
UNIT 9 LIBRARY AND INFORMATION NETWORKS AND CONSORTIA

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9.0 OBJECTIVES

The need for sharing the resources of libraries has been recognised long back. It is not possible for any library to acquire all the resources and also satisfy the information requirements of all the users. As a result libraries and information centres join hands to form consortia and networks. Though sharing of resources was started with library materials, subsequently it has been recognised that sharing of other resources like infrastructure, human resources, etc. are equally important. The development in technology augmented the formation of such networks. After reading this Unit, you will be able to:

- elucidate the concept of a library and information network and a consortia;
- explain the need and basic characteristics of a library network and a consortia; and
- discuss the services and activities of a typical library network and a consortia.

9.1 INTRODUCTION

Library and information networks have the 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 include databases of library holdings, journal articles, electronic text, images, video and audio files, scientific and technical data, etc.

A network is developed when a group of libraries and/or information centres decide to exchange information using computers. The library networks use existing communication facilities to establish networks amongst libraries that agree to cooperate amongst themselves through more or less formal agreements with a view to pooling their resources and to offer better services to the users. The participating libraries generally follow identical or compatible rules and procedures. The term “network” is increasingly used in place of “resource sharing” or “cooperative systems”. Networking and modernisation 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. Library consortia exist not only to share the resources of libraries but also to subscribe to electronic resources on behalf of a group of institutions. The concepts relating to library and information networks discussed in the following pages apply to library consortia also.

9.2 LIBRARY AND INFORMATION NETWORKS

9.2.1 Definition

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. UNISIST-II Main Working Document defines the information network as “a set of inter-related information systems associated with communication facilities, which are cooperating through more or less formal agreements and institutional agreements, in order to jointly implement information handling operations, with a view to pooling their resources and to offer better services to the users. They generally follow identical or compatible rules and procedures”.

Susan Martin defines a network as a “group of individuals or organisations that are interconnected to form a system to accomplish some specified goal. This linkage must include a communications mechanism, and many networks exist for the express purpose of facilitating certain types of communication among members.”

Reynard C. Swank defines a library network as a “concept that includes the development of cooperative systems of libraries on geographical, subject or other lines, each with some kind of centre that not only coordinates the internal activities of the system but also serves as the system’s outlet to and inlet from the centres of other systems”.

9.2.2 History and Evolution

Library networks have their roots in library cooperation and resources sharing being practiced 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. These initiatives led to growth and development of computerised databases and online search services like DIALOG, BRS and DIMDI. The American Library Association and the US Office of Education

co-sponsored a landmark National Conference on Inter-library Communications and Information Networks held in Warrenton, Virginia, USA in 1970. The conference recognised the need for establishing networks amongst libraries in USA for effective utilisation of combined information resources available in American libraries.

Sustained interest in the library networks lies in the opportunity that they provide for centralised services that are highly economic. A long-standing example of such services is the production of catalogue cards by the Library of Congress in 1968. Centralised technical processing of documents started by the Library of Congress was replicated in individual states and localities in USA and later in several European countries. Besides, centralised processing, the library networks have greater potentials to increase resource sharing. Recognition of the value of sharing rather than duplicating resources resulted in the development of the existing inter-library loan system, cooperative arrangements such as Farmington Plan and the National Union Catalogue in USA. Some of the important library networks at international level include OCLC, RLG, CURL, and JISC.

Self Check Exercise

Note: i) Write your answer in the space given below.

ii) Check your answer with the answers given at the end of this Unit.

1) Define Library and Information Networks? Discuss the main objectives of library and information networks?

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9.2.3 Objectives

Major objectives of a library and information network are to:

- Encourage interlibrary cooperation and resource sharing at all levels amongst members of the network;
- provide help to member institutions in computerisation of their libraries, retro-conversion of bibliographic records and development of standardised databases for shared use;
- develop union catalogues of various resources so as to provide reliable access to document collection available in member libraries;
- provide effective access to combined holdings of library resources through computerised databases of various member institutions;
- provide document delivery services to member libraries;
- rationalisation of acquisition of information resources in member libraries and optimise their usage through resource sharing;

- evolve/adapt protocols and standards, guidelines, methods and procedures for bibliographic records, their storage, inter-library loan hardware and software;
- facilitate communication amongst users of member institutions;
- provide training to members of library staff of participating libraries for effective use of libraries in the network;
- guide member libraries in the effective implementation and utilisation of current and upcoming information technologies;
- provide access to information resources at reduced rates through consortium arrangements; and
- develop and promote collaborative digitisation projects.

9.2.4 Characteristics

The library and information networks are characterised by the following aspects:

- **Equal Opportunity of Access to All Members**

A library network provides equitable access to all its core resources to all its member libraries. However, resources that are licensed from a third party may be offered on subscription basis.

- **Interdependence**

Members of a library network depend on each other for sharing their resources. The interdependency may go beyond sharing of document resources to sharing of expertise, manpower, equipments, etc.

- **Use of Standards and Protocols**

Use of common standards and protocols is a pre-requisite to successful implementation of a library and information network. The standards and protocols exist for network technology, database structure, and information representation and for bibliographic records. Use of well-developed, widely-used standards and their uniform implementation help in improving the quality of services, interoperability of databases and digital repositories.

- **Shared Decision**

The decisions of members of the executive committee of a library and information network are equitably applicable to all member institutions. All members of a library network are obliged to stand by the decision taken collectively.

- **Broad-Based Library Services**

Library and information networks generally offer a broad range of library services including union catalogue of books and journals, access to union catalogues and licensed databases, licensing of e-resources from publishers, table of content services, database of experts in various disciplines, etc.

- **Centralisation**

Network activities are generally centralised. Large bibliographic databases are centrally stored and maintained although they have interfaces for online

data feeding and updation. It is however, possible to maintain distributed databases with single search interface using standard protocols.

- **Economics**

The cost involved in maintaining activities and functioning of a library and information network including licensing and hosting of third-party databases get distributed amongst subscribers and members of the network. The products and services through the network, therefore, tend to be more economic than by the subscription directly by the libraries individually.

- **International Reach and Opportunity for Further Collaboration**

The networks may be connected to other networks through which such networks can have an opportunity to learn from each other and work in collaboration.

- **Research and Development**

The library and information networks, with their elaborate infrastructure and large number of databases, provide an/opportunity for research and development work. The usage statistics of databases and electronic resources, feedback from participating libraries, etc. provides input for further research and analysis.

9.2.5 Components

Major components of a library and information network are given below:

- **Human Network**

While databases, databanks, computer and communication infrastructure are important for successful implementation of a library and information network, the most important component of a library network is manpower and their willingness to participate in the library network and share resources of their respective libraries. While a library network focuses primarily on the availability and delivery of information, it is the human resource that makes it possible. Willing professional librarians and associated 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 help to bring the members together and induce a sense of leadership amongst them.

- **Online Databases**

The emphasis in a library network is on the contents and users of the contents rather than on technology of networking. 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. Databases and databanks are the backbone of a library network. The concept of online databases itself has emerged from the idea of sharing information. A database is non-redundant, multi-usable, independent and physically available set of complete data, on a subject, stored in an organised and structured manner to allow users to search the information in an interactive mode. A library network may develop some of its own databases and license or acquire other databases from their producers.

The bibliographic records for a database developed in-house by a library network may come from all or some of its member institutions so as to make a large database of bibliographic records with information about its location in member institutions. WorldCat, for example, is a worldwide union catalogue of books created and maintained collectively by more than 25,900 member institutions of OCLC with 302 million bibliographic records. 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 also purchase databases and databanks from publishers and host them on their network to make them accessible to their members. OCLC, for example, hosts several third-party databases that member institutions can subscribe.

- **Computer Hardware and Software Infrastructure**

A library and information network requires computer infrastructure to host databases and databanks developed and maintained by it. The servers are used to host databases, digital objects, browse and search interfaces and to facilitate their access to the member institutions. Servers for a library network need to be computationally powerful; have adequate main memory (RAM) to handle the expected work; have large amount of secured disc storage for the database(s) and digital objects. A library network may require a number of specialised servers for different tasks so as to distribute the workload on to different servers. It would require one or more computer server(s) to host indices and databases and one or more object server(s) to store digital objects and other multimedia objects. However, for a smaller library network, several distinct activities can be performed on a single server. It is important that the server is 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 specialised and diversified resources, activities and services. Different software packages are required to handle different components and activities of a library network. It requires a robust database management system (DBMS or RDBMS) to store bibliographic records, a search engine to provide browse and search facility to the union database of bibliographic records or digital objects and an online data entry interface to facilitate creation of records for new books acquired by member libraries. A library network may also require a document imaging software for scanning of documents, an RDBMS to store and organise these digital objects and a digital library software to provide access to the digital objects with associated metadata. Since a single integrated software package from a single vendor is not available, a software for a library network may be a system with components added onto an open architecture framework.

Besides, computer software and hardware infrastructure at the network end, the member libraries also require computers with necessary hardware and

software devices in order to connect to the Internet and to the servers hosted by the network. Users at the member institutions require multimedia PC equipped with an Internet Browser like Internet Explorer or Netscape Navigator to access Internet and the services offered by the network.

- **Data Networks**

The servers of a library network are required to be hooked on to the Internet so as to make them accessible to its members. Most library networks use infrastructure of other data networks and Internet Service Providers. For example, National Knowledge Network, JANET and AARNET are important data networks in India, UK and USA respectively.

- **Members**

Number of members in a library network is a yardstick of its success. A library network is more meaningful and effective if it has larger number of members. The cost involved in maintaining activities and functioning of a library network including licensing and hosting of third-party databases getting distributed amongst subscribers and members of the library network. The benefit of larger number of members in a library network is suitably used and passed on 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.

9.2.6 Types

The library and information networks perform multiple activities including providing access to full-text and bibliographic databases, creation, maintenance and updation of catalogues on member libraries, document delivery services and promotion of resource sharing activities amongst member libraries. The library and information networks can be grouped into following three categories based on their size, subject speciality and activities:

Large networks concerned primarily with computerised large-scale technical processing, e.g. OCLC, RLIN, etc.

Small networks or consortia concerned with acquisition of electronic resources for member libraries and training of staff i.e. INFLIBNET;

Limited-purpose networks cooperating with respect to limited special subject areas, e.g. FORSA, CERA.

Limited-purpose networks concerned primarily with inter-library loan and union catalogue activities.

I) **Types of Library Networks Based on Geographical Region**

The library and information networks can be divided into the following categories based on their geographical regions they serve.

a) **City or Metropolitan Library Networks**

The library networks, confining their activities and membership to a given city or metropolitan area can be categorised as Metropolitan Area Networks, such as CALIBNET, DELNET, ADINET, PUNENET, BONET, etc. in India.

b) **Regional Library Networks**

There are regional academic groups founded by the member institutions for specific purposes. South Australian Public Library Network, Alberta Public Library Electronic Network (APLEN) in South Australia and Canada are examples of regional library networks.

c) **National Library Networks**

Library networks whose activities are spread over the entire country can be categorised as National Library Networks. Information and Library Network (INFLIBNET) in India and China Academic Library and Information System (CALIS) in China are examples of national library networks.

d) **International Library Networks**

The library networks like OCLC can be considered as international networks with 25,900 libraries as its members in 170 countries.

II) **Types of Library Networks Based on Their Activities**

The library networks can also be grouped under the following categories based on activities undertaken by them.

a) **Umbrella or Supermarket**

Some of the networks, such as OCLC, are “Umbrella” or “Supermarkets” type covering all fields and offer multitude of services. Libraries can take membership of such networks for accessing selected databases or for using its union catalogue.

b) **Bibliographic Utility Networks**

The most common purpose of a library network is library automation and resource sharing which generally take multiple forms. Most other activities, such as creation of union catalogues, document delivery services and copy cataloguing are its by-products. They consist of a large union bibliographic database of member libraries, accessible online to members for copy cataloguing or for creation of new bibliographic records for new books. Such networks also provide cataloguing information on magnetic tapes or CD ROM for retro-conversion of manual library catalogue into machine-readable catalogues. The largest bibliographic utilities, such as OCLC provide a database for cataloguing records created by member libraries, these records are used for copy cataloguing, interlibrary loan and other functions.

c) **Online Search Service Networks**

Online search networks host a number of databases in machine-readable form which are accessible online through telecommunication links. A user can directly interrogate the databases mounted on host’s computer through a computer terminal using a communication package and communication links in two-way interactive mode. These databases are hired / leased to the online search services (also called vendors, spinners or retailers), from their owners (information provider – often the publishers of the printed version of databases). Some of the important online bibliographic search services networks include: DIALOG, ORBIT, STN, BRS and Datastar in USA; BLAISE and Pergamon Infoline in UK; DIMDI in Germany; Euronet and

Diane in Europe; ESA-IRS in Italy; and CAN/ OLE in Canada. Most of the online search services networks are now accessible over the Internet with web interface.

d) **Service Centre Networks**

Service centre networks concentrate on providing services to the member library in a networked environment. Such services may include cataloguing, literature search, database access, news service, etc. These networks act as a distributor or aggregator for online databases for offering computer-based online information retrieval services. Illinois Library and Information Network (ILLINET) is an example of service centre network.

e) **Networks for Subscription to Electronic Resources**

Although most library networks undertake multiple activities, group licensing / purchasing of electronic resources is one of the major activity of modern library networks and consortia. Ohio Link, for example, is a state-wide network which first automated all the publicly-funded academic libraries in Ohio State of USA, then added access to jointly purchased databases as one of its key activities. Ohio Link now includes many other libraries and is a leader in group purchasing of and access to digital information. Group licensing / purchasing of electronic resources is one of the key activities of INDEST Consortium in India.

Based on **funding source**, membership of a library network may be mandatory for certain category of institutions because it is associated with a government body such as a state. For example, all CSIR laboratories and department of science and Technology (DST) are members of NKRC Consortium because the Department of Scientific and Industrial Research, Govt. of India fund it. On the other hand, FORSA Consortium in India is a voluntary organisation and its membership is open to institutions interested in subscription to resources in astrophysics and astronomy. The INDEST Consortium, on the other hands, has Government-funding and therefore, its membership is mandatory for IITs, NITs and IIMs.

9.2.7 Activities and Services

A library network 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 gets distributed amongst members. Moreover, since a library network represents a large number of institutions, it has better bargaining power and economy of scales. A library network, therefore, can provide a large number of services in a highly cost-effective manner. Important services that a library network can provide are given below.

- **Cooperative Cataloguing**

Catalogue of a library is an index to its collection. Likewise a union catalogue of libraries in a network serves as an index to combined collection of libraries in the network. The union catalogue was, therefore, taken up as one of the first activity by most of the library networks. The sharing of cataloguing services began with centralised cataloguing and distribution of printed catalogue cards by the Library of Congress 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. Fully automated library networks offer interfaces for online cataloguing that allow member libraries not only to access the database but also create bibliographic records online for new books or download records for books that already exist. The centralised cataloguing saves time, avoids duplication, encourages inter-library loan and facilitates downloading of cataloguing information directly into the local library catalogue. At the same time the participating libraries have to follow the same rules and standards decided upon. Many times all the details may not be required by individual libraries. Some of the important catalogue-based services that library networks 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; and other;
- catalogue production in card, book, and other forms;
- retrospective conversion; and
- preparation of authority files.

- **Database Services**

The library networks can subscribe to electronic resources (including bibliographic databases, full-text electronic resources and reference sources) on behalf of member institutions 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. Besides being economic, local availability of international databases make the access faster and reliable, reduces transpacific network traffic and bandwidth congestion, and cost incurred on it. Depending upon the licensing arrangements, local hosting of databases also ensures availability of archives of databases locally. 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 institutions, citation analysis for individual researchers and institutions, current awareness, alert services, etc.

- **Document Delivery Services**

The libraries depend on inter-library loan and document delivery services to meet the demands of their users for research articles that are not available in their collection. Libraries cooperate with other libraries to provide these services to their users. Library networks offer document delivery service as one of the services to member institutions. They offer document delivery service from journal articles that are accessible electronically or available physically in the libraries of member institutions. Document delivery service widens access to all journals subscribed in member libraries to all users

across the library network. Library networks develop customised databases that provide content-level access to all journals available amongst member libraries. The INDEST Consortium in India, for example, uses JGATE Custom Contents for Consortium (JCCC), which provides content-level access to 4,500 journals available / accessible in all the IITs, IISc and IIMs and facilitate semi-automated document delivery service. Besides, IISc, IITs and IIMs, the JCCC is made accessible to all other core members of the INDEST Consortium.

- **Inter-Library Loan**

Document collection in a library can broadly be classified in two groups, i.e., collection that caters to the core interest of the institution and the other that serves peripheral interest of its users. With financial crunch, the library could curb its acquisitions in the peripheral areas and depend on inter-library loan for demands of their users in areas of peripheral interest to the institute.

The primary mechanism for sharing materials being practiced for centuries is known as inter-library loan that involves mutual lending and borrowing of materials among libraries. Resource sharing through formal and informal arrangements helps a library to deliver wide range of services. Library networks with their union catalogue of books and journals are instrumental in promoting inter-library loan. Such networks work proactively to facilitate inter-library loan amongst member libraries by checking the availability, getting the book issued and returned on behalf of member libraries. The library networks deploy specially trained staff, courier service and transportation for this purpose.

- **Shared Electronic Reference / Real-time Reference Service**

Electronic reference service / live reference service 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 services that connect users with individuals who possess specialised subject knowledge and skills in conducting precision searches. As opposed to static web pages, digital reference services use the Internet to place people in contact with people who can answer specific question and instruct users on developing certain skills. The people who serve as digital reference experts (also called volunteers or mentors) are most of the time information specialists, affiliated to various libraries.

“Ask-a-Librarian” services have a web-based question submission form or an e-mail address or both made available through the web sites of library networks. Users may submit questions by using either form. Once a question is read by a service, it is assigned to an individual expert for answering. An expert responds to the question with factual information and/or a list of information resources. The response is either sent to the user’s e-mail account or is posted on the web so that the user can access it after a certain period of time. Many services have informative web sites that include archives of questions and answers and a set of FAQs. Users are usually encouraged to browse archives and FAQs before submitting a question in case sufficient information already exists.

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, interactive customer assistance services using related technologies.

The Internet chat technology serves as an innovative method to extend and enhance traditional and remote reference service. While digital reference service is asynchronous method of information delivery, the Internet chat provides the benefit of synchronous communication between a user and a reference librarian (or mentor). Interactive reference services facilitate a user to talk to a real, live reference librarian at any time of day or night from any where in the world. Unlike with email reference, the librarian can perform a sort of reference interview by seeking clarifications from the user. The librarian can conduct Internet searches and push websites onto the patron's browser, and can receive immediate feedback from the patron as to whether his or her question has been answered to his satisfaction. Several institutions including Cornell University, Internet Public Library, Michigan State University, North Carolina University are offering Internet chat-based service using software like LivePerson, AOL Instant Messenger, Conference Room and Netscape Chat. The librarians have observed that their relatively new chat-based service logged significantly more questions in a relatively short time than did their well established e-mail digital reference service.

- **Collective Acquisition of Resources**

The goal of a library network is to share equitably the collective resources of member libraries. While the existing resources can be shared through inter-library loan, library networks can achieve greater benefit by implementing centralised resource acquisition programme and by rationalisation of its acquisitions. While multiple copies of frequently used documents can be acquired at discounted rates, inadvertent duplication of expensive resources or expensive resources can be avoided. Collective acquisition of resources through library networks not only brings-in transparency and accountability but also demonstrates a commitment to greater collaboration. The collaborative building and distribution of information resources provides the best solution for improving the quantity of, and access to resources essential for conducting research, teaching and in rendering service.

The process and operations where collaboration can be achieved includes: i) pre-order searching; ii) integration of new bibliographic records in OPAC; iii) account keeping; iv) maintenance of address file for supplier / publisher name, etc.; v) negotiations for purchase of multiple copies of books; and vi) updation of databases when the documents are withdrawn.

- **Consortium Purchase**

Consortia-based subscription to e-resources is a way of maximising access to e-resources at minimum cost. It is a feasible strategy to increase the access to electronic resources across institutions at a lower cost. The consortia-based subscription can be successfully deployed to meet the pressures such as diminishing budget, increased user's demand and rising cost of journals. The libraries all over the world have formed consortia of all types and at all levels with the objective to take advantage of current global network to

promote better, faster and more cost-effective means of providing access to electronic information resources to the information seekers. The collective strength of consortia members facilitates the libraries to get the benefit of wider access to electronic resources at an affordable cost and at the best terms and conditions. Moreover, the technology has changed the expectations of researchers. Consortia based services helps library networks to:

- increase the cost-benefit periodical subscription for participating institutions;
- promote the rational use of funds;
- ensure continuous and long-term subscription to the subscribed resources;
- provide opportunities of local storage and hosting of subscribed information resources;
- help in developing local expertise in operation and handling of electronic resources;
- prompt institutions with common interest to come together and purchase e-resources in a consortia mode at reduced cost; and
- provide improved resource sharing amongst member institutions.

- **Joint Archives and Cooperative Storage Facilities**

Cooperative storage of documents is a recent trend, whereby a group of libraries finances the construction of a high-density facility with advanced climate-control systems. Materials stored in such a facility are considered important for research but are not used often enough to justify space in the prime-use area. Sharing of documents is in-built in the concept of cooperative storage since there is a little point in storing multiple copies of commonly owned documents. Dedicated remote-storage facilities have the potential for superior storage conditions because, in the absence of user interaction, the environment is much easier to control. Cooperative storage facilities need not be necessarily a repository for discarded or duplicate materials, it may also be an active facility to organise, house and disseminate materials too expensive or perhaps too little used to justify acquisition in an individual institution.

Besides printed documents, members of a library network can also have joint computer storage facilities that can be used for hosting archives and backfiles that can be made accessible to the members of the consortium. 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.

- **Shared Core Collections**

Besides subscription to full-text electronic resources and bibliographic databases, the library networks may invest in purchase of back volumes of journals and costly reference sources. Several publishers, including Elsevier Science (Science Direct), Wiley Interscience, Institute of Physics (IoP) and Macmillan offer their electronic backfiles that may be loaded locally onto Intranet servers for local access. NetLibrary (EBSCO), Wiley and Kluwer

offer e-books to members of a library network wherein each member may buy a definite number of e-books and all members of the network may share such electronic books.

- **Shared Digital Library Project Development**

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

- setting-up Interoperable Electronic Submission of Theses and Dissertations
- electronic Preprint Server for Members of a network.
- web-based Union Catalogue of Journals and other Serial Publications
- web-based Union Catalogue of Books; and
- cooperative Cataloguing of Internet-based Electronic Resources.

Member institutions of a library network may be prompted to set-up e-print servers for depositing electronic theses and dissertation, preprints of research papers, technical and research reports and other similar research material of mutual interest. These institutions as policy may be asked to use OAI-complaint software to ensure interoperability of digital collections.

Moreover, while individual institutions in a library network may set-up their digital repositories and function as electronic publishers and data providers, the library network may take-up the role of service provider, i.e., it may harvest bibliographic data from all OAI-complaint institutional repositories set-up in the member institutions and provide a unified index to all institutional repositories with link to respective repositories for full text. In effect, these servers would act as a unified indices to digital libraries distributed across member institutions.

- **Training of Users and Library Staff**

Training programme is a crucial requirement for functioning of a 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 user as well as for the library staff. Such programmes make users competent to conduct their own searches more effectively. “On-the-job” training programmes are better not only because it benefits large number of users but it also solve localised technological problems that can be solved with the availability of experts at the time of imparting training.

- **Technology Support to Member Institutions**

It is a major challenge for libraries to select appropriate technology from several technological alternatives that are now available in the market place. All libraries invariably require consultation and expert advice in implementation of new technologies.

Open systems and standards are accepted norms to ensure interoperability. Existing library systems, which are generally proprietary systems, may not

have the capacity to interface with developing open systems architecture. It is often difficult to balance local library systems development and collaborative solutions with other libraries. Since most traditional library systems use proprietary standards, it is important to work towards finding solutions or developing interfaces that facilitates traditional system to interoperate with other systems, including those provided by commercial service providers. Software and systems capable of providing this interoperability are now available in the market place.

- **Communication Services Amongst Members**

Continuous communication amongst members of a library network is considered its life-line. Effective communication motivates members to cooperate, commit to the cause of a library network and align members toward a shared vision. Continuous communication is necessary to link each member with the practices of the consortium and to involve them at policy and operational level as a team. A library network may promote communication using the following communication media:

- **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 with archival facility facilitates communication amongst members of a library network.

- **Website**

Maintenance of website of a library network provides an opportunity to propagate its services and facilities. Of course, it should be updated regularly.

Self Check Exercises

Note: i) Write your answers in the space given below.

ii) Check your answers with the answers given at the end of this Unit.

2) What are the various components of a library and information network? Why is human factor most important for functioning of such a network?

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3) Mention different types of library and information networks based on their activities and services offered by them.

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- 4) Enumerate five major services and activities of a library and information network.

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9.3 SUMMARY

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, developed databases for shared use on computer networks. Besides, improving services and operations for improved performance, libraries have also been able to evolve effective computer networks with an aim to optimise utilisation 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 include databases of library holdings, journal articles, electronic text, images, video and audio files, scientific and technical data, etc.

This Unit introduces library networks, their objectives and basic characteristics. It provides definition of library and information networks and identifies human network, online databases, computer hardware and software infrastructure, data networks and members of a library network as its major components. The unit describes physical and economic limitation, literature explosion and increased awareness and demand from the users as basic needs of libraries that led to the growth and development of library networks the world over. It provides a brief history and evolution of library networks.

A library and information network can offer a number of services depending upon its objectives and demand from the member libraries. The unit elaborates on the services that a library can offer to its members with detailed description of the library and information networks and their services at the international and national in India.

9.3 ANSWERS TO SELF CHECK EXERCISES

- 1) Role of a library is to meet the information requirement of its members. The use of modern information technology helps the libraries to serve their users in a much better way than before. The library networks help libraries and its user in accessing electronic resources globally. The benefits and by-products of networking include: preparation of union catalogues, library automation, access to databases, optimum use of resources, cooperative acquisition of

documents, resource sharing, cost optimisation of library services. Major objective of a library and information network are as follows:

- Encourage interlibrary cooperation and resource sharing at all level amongst members of the library and information network;
 - Provide help to member institutions in computerisation of their libraries, retro-conversion of bibliographic records and development of standardized databases for shared use;
 - Develop union catalogues of various resources so as to provide reliable access to document collection available in member libraries;
 - Provide effective access to combined holdings of library resources through computerised databases of various member institutions;
 - Provide document delivery services to member libraries;
 - Rationalisation of acquisition of information resources in member libraries and optimise their usage through resource sharing;
 - Evolve / adapt protocols and standards, guidelines, methods and procedures for bibliographic records, their storage, inter-library loan, hardware and software;
 - Facilitate communication amongst users of member institutions;
 - Provide training to members of library staff of participating libraries for effective use of libraries in the networks;
 - Provide access to information resources at reduced rates through consortium arrangements; and
 - Develop and promote collaborative digitisation projects.
- 2) Major components of a library and information network are: human network, online databases, computer hardware and software infrastructure, data networks and members of a library network. The most important component of a library network is the library staff and their willingness to participate and share resources of their respective libraries. While a library network focuses primarily on the availability and delivery of information, it is the human resource that makes it possible. Willing professional librarians and associated 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 induces a sense of comradeship amongst them.
- 3) The library networks can be grouped under the following categories based on their services and activities:
- i) Umbrella or Supermarket.
 - ii) Bibliographic Utility Networks.
 - iii) Online Search Service Networks.
 - iv) Service Centre Networks /Networks for Subscription to Electronic Resources.

- 4) Five major services and activities of a library and information network are as follows:
- Cooperative Cataloguing;
 - Database Services;
 - Document Delivery Services;
 - Inter Library Loan;
 - Collective Acquisition of Resources;
 - Consortium Purchase.

9.5 KEYWORDS

Bibliographic record : A record containing a structured description of library materials (i.e., book, serial, etc.). Elements generally included are: author(s), title, pagination, publisher, place of publication, and date of publication.

Document Delivery : Document delivery refers to the complete process of supplying a document to its ultimate user, including formulating and issuing the request, as well as managing the physical or electronic delivery of the document.

File Transfer Protocol (FTP) : The protocol used on the Internet for exchanging files.

Interlibrary Loan : An arrangement by which a library can make a document that is not in its own collection available to its patron by temporarily acquiring it from a library that does own it.

MARC : MARC refers to a computer record structure; a set of tags and indicators to identify parts of the record; the level of cataloguing information contained in the Library of Congress's MARC records; and the body of records distributed by the Library of Congress MARC Distribution Service.

Network : A structured arrangement of connecting devices such as computer terminals, or libraries, created for the purpose of communications, information exchange, computer and cooperative services.

**Catalogue (OPAC)
Online Public Access** : OPAC provides access to the library's holdings via a computer monitor, replacing the traditional card catalogue.

Protocol : A protocol is a standardised means of communication among machines across a network. Protocols allow data to be taken apart for faster transmission, and

then reassembled at the destination in the correct order. The protocol used determines the way errors are checked, the type of compression, the way the sender indicates the end of the transmission, and the way the receiver indicates that the message has been received. Protocols can describe low-level details of machine-to-machine interfaces (e.g., the order in which bits and bytes are sent across a wire) or high-level exchanges between allocation programs (e.g., the way in which two programs transfer a file across the Internet).

- Remote Access** : OPAC is an online catalog of a library collection that is available to the public. Today most libraries make their OPAC publicly accessible via the Web.
- Resource Sharing** : A cooperative arrangement among libraries to make available the resources of library for use by the partners of another library, usually through interlibrary loan or reciprocal borrowing.
- Retrospective Conversion** : The conversion of previously catalogued library materials to machine-readable form. Retrospective conversion is most often undertaken in preparation for installation of a local automated (circulation/catalogue) system of for a cooperative resource sharing project.

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