's collection. The miniature books were part of a design that made it possible to determine if a book was in, out or overdue. These and many more examples of early ingenuity in library systems exist. However this paper will not go into details of the history of automation.

Today we see most of our libraries either fully computerized or partially computerized. Beginning has been made by INFLIBNET Centre by providing necessary funding for the university libraries in India. It has created an Information Technology (IT) environment for libraries to embark upon the new developments in the field. With this result we see now there is much greater emphasis for access to information from wherever it is located rather than owning the item by individual libraries. Resource sharing among libraries has now become a necessity and going to become a reality using the UGC-Infonet and access to scholarly information through e-subscriptions to journals.

1. Impact of Information Technology

Information technology has been one of the major factors causing changes in the way people communicate, locate, retrieve, and use information. Libraries and information centres have embraced the new information technology more profoundly than many other fields and most of them are currently using electronic products and services. The impact of automation on the library is quite obvious as it has created new types of work, prompted redefinition of certain functions, influenced interpersonal relationships, and transformed traditional organizational structures into new institutional entities. In recent years, the pace has accelerated and for instance, the Internet has become standard equipment in most libraries and information centres in conducting their operations and services.

Libraries today are faced with planning for automation within a rapidly changing and uncertain technological environment. For academic libraries the past was rocky, the present is uncomfortable, and the future is uncertain. It is often thought to be folly to project the impact of technology more than five years because technological change and organizational dynamics are so volatile. In 1930's it was possible to predict the future of the next 50 years; but today we are reluctant to look at the next 15 years. When automation was first introduced in libraries, the main purpose was to decrease staff costs and to increase the efficiency of internal operations. As it became clear that automation would have minimal effect on staff costs and to increase the efficiency of internal operations. Automation was yielding benefits and the resulting improved services, both to staff and patrons; as it can be seen now for example, it is possible to search an online catalogue in many ways that would never possible in a manual catalog.

Perhaps the greatest example of vision and focus in automation over the past quarter century was the development and rise of the MARC format. The developers of MARC recognised the need to communicate the bibliographic information, that a format for doing so to have standards in communication. The format is highly flexible and amenable to change. The MARC format was created in a world where librarians had to generate cataloguing information and the standards for those records. Automation of library card catalog provides a finding tool for the library collections. The books, journals, films, and other materials located through the catalog still mostly reside in their original form, with no direct connection to the automated finding tool. Most of the early development in electronic publishing was also aimed at identifying information sources. Publishers of indexing and abstracting serials were the first to provide their resources in electronic form. 1970's and 1980's indexing and abstracting databases were predominant in the online database world. It is a true fact that, the bibliographic databases are most widely used type of electronic resource in libraries even now.

The Library of Congress's initiatives with regard to data formats facilitated the creation of OCLC and other bibliographic utilities. OCLC's initial objective was to provide libraries with shared, and hence affordable, access to automation for cataloging and the production of catalog cards. While this is still a significant activity, today over 75 percent of OCLC's full cataloging participants download cataloging records into their local library systems rather than obtaining cards, and nearly 80 percent use the interlibrary loan subsystem for resource sharing-currently at the rate of one million interlibrary loans every two months.

2. Resource Sharing among the libraries

Resource sharing concept in the libraries is as old as the librarianship itself. This has been used in different forms in different contexts. Library Cooperation, Inter Library Loan, Consortia, Library Networks, etc are the terms used to mean resource sharing. During the olden days it was called library cooperation, mainly existed in the form of Inter-Library-Loan. After 1960's the term Resource Sharing is widely being used and practiced. Resource sharing in the context of library and information centres,

includes all types and forms of resources and services, personnel, equipment, facilities etc.

Libraries have shared their resources for many decades through formal and informal agreements using traditional means. During the last two decades things have drastically changed due to more and more libraries automating their library catalogues, acquiring resources in electronic form, and getting connected to one or the other networks. This has resulted in easy accessing of the resources from the remote nodes adding new dimension to the nature of library services. In a resources constrained environment, sharing of library resources among the libraries and providing services through the resource sharing practices is gaining considerable importance. With the developments and the application of information technology tools the sharing has become much easy. Due to resource crunch also in the libraries the library management have no other way out, but to seek cooperation with other libraries to meet the requirements of its clientele. In a nutshell, resource sharing is a method of overcoming the limitations of the individual libraries in respect of their resources by way of co-operation and co-ordination among participant libraries.

Resource sharing helps to

- Ø Facilitate sharing of resources in an efficient, timely and cost effective**
- Ø Facilitate the utilization of resources to enhance the readers ability to meet the information requirements**
- Ø Facilitate the users the range of services available from the libraries**
- Ø Promote cooperative programmes and services of libraries with adequate resources**
- Ø Provide communication among the libraries**
- Ø Increase the access base for users**
- Ø Avoids duplication in resources**
- Ø Overall improvement in the library services**

3. Creation of INFLIBNET– A beginning

Information and Library Network Centre (INFLIBNET) is the culmination of a yearlong effort of an Inter-agency Working Group. This group consists of experts from library science, computers and communication worked tremendously to prepare the sketch of INFLIBNET. The main author of this paper was one of the members of this working group to bring life to the document. A blue book was prepared and submitted to UGC in 1988 with recommendations and many of them are still valid after 15 years. All these recommendations deal with one major objective, which is resource sharing facilitating

optimum utilization of resources by various methods. INFLIBNET started as a project under Inter University Centre for Astronomy and Astrophysics (IUCAA) in 1991 with its head quarters at Ahmedabad and became independent Inter University Centre (IUC) of UGC in 1996 having its Governing Council, Governing Board as advisory bodies and Director the executive head to manage the centres activities.

Over the years, the Programme has progressed steadily and since May 1996 it is an independent autonomous Inter-University Centre under UGC to co-ordinate and implement nationwide high-speed data network using state-of-the-art technologies for connecting all the university libraries in the country. INFLIBNET is set out to be a major player in promoting scholarly communication among academicians and researchers in India.

Objectives

Objectives and Functions of INFLIBNET as envisaged in Memorandum of Association are:

- Ø To promote and establish communication facilities to improve capability in information transfer and access, that provide support to scholarship, learning, research and academic pursuit through cooperation and involvement of agencies concerned;
- Ø To establish INFORMATION AND LIBRARY NETWORK "INFLIBNET" – a computer communication network for linking libraries and information centres in universities, deemed to be universities, colleges, UGC information centres, institutions of national importance and R&D institutions, etc. avoiding duplication of efforts.

4. Role of INFLIBNET in Automation of University libraries.

To bring the IT culture in the universities and automate the university libraries INFLIBNET with the support of UGC has spent several Crores of rupees by giving the initial grant and subsequent grant for five years to these universities. This helped the libraries substantially to procure the hardware and software for library automation activities.

INFLIBNET, during the last ten years had ups and downs and passed through its teething troubles. Though it is developing and fast expanding in size, resources and services. Some significant results are visible and note worthy discussed below. This progress has been possible only due to the continuous support of the parent body UGC and the participating libraries.

- Ø Provided financial support to the tune of Rs. 6.5 lacs each to 142 university libraries for the purpose of automation and networking.
- Ø Of these more than 90% libraries have become operational and started availing the recurring grant for next five years.
- Ø Provided to Core facility grant of Rs. 1 lakh each to 65 libraries to establish core facilities and get connected to network for accessing the information resources.
- Ø Conducted intensive training courses and workshops for the staff working in these libraries. Apart from this, onsite training has been provided at more than 35 places.
- Ø Proper guidelines are provided for creation of quality records as prescribed the expert committee recommendations and copy of the guidelines were given to all these libraries.
- Ø Conducted more than 35 regional training programmes (IRTPLA) at different states covering more than 700 college librarians.
- Ø Developed and supplied software for university libraries (SOUL) the state of the art library management software to more than 115 libraries. Implementing the MARC-21 interface to SOUL software and vice versa.
- Ø Developed union databases of different materials from universities and provided access through institutes website <http://www.inflibnet.ac.in>. There is a quantum jump in database of books with holding of more than 12 Lakhs records. User-friendly search engines have been developed to provide access to these databases.
- Ø Created experts and projects database and provided access to more than 12000 experts data. Under the project of NISSAT INFLIBNET has created more than 20000 expert profiles in the field of science and technology and are made available on the web site <http://nissat.inflibnet.ac.in/> also developed software facilitates online uploading and editing of profiles.
- Ø Providing time to time technical guidance to all the libraries for implementation of IT
- Ø Providing information services to the research and academic community using the CD-ROM databases, access to OCLC first search, STN International etc.
- Ø Conducts annual convention to provide a platform for librarians and IT professionals in the form of CALIBER, which has become very important forum to discuss the modern trends in library.
- Ø Brings out series of publications to promote the cause of INFLIBNET

SOUL Software development at INFLIBNET

The university libraries funded under faced difficulty with the use of software for its day today operations. Though there are many commercial software available, but they have individual limitations. The libraries participating in INFLIBNET faced difficulty in easy transfer of the data to INFLIBNET for

making the union database. Hence many universities suggested INFLIBNET should make an attempt in the software development for the academic libraries. A comprehensive library software has been designed and developed suited to the Indian academic libraries. It now takes a superhighway and maps many university and college libraries across the country despite facing the challenges of different softwares. The SOUL software is updated time to time and is compatible with MARC-21.

The centre has been conducting the SOUL familiarization programs at different places. It is very encouraging to get the support by the libraries across the country. Major cities have already been covered for conducting these familiarization programs at Mumbai, Kolkatta, Chennai and other places. The software is being used by more than 115 universities and institutions within a span of two years. The training is conducted at INFLIBNET for SOUL orientation for the period of five days to help the professionals to understand the software in depth and interact with the scientists at the Centre.

Retrospective Conversion and document delivery projects.

INFLIBNET has also initiated two major projects viz. Retrospective Conversion of collection of five major libraries and Document Delivery Service.

These have been initiated to make an optimum use of existing resources and promote resource sharing among member libraries. Under the Recon project five libraries will create good quality records of their entire holdings as per the standards recommended by INFLIBNET and contribute such records to union databases created at INFLIBNET. The main objective of this project is to use these high quality records created by the above libraries for Retroconversion and shared cataloguing of other member libraries, thereby minimising the laborious efforts and cost involved in retroconversion.

Under the Document Delivery Service Project, six universities who have fairly large collection of serials have been selected to serve as Document Delivery Centres. These libraries will deliver the copies of research papers from their collection, using both electronic media as primary mode and photocopy service.

Union Catalogue Software tool development at INFLIBNET

It has been observed from the data at INFLIBNET that the collection among the academic libraries is more or less same and they have unique collections. In the absence of an updated national bibliographic tool many libraries create the record on their own making entry for the same record at all libraries. This will result in duplication of work and also delay the automation process in the university libraries. Apart from that there is no consistency in rendering the information as these libraries use different software at

different places in different formats. In the western countries it is an established fact that the items are catalogued only once and thousands of libraries make copy cataloguing of the record created by others resulting in fast data conversion and also saving lot of money and manpower. This kind of tool has to be made available in order to help the libraries.

The development of SOUL software and the utilities such as conversion of data from SOUL to CCF/MARC-21 and vice versa gives rays of hope to create the quality union database at INFLIBNET. The records entered in the SOUL software by more than 100 libraries will be more or less uniform records. The development of this database including the records created by five major libraries identified under the retrospective conversion project will be made available in the form of union database for other libraries. This data can also be distributed to libraries in a CD form. The participating libraries may use the retro-conversion tool developed by INFLIBNET to match the records of their libraries and convert the records into Machine Readable form. This tool is expected to provide lot of benefit to the libraries.

These new initiatives will give the required momentum to the primary objective of resource sharing under the INFLIBNET programme.

More importantly INFLIBNET has been able to create an IT conscious environment in the university libraries. Librarians have now accepted changes and working to bring these changes in their libraries.

Reorganization of technical activities at INFLIBNET

The emerging technology, changing conditions and user needs are continually redrawing the lines of innovations thereby providing the new challenges and opportunities. To meet the challenges and in order to achieve the set objectives, the technical activities of the centre have been re-organized into eight major groups to play major role in the automation and networking of university libraries in India.

- 1) **Database Development & Maintenance Group** to take care of the development of databases, standards and formats.
- 2) **Database R & D Group** for creation of multilingual database, assisting participating libraries in database development activities for preparing quality database, conversion programs for ISO to union databases, interface to download MARC and CCF data.
- 3) **Software R & D Group** to take care of system analysis and design, including design prototype,

library management software SOUL under different platforms, search engines for multilingual databases.

- 4) Informatics Group to mount all the union databases to provide access, providing various services of INFLIBNET.**
- 5) Human Resource Development & consultancy Group for concentrating on conducting training courses, workshops/seminars, specialized courses, onsite training, tutorials, CALIBER etc.**
- 6) Networking, testing & Quality Control Group to coordinate UGC-NET, LAN, WAN, setup and Maintenance of INFLIBNET's Intranet.**
- 7) E-Education Group for multimedia based multilingual SOUL tutorials on CD as well as on web, exploring various e-learning technologies, analysis, design and implementation of e-learning technologies on INFLIBNET.**
- 8) Web Development Group covering INFLIBNET site objective analysis, site design and updating. Maintenance of links and various web services running at the site.**

5. UGC-infoNET - A initiative of UGC for Networking Indian Universities

University Grants Commission has set up state of the art nationwide network for its universities to effect a virtual enhancement of academic infrastructure in the country. ERNET India Society has been set up by Ministry of Information Technology as a nodal agency for design, development and operation of nationwide academic and research network. This nationwide network with 8/2 Mbps terrestrial backbone connecting major cities in the country. The terrestrial leased lines and radio link at educational institutions are being provided from this backbone. This would help in optimizing the overall data traffic and improve performance. The satellite connectivity would be provided from ERNET satellite hub at Bangalore. INFLIBNET will decide the type of connectivity for universities and responsible for execution and monitoring of network.

E-subscription to universities

Academic libraries in India are facing challenges due to budget cut, reduced staff, devaluation of Indian

Rupee against major currencies and escalation in cost of publications. The number of journals subscribed by these libraries, have gone down to very limited collection. Realizing the need for common mechanism for access to scholarly information UGC Chairman set the priority for providing access to scholarly information for the academic and research community. The committees and sub-committees have been working towards the implementation of the same. Making professional periodicals literature available over the Internet to the University community would provide a great boost to the research and development work in the Universities. The UGC – INFONET would enable applications like E-access to journals, computer aided learning, distance education and E-governance to become a reality. INFLIBNET is the nodal agency involved in providing content over the long term.

INFLIBNET Centre, in its initial phase has focussed on the building up the infrastructure for the participating libraries, and preparing them to accept the change brought about by the information technology.

6. Conclusion

To be successful in the present century, libraries have to be more proactive and more customer service oriented. The complex challenges of the next ten to twenty years require creative leadership, drawing the best from both library leaders and followers in order to meet the demands of their situations and achieve goals. It is time to reevaluate service models that have functioned for years. Being prepared to manage changes can furnish us with the ability to flourish. We should attempt to reestablish standards, criteria, or benchmarks that are considered to be basic to quality library service. Academic libraries in the 21st century need to be learning organizations.

Library consortia or co-operative ventures have grown from a peripheral and limited position of resource sharing to an integrated system-wide resource sharing. This has been made possible by developments in electronic access. Academic libraries now have an improved access to catalogue information that reflects the holdings of many individual libraries. In addition electronic access enables customers to initiate their own search of remote catalogues and make requests for information. With the introduction of computers in the libraries and UGC-INFLIBNET initiative in networking and access to scholarly literature most of the libraries can achieve required goals if they can take maximum benefit out of these initiatives.

It is observed that there was a lack of leadership and enthusiasm among the libraries and librarians in the beginning. However the situation in the university system has now changed. They have realized the importance of centre like INFLIBNET and need for Resource sharing. The need for library automation has been taken serious view by these libraries during the last couple of years which has been shown in the progress made by these universities in terms of database creation, connectivity to network and motivation among the libraries to embark upon the new technology. They are able to map up their libraries with the INFLIBNET objectives. The initiative of UGC-Infonet and E-subscription to journals for the university libraries brings the universities and INFLIBNET much closer to support the academic and research community in the country. The success of SOUL software in the libraries is another big

achievement to bring the universities together in the use of uniform software and ensure the quality record creation by libraries for union databases of INFLIBNET and provide access. Under these circumstances it is an encouraging sign to know that resource sharing is the boon of the country and there is a bright future ahead.

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