

## Contemporary Library Networks in India: A Survey

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**Abstract**— Library is a store-house of information, documentation, audio-visual and graphic materials stored in a variety of media ranging from printed books, periodicals, posters and report, microforms, slides, films, videos, audio, discs, audio-tapes, optical discs, magnetic tapes, floppy discs etc. Electronic Library is likely to be part of a network. An electronic Library deals with both house-keeping operations like acquisitions, catalogue creation, circulation control, serial control, Online Public Access Catalogue (OPAC) and the generation of management information and information retrieval systems like external databases and associated services and products and internal or local databases and their associated services and products. These are Current Awareness Services (CAS), Selective Dissemination of Information (SDI) etc. Application of new information technology has brought in dramatic changes in the library and information field. With technological advancement, libraries and information centres around the world have computerised their library routines and have developed databases for shared use on computer networks. Besides improving services and operations for improving performance, libraries have also been able to evolve effective computer networks with an aim to optimize utilization of resources and facilities. The library and information networks have potential to improve library services in several ways. It brings down the cost of information products and services in the network environment in shared mode. It enables libraries to offer need based services to the end users eliminating the limitation of size, distance and language barriers among them. With evolution in library networks the emphasis has moved from the networks as physical entities to the resources available through the networks. These network accessible resources as include databases of library holdings, journal articles, electronic text, images, video and audio files, scientific and technical data etc.

**Keywords-** Library, Network, Information and Communication Technology (ICT), Databases, Online Public Access Catalogue (OPAC), Current Awareness Services (CAS), Selective Dissemination of Information (SDI)

### I. INTRODUCTION

The term 'network' is increasingly used in place of 'resource sharing' or 'co-operative systems'. Networking and modernization are becoming very important in all types of libraries as they enable the users to have access to the resources of many other libraries in addition to their own. The term 'Library Consortium' is also used some times interchangeably with the library network. Such library consortia are being formed these days not only to share the resources of libraries but also to subscribe to electronic resources on behalf of a group of institutions. With the rapid advancements in the technology several library networks are either functional or are in the formative stage in India. The basic purpose of a library network is to share resources and services amongst member libraries. A Library Network is broadly defined as group of libraries and/or information centres that are inter-connected to form a system with an aim to help each other with information needs of their clientele.

### I. HISTORY AND EVOLUTION

The Library Networks have its roots in library cooperation and resources sharing being practices for centuries. The use of computers for automated generation of indexing and abstracting services in early 1970s and subsequent idea of sharing such massive information through the communication networks gave birth to the concept of online databases like DIALOG, BRS and DIMDI. The ALA and the US office of education cosponsored a landmark national conference on Inter-library communications and information networks held in Warrenton, Virginia, USA in 1970.

The conference recognized the need for establishing networks amongst libraries in USA for effective utilization of combined information resources available in American libraries.

The growth of library networks in India can be traced to the initiatives taken by NISSAT in the year 1986. The CALIBNET was established in 1986 followed by DELNET in 1988 with funding from the NISSAT. The DELNET emerged as the first operational network and is currently promoted with the support the National Information Centre (NIC). Establishment of INFLIBNET by the UGC in 1988 as national level network can be considered as a major turning point to the evolution of library networks in India. The INFLIBNET has recently been given the task of subscribing electronic resources in consortia mode for the universities in India used UGC's INFONET programme. A few more library networks in India that have emerged include MALIBNET in Chennai in 1993 with support from the INSDOC (now NISCAIR), BALNET in Bangalore in 1997 etc.

## II. COMPONENT OF LIBRARY NETWORKS

Major components of Library Networks are given below:

### A. Human Network

The most important component of a library network is the human manpower and their willingness to participate on the availability and delivery of information it is the human resource that makes it possible. While professional staff members can work together to produce innovative and far-reaching improvements in library services, conferences, annual meets, training programmes for members of a library network helps to bring the members together and includes a sense of comradeship amongst them.

### B. Online Databases

The Library Networks lease communication and network infrastructure of other data networks and internet service providers and concentrate on developing contents and making them accessible to member institutions. The database and databanks are the back-bone of a library network. The concept of online database itself has emerged from the idea of sharing information. A Library network may develop some of its own databases and license or acquire other databases from their producers. DELNET's union catalogue of books for example contains more than 30 lakhs records from 844 member institutions.

Besides developing and maintaining their own databases the library networks may also lease or outright purchase databases and databanks from publishers and host them on their own network to make them accessible to their members.

### C. Computer Hardware and Software

A Library Network requires computer infrastructure to host databases and databank developed and maintained by it. The servers are used to host databases, digital objects, browser and search interfaces, and to facilitate their access to the member institutions. A library network may require a number of specialized servers for different tasks so as to distribute the workload on to different servers. It is important that the servers are scalable so that additional storage processing power or networking capabilities can be added whenever required.

A Library Network would also require communication equipments like communication switches, routers, hubs, repeaters, modems and other items required for setting up a Local Area Network (LAN). These hardware and software items are required for setting up any network and need not be specific to a library network.

A Library Network also requires a number of software packages to handle its highly specialized and diversified resources activities and services. Different software packages are required to handle different components and activities of a library network. A Library Network may also require a document imaging software for scanning of document, an RDBMS to store and organise these digital objects and digital library software to provide access to the digital objects with associated metadata.

### D. Data Networks

Most library networks use infrastructure of other data networks and internet service providers. For example, DELNET and INFLIBNET use network infrastructure of NICNET and ERNET respectively.

#### E. Members

Number of members in a library networks is a yardstick of its success. A library network is more meaningful and effective if it has larger number of members. The benefit of larger networks is suitably used and passed of to its members. The collective strength of members of a library network provides it the power to bargain with the publishers for better rates of subscription and terms of licenses.

### III. LIBRARY NETWORKS: ACTIVITIES AND SERVICES

A Library Networks can offer a number of services depending upon its objectives. It is advantageous for a network to take-up multiple numbers of activities and services since the cost incurred on these services get distributed amongst members. Moreover a library network represents a large number of institutions, and it has better bargaining power and economy of scales. A Library Network can provide a large number of services in a highly cost-effective manner. Important services that a library network can provide are given below---

#### A. Co-operative Cataloguing

Catalogue of a library is an index to its collection.

Likewise, a union catalogue of libraries is a network serve as an index to combined collection of libraries in the network. The sharing of cataloguing services began with centralized cataloguing and distribution of printed catalogue card by the Library of Congress (LOC) in 1901. The British National Bibliography (BNB) was launched in 1950 accompanied with catalogue card service though on a more limited scale than that of the Library of Congress (LOC). Some of the important catalogue based services that library networks can take-up include----

- . Shared cataloguing of monographs, serials and non-book materials;
- . Union catalogue of books, serials, theses and dissertations, non-book materials;
- . Online catalogue access for shared cataloguing and location identification;
- . Catalogue card production, book production, magnetic tape, floppy, CD-ROM form;
- . Retrospective conversion;
- . Preparation of authority file.

#### B. Co-operative Cataloguing of Internet Resources

Subject Gateways- The portal site or gateways direct a user to the holders of the original digital material. A subject gateway can be defined as a facility that allow easier access to web- based resources in a defined subject area. Subject gateway is an important component of a library website designed for the library users so as to help them discover high quality information on the internet in a quick and effective way.

#### C. Database Services

The Library Networks can subscribe to electronic resources (that is bibliographic databases, full text electronic resources and reference sources) on behalf of member institution on cost sharing basis host them locally on their own computer infrastructure and provide access to resources hosted locally to their member libraries on payment basis. The local hosting of databases was practiced regularly by several library networks in developed countries before advent of the internet and availability of web-based electronic resources.

The Library Networks can also build value-added services around subscribed resources including retrospective searches (bibliographic services) for member institution, citation analysis for individual researches and institutions, current awareness, alert services etc.

#### D. Document Delivery Services (DDS)

The libraries depend on document delivery services to meet the demands of their users for research articles that are not available in their collection. The libraries cooperate with other libraries to provide these services to their users. Library Networks can offer Document Delivery Service (DDS) as one of its services to member institution. It can offer DDS from journal articles that are accessible or physically available in the libraries of member institution. For example The INDEST consortium in India, uses JGATE Custom Contents for Consortium (JCCC) which provides

content level access to 4500 journals available/ accessible in all the IITs, IISc. And IIM facilitate semi-automated document delivery service.

#### E. Inter-Library Loan (ILL)

Document collection in a library can broadly be classified in two groups, one that is collection that caters to the core interest of the institution and other that serves peripheral interest of its users. Professional association like IASLIC has developed Inter-Library Loan (ILL) code to facilitate the activity.

The primary mechanism for sharing materials being practiced for centuries is known as inter-library loan (ILL) that involves mutual lending and borrowing of materials among libraries. Library Networks with their union catalogue of books and journals are instrumental in promoting inter-library loan (ILL). The library networks may deploy specially trained staff, courier service and transportation for this purpose.

Most electronic publishers allow inter-library loan (ILL) where in a library subscribing to a given electronic resources in full-text can take a printout of a paper and send it to the requesting library. Fully automated comprehensive inter-library loan (ILL) and document delivery management system like VDX ( Virtual Document eXchange) and ARIEL are now available that facilities resource sharing between libraries and deliver document directly to users.

#### F. Shared Electronic Reference/ Real-time Reference Service

These services can be offered by a library network. Digital reference service, also called “Ask-An- Expert” or “Ask-A-Librarian” services are Internet based question and answer service that connect users with individuals who possess specialised subject knowledge and skills in conducting precision searches.

“Ask-A-Librarian” services have a web-based question sub-mission form or an e-mail address or both made available through the websites of library network.

Users may submit questions by using either form.

A number of library networks have started experimenting with offering real time digital reference service using chat software live interactive communication activities, bulletin board services, and interactive customer assistance services using related technologies.

LiveRef(sm)(<http://www.public.iaslate.edu/~CYBERSTACK/LiveRef.htm>) maintain an online registry of real-time digital reference services.

#### G. Joint Archives and Storage Facilities

Co-operative storage facilities is a recent trend where by a group of libraries finances the construction of a high density facility with advanced climate control system. Cooperative storage facilities need not be necessarily a repository for discarded or duplicate materials, it may be active or not.

Such joint facilities may also be implemented for setting up e-print archives across members of a library network. The responsibility of digital archives can also be taken up in a distributed mode by members of a library network.

#### H. Shared Digital Library Project Development

A Library Network may extent its activities towards shared digital library projects. Some of the important activities that a library network may take-up are -----

- . Setting up E-submission of theses and dissertation;
- . For members e-preprint server;
- . Web-based union catalogue of journal and other serial publication;
- . Web-based union catalogue of books;
- . Co-operative cataloguing of internet based electronic resources.

#### I. Training of Users and Library Staff

Training programme is a crucial part for functioning of library and information network to facilitate optimum use of subscribed electronic resources. It acts as a bridge to facilitate better communication amongst members of a library

network and find answers to common problems. Educational programmes are essential both for the users as well as for the library staff.

#### J. Communication Services

Continuous communication amongst members of a library network is considered its life-line. Effective communication motivates members to cooperate and commit to the cause of a library network and align members toward a shared vision. A library network may promote communication using the following communication media-

a. Listserv or Mailing List: Listservs are electronic groups for sharing of e-mail message sent to the mailing addresses of a group of people. A Listserv or Mailing List provides with archival facility communication amongst members of a library network.

b. Website: Maintenance of website of a library network provides an opportunity to propagate its services and facilities. Of course it should be adapted regularly.

#### IV. LIBRARY NETWORKS IN INDIA

The growth of library networks in India is of a recent origin. The growth can be traced to some of the policies that government of India pursued during the last decade. The technology policy statement (1983) realised the importance of Scientific and Technical Information (STI) and rightly emphasised the need for a technology information policy document submitted in 1988 contained a recommendation to the effect that modern information technology must be used at national level to improve the library and information services in the country and make them more purposive and user oriented. It is NISSAT (NATIONAL INFORMATION SYSTEM FOR SCIENCE AND TECHNOLOGY) which took initiative for the establishment of CALIBNET in Kolkata and supported the formation of DELNET in 1988 and PUNNET in 1992, ADINET in Ahmedabad in 1993 and BONET in Mumbai in 1994.

In another effort INSDOC (NOW NISCAIR) Delhi took initiative and supported the formation of MALIBNET in Chennai in 1998. BALNET in Bangalore was registered as a society in 1997. The UGC did not lag behind in networking effort either. It established INFLIBNET in 1988 itself. INFLIBNET is a network of University and College Libraries. It became operational in 1991.

It may be important to refer here to the report of the working group of the planning commission on libraries and informatics for the ninth five year plan (1997-2002).

This report was prepared under the chairmanship of Shri B.P. Singh, the secretary, Department of Culture. The National Informatics Centre (NIC) was established in 1975. NIC established NICNET in 1977. It links regional nodes at Delhi, Pune, Bhubaneswar and Hyderabad and 32 nodes at state and union territory levels and 439 nodes at district headquarters. NICNET is based on spread spectrum multiple access techniques and uses C-2000 series of micro earth station. NICNET has created a number of databases and networking. NICNET also provides the facility for the transmission of bibliographic data.

INDONET is an integrated information management and distributed data processing facility. It is a commercial network with nodes at Calcutta (Kolkata), Bombay (Mumbai) and Madras (Chennai) on IBM 4361. It is connected to cities like Ahmedabad, Bangalore, Delhi and Pune through MUXs/ cluster controllers.

INDONET uses IBMs System Network Architecture (SNA).

VIKRAM is yet another public data network established by the Dept. of Telecommunication.

The Department of Electronics established ERNET mail during the Seventh five year Plan (1986-1991) to provide academic and research institutions with electronic mail facilities.

#### V. COCLUSION

Application of new information technology has brought in dramatic changes in the library field. With technological development libraries and information centres around the world have computerized their library routines, developed databases for shared use on computer networks. The library networks have potential to improve library services in several ways. It brings down the cost of information products and services in the network

environment in shared mode. It enables libraries to offer need based services to the end users eliminating the limitation of size, distance and language barriers among them. A Library Networks can offer a number of services depending upon its objectives and demand from the member libraries. Telecommunication network works as backbone for a network that is used for accessing, communicating and transforming information. In India, the Ministry of Communication and Information Technology and Videsh Sanchar Nigam Limited (VSNL) are mainly responsible for providing and maintaining national and international telecommunication facilities. It also covers telecommunication networks in India.

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