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THE PEOPLE'S UNIVERSITY

Indira Gandhi
National Open University
School of Social Sciences

BLI-221
Library, Information and Society

Block

3

RESOURCE SHARING AND LIBRARY NETWORKS

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BLOCK 3   RESOURCE SHARING AND LIBRARY NETWORKS

Introduction

Libraries are facing the unprecedented challenge of increasing number and cost of publications and the specialised demands of users. Internet as an alternative source of information has also posed a challenge to librarians. Collaboration is the only alternative available to librarians to satisfy the users. Resource sharing and library networks have been actively practiced and used by libraries to bale them out of the situation. This Block is devoted to the concept of resource sharing. It explains the concept of library networks and presents the scenario of library networks and consortia at national and international level.

There are three Units in this Block.

Unit 8 presents a background that led to the birth of the concept **Resource Sharing**. It discusses the need for and the purpose of sharing. Different areas of resource sharing have been explained in the Unit along with the issues involved therein.

Unit 9 is titled **Library and Information Networks and Consortia**. The Unit explains at length the concept of library and information networks and consortia. It discusses the different types of networks and consortia based on different types of characteristics. The Unit also discusses the activities expected of a library and information network.

Unit 10 Library and Information Networks and Consortia: National and International. There are number of library and information networks and consortia active at different levels; international, national, regional and local. The purpose of the networks and consortia is collaboration, helping the libraries to economise and standardise. Their domain may vary from general public, to academic and research clientele. Such cases have been discussed for India, China, U.S., U.K., South Africa, etc.

UNIT 8   RESOURCE SHARING

Structure

8.0   OBJECTIVES

After reading this Unit, you will be able to:

• elucidate the concept of resource sharing;

• explain the need for and objectives of resource sharing;

• discuss the issues involved in putting resource sharing into practice; and

• describe the developments in resource sharing.

8.1   INTRODUCTION

Libraries are in a state of paradigm shift. There are changes taking place in their users, documents, and services. The users are:

• demanding, engaged in specialised jobs;

• IT savvy; and

• need information in a time-frame.

The information and their carriers (documents) are also undergoing changes, they are:

• available in plenty;

• exploding, adding to the existing vast number; and

• available in different formats.

Libraries have changed from stand-alone entities to networked organisations, from collection-based to access-based, from physical existents to electronic and virtual libraries and their services moving from document-based to information-based. It is a demanding situation for libraries when information available is plenty and demand is high. It has to be fulfilled instantly from just-in-time collection. It is here that the concept of resource sharing has come into picture. Libraries share their resources to serve their users in an effective and efficient manner. Services under resource sharing include inter library loan (ILL), cooperative cataloguing, cooperative collection development and joint storage of materials.

8.2 RESOURCE SHARING

Resource sharing is a concept quite often talked about in the literature of LIS. Literally, the term implies, using each other's resources. Edmonds defines it as 'the reciprocally beneficial sharing of resources, developed or pre-existing, by two or more bodies.' In the context of libraries, it refers to libraries sharing their resources, including the sources of information, staff expertise, infrastructure, and finance. The question arises, why should they do so? They are already so heavily burdened by requests from their own users, how will they cater to the needs of other libraries? The answer lies in knowing the situation in which they find themselves in, presented in the following paragraphs.

8.2.1 Need

The stock in trade in libraries, i.e. documents is available in plenty. Their rate of increase is such that it is termed explosion. It is estimated that there was a 6% increase in book production in 2012 compared to 2011. They are available in a variety of formats. The channels of availability of these documents are also varied adding to the complexity of their acquisition. Prices of documents are on the increase. Periodicals prices are on the increase, a 6% hike was reported in 2013. Earlier the increase in prices used to be mainly in science, technology and medicine journals only but now it has been experienced in other areas like humanities and education too. The prices of these publications are in dollars. The widening gap between dollars and rupees further affects negatively the buying power of libraries in India.

Increasing number of documents also demand physical space which is a limitation for libraries. Even if they are able to buy all that is needed where is the space to store the documents?

Libraries exist for users; any change in their demands and requirements requires libraries to adapt themselves. Users are now more demanding, expecting to be satisfied as early as possible. Libraries have to show their accountability; they have to satisfy the users in the best possible way. Customised services are the talk of the day. Staff has to be more interactive with the users knowing about their areas of interest and their requirements to serve them in the best possible way. This requires that the professional staff be relieved of the routine chores and technical procedures to be done jointly/ cooperatively by libraries. They should interact more with the users, design and develop innovative services satisfying their information needs.

Resource sharing enables libraries to function effectively and efficiently in view of the above situation. Sharing of resources may solve the problem as under:

- All libraries would not have to acquire all the documents that they require. They would share the documents thus overcoming the problem of increased prices and space for storing them.

- Libraries by sharing would have access to large number of documents thus satisfying the increasing demand for documents.

- It would also allow them to share the expertise of staff, thus saving costs as well as the time of the staff. They would now be comparatively freed from the routine technical procedures, as that would be done on a common basis between them.

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

1) Define resource sharing. Describe its need.

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2) Discuss the advantages of resource sharing.

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8.2.2   Concept

Literally resource sharing means joint use of resources. Resource refers to the source which one uses to get some work done. Encyclopaedia of Library and Information Science defines resource as a person, thing or action to which one resorts to, when needed. To be more specific, we can say the resources in a library are staff, infrastructure, documents, and services. Sharing entails a relationship of reciprocity where the two parties offer their resources to each other for mutual benefit. Brewer defines it as 'an umbrella term for a wide spectrum of cooperative processes and mechanisms.' Philip Sewell opines that resource sharing is an evolution of the concept existing earlier as library cooperation. The difference being that library cooperation assumes two or more libraries existing and working jointly to achieve their goals whereas in resource sharing, it is presumed that there exist a group of users putting demand on libraries. Libraries on the other hand come together to pool their resources to satisfy these

demands. Resources may be physical or intellectual, the former refer to the documents and infrastructure, whereas the latter refer to the human resources (expertise), which libraries can utilise to plan, implement or evaluate their services and routines. Resource sharing could be done in two ways: by working separately and sharing or by working together and sharing. While working together, they collaborate to produce bibliographical tools, software; acquire materials; organise conferences and workshops for research and training of personnel.

Another difference between the two concepts is due to the developments in information technology. Library cooperation was more of a concept that could not be put in practice successfully due to: a) Geographical distance between the participating libraries and b) Transmission and duplication of documents not being possible, it made the cooperation among libraries difficult. Sharing of resources was also not too successful because of large libraries rich in resources, fearing that they may have to give more and receive less. More work would be involved in entertaining requests for books. If they do not accede to request, they would be branded as ineffective. An alternative thought was to develop regional libraries to facilitate sharing relieving the expected burden on large libraries. Subsequently, developments in technology for production, storage, duplication, processing, and transmission of information have enabled resource sharing. Desktop production, e-publishing, storage in magnetic and optical media and developments in telecommunications enabled easy duplication and transmission of documents for sharing among libraries. Data and telecommunication networks enabled library networks to materialise and this made possible sharing of all types of resources at any time, from anywhere across the globe.

Self Check Exercise

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

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

3)   Differentiate between library cooperation and resource sharing.

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8.2.3   Historical Background

Library cooperation in modern times can be traced back to the efforts of Library of Congress when it started cooperative cataloguing, thereby enabling participating libraries to know about each other's resources. It resulted in standardisation in practices and also helped them to save on their resources. It led to a chain reaction when libraries everywhere started preparing union catalogues. The system of sharing to satisfy personal needs existed in the society and it was no exception in libraries. Kaul quotes instances of library cooperation existing as early as 200 B.C. between Alexandria Library and Pergamum Library. He also cites Kraus mentioning cooperation between monastery libraries in the 13th century. The cooperation was in sharing reading material.

Starting with mutually satisfying each other's needs as and when required, library cooperation became more systematic with time. Institutions took initiative in this regard. Mention may be made of FID, IFLA, and UNESCO. Another venture for cooperation began in 1895 when Paul Otlet and Henri La Fontaine attempted to compile a world index to published information from the forum of FID, and finally gave UDC as a tool for bibliographic control of published information. FID had one of its objectives as improvements in the availability of information. IFLA has two programmes to its credit in this direction viz., Universal Bibliographic Control (UBC) and Universal Availability of Publications (UAP). Information systems were designed at international , national and regional level to promote UAP. UNISIST, the World Science Information System exists with the aim of providing processed information in science and technology to all.

The cooperation extended in other areas e.g., indexing and abstracting. Abstracting services started providing abstracts of literature, international in scope. Chemical Abstracts, Biological Abstracts and Physics Abstracts are some examples, which are the result of cooperation among institutes. International coverage would not have been possible without cooperation. Further development in cooperation saw the establishment of information systems. INIS, AGRIS databases had inputs from national centers in different countries e.g., BARC and IARI in India. Another example of cooperation that took place was the formation of ADONIS. It was a Document Delivery System consisting of publishers- John Wiley, Elsevier, Pergamon, Blackwell Scientific, Academic Press and Springer Verlag. They provided index to articles appearing in 219 biomedical journals between 1987 and 1988 in CD- ROM. BLDSC was actively involved in this venture and developed the software for retrieving the information.

Select Landmarks in Library Cooperation

Year	Country	Main features
1868	India	The **Catalogue of manuscripts in various parts of India** compiled by Whitney Stokes.
1873	India	Part I of **Sanskrit manuscripts in private libraries of the North West Provinces** covering Banaras was published.
1873	India	**A catalogue of Sanskrit manuscripts in private libraries of Central Provinces** edited by F. Kielhorn (Nagpur).
1885	USA	Smithsonian published the union list consisting of scientific and technical journals.
	Belgium	Establishment of the International Institute of Bibliography, Brussels.
1901	USA	Library of Congress begin card distribution service and work on the national union catalogue.
1909	USA	A union card catalogue of public library holdings developed in California.
1916	UK	Cooperative lending begins with the establishment of the Central Library of Students (CLS).

1917	USA	American Library Association (ala) Publishes the first inter-library loan code.
1920	USA	Development of union lists.
1924	India	A cooperative venture — Motibhai N Amin organises Pusthakalaya Sahayak Sahakari Mandal Limited with a share capital of Rs. 50,000 to supply books, periodicals, and other articles to libraries of Gujrat and also to accept trust funds and deposits from libraries.
1927	USA	Publication of the **Union list of serials in libraries of the United States and Canada**.
1930	UK	Promotion of inter lending of books as Central Library of Students (CLS) is converted into National Central Library.
1932	USA	Library of Congress Cooperative Cataloguing established.
1934	USA	Bibliographical Centre for Research established in Denver.
1940	USA	Pacific North West Bibliographic Centre established in Seattle.
1944	UK	British union catalogue of periodicals published.
1948	UK	Royal Society Scientific Information Conference recommended greater cooperation among libraries to reduce undesirable duplication and to extend access to a greater portion of world's literature.
1948-72	USA	Farmington Plan went into operation on January 1, 1948 and started receiving materials from Sweden, Switzerland and France. It resulted in cooperative acquisition if foreign materials by 6 American libraries with allocation of broad subjects to each library.
1948	UK	Opening of the British National Book Centre.
1948	USA	The United States Book Exchange programme begins.
1949	USA	Mid-West Library Centre began operation for cooperative central storage of less used materials held by the libraries of the Mid-West region. It became the national centre later and started acquisition programme.
1951	India	S.R.Rangananthan said that "Library service, bibliographic organisation and library classification recognise no national or political boundaries. They are international. The library profession is international, Bibliographers and documentalists are

		inter-national. "Thus, he stressed the need for international cooperation".
1961	UK	National Lending Library for Science and Technology started to promote centralised document lending system.
1962	USA	Library of Congress begins acquisition of foreign books programme using funds from Public Law 480 accounts.
1963	USA	Ohio College Library Centre (now Online Computer Library Centre) (OCLC) begins as the first successful Library network.
1965	USA	Mid-West Inter Library Centre in Chicago changed its name to Centre for Research Libraries, and expanded its membership and acquisitions programme.
1966	International	In order to promoted the exchange of bibliographic data Unesco started UNISIST, It also developed ISBN, ISDS and Broad System of Ordering.
1969	US	Orin F. Notting of the University of Chicago introduced the concept of multitype library cooperation.
1970s	US	Adjustments between networks and participating libraries in regard to financial commitments regarding costs of online cataloguing and various tiers of cooperative programmes.
1971	US	Pre-natal classification and cataloguing to avoid repetition of the cataloguing process in each library introduced.
1979	Southeast	The Congress of Southeast Asian Libraries Asia (CONSAL) supported the establishment of Consortium of the National Documentation Centre of Indonesia and the National Libraries and Documentation Centres—South-east Asia (NLDC-SEA), the consortium of the national libraries of Malaysia, the Philippines and Singapore.
1981	UK	ADONIS system was established by six publisher in cooperation with the British Library Document Supply Centre (BLDSC) and the Centre di Documentation Scientifique et Technologie. During 1987 and 1988 50,000 documents were printed and supplied to institutions and scientists in seven countries in Europe together with USA, Mexico, Australia and Japan.
1982-86	US	Simple type library cooperatives increased by 12%; multitype library cooperatives increased by 164% and 30 multi state networks were in operation.

1985	Europe	European Economic Commission presented a plan of action at community level aimed at library cooperation based on the application of new information technologies.
1987	Europe	European Commission launched a major new initiative in the form of a **Policy and plan of priority actions for the development of information services marked to cover the years 1989 and 1990**.
1989	UK	Library and information Cooperation Council established for furthering library and information cooperation.
	US	The Committee on Institutional Cooperation (CIC) was created to encourage interaction among major universities of the Mid-West and to promote preservation of research collections.
1989-94	UK	In British Library's strategic plan for 1989-1994, **Gateway to knowledge,** the library plans to offer a range of cooperative relationship with other libraries in UK, Europe and abroad.
1991-92	India	DELNET saves about fifty lakhs through the rationalisation of foreign periodicals in Delhi libraries out of subscriptions for 1991 and 1992 under a scheme initiated by NISSAT. Some savings are also made in the other cities in India under this scheme.
May-1996	India	INFLIBNET launched to automate libraries and information centres in the academic and research sector.
Dec.2002	India	UGC INFONET launched to provide access to e-resources to the universities in the country.
2003	India	INDEST- AICTE consortium launched.
2011	India	National Knowledge Network (NKN) launched to provide a strong backbone of communication network to the academic community.

Source: Adaptated from Unit 12, MLIS-06. Application of Information Technology. MLIS Course Material. IGNOU.

Self Check Exercise

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

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

4) Discuss the form of resource sharing taking place in information systems.

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8.2.4 Objectives

The objectives of resource sharing are to:

- **Maximise the resource base of libraries**

  The primary objective of resource sharing is to maximise the resource base, i.e., collection, staff, infrastructure, as well as services of the participating libraries. A library when functioning as part of a resource sharing programme would have at its disposal resources of other libraries besides it s own to serve its users. In other words, the resources of any library would be the resources of every other library.

- **Provide democratic and wide access to information**

  We are living in the information age where information is a commodity needed by one and all. We are highly dependent on information. It is required for learning, teaching, research, entertainment and decision making at different levels. In view of this scenario, one should not be deprived of information. Libraries have different document collections to satisfy the information needs of their users. They are strong in some areas and poor in others. Thus, they lack resources to excel in all areas. If libraries share with each other, they can overcome this limitation of poor document collection. And make available comprehensive information to their users.

- **Core collection**

  Resource sharing results in a rational acquisition of documents. A library should only acquire those documents that are core to the area of its organisation. It can satisfy minor or auxiliary needs of its users from other libraries with which it shares its resources. Similarly it can satisfy the minor needs of other libraries.

- **Save resources**

  Libraries share their resources to save and use them optimally. Cooperative acquisition enables them to save on money spent on documents. Cooperative cataloguing and classification enables them to save on staff salaries, efforts, and time spent on technical processing.

- **Enable uniform practices in routines**

  A central agency can be entrusted the task of cataloguing and classification, which can be followed by others which results in standardisation. Uniform practices are helpful to users as well as staff. It is a result of sharing and a requirement too.

- **Rational acquisition**

  Rationalisation of acquisition is one the major functions of library networks. Libraries can come together to identify duplication of resources thereby avoiding wastage. Funds could be diverted for resources which are found lacking in a particular geographical area. It would result in better allocation of funds and widespread availability of resources. Core collections could be built up for all libraries. Documents, which are rare or costly, could be acquired strategically in different locations to enable maximum use.

Self Check Exercise

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

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

5)   Enumerate the objectives of resource sharing.

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8.3   RESOURCE SHARING AND LIBRARY NETWORKS

Let us refer back to what we said earlier that resource sharing evolved from library cooperation. And that library cooperation was not effective due to the geographical distances between libraries and limitations of duplicating and transmitting documents between the cooperating libraries. Also that resource sharing could be made possible due to the developments in IT. Libraries cannot stand in isolation today. This was a well-accepted fact and thus there were concerted efforts on their part to cooperate. Their efforts were made productive by developments in information communication technologies. Libraries could be connected locally as well as globally into library networks. Computers made possible electronic documents, and telecommunications made possible their transfer and transmittance electronically thus, overcoming the barriers of geographical distance and time. These developments made possible the establishment of library networks.

Library network has been defined as a "group of individuals or organisations that are interconnected to form a system to accomplish some specified goal. The linkage must include a communication mechanism, and many networks exist for the express purpose of facilitating certain types of communication among members." Another definition of a network describes it in terms of its characteristics, viz.

•   A network functions to marshal resources from its environment to accomplish results beyond the ability of any one of its members.

•   A network develops an organisational design and structure that allows it to establish an identifiable domain and exercise appropriate influence over its members. It is based on communications technology.

There is a stress on 'collaboration' in the above definitions. Networks are IT driven, with a well defined administrative structure, and set goals.

8.4   LIBRARY NETWORKS: NEED

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 developments in information technology have made it possible for libraries to network. But today library networks are must because:

• **Increasing amount of information is in electronic form**

Information is stored in print, film, magnetic and optical storage media. The information produced in the year 2002 was distributed in these various media as under:

Media	Percentage of information stored
Hard disks	92%
Films	7%
Paper	0.01%
Optical Media	0.002%

• **Bibliographic access to information is also in electronic form**

Access to information is provided through databases produced online and offline which require libraries to be networked.

• **Internet**

The existence of Internet is a major factor that has changed the way information is produced, published, stored, transmitted and used. This requires libraries to be networked for accessing their information.

• **Timely access to information**

It is difficult for an individual to lay hands on his specific information in the large mass of information available. Computer helps to process and easily access the required information. Networking is essential to access when the information is available at a distance.

Networking of libraries has increased the feasibility of resource sharing by overcoming the barriers of distance and time involved in accessing information.

Self Check Exercise

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

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

6)   Discuss the need for library networking.

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8.5 RESOURCE SHARING: ISSUES INVOLVED IN IMPLEMENTATION

We have been discussing the conceptual details of resource sharing. Putting these into practice is a bit difficult, reasons being that there are so many libraries involved. We have to formulate policies, procedures and routines for a library. These have to be objective and unbiased for the library to function effectively. It is the same for a number of libraries. It is more difficult to do so in case of a number of libraries because of the:

• Number of libraries and users involved; and

• Variety of libraries and users involved.

The number and variety of libraries involved makes it difficult because policies have to be framed keeping in view the nature of documents for acquisition. The nature and variety of users make the framing and implementing the policy difficult.

The participating libraries should objectively frame policies in regard to:

• **Documents to be shared**

  It is neither required nor feasible to share all types of documents. Decision has to be taken in this regard taking in consideration the use and cost of the same. Libraries would like to share only costly and less used documents. Those documents that are in heavy demands in their libraries cannot be spared for other libraries. The requirements of their own users are primary.

• **Terms and conditions for loan and return**

  Documents are issued to users for a time period that enables them to use effectively. A period of loan is decided keeping this in view. It also depends on the type, cost, use and the number of copies of the document available. Similarly, these have to be formulated for sharing among a group of libraries. The period of loan in such a case cannot be the same for users of the library. The participating libraries can make duplicates of the same for use within copyright rules.

• **Deterrents and punitive measures to ensure safe and timely return of documents**

  The biggest problem for a library in circulation service is to ensure safe and timely return of documents to keep them in circulation. It is difficult, as the user does not return the documents in time. It is all the more difficult when there are number of libraries and hence users. It is important that the participating libraries assume responsibility for their users and ensure safe and timely return of documents. They know their users better and can act accordingly to ensure the same.

• **Union catalogue production and maintenance**

  The use of the combined collection of the participating libraries depends upon their knowing the collection. The resources of the libraries should be made known to all through union catalogues. The responsibility for designing and maintaining the same should be entrusted to one of the participating libraries. The data of each library should be according to uniform standards

and be in machine-readable form to enable users to search from their own libraries electronically.

- **Cooperative cataloguing**

  Cooperative cataloguing is also expected in resource sharing. It needs to be decided as to who will be doing this work. It depends on the resources of the library. A library that has the staff expertise to do this work should be entrusted this responsibility.

- **OPAC**

  The details of the documents along with their status should be made known to the users through OPAC. It is more important than for users of individual library because of the number of users involved as well as the distance between the participating libraries.

Self Check Exercise

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

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

7)   What are the factors to be considered for deciding the kind of documents to be shared?

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8.6   LIBRARY CONSORTIA

Library consortia have evolved from the concept of resource sharing. The concept has come out of the increasing costs of publications, particularly periodicals and the reducing capacity of libraries to acquire. Another factor is the availability of electronic publications and databases. Increasing costs of journals led libraries to cut down on their acquisitions that affected the business of publishers. Thereafter, publishers have come into agreement with libraries to form consortia. Library consortia are mandated to play the role of a buying club for joint purchase of e-journals, interfacing as intermediary between publishers and consortium members, negotiating on their behalf on subscription to e journals and subscribing them on concessional rates. They are temporary in nature and exist as long as they bring economics of scale to libraries.

Library consortium is an association of two or more libraries formed to work together toward achieving a chosen goal such as resource sharing. Consortium libraries often pool resources for joint purchase of e-journals and share them for access and delivery online. Every member library in the consortium is only responsible to the association in respect of the obligations that are set out in the consortium agreement; otherwise they remain as independent entities, and manage their operations and services independently. Library consortium is an association

for non-profit, economics of information, and for improved and expanded economic collaboration to achieve mutually beneficial goals. Consortium deploys computer networks such as internet as a tool for sharing e-journals or other consortium resources among members for access and document delivery.

In India the phenomena of library consortia is relatively new beginning in the year 2000, it started emerging in academic libraries, S&T libraries, and management libraries. It was during this period that libraries focused more on access than ownership to materials. The drivers of change to library consortia are: (i) emergence of e-publishing, (ii) shift in the approach to building library collection from ownership of materials to access.

Library consortia in India developed on a centrally funded organisational model. It has a sponsoring agency and probably a separate source of funds. It makes available consortia resources that each campus/ member library could not afford alone. Libraries join the consortia programme through an agreement with the central office (often a central body overseeing academic institutions), and often take part in decisions through a structured system of governance. The objectives of all consortia in India are limited to joint purchase of journals and management of electronic licenses. Libraries subscribe to journals and e-books in consortia either directly through publishers, vendors or aggregators. Aggregators act as middleman between publishers and libraries providing lournals as a bunch. Details about aggregators are available in Unit 9 of the course BLIE-228.

The advantages that accrue from library consortia are: wider access, higher quality content, economics of scale, lower costs, increased electronic access, and less individual deals in a time of human resources constraints. Increased access to electronic resources has increased institutional capacity for research output.

Libraries come together and identify a coordinating agency that coordinates the planning and implementation of the consortia including the negotiations with the publishers. The negotiations include the identification of the databases to be acquired, access facilities depending upon the number of libraries and users accessing the databases, including the back- up of the databases. The coordinating agency decides the infrastructural facilities required for access to the databases.

Indian National Digital Library of Engineering, Science, and Technology (INDEST), is a consortium set up and funded by the Ministry of Human Resource Development (MHRD) in India. It has its headquarters at IIT Delhi. It provides access to around 5,000 journals providing an advantage in price of to order of 80% to participating libraries while accessing e-resources. The consortium is also a member of International Coalition of Library Consortia (ICOLC).

Self Check Exercise

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

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

8)   Explain the concept of library consortia.

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8.7 LIBRARY COOPERATION TO LIBRARY CONSORTIA

Library cooperation, library resource sharing, library networking and library consortia are related terms that need to be clarified. All the terms originate from the fact that libraries depend on each other to serve their users effectively and efficiently. They depend on each other for sharing physical resources viz. documents (books, periodicals, etc.), space, information technology; and intellectual resources viz. staff expertise.

The terms enumerated above originated with evolution of the concept of sharing between libraries. It started with cooperation when libraries shared books between each other and provided Inter-Library Loan (ILL) service wherein a user could issue a book, not available with her/his library, from some other library. There were problems for the libraries in providing this service due to limited copies of books available. Technology came to the fore in the form of xeroxing when copying of portions required from books facilitated the service.

Standardisation in library procedures and routines has been a consistent effort of library professionals. It is essential for providing services as well as for sharing between libraries. Library of Congress has played a very important role in standardisation by introducing the LC card service which absolves libraries from this routine, time consuming activity. This is how the concept of resource sharing in libraries took birth. At the same time some other factors like explosion of literature, increasing cost of publications, particularly periodicals and the competitive scholarly world putting pressure on libraries forced libraries towards resource sharing.

Further developments in information communication technology (ICT) led to the birth of library networks. They were preceded with developments in data networks that enabled libraries to be interconnected. The birth of library networks resulted in organised efforts towards resource sharing. Library joined hands formally, rules were framed, and responsibilities were fixed resulting in collaborative services provided to libraries. Users could have access to bibliographic information of collections limited to geographical areas due to metropolitan area and regional library networks. Internet and digitisation opened up the domains further enabling users to lay hands on information available globally. Library networks grew in scope geographically. The benefit of library networks included providing access to full – text collections to users irrespective of location. Libraries were benefited in economising on their resources. They could undertake rational collection development in view of the needs of particular regions. Union catalogues were built to provide access across boundaries. Bibliographic access was standardized also resulting into sharing of intellectual expertise.

The latest development in resource sharing is the formation of library consortia. Here libraries joined hands with publishers for rational and economic purchase of periodicals. The consortia could engage in other cooperative activities too but they have been mainly involved in acquiring periodicals and related activities of training related to ICT involved.

8.8 SUMMARY

This Unit provides an introduction to the concept of resource sharing. It presents an overview of the needs and objectives of resource sharing. The historical discussion of the topic would help to gain an understanding of the evolution of resource sharing from library cooperation to consortia. Library networks have been a boon for libraries in giving a practical shape to the concept of resource sharing. They have solved the biggest problem of transfer of documents across distances in minimum time. The learner is introduced to library networks, their need and purpose. Finally the latest development in the area i.e., library consortia have been introduced.

8.9 ANSWERS TO SELF CHECK EXERCISES

1) Resource sharing refers to mutual sharing of each other's resources by libraries to serve users' needs most effectively. Resource sharing is needed because: 1) Increasing number of documents available for libraries to acquire which is on the increase, 2) Their increasing cost, 3) Increasing demands of users, 4) Decreasing funds available to libraries, 5) More staff interaction needed with users to provide effective services. Resource sharing would enable libraries to overcome these problems enumerated above.

2) Advantages of resource sharing: 1) Libraries would be able to acquire documents in greater number that are used heavily by their users and share others with other libraries. 2) they would have access to greater number of documents. 3) sharing of expertise of staff would enable them to save on staff time and thus freeing them to interact more with the users to provide effective services.

3) Library cooperation involves two or more libraries coming together to share their resources to satisfy their mutual needs. Resource sharing is an evolution of the concept in view of the changing needs and increasing demands made on the library by the user. It also assumes application of technology.

4) Information systems also function by sharing resources. The resources shared are information. The information pertains to the literature published in different countries in case if international information systems. It is the bibliographic information relating to the literature published.

5) a) Maximising the resource base of libraries

   b) Provide democratic and wider access to information

   c) Rational Acquisition

   d) Save Resources

   e) Enable uniform practices in routines

   f) Acquisition

6) a) Increasing amount of information in electronic form

   b) Bibliographic access also in electronic form

   c) Advent of Internet

   d) Timely access to information

7) The factors to be considered by libraries while sharing documents are cost and use made of documents. Libraries would share only costly and less used documents. Frequently used documents should be available in the library for their own users and should not be loaned to other libraries. Libraries themselves can acquire less costly documents and they need not be dependent on other libraries for them.

8) Library consortia grew out of the problems due to increasing costs of publications, particularly periodicals. Publishers also felt falling business due to this. Another factor that made consortia to happen is the availability of e-documents. This enabled publishers to offer libraries the facility of collaborative purchasing. It is beneficial to libraries as it is on reduced costs and distributed access to information. Libraries that have similar needs come together to form consortia. They identify one of them as coordinator who decides on the issues of access and bargains with the publishers. The publishers provide libraries a number of e-resources in view of use made of them along with their hard copies.

8.10 KEYWORDS

Library Cooperation : Two or more libraries working together to achieve their goals of providing effective service to their users.

Resource Sharing : Two or more libraries/information systems sharing their resources to satisfy increased pressure of user demands. The resources may be physical or intellectual.

Library Networks : Two or more libraries connected together through telecommunication links for effective sharing of resources overcoming the barriers of geographical distances.

Library Consortia : Libraries and publishers coming together for mutual benefit and enabling collaborative acquisition of e-documents to a group of libraries.

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UNIT 9   LIBRARY AND INFORMATION NETWORKS AND CONSORTIA

Structure

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 consoria 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 failitate 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 consorita. 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-aded 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 devises 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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UNIT 10 LIBRARY AND INFORMATION NETWORKS AND CONSORTIA: NATIONAL AND INTERNATIONAL

Structure

10.0   OBJECTIVES

The objective of this Unit is to discuss the development of library and information networks in India and some other countries. After reading this Unit, you will be able to:

* trace the history of library and information networks;

* discuss the functions and services of select library and information networks;

* explain the factors that led to the development of library consortia; and

* discuss the functions and services of select library consortia.

10.1   INTRODUCTION

Due to multi-faceted uncontrolled growth of information and financial constraints none of the library or information centres can claim to be self-sufficient in terms of finance and collection. Unaware of the situation, a user wants all relevant documents published in her/his area of interest. In this situation the only solace libraries had, was, locating the documents in the union catalogue for getting them on Inter-library Loan (ILL). Due to geographical, postal and bureaucratic constraints it took days or months to get just one document. Revolution of telecommunication technology has opened a new world for library cooperation. Due to recent developments, initiatives were taken at regional and national level to bring libraries together in order to share their collections. Several library and information networks have been created that serve towards library cooperation but they also provide variety of services like Internet connectivity, e-mail, and central repository for data storage, and so on. In such networks, union catalogue is transformed to Online Public Access Catalogue (OPAC) and linking of the digital collection with OPAC has led towards creation of digital libraries. The National Commission on Libraries and Information Science (NCLIS) in its National Programme Document (1975) defines a network as "Two or more libraries and/or other organisations engaged in a common pattern of information exchange, through communications, for some functional purpose. A network usually consists of a formal arrangement whereby materials, information and services provided by a variety of libraries and other organisations are available to all potential users. Libraries may be in different jurisdictions but agree to serve one another on the same basis as each serves its own constituents. Computer and telecommunications may be among the tools used for facilitating communication among them". UNISIST II working document defines it as "A set of inter-related information systems associated with communication facilities, which are cooperating through more or less formal agreements in order to implement information handling operations to offer better services to the users." Thus, library networking helps in cooperation among libraries. These libraries are connected through telecommunication networks to share documents and services, form consortium, subscribe journals, and so on.

10.2   DEVELOPMENT OF LIBRARY AND INFORMATION NETWORKS IN INDIA

It was in the mid 1980's that the telecommunication boom came to India and networking was given thrust by the Government of India. In India Department

of Telecommunication is responsible for maintaining national telecommunication infrastructure which is the backbone for network architecture of country. The major breakthrough was establishment of NICNET by National Informatics Centre (NIC) in 1975. In library parlance NISSAT was a major development. It was established in 1977 under Department of Scientific and Industrial Research (DSIR) with the objective of development of national information systems and services. It played a major role in development of Ahmedabad Library Network (ADINET), Bombay Library Network (BONET), Calcutta Library Network (CALIBNET), Developing Libraries Network (DELNET), Mysore Library Network (MYLIBNET), Bangalore Library Network (BALNET) and Pune Library Network (PUNENET).

Development of INFLIBNET (Information and Library Network) in 1988 facilitated a nation-wide effort to improve information access and transfer, initiated by University Grants Commission (UGC). Besides, there were several networks developed for resource sharing among organisations like SIRNET of Council of Scientific and Industrial Research (CSIR).

Table 10.1: Chronology of Development of Networks in India

Year of Establishment	Name of the Network	Supported by
1977	NICNET	NIC
1986	CALIBNET, Kolkata	NISSAT
1988	INFLIBNET	UGC
1992	DELNET, Delhi	NISSAT
1993	ADINET, Ahmedabad	NISSAT
1993	MALIBNET, Chennai	INSDOC
1994	MYLIBNET, Mysore	NISSAT
1995	BALNET, Bangalore	NISSAT

Due to growth of Information Technology (IT) now Internet is being heavily used as communication channel. This has given a chance for these restricted networks to become global networks. Almost all the networks use Internet for dissemination of their service.

10.3   LIBRARY AND INFORMATION NETWORKS: INDIA

There have been several initiatives in setting library and information networks in India but not many of them are active. Some of the most active networks and consortia are INFLIBNET, DELNET, INDEST, NKRC, etc.

10.3.1 INFLIBNET (Information and Library Network)

INFLIBNET has played an important role in automation and modernisation of university library system in India. It provided universities and research institutions the bandwidth for accessing e-journals. It has become a major player in enhancing scholarly communication in India. INFLIBNET was set up by University Grants

Commission (UGC) India in 1991. Initially it was started as a project under Inter-University Centre for Astronomy and Astrophysics (IUCAA) to be converted later into a full fledged programme of UGC. Its headquarters are located at Gujarat University Campus, Ahmedabad.

Objectives

The INFLIBNET Programme is directed towards modernisation of libraries and information centres and establishment of a mechanism for information transfer and access, to support scholarship, learning and academic pursuits. It was established with following objectives:

- "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.

- To establish 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:

    i)   to promote and implement computerisation of operations and services in the libraries and information centres of the country, following a uniform standard;

    ii) to evolve standards and uniform guidelines in techniques, methods, procedures, computer hardware and software, services and promote their adoption in actual practice by all libraries, in order to facilitate pooling, sharing and exchange of information towards optimal use of resources and facilities;

    iii) to evolve a national network interconnecting various libraries and information centres in the country and to improve capability in information handling and service;

    iv) to provide reliable access to document collection of libraries by creating on-line union catalogue of serials, theses/ dissertations, books, monographs and non-book materials in various libraries in India;

    v)   to provide access to bibliographic information sources with citations, abstracts, etc. through indigenously created databases of the Sectoral Information Centres of NISSAT, UGC Information Centres, City Networks and such others and by establishing gateways for on-line accessing of national and international databases held by national and international information networks and centres respectively;

    vi) to develop new methods and techniques for archival of valuable information available as manuscripts and information documents in difference Indian languages, in the form of digital images using high density storage media;

    vii) to optimise information resource utilisation through shared cataloguing, inter-library loan service, catalogue production, collection development and thus avoiding duplication in acquisition to the extent possible;

viii) to enable the users dispersed all over the country, irrespective of location and distance, to have access to information regarding serials, theses/ dissertation, books, monographic and non-book materials by locating the sources wherefrom available and to obtain it through the facilities of INFLIBNET and union catalogue of documents;

ix) to create databases of projects, institutions, specialists, etc. for providing on-line information service;

x) to encourage co-operation among libraries, documentation centres and information centres in the country, so that the resources can be pooled for the benefit of helping the weaker resource centres by stronger ones; and

xi) to train and develop human resources in the field of computerised library operations and networking to establish, manage and sustain INFLIBNET.

- To facilitate academic communication amongst scientist, engineers, social scientists, academics, faculties, researchers and students through electronic mail, file transfer, computer/audio/video conferencing, etc;

- To undertake system design and studies in the field of communications, computer networking, information handling and data management;

- To establish appropriate control and monitoring system for the communication network and organize maintenance;

- To collaborate with institutions, libraries, information centres and other organisations in India and abroad in the field relevant to the objectives of the Centre;

- To promote R&D and develop necessary facilities and create technical positions for realising the objectives of the Centre;

- To generate revenue by providing consultancies and information services; and

- To do all other such things as may be necessary, incidental or conducive to the attainment of all or any of the above objectives".

Services

Document Delivery

INLIBNET provides inter library loan and document delivery services from the comprehensive collection of subscribed journals under JCCC@UGC- INFONET. It has designated 22 libraries to fulfill ILL request from the users, affiliated to 149 universities covered under UGC. The ILL libraries together subscribe 2000 plus journals that are not available through consortia. Universities can request for articles from the journal holdings of those libraries wherever they find useful articles in JCCC search.

OJAS

Open Journal Access System (OJAS) is an open source journal management and publishing software developed and freely distributed by the Public Knowledge Project at the University of British Columbia. INFLIBNET has installed and

configured the software at its server and provides the facility of uploading the e-versions of journals of universities and even individuals for open access.

Library Automation

INFLIBNET has developed a library automation package called SOUL (Software for University Libraries). It has all the necessary modules which a library needs. Besides SOUL, INFLIBNET has developed several small utilities for day-to-day libraries operations. It also develops solution on demand by university libraries, like retro conversion, preparation of catalogue cards; duplicate checking of library records and so on.

Human Resource Development

INFLIBNET runs several short-term courses for professionals in order to train them with new automated tools and techniques. It has conducted many programs for working university library professionals. The course contains training module in computer application for library and information centres.

Databases

Bibliographic

INFLIBNET has developed the following bibliographic databases pertaining to the collection of participating libraries to enable sharing of resources:

- Serials Holdings
- Current Serials
- Secondary Serials Catalogue
- Theses
- Books

a) Shodhganga

INFLIBNET has been assigned the responsibility of hosting, maintaining and making available Ph.D. research work submitted in Indian universities to all in open access mode by UGC. INFLIBNET responded by developing Shodhganga, a digital repository of theses and dissertations submitted in Indian Universities. It has been built using the open source software DSpace that is OAI- PMH complaint. It collects, stores, indexes, disseminates and preserves the rich knowledge reservoir of Indian universities. Shodhganga provides a platform for researchers to share their research findings reported in their Ph.D. theses with the entire scholarly community in open access. There have been efforts earlier in this direction, e.g. the Vidyanidhi Project by the Mysore University. It served the purpose quite well but suffered due to lack of updation. The involvement of UGC and INFLIBNET would enable it to remain updated. Till now 8500 theses have been uploaded on the repository.

b) Shodhgangotri

This is a database of research-in-progress in universities in different disciplines. Researchers and their supervisors can send synopsis approved by appropriate bodies to be uploaded on the site. It helps researchers to know that areas actively being researched and the status of research. It helps to

avoid unnecessary duplication of research. Once a thesis is approved the synopsis in Shodhgangotri would be linked to the thesis uploaded on the Shodhganga.

c)   Infoport

InfoPort is a subject gateway for Indian electronic resources. It is designed and developed to serve as a comprehensive gateway to all Indian scholarly content. The gateway collects the Indian scholarly content scattered over the Internet through an integrated interface that supports searching and browsing online resources of Indian origin available in open access. InfoPort is classified according to DDC, indexed subjectwise and arranged alphabetically subjects.

Non-bibiographic

It has also developed non-bibliographic databases on research projects and experts in different fields by the name "Vidwan" to help improve communication and collaboration in research.

Programmes

NLIST

National Libraries Information Services Infrastructure for Scholarly Content (N-LIST) Is a project of Ministry of Human Resource Development under National Mission on Education through ICT being jointly executed by the UGC-INFONET Digital Library Consortium, INFLIBNET Centre and the INDEST-AICTE Consortium. The N-LIST project provides access to e-resources to students, researchers and faculty from colleges and other institutions. The authorised users from colleges can now access e-resources and download articles required by them directly from the publisher's website once they are duly authenticated as authorized users through servers deployed at the INFLIBNET Centre.

a)   Components

The project has four distinct components, i.e.: i) to subscribe and provide access to selected UGC-INFONET e-resources to technical institutions (IITs, IISc, IISERs and NITs) and monitor its usage; ii) to subscribe and provide access to selected INDEST e-resources to selected universities and monitor its usage; iii) to subscribe and provide access to selected e-resources to 6,000 Government/ Government-aided colleges and monitor its usage; and iv) to act as a Monitoring Agency for colleges and evaluate, promote, impart training and monitor all activities involved in the process of providing effective and efficient access to e-resources to colleges.

The INDEST and UGC-INFONET are jointly responsible for activity listed at i) and ii) above. The INFLIBNET Centre, Ahmedabad is responsible for activities listed at iii) and iv) above. The INFLIBNET Centre is also responsible for developing and deploying appropriate software tools and techniques for authenticating authorised users.

b)   Current Status

A total number of 3398 registrations have been done with the N-LIST programme till now that includes 3094 colleges comprising 2214 Government/

Government-aided colleges covered under the section 12 B/2F of UGC Act as well as 880 non-aided colleges. All e-resources subscribed for colleges under the N-LIST Project are now accessible to these colleges through the N-LIST website

Project

a)   e-pathshala

e-pathshala is a project of the MHRD, under its National Mission on Education through ICT (NME-ICT), for development of e-content at postgraduate level. At present it caters to 77 subjects in different subjects across all disciplines of social sciences, arts, fine arts and humanities, natural and mathematical sciences, linguistics and languages.

b)   UGC's E-Journals Consortium

The UGC's E-Journals Consortium aims at providing online access to electronic journals and databases in all disciplines to the universities in India. All universities which comes under the purview of UGC will be beneficiary members of the programme. The scheme would be gradually extended to colleges as well. The programme is being executed by Information and Library Network (INFLIBNET) Centre, Ahmedabad, Access to various electronic resources have formally commenced from January 1, 2004, initially for 50 universities and has been extended to 100 universities with effect from January, 2005.

The programme aims at increasing accessibility of electronic resources to the universities. It will go a long way in mitigating the severe shortage of periodicals faced by university libraries for several years. The E-Journals programme is a cornerstone of the UGC-INFONET effort, which aims at addressing the teaching, learning, research, connectivity and governance requirements of the universities. The E-Journals programme demonstrates how communication networks and computers can be used to stretch and leverage available funds in furthering these aims. A bouquet of e-journals were presented to the nation by His Excellency the President of India Dr. A P J Abdul Kalam on 28th December 2003 during the concluding day of UGC's Golden Jubilee Celebrations.

(Detailed information on UGC- INFONET is available in the Sub-section 10.5.3 in this Unit)

Conference and Workshops

INFLIBNET conducts an annual event called Convention on Automation of Libraries in Education and Research Institutions (CALIBER) on different places in India. The topics covered in conference are recent and related to library automation.

INFLIBNET also supports workshops all over India which are related to library automation and digital libraries. Currently, INFLIBNET is supporting a series of workshops on Dspace (Digital library software) in collaboration with Documentation Research and Training Centre, Bangalore.

INFLIBNET is playing a major role in modernisation of university libraries. It is supporting creation for infra-structure by providing financial support besides it is running several courses as well as conducting workshops for training of library professionals.

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) Describe role of INFLIBNET in library automation?

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10.3.2 DELNET (Developing Library Network)

DELNET has been sponsored by the National Information System for Science and Technology (NISSAT), Department of Scientific and Industrial Research, Government of India and is currently being promoted by the National Informatics Centre, Department of Information Technology, Ministry of Communications and Information Technology, Government of India and India International Centre, New Delhi. Though it became a registered body in 1992 but was functional since 1988. DELNET was originally established as Delhi Library Network and subsequently the name was changed to Developing Library Network. The Headquarter of DELNET is in New Delhi.

Objectives

DELNET is fully functional with following objectives:

•   "To promote sharing of resources among the libraries by developing a network of libraries, by collecting, storing and disseminating information and by offering computerised services to the users.

•   To undertake scientific research in the area of Information Science and Technology, create new systems in the field, apply the results of research and publish them.

•   To offer technical guidance to the member-libraries on collecting, storing, sharing and disseminating information.

•   To coordinate efforts for suitable collection development and reduce unnecessary duplication wherever possible.

•   To establish /facilitate the establishment of referral and /or research centres, and maintain a central online union catalogue of books, serials and non-book materials of all the participating libraries.

•   To facilitate and promote delivery of documents manually or mechanically.

- To develop specialised bibliographic database of books, serials and non-book materials.

- To develop databases of projects, specialists and institutions.

- To possess and maintain electronic and mechanical equipment for speedy communication of information and delivery of electronic mail.

- To coordinate with other regional, national and international networks and libraries for exchange of information and documents".

Currently, DELNET has about 4667 libraries as its members of which 241 are from Delhi, 4402 from states and union territories outside Delhi and 24 outside India.

Services

a) Inter Library Loan Online

   Member libraries can request online for a document using inter-library loan facility of DELNET through DELNET server and the document is couriered to the requesting library. The member library needs to pay an annual subscription for this service.

b) Reference Service

   DELNET has a referral centre that provides reference service to participating libraries.

Online Databases

DELNET provides online access to several databases to member libraries and information centres.

- Union Catalogue of Books – It comprises around 7160 lakh records and can be searched by author, title and subject.

- Union List of Current Periodicals – The database covers periodicals in science and technology, social sciences and humanities. It covers 35,990 periodicals

- Union Catalogue of Periodicals enumerates 20,235 periodicals with the holding data of libraries.

- Database of Periodical Articles – It has 9,22,042 records searchable by author, title, subject and name of periodical.

- CD-ROM Database – a database of CD-ROMs available in member libraries has 6,000 records.

- Union List of Video Recordings has 6,000 records.

- Union List of Sound Recordings has 1,025 records.

- Union List of Newspapers The database has 70 records and contains information about the newspapers including title, name of the editor, published from, E-mail address and also the Web address of the INTERNET edition if available on the WWW.

- Database of Theses and Dissertations has 70,293 records.

- Database of e-books has 1613 records.

Training Programmes

DELNET organises monthly training program with NIC on topics like Web page design, Internet search strategies and other resources, etc. It also conducts courses on Machine Readable Cataloguing and bibliographic standards like MARC21.

Conferences, Lectures and Workshops: National Convention on Library and Information Networking (NACLIN) in an annual conference by DELNET which is organised at different parts of country. Besides DELNET regularly organises workshops lectures in different parts of country and abroad.

Newsletter

DELNET publishes newsletter called 'DELNET Newsletter' in communicate the activity of DELNET to professionals.

Research

DELNET has actively played an important role in imparting knowledge of international standards applying them in libraries particularly Marc 21. Recently it has been advocating the open source softwares and teaching their use by conducting training programmes in KOHA and D- Space.

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.

2) Describe different services offered by DELNET.

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10.3.3 CALIBNET (Calcutta Library Network)

The CALIBNET was envisaged as a metropolitan network in 1993, linking 38 libraries in Calcutta with financial support from NISSAT. The prime objective was to institute systematic interlibrary co-operation and document delivery among the networked libraries for effective resource sharing. The applications to be supported are electronic mail, file transfer, remote logging to databases and document access. The participating libraries computerised their in-house functions such as cataloguing, serials control, acquisition and fund accounting, circulation and user services. These have been interconnected through X.25 protocol. The Network Services Centre provides global information services for all the users of the participating libraries. The services include current awareness, union catalogues, database, access to national and international networks.

CALIBNET provides libraries and their members an efficient solution for their information needs. The project was supported by NISSAT in 1986 and managed by the CALIBNET Society established under the West Bengal Government's Societies Registration Act 1961. The centre is stationed at Jadavpur University Campus, Kolkata.

Objectives

CALIBNET is established to pursue the problems of eastern region of country, mainly West Bengal. The primary objective of the organisation is creating and facilitating access to available library and information resources in West Bengal. The main objective is supported by other objectives like given below:

- Facilitating remote online access to the holding data of Calcutta libraries and other specialised databases; and

- Providing electronic access to globally available information, imbibing its information centre approach.

Services

a) Software Development

    By intense in-house research and development two software have been developed for supporting library activities.

    i)   Sanjukta: This in-house software has been developed for storage and retrieval which is used in Centralised Database of CALIBNET for providing online access from remote locations. The software provides options and flexibility for record generation, organising and searching information.

    ii) Parapar: Parapar has been developed to support interchange of bibliographic data between different bibliographic standards like, USMARC, UNIMARC and CCF. It converts other format data to ISO-2709 format which can be imported into the centralised Database of CALIBNET.

b) Current Content Service: Confile Service: Confile is a current content service. It covers almost 20,000 journals of different disciplines. It economizes library service on journal subscription and reduces the drain on precious foreign exchange resources.

c) Document Delivery Service: Caliborder

    Caliborder is a document delivery service which delivers full text of any article and even patents on demand.

d) Selective Dissemination of Information: ConAlert service is designed to give current and tailored bibliographic information. A user profile is created based on the keywords. Notification about the arrival or availability of the document is sent to the user. On demand document is also delivered at user's desk.

e) Institutional Resources Development Services: CALIBNET supports institutes to build library. It also assists and provides consultancy in library automation and creation of databases and electronic resources. It runs wide range of training programs and customized courses based on institutional needs.

Databases

CALIBNET maintains a centralized database of holding of Kolkata libraries. It also maintains database of Asiatic Society Journals, and current serials acquired by Kolkata Libraries. Through website, CALIBNET also provides links to:

- Overseas Library Resources on India;

- Worldwide Library Catalogues;

- National Libraries of the World.

CALIBNET is an active library network in West Bengal. It is running few of its services through website http://www.calibnet.org.

10.3.4 ADINET (Ahmedabad Library Network)

ADINET was established for developing cooperative mode of working amongst the libraries and information centres in and around Ahmedabad. It was established in 1994 with the help of NISSAT. ADINET promotes sharing of resources and disseminates information among member libraries by networking them. It is stationed in INFIBNET Centre, Ahmedabad.

Objectives

ADINET was established with following objectives:

- "To bring about cooperative mode of working amongst libraries and information centres in and around Ahmedabad;

- To integrate the economic, scientific and technical information systems into an effective network in and around Ahmedabad;

- To facilitate and promote sharing of resources amongst the libraries and information centres in and around Ahmedabad by developing and maintaining a central on-line Union Catalogue containing bibliographic information on books, serials and non-book materials of all the participating libraries;

- To coordinate with other regional, national and international networks, libraries, information and documentation centres for exchange of information and documents;

- To offer technical guidance to member libraries on selecting, storing, sharing and disseminating information;

- To coordinate efforts for suitable collection development and reduce unnecessary duplication whenever possible;

- To develop databases of projects, specialists and institutions in and around Ahmedabad; To create awareness amongst all users' groups and to educate them in the utilisation of information;

- To develop resources and to propagate information in ways appropriate to the needs of users in and around Ahmedabad; and

- To help library and information centre users and also individuals who practice different professions in getting specialised information of their interest".

Services

a) Document Delivery and Inter Library Loan

ADINET acts as referral centre for finding any periodical, book, report, theses and non-book material like audio-video materials, etc. It facilitates inter library loaning among the libraries of Ahmedabad region. Besides, it procures and provides Photocopies of articles from Journals received by the libraries in the region.

b) Current Content for Library and Information Science (CUCOLIS)

ADINET prepares consolidation of content pages of library and information science journals and provides the list to member libraries. On demand full texts of selected articles are also provided under document delivery service. It is based on 5,000 journals received from 19 major publishers.

Databases

ADINET acts as referral centre and maintains a database of all the databases available in different libraries in and around Ahmedabad. It also has a database of 5500 current periodicals received by more than 140 libraries in and around Ahmedabad. It has also prepared a Directory of Libraries in Gujarat having 2,077 entries.

Continuing Education and Skill Enhancement of Library Professionals

ADINET performs several professional activities round the year. It runs course for fresh graduates of library science in Internet surfing and CDS/ISIS. It also maintains a database of available jobs in and around and helps professionals in finding suitable jobs. It is consultant to several institutes for their requirement of suitable staffs. It conducts lectures of imminent scholars and professionals from time to time. Besides, ADINET provides several services on demand like Computerisation of library, Cataloguing, classification of library documents, Labeling and Shelving of books, Stock verification of library documents, Staff training, Planning for library development, etc.

ADINET maintains a website with URL as http://www.alibnet.org.

10.3.5 MYLIBNET (Mysore Library Network)

Mysore Library Network (MYLIBNET) was initiated in 1995 with the support of NISSAT. It is stationed in Central Food Technology Research Institute (CFTRI), Mysore. About 116 colleges/institutions are affiliated to the University of Mysore; of these 34 college libraries are located within Mysore. These were networked in the first phase.

Objectives

The objectives of the network are as follows:

- "To share resources available with all the libraries;

- To provide a faster communication to all the libraries through Electronic Mail facility;

- To develop software tools for better library management;

- To create awareness in the field of latest Information Technology by conducting seminars/workshops/training programmes;

- To setup a Information base in collaboration with industries and

- To flash arrival of new books/journals, announcement of events like seminar/ workshop/training programmes".

Services

a) E-Journals

MYLIBNET provides links to several free online e-journals in the field of medicine, physics, mathematics and chemistry.

Union Catalogue of Journals

In order to achieve the objective of 'Resource Sharing' for optimum utilisation of available resources and to avoid as far as possible duplication, a project was initiated in 1990 by Academy of Information Science to conduct a survey and bringing out a hard copy of the "Union Catalogue of S&T Serials in Mysore City Libraries". The project has been completed and a hard copy of the catalogue was published in 1991.

Experts Database

The database contains the list of library professionals and their details. One can search for details of an Expert either by selecting the Name of the Expert or by selecting the Name of the Institute. The database is not very exhaustive and is still being developed.

10.3.6 MALIBNET (Madras Library Network)

MALIBNET was established in 1993 with the support of Indian National Scientific Documentation Centre (INSDOC). Now it is a registered society of Tamil Nadu Government. It provides information to the users in and around Chennai. Nearly 83 libraries in Madras are members contributing actively to the creation of various databases on MALIBNET. It has around 37 educational and research institutions as members.

Objectives

The main objectives of MALIBNET are:

- "To foster growth in the field of information science and technology;

- To undertake scientific research in the field of library and documentation;

- To evolve a network of libraries and information centres in India;

- To establish appropriate links to national and international libraries and networks; and

- To facilitate resource sharing and information dissemination through networks".

Services

MALIBNET provides following services:

a) Content Search Service

   This service allows a search of journal database of MALIBNET having 7747 journals. It can be searched online through journal title, volume, year and issue number options.

b) Document Procurement Service

   MALIBNET provides full text of articles from the journals available in its database. One needs to provide journals, year, volume, and issue along with page numbers. The service is available on payment of Rs. 3 per page for members and Rs. 5 per page for non-members.

c) Internet Services

   MALIBNET provides facility of Internet search for which it charges the users for the time spent on searching. It is preparing Directories of Current

Journals available in Madras City in different areas like Engineering Sciences, Basic Sciences, Medical Sciences and Social Sciences.

MALIBNET maintains a website with URL as http://www.malibnetonline.com

10.3.7 BONET (Bombay Library Network)

Bombay Library Network (BONET) was established in 1994 with financial support from the NISSAT. It has 25 members in the city of Mumbai. Located in the National Centre for Software Technology (NCST, now CDAC) a number of computers and software for shared use to the members. The services offered includes access to bibliographic databases, email, CD-ROM, etc. The BONET conducts seminars and training programmes for member institutions.

The metropolitan areas networks in India were sponsored by the erstwhile NISSAT in 1980s. These are not active today except for DELNET which has been providing active services and has extended its scope from Delhi to developing countries.

10.4 ISSUES RELATED TO LIBRARY AND INFORMATION NETWORKS

The objective of library and information network is for resource sharing among libraries as well as easy access to information. But it requires heavy implementation of Information Technology (IT). Though IT has facilitated the access to information but unfortunately there are many issues needed to be addressed. The libraries require high-speed connectivity to Internet which in turn require specific hardware and software for creation of system. Installation of a system is not the only issue which should be addressed. Libraries should make conscious effort for training the staffs who are involved in delivery of service and the user who are to be served. One of the major outcome of such networks is accessibility of Online Public Access Catalogue (OPAC), which in turn requires adhering to particular standard. Library network must follow one bibliographic standard but selection of a particular standard is a subjective issue which needs to be addressed in very beginning.

India is big country with many different languages and culture. Growth of literature is there in all the language. In such a multilingual environment rendering service in once own language and script is very big challenge. There is a conscious effort at Documentation Research and Training Centre, Bangalore towards rendering multilingual OPAC service for users. A system has been developed which converts records on the fly in different Indian scripts.

10.5 LIBRARY CONSORTIA IN INDIA

As we have stated earlier, consortium is ubiquitous because of digital form of information published across the world through Internet. It refers to cooperation, coordination and collaboration among the libraries for the purpose of sharing information resources. In India, the real drive for cooperation was seen during 1980s due to the developments in Information and Communication Technology. Some of the academic libraries in India have formed consortia. A few of the major consortia in India are given below:

• INDEST

• FORSA

- UGC – INFONET

- CSIR E – CONSORTIA

- HELINET

- IIM CONSORTIA

10.5.1 INDEST (Indian National Digital Library in Engineering Sciences and Technology)

INDEST stands for Indian National Digital Library in Engineering Sciences and Technology. It is a "consortia based subscription to Electronic Resources for Technical Education Systems in India", set up by the Ministry of Human Resource Development based on the recommendations made by the Expert Group appointed by the Ministry under the Chairmanship of Prof.N.Balakrishnan. The headquarter of the consortium is located at Indian Institute of Technology, Delhi.

Objectives

The main objectives of the INDEST consortium are to:

- provide a common gateway of journal literature subscribed by seven IITs and the Indian Institute of Science, to subscribe, access and manage their journals.

- provide common access and search interface for the journals subscribed by all members.

- provide access to the common database for the usage benefit of students and researchers in regional engineering colleges (National Institutes of Technology) and support them in sharing the collection of IITs and IISc.

Features

The common features of INDEST are:

- It provides common access to TOCs (Table of Contents) and full text articles;

- It allows to search common TOCs and database for both print as well as online journals with scholarly content subscribed by all members of consortium;

- It provides links to full text articles, where available;

- It facilitates to search a bibliographic database of articles and links to full text;

- It has provision to mirror the content in the server of each participating consortium member;

- It has also provision to view the list of journals subscribed by each consortium member; and

- It is possible to send E-mail request for the photocopies from one consortium member to the other.

Operation

The Consortium operates through its Headquarter. The Ministry of Human Resource Development (MHRD) has agreed to provide funds required for:

- subscription to electronic resources for IISc, IITs, NITs, RECs and a few other institutions; and

- operation of the consortium.

The consortium headquarter functions under a National Steering Committee, which consists of 21 members, for inter-institutional coordination and for taking decisions on policy issues under the overall policy direction of the Government of India. The Ministry has also set-up a National Review Committee, which comprises 6 members, for the INDEST Consortium. The National Review Committee shall be responsible for overall policy, monitoring and coordination with UGC and AICTE for this Consortium.

Membership

Based on the recommendations of the MHRD Task Force, institutions have been grouped into three categories as detailed below:

* **Category I (Core Members)**.

* The members in this category include IITs , IIScs, Nits, ISM, SLIET, NERIST, IISER, IIMs, IIITs, IIITM and NITIE. Ministry of Human Resource Development provides funds for differential access to e-resources to core members. These are 62 in number.

* **Category II (AICTE supported members)**

   These members are provided funds to access e-resources by AICTE. At present they are 60 in number. It includes government engineering colleges and other technical institutions.

* **Category III (Self- supported institutions)**

   The category includes all other AICTE accredited and UGC recognised engineering institutions. These institutions pay themselves for the e-resources accessed by them. At present around 1233 institutions are registered under this category.

E-Resources

The following are the Electronic Resources available through INDEST for different categories of members as mentioned above. The details of resources, and the category of members who can access the resources are mentioned hereunder (see table 10.1). These can be searched by journal title, words in a title and name of publisher:

Table 10.1: Details of Resources and Member Category

Resources	Member Category who can access the resources
Full Text Sources	
IEL Onlin	All Categories
Science Direct and Ideal*	I
Science Direct (on trial)	II
Springer Verlag*$	I & II
ABI/INFORM	I & III
ACM Digital Library	I & III
ASTP	II & III
India Informer*	III

CRIS INFAC Business Intelligence Service[*]	III
CERC's Insight[*]	III
Springer's Link	III
Bibliographic Databases	
COMPENDEX + and INSPEC	I
Web of Science	I
SciFinder Scholar	I
MathSciNet	I
JCCC (J-Gate Custom Content for Consortia)	I, II, and III
J-Gate (Free for the first year	I and II

* Print subscription to be maintained by the beneficiary institutions

\$ Limits on number of downloads

10.5.2 FORSA (Forum for Resource Sharing in Astronomy/ Astrophysics)

In the early 1980s, librarians working in institutes where astronomy and astrophysics was one of the major research areas felt the need to establish a forum among the libraries to enable sharing of resources due to the following reasons:

- Very few institutes in the country were involved in research in astronomy and astrophysics;

- Considerable interaction already existed between astronomers of institutes doing research in astronomy and astrophysics;

- No library can be self-sufficient in the resources, and access to the holdings of the member libraries would help in minimising duplication; and

- The information resources should be used to the mutual advantage of the members as well as for optimum use.

Based on the proposed plans made by the members of Forum, the first meeting of the Forum for Resource Sharing in Astronomy/Astrophysics (FORSA) held on July 29, 1981, at Raman Research Institute, Bangalore. Emphasis was placed on obtaining detailed information related to literature in Astronomy and Astrophysics for speedier dissemination of information.

Objectives

The objectives of FORSA are:

- Collection development in IT environment;

- Facilitate e-access to journals and books;

- Actively participate in resource sharing, ILL;

- Document delivery by fax, e-mail, speed post, courier, etc;

- Database merging by library holdings (books/ journals) and facilitate access to merged database;

- Digitisation of archival materials of the institutes and making available on website for access by all;

- To facilitate access to website of each institute's library;

- Participate actively in consortia plans for sharing e-journals, e-books and other databases with various publishers and academic societies publications and joining existing consortia where forum members are benefited;

- To come forward for open access and to develop institutional repositories; and to welcome new members of institutes where astronomy is one of the subjects and library has collection pertaining to the subject".

Members

FORSA has 12 members. The member libraries are:

- Aryabhatta Research Institute of Observational Sciences (ARIES) , Manora Peak, Nainital

- Bose Institute, Kolkata.

- Harish- Chandra Institute, Allahabad.

- Indian Institute of Astrophysics (IIA), Bangalore.

- Inter-University Centre for Astronomy and Astrophysics (IUCAA), Pune.

- National Centre for Radio Astrophysics (NCRA), Pune.

- Nizamiah Observatory, Department of Astronomy, Osmania University, Hyderabad.

- Physical Research Laboratory (PRL), Ahmedabad.

- Raman Research Institute (RRI), Bangalore.

- S.N.Bose National Centre for Basic Sciences, Kolkata.

- Saha Institute of Nuclear Physics, Kolkata.

- Tata Institute of Fundamental Research (TIFR), Mumbai.

Services

All the participating libraries are well equipped with recourses and share them for mutual benefit. They provide the following services:

- Access to OPAC

- Access to online journals

- Inter library loan

- Document Delivery (by e-mail, speed post, courier and fax)

Workshops and Conferences

FORSA organises workshops and conferences on emerging areas. Some such programmes were organised on KOHA and DSpace. A meeting is done every year along with the Annual Meeting of the Astronomical Society of India.

10.5.3 UGC – INFONET

University Grants Commission (UGC) is a national body for the coordination, determination, and maintenance of the standards of University Education in India.

It initiated a programme called the UGC-Infonet E-Journals Consortium to provide online access to electronic journals and databases in all disciplines to the universities in India. The programme aimed at increasing accessibility of electronic resources to the universities. INFLIBNET is the coordinating and monitoring agency in the UGC - Infonet Project. INFLIBNET is also responsible for providing training to university library professionals in the use of this network for providing variety of services to the users. The project aimed to provide e-resources and state-of-the-art technology for providing access to these resources. The part responsible for providing connectivity for the e-resources has been closed with effect from 31st March 2012.

Subscription to Electronic Journals

With globalisation of education and competitive research, demand for journals has increased over the years. Due to lack of funds and increase in the prices of journals, libraries have been forced to cut subscriptions of journals. Infonet provides access to more than 7500 core and peer-reviewed and peer-reviewed journals and 10 bibliographic databases from 26 publishers and aggregators in different disciplines. So far 209 universities including 14 National Law Schools and central universities along with private universities who are associate mebers have been provided differential access to e-journals.

UGC-Infonet Training

Training manpower is one of the most critical resources for successful implementation of high-tech programmes like UGC-Infonet. INFLIBNET/ERNET is giving training to network managers and library professionals for managing the WAN connectivity, network security, Mail Server, Web Server configuration and e-journal access management at their premises. More than 108 network managers from around 99 universities have been trained at ERNET India, New Delhi. Around 63 Library professionals from more than 63 universities have been trained at ERNET India, New Delhi. Above 63 Library professionals from 63 universities have been trained for e-resources management at INFLIBNET Centre, Ahmedabad.

10.5.4 National Knowledge Resource Centre (NKRC)

CSIR E – Journals Consortium has been re-named as NKRC due to the change in its scope. Earlier it served the laboratories of Council of Scientific and Industrial Research (CSIR) but now it serves 24 Department of Science and Technology institutions and 39 CSIR laboratories. It provides access to more than 5,000 e-journals, patents, standards, citations and bibliographic databases. It also provides access to large number of open access resources in science and technology.

The Council of Scientific and Industrial Research (CSIR) which has thirty eight constituent laboratories together subscribes to over 4,000 scholarly and research journals at a cost about Rs. 25 crores every year. The collection of print editions creates an annual depository of 5,00,000 plus printed articles spread across the labs in stand-alone manner. In order to enhance the accessibility, use and increase the resource base of world S&T literature, the fifth meeting of the Heads of CSIR Laboratories and Information Centres held at RRL in Trivendrum in February 2001, had recommended that a Consortium for access to E-journals be set up. Consequently, Director General, CSIR set up a Study Group to collect and compile information on the journals presently subscribed to by the CSIR

laboratories, including CSIR Headquarter and also to study the feasibility and economic viability of CSIR laboratories subscribing to identified journals on-line on a consortium basis and devise a system for the management of the consortium and equitable sharing of the expenditure thereof. The Study Group submitted its report in October 2001 with the following recommendations:

- The CSIR must set up a Consortium to provide electronic/online access to journals for the CSIR laboratories.

- No major additional requirements of manpower or hardware are foreseen.

- Informational resources are a basic necessity for an R&D organisation.

- CSIR is a premier R&D organisation and presently invests around Rs.25 crore annually for books and journals, some of which are being subscribed in duplicates/triplicates by the labs of CSIR.

- Individual labs of CSIR spend between Rs.10 and Rs.150 lakhs per annum on information resource building.

- Many publishers now are offering their products in electronic formats. They encourage the formation of consortia and accordingly offer consortia friendly pricing strategies.

- Information technology has enabled users to access online many of the research journals. Publishers of the journals offer concessional rates of their e-format journals subject to maintain status-quo of print subscription.

Based on the recommendations made by study group, the CSIR accepted the recommendations and decided to set up a consortium, 'CSIR E – Journals Consortium' for electronic access to journals.

Objectives

The main objectives of the CSIR E – Journals Consortium are:

- To provide CSIR S&T staff electronic access to world S&T literature to strengthen the facilities for pooling, sharing and electronically accessing the CSIR information resources;

- To provide access to world S&T literature to CSIR labs; and

- To nucleate the culture of electronic access with a view to catalyse the evolution of digital libraries.

Activities of Consortium

The following are the broad activities envisaged to be involved in carrying out the project:

- Identification of vendors
- Invitation of proposals
- Negotiation
- Signing of agreement
- Enabling access
- Training

- Payment to vendors
- Monitoring
- Usage statistics
- Analysis
- Reports

Roles and Responsibilities of NISCAIR

National Institute of Science Communication and Information Resources (NISCAIR formerly INSDOC), New Delhi is the nodal organisation of the Consortium. As nodal agency of the consortium, it performs the following roles and responsibilities:

- to collect the link-up fee from CSIR and release payment as per the contract terms and conditions to vendor(s);
- to make certification of bills;
- to receive and keep secret the passwords that are supplied by the publishers to the laboratories as well as NISCAIR;
- to co-ordinate training to staff of participating labs for E-journals access;
- to monitor the analysis of usage data and appropriate reports generation and use the report for strategic planning;
- to undertake various studies related to E-journals for planning, monitoring, etc.;
- to monitor complaints and access problems of the laboratories; and
- to maintain smooth functioning of the Consortium.

Resources available through Consortium

As a first step, CSIR entered into an agreement with Elsevier Science which is one of the leading publishers of S&T journals, to enable all its laboratories access to 1,200 odd electronic/online journals. Afterwards it started subscribing to e-journals from many publishers. At present, all 38 CSIR laboratories have access to 3500 e-journals of different publishers. In addition, the labs have access to about 1500 e-journals from Directory of Open Access Journals (DOAJ) which are free for every one. Thus, the consortium provides an opportunity for CSIR labs to have access to 5000 international reputed e-journals.

10.5.5 IIM Consortium

The Indian Institutes of Management are premier national business management education institutions set up by the Government of India. They are independent societies governed by independent Board of Governors. The major objective of the institutions is to train young graduates to become professional managers. The IIMs are available at 6 places – Ahmedabad, Bangalore, Calcutta, Indore, Kozhikode, and Lucknow.

The concept of IIM Library Consortium was floated a few years back. Since the year 2000, the Librarians of all the IIMs had been interacting extensively on the possible resource sharing of the CD-ROM/Digital Databases being regularly subscribed to by them.

A pilot study was conducted in this regard on the CD-ROM/Digital Databases being currently subscribed to by the various IIMs and it was found that:

- ABI/Inform (Abstracts), ABI/Inform (Full-Text - Business Periodicals Ondisk - BPO) are being subscribed to by IIMA, IIMB, and IIMC respectively,

- Business Source Elite (BSE), the Full-Text journal service of EBSCO, is being subscribed to by IIMA, IIMI, and IIMK, and

- Econlit (Silver Platter) is received at IIMA and IIMK, and Econlit (Ovid) at IIMI.

The Librarians of IIMs discussed and deliberated in one of their meetings and resolved that:

- while doing this exercise, the information resources of any of the Institute(s) should not be affected in any manner, and shall ensure quality improvement and revenue saving to each Institute.

- it is high time for all IIMs to jointly approach publishers for journals and databases of common interest for better services and prices.

- they may approach publishers of CD-ROM Databases to begin with, as Consortia, for better pricing and services.

- eventually, other digital databases and journals shall also be covered by the Consortia programme.

- the proposal of IIM Library Consortium seeks the authorisation and guidance of the Heads of all the IIMs, to proceed further.

Based on the above, four of IIMs placed orders for databases such as BSE and Econlit and the rest two IIMs placed orders for ABI/Inform. Subsequently, the Directors of all IIMs in one of their meetings held in August 2001 approved the formation of IIM Library Consortium and encouraged the librarians to actively participate for mutual benefit.

Objectives

The objectives of the IIM Consortia are to:

- ensure among the IIMs, optimum utilisation and enhancement of the resources;

- minimise the expenditure by consortia based subscriptions to the commonly subscribed databases and journals;

- approach publishers of CD-ROM databases to begin with as a consortia for better pricing and services; and

- cover other digital databases and journals by the programme.

E-Resources

In the case of journals, all the six IIMs put together subscribes to over 2550 scholarly titles of which around 1200 are duplications (overlapping titles). Among these, 33 titles are being subscribed to by all the IIMs. Having convinced on the dire need for journals consortia, major publishers such as Elsevier, Kluwer, Wiley, Blackwell and MCB University Press were approached and they all represented in the second meet which was held at IIM Bangalore in 2001. The end result has been highly praiseworthy, that over 740 E-journals IIMs are able to get online access, across all the IIMs, by paying a nominal additional amount.

The present information resource base of the IIM Consortium is as follows:

- Blackwell Hss Collection
- Capitaline
- Nexis.com+Corporate Information
- ISI Emerging Markets
- Kluwer Online
- Talyor & Francis
- John Wiley.

10.5.6 HELINET (Health Sciences Library and Information Network)

The Rajiv Gandhi University of Health Sciences (RGUHS) launched HELINET (Health Sciences Library and Information Network) Consortium, on the 15th of March 2003.

The importance and the role of quality medical journals in medical education are known. Moreover, in a survey conducted in early 2002, the colleges of RGUHS were spending enormous amount of money to get only about 150 journals each, and even among these 150, many were duplicates. This spurred the need for reducing the cost while making the core medical journals more affordable and easily accessible.

Objectives

The main objectives of the consortium are to:

- "network the libraries in the colleges affiliated to the University to promote resource sharing;
- move these libraries gradually to digital main-stream; and
- bring all the libraries under HELINET for minimising the cost of acquisition and maintenance of learning resources and maximising their utilisation, among the faculty, students and researchers the colleges and institutions affiliated to the University".

E-Resources

Under the HELINET scheme, the member libraries can get access to around 600 scholarly, international biomedical journals, from 24 leading publishers, at about one-third the price of their print subscription. Moreover, the member libraries can get all time access to the current journals as well as archives i.e. the back-volumes of journals for a period of 7-10 years.

The University has already spent Rs. 2 crores for establishing the consortium on a cooperative e-access model. For this purpose, the university has set up digital library infrastructure for managing and providing access to e-content. Participating institutes can get access to full-text of e-resources through 11 gateways,

Science Direct;

Ovid;

MD Consult;

Annual Reviews;

Springer;

Theme Verlag;

Taylor and Francis;

Blackwell;

Bentham;

Ebrary; and

Oxford University Press.

Membership

- There are members from colleges of medicine, dentistry, pharmacy, nursing, physiotherapy, ayurveda/ unani/ homeopathy and other paramedics. A differential fee is charged from the categories, highest from the users in medicine and lowest from other paramedics.

Self Check Exercise

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

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

3) Discuss the salient features of UGC - Infonet.

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10.5.7 SPACENET

Spacenet is a communication network of Indain Space Research Organisation (ISRO) using Very Small Aperture Terminal (VSAT) network. The hub is located at the ISTARAC, Bengaluru and remote stations at 44 centres/divisions of ISRO at different places in India. It is a Closed User Group (CUG) network facilitating transmitting and sharing of data, information and other resources between the members.

ISRO libraries exchange various resources including print, electronic. The libraries provide access to their resources by having their OPACs on the intranet. E-journals and e-books are also shared amongst the participating libraries. The divisions generate lot of information internally in the form of reports, pre-prints, re-prints, conference proceedings, lectures, etc which are shared amongst them. Effective document delivery services enable sharing and transfer of information amongst them.

10.5.8 CeRA (Consortium for e-Resources in Agriculture)

Consortium for e-Resources in Agriculture (CeRA) was formed in November 2007 at the Indian Agriculture Research Institute (IARI), Pusa, New Delhi. It was funded by the National Agricultural Innovation Project (NAIP). It was set up to provide access to information in agriculture particularly the e-resources to researchers, teachers and scientists, students, extension workers, policy planners and administrators in the National Agricultural System(NARS).

Objectives

The objectives of CeRA are:

4) "To upscale the existing R&D information resource base of ICAR institutions/ universities comparable to world's leading institutions/organisations.

5) To subscribe e-journals and create e-access culture among scientists/ teachers in ICAR institutes/ Agricultural Universities.

6) To assess the impact of CerRA on the level of research publications measured through NAAS Id and Science Citation Index".

Membership

The members of CeRA comprise the ICAR institutes and state agriculture universities. At present the membership is 147.

Services

a) Online Access

    Members in CeRA are provided IP authenticated online access to full text articles in more than 2900 journals in agricultural sciences. These comprise those subscribed by the consortium, by the participating libraries and the open access journals.

b) Document Delivery

    Members are provided access to full text of journal articles not subscribed by CeRA but subscribed by individual libraries through the Document Delivery Request System.

Training

Training programmes are held regularly for members in different institutions under NARS to enable use of the resources and services in CeRA. Around 40 such programmes have been held in the last four years benefiting more than 3500 members. They are also helped in their day today use of services through online help and chat with experts in the consortium.

10.5.9 ICMR e-Consortia

ICMR has two types of consortia, JCC@ICMR which covers all subscribed journals of ICMR and free journals also. The other, ICMR e-Consortia provides full text access to the journals subscribed by ICMR.

JCCC@ICMR

J-Gate C custom Content for ICMR provides a single point access to all subscribed and free open access journals in medicine. It provides a platform to access the

journals, search articles of interest, locate the library possessing it and put a request for acquisition. It acts as a common gateway and search interface to the journals. JCCC provides access to the table of contents, abstracts, full-texts and facilities to access.

ICMR e-Consortia

It provides access to the subscribed journals to the users in different ICMR institutes through IP authentication. The consortia organises training programmes for users to enable effective use.

10.6 LIBRARY NETWORKS: INTERNATIONAL

10.6.1 OCLC (Online Computer Library Centre)

The Online Computer Library Center, Inc. (OCLC), a non-profit corporation, is a membership-based, service and research organisation dedicated to the purpose of furthering access to the world's information at reduced cost. The OCLC members are institutions, primarily libraries, which use OCLC products and services to locate, acquire, catalogue, lend and preserve books and other library materials. Researchers, students, faculty, scholars, professional librarians, and other information seekers use OCLC systems through libraries to obtain bibliographic, abstract, citation, and full-text information. The OCLC cataloguing and resource sharing system is the largest and most heavily used computer library system in the world. The OCLC FirstSearch service ranks among the leaders in the online information industry in terms of connect hours. The OCLC bibliographic database, WorldCat (the OCLC Online Union Catalogue), is one of the most consulted electronic databases in higher education.

The OCLC and its member libraries cooperatively produce and maintain WorldCat, the Online Union Catalogue of Books available in the libraries of member institutions. Members of the OCLC can also get access to a wide range of services and databases, including WorldCat. The OCLC is the world's largest library network.

History of OCLC

In 1967, the presidents of the colleges and universities in the state of Ohio founded the Ohio College Library Center (OCLC) to develop a computerised system in which the libraries of Ohio academic institutions could share resources and reduce costs. Mr. Frederick G. Kilgour was the first President of OCLC, responsible for the growth of OCLC from a regional library computer system for 54 Ohio colleges into an international network. The objective of the OCLC as stated in its Articles of Incorporation is to "establish, maintain and operate a computerized library network and to promote the evolution of library use, of libraries themselves, and of librarianship, and to provide processes and products for the benefit of library users and libraries...."

In 1977, the OCLC changed its policy that enabled libraries outside Ohio to become members and participate in its governance. The Ohio College Library Center became OCLC, Inc. in 1981, the legal name of the corporation became Online Computer Library Center, Inc.

Membership

More than 25,900 libraries in 170 countries and territories around the world are members of OCLC.

Services

The OCLC offers several products and services; a few of them are described below:

WorldCat

WorldCat is a worldwide union catalogue created and maintained collectively by more than 72,000 libraries representing hundreds of languages and cultures. Built from the bibliographic and ownership information of contributing libraries, it is the largest and most comprehensive database of its kind. WorldCat is the foundation of many OCLC services that facilitates libraries to process, manage and share information resources.

The WorldCat includes catalogue records dating back to thousands of years nearly in every format. Records exist for everything from stone tablets to electronic books, wax recordings to MP3s, DVDs and Web sites. Whether an item is physical or digitally preserved, popular or one-of-a-kind, the integrity of its record is maintained by the input of cataloguing members, OCLC's standards and quality control. World Cat holds 302 million bibliographic records for 2 billion items in 470 languages and dialects. Every 10 seconds a new record is added to the catalogue, and it is searched every second.

NetLibrary

The OCLC's NetLibrary platform provided access to electronic books from a wide range of publishers forming monographs and reference resources on hundreds of subject areas that could be accessed through an intuitive, easy-to-use interface that offered a single point of access. Users could find the latest titles, reference sources, business and economics resources, best-selling fiction, and more. It has been acquired by EBSCO in June 2010.

OCLC's Electronic Collections Online

OCLC's Electronic Collections Online is a powerful electronic journals service that offers web-based access to a growing collection of more than 5,000 titles in a wide range of subject areas from over 70 publishers. It provides access to 4.2 million records from 1995 onwards. It also provides a robust archiving solution and searching across journals. OCLC has secured archival rights to journal content, subscription to e-journals through the OCLC thus it ensures perpetual access to the journals subscribed through OCLC for the paid period of subscription.

OCLC Database Service: FirstSearch

The FirstSearch (FS) is an online service that provides web access to research databases consisting primarily of journal. The service provides seamless electronic access to more than eighty databases containing 258 million full-text and full-image articles via World Cat in most subject fields. Libraries have an option to select databases based on their needs. Some of the more important databases included in FirstSearch are:

- Article First
- Clase and Periódica
- Electronic Books
- Electronic Collections Online
- ERIC
- GPO Monthly Catalog
- MEDLINE
- OAIster
- PapersFirst
- ProceedingsFirst
- SCIPIO
- WorldCat (The OCLC Online Union Catalog)
- WorldCat Dissertations and Theses (WorldCatDissertations).

The size and period covered in FirstSearch varies between the individual databases but many include data going back as far 1980. The FirstSearch facilitates search across multiple databases through its simple menu-driven search interface. Full-image articles from Electronic Collections Online journals are linked to corresponding citations in databases throughout the FirstSearch service. Subscribers to FirstSearch may also place their orders online for articles that are not accessible to them.

EZ Proxy Authentication and Access Software

It is the world's leading access and authentication solution. EZproxy helps provide users with remote access to Web-based licensed content offered by libraries, and is easy to set up and maintain. More than 2,500 institutions in over 60 countries have purchased EZproxy software. EZproxy is now also available as a hosted solution, giving libraries the option to outsource the set-up and ongoing management of their proxy configuration.

Question Point: Cooperative Virtual Reference Service

QuestionPoint is a unique virtual reference service, supported by global network of cooperating libraries worldwide, as well as an infrastructure of software tools and communications. QuestionPoint is also a source of unique centralized knowledge resources built by a collaborative network of member libraries.

Benefits

24/7 Cooperative benefits and features

- **Meet users at their point of need**—provide reference service around the clock with trustworthy, real-time one-on-one reference assistance from professional librarians, right from you library Web page or other Web portal.

- **Expand your reference desk hours without increasing staff**. For a modest weekly contribution of staffing to the Cooperative, you can provide failsafe coverage 24 hours a day, 7 days a week, to your customers.

- **Belong to several groups simultaneously**, such as a local consortium and a subject-specific group. Any number of librarians may monitor the service at any time. Within the Cooperative, this means that an individual customer's library is more likely to be monitoring.

- **Q&A knowledge base** that is carefully reviewed and maintained by Cooperative contributors.

- **Automatic subject referral through the Global Reference Network** routes your submitted question or chat session to a partner library based on criteria such as subject, language or hours of coverage.

- **Pricing based on population**—more locations mean a lower cost for each participating library.

Reference Management benefits and features

- **Web-based** chat, cobrowse and cooperative reference tools use best-in-class technology and require no special software or browser plug-ins. A librarian does not need to use Windows Operating System to do simple chat and page push (for highest-level co-browsing, Internet Explorer browser is required). A streamlined conference process allows librarians to transfer to another librarian smoothly. There is also support for multilingual reference transactions.

- **Unique Customisable Messages.** Instead of just one list of scripted chat messages for an entire group of libraries, each library can add their own individual scripted messages, which appear when one of their customers comes into the queue.

- **Expanded Patron Link Views.** This feature allows patrons, while still in session, to click on previous links sent to them by the librarian.

- **Administrative Monitoring.** Administrators can join any of their librarian's chat sessions, to send private notes or suggestions unseen by patrons, or to communicate directly with the patron. In addition, librarians can add notes during (or after) a session which are visible only to other librarians. These librarian notes assist in question follow up as well as in quality control and other administrative functions.

- **Customisable Surveys and Reporting Tools.** Each library can customise its own unique survey for patrons and make it available after the chat session, after a follow up is complete, or after an answer is sent in response to a student email. Surveys help libraries measure user satisfaction levels and make service improvements. Librarians have the flexibility to characterise sessions and retrieve statistical information through descriptive categories such as research, business, instruction, etc. to help them identify trends and perform usage analysis.

- **Flexible, institution-based pricing** model, instead of per-seat; even greater savings are possible if you work cooperatively within a group of libraries.

- **Fully accessible user interface** that supports users with accessibility needs, including those who use screen readers.

- **User customisation of interface** color scheme and font size and an optional chime for new messages.

- **Customisable management reports**.

- **Reach out to users from every Web page** with "Qwidget," QuestionPoint's chat widget. Qwidget combines the simplicity of a chat widget (on the user side) with the full features of QuestionPoint's reference management system. Embed the link to Qwidget anywhere on the library Web site, in social networking spaces—anywhere you want to reach out to your users.

Implementation Services

We ensure your virtual reference service is well designed and executed delivering expected benefits to both library staff and patrons. We customise our services to fit any size library or group-from a small public library to a group of large academic libraries.

From the very beginning, we work closely with your staff and guide them through each step of the implementation process. We understand your staff is hard at work assisting patrons. We help to save their time, and leverage their knowledge of your library.

As part of the Implementation Services package you receive:

- A dedicated Implementation Manager, who is your single point of contact throughout the project. The Manager partners with you to set milestones, define key tasks, design workflows and educate library staff.

- One virtual or self-paced training program configured for your staff and their needs. There is also the option to receive further training, including live instruction, for an additional fee.

- First-line technical support during and after the implementation to help resolve any technical issues or questions that arise as you use the QuestionPoint service and participate in the 24/7 Reference Cooperative.

Benefit from step-by step support

Our implementation managers have superior understanding of the QuestionPoint solution plus an outstanding knowledge of reference services and libraries. They know the key steps and activities to effectively implement your library's virtual reference service.

Your Implementation Manager works with you to:

- Develop your library's goals, objectives and implementation schedule

- Create a work plan consisting of key activities

- Develop customised, virtual reference workflows

- Identify resources that will help library staff to be proactive in using the services

- Build an effective marketing and communication plan for your library's virtual reference service

Receive a customised implementation program tailored to your library's objectives. Quickly launch your virtual reference service and begin meeting patrons at their point of need anytime, anywhere.

Other Services

The OCLC's digitisation, microfilm and archival services are designed to protect and share collections for their members. The OCLC has infrastructure and skilled staff at their preservation centres. The OCLC's collection development services can assess the strengths and gaps of collection available in the libraries if a member institution using their analysis tools.

10.6.2 RLG (Research Libraries Group)

The Research Libraries Group (RLG), a not-for-profit organisation consisting of over 150 research libraries, archives, museums, and other cultural memory institutions was founded in 1974 by the New York Public Library, Columbia University, Harvard University and Yale University. The reason for the formation of yet another consortium in US when OCLC already existed, was the dissatisfaction of research libraries with OCLC record keeping. The RLG was founded to provide solutions to the challenges presented by information access and management of digital resources. It served researchers by providing access to research materials held in libraries, archives, and museums. It designed and delivered innovative information discovery services, organised collaborative programs, and takes an active role in creating and promoting relevant standards and practices.

After three decades of its serving libraries, RLG merged with OCLC in 2006. After its merger, its catalogue merged with OCLC WORLD Cat and its databases merged with OCLC First Search service. RLG merged with OCLC to be known as RLG Programs as part of OCLC Programs and Research Division. The latter was renamed as OCLC research in 2009 and the former as RLG Partnership. RLG Partnership was renamed as OCLC Research Library Partnership in 2011. The changes depict the steady adoption and integration of RLG into OCLC.

Activities

OCLC Research Library Partnerships provides the following services to find solutions to the problems faced by research libraries and archives:

• Shared Network Resources – The research library collections in print are available for sharing amongst the members.

• Sharing Special Collections – It is a document delivery service in which rare and unique materials are delivered to users. It helps to economise on resources.

• COBOAT – It is a metadata publishing tool developed by RLP to transfer information between databases and different formats.

• SHARES Programme – It is a interlibrary loan programme that strives to introduce innovative methods for sharing of collections.

• Demistifying Born Digital – The programme focuses on enhancing the effective management of born-digital documents.

• Sharing and Aggregating Social Metadata – This is a programme wherein efforts are made in identifying user contribution to enhance descriptive metadata created by libraries.

10.6.3 Jisc

Jisc, leads the further and higher education community in the use of ICT for learning, teaching, research and administration. It is advisory in nature and is funded by all further and higher education councils. It has the following sub-committees to facilitate work:

- JISC Organisational Support Committee

- JISC Content Services Committee

- JISC Integrated Information Environment Committee

- JISC Learning and Teaching Committee

- JISC Network Committee

- JISC Support of Research Committee

It works with the following aims to fulfill the needs of the education and research communities:

- "develop solutions that help enable the UK education and research communities to keep their activities world class through the innovative use of Information and Communications Technology.

- provide advice to institutions to enable them to make economic, efficient and legally compliant use of Information and Communications Technology, respecting the individual's and corporate rights and responsibilities.

- help the sector provide positive, personalised user learning experiences and to aid student progression.

- develop mutually advantageous partnerships with organisations in the UK and abroad.

- advise, inform and help implement the strategies of government, funding councils and research councils".

Services

Online resources

Jisc provides electronic collections to the education and research community in the UK at subsidised rates. It acquires resources for members in consortium mode ensuring economy and quality. The economy has been estimated to the tune of £75 million to the members.

The aims of the online resources division are to:

- "Provide leadership for national negotiations designed to lower the cost of access to electronic information resources;

- Facilitate debate and, where appropriate, action to help implement possible long-term solutions to the rising costs of scholarly communication;

- Develop and advance strategy for cost-effective content acquisition and the delivery of electronic information resources which takes account of the dynamic nature of the information market place and the changing needs of the community;

- Assist the community in achieving and demonstrating value for money;

- Commission research to assist the community in the effective exploitation of electronic information resources to support research and teaching;

- Work in collaboration with JISC to support the enhancement of innovative resource discovery and library collection management services;

- Communicate to all stakeholders to foster a mutual understanding of the issues around electronic information resources;

- Ensure the best possible licensing terms and conditions and preservation arrangements for the library community".

Union Catalogue

Access to research materials in major libraries of UK and Ireland is provided through the union catalogue, Copac that includes bibliographic records of more than 70 libraries. These include the national libraries, university libraries and research libraries. Copac also provides details of the collections of British Library. The catalogue is frequently updated on the basis of user feedback.

SUNCAT

SUNCAT is the union catalogue of serials held in libraries all over UK. It provides information on print and electronic journals, newsletters, magazines, newspapers and annual reports from 91 libraries in UK. It is developed and maintained by University of Edinburgh and designated as an EDINA service (EDINA is a Jisc designated national data centre at the University of Edinburgh).

Jisc Journal Archives

Journal archives is very important in view of the fast changing information world. Access to current journal articles is easier than the old articles. Jisc Journal Archives provides access selectivel y to over 4 million journal articles.

Zetoc is one of the world's most comprehensive research databases, providing access to over 28,000 journals, 45 million article citations and conference papers through the British Library's electronic table of contents providing free access to HE and FE.

Jorum

Jorum, is a free online repository of learning and teaching materials. It is intended to integrate it with repositories being developed by other institutions and in different subjects. It is designed in a modified version of DSpace.

Training

Jisc offers different types of activities to enhance the competencies of LIS professionals. It has specially worked for development in areas like digital literacy and e-learning. Programmes have been organised regularly for professionals to update these skills which are essential today.

10.6.4 JANET (Joint Academic Network)

JANET is dedicated to the needs of the UK education and research community. It connects education and research organisations in UK to each other, as well as to the rest of the world through the Internet. In addition, JANET includes a separate network that is available to the community for experimental activities

in network development. The JANET connects all universities in UK, FE Colleges, Research Councils, Specialist Colleges and Adult and Community Learning providers. It also provides connections between the Regional Broadband Consortia. The JANET network currently serves over 16 million end-users.

JANET allows videoconferencing and video streaming capabilities to be used to deliver lectures to remote groups of students. For researchers, the high capacity of the JANET backbone allows the linking of large data storage and high performance computing facilities at a national and international level.

Role of UKREN

UKERNA (United Kingdom Education and Research Networking Association) manages the operation and development of JANET on behalf of JISC (Joint Information Systems Committee) for the UK Further and Higher Education Funding Councils. JISC also works in partnership with the Research Councils. UKERNA is funded by the UK government, with the primary aim of providing and developing a network infrastructure that meets the needs of the education and research communities. The JANET consists of a backbone, known as SuperJANET which, in turn, is linked to Regional Networks. Education and research institutions are connected to the JANET backbone through Regional Networks.

JANET Services

The JANET offers a wide range of network, support and information services to help educational institutions to maximise their benefits from JANET. Major services offered by the JANET includes:

JANET Customer Service (JCS): JCS (JANET Customer Service) is the primary point of contact for enquiries concerning JANET. The JCS is in contact with technical experts and service managers both within UKERNA and throughout the education community, and is, therefore, able to provide relevant assistance at any level. The JCS responds to a large volume of customer queries and facilitates provision of new and upgraded connections to JANET. It also assists in the registration of domain names and applications for IP addresses.

Mail Services: A range of mail services is available, including an electronic mailing list service, a Mailer Shield service, a SPAM-relay Tester System and the Mail Abuse Prevention System. A Web Mail Service is also offered to a limited number of organisations, which do not have the resources to support an e-mail service themselves.

Networking Support Services : Networking Support Services include a co-location service for hosting equipment within the JANET backbone, a Network Time Service offering organisations a stable time reference and a Managed Router Service for those needing expertise in managing their network router.

Usenet News Services : Subscribing organisations with their own news servers can accept a news feed sent from central JANET servers. Organisations without their own news server can let their users read news directly from a JANET server.

*Videoconferencing Services :*Videoconferencing over IP networks and ISDN (Integrated Services Digital Network) are provided. A Booking Service lets

registered users book a videoconference online. The Video Technology Advisory Service evaluates products, develops documentation and offers an on-site consultancy service.

Web Services : A pilot Web Filtering Service is available to provide protection against access to inappropriate content on the Internet and to allow the maintenance of lists of blocked or permitted URLs. Two other pilot services – Web Hosting and Web Mail – are available to small organisations only, such as specialist colleges or adult and community learning centres.

Training : The Training Section was set up initially to provide for the needs of technical staff at sites new to JANET. It has been extended to include education and training for staff charged with the management of networking and networking services at JANET sites with Primary Connections.

Workshops and Conferences : UKERNA ensures that the JANET community is kept up-to-date with networking developments by organising workshops and conferences to cover either general networking issues or more specific topics. The annual events cover a number of different networking issues, from strategy to technical support. UKERNA also organises events in conjunction with other organisations.

Other services include Advisory Services, Domain Name Services, Information Dissemination services etc. JANET web site provides further details.

10.6.5 CALIS (China Academic Library and Information System)

The China Academic Library and Information System (CALIS), launched in 1998, is a nation-wide resource-sharing system among Chinese academic libraries. Its mission is to serve directly those universities, which are funded by the central government, by providing document and information services to the users through the China Education and Research Network. The CALIS also serves users in other universities and colleges so long as they have network connections to the China Education & Research Network (CERNET). The CALIS is just like a nation-wide academic library consortium in China, half supported by the government, half by the libraries themselves. At present, it provides service to 1251 academic libraries and 792 journal content users in China.

Aims and Objectives

CALIS aims to build a national information infrastructure along with CERNET. The priority of CALIS is to reveal what already exists in academic libraries in China and to increase its utilisation. Two main tasks of CALIS are i) to build an information service network that contains hardware and software; and ii) to introduce and produce various databases.

Governance and Organisation

A top-level committee that consists of officers from related departments of the Ministry of Education and two university presidents from Beida and Tsinghua governs CALIS. An expert team acts as consultants to the committee. CALIS Administrative Centre located at Beijing University coordinate and execute various activities of the network under the leadership of the committee.

CALIS is organised into four national information centres, i.e., Science, Social Science and Humanities Information Centre, Engineering and Technology Information Centre, Medical Information Centre and Agricultural Information Centre. These Centres provides information support to users. Seven regional information centres divided as East China South Regional Center, East China North Regional Center, South China Regional Center, Central China Regional Center, Southwest China Regional Center, Northwest China Regional Center, and Northeast China Regional Center, which provides secondary support for the information users.

Current Status of CALIS

CALIS has established a three-level resource and service infrastructure. Cooperative activities are undertaken in various cities and regions. Currently, CALIS has undertaken six major activities drafted in its plan. These activities include: Coordinative Acquisition, Online Cataloguing, OPAC, ILL, Document Delivery and Internet Navigating.

A number of bibliographic databases and full-text databases are being subscribed / acquired either as central-funded acquisition or consortium acquisition, covering almost all the disciplines and subjects. Some major bibliographic databases and full-text resources include:

- Science Citation Index (SCI)
- Social Science Citation Index (SSCI)
- Engineering Information (EI)
- Biological Abstracts (BA)
- Chemical Abstracts (CA)
- Cambridge Scientific Abstracts (CSA)
- ABI/Global
- ProQuest Academic Research Library
- Science Online
- Elsevier ScienceDirect Onsite
- Academic Press
- IEEE/IEE Electronic Library (IEL)
- Genome Database
- China InfoBank , etc.

Besides, a series of databases are produced in-house. These databases includes:

- Union Catalogues of Books and Journals: 150 members have contributed 1.4 million titles and more than 3 million holdings;
- Current Contents of Chinese Journals: 28 members have contributed more than 2 million abstracts of 5500 Chinese journals;
- Chinese Dissertation and Proceedings Abstract Databases: 85 members have contributed more than 70,000 abstracts;
- Chinese Databases with Unique Features: 23 members have contributed 25 databases which contain more than 450,000 records;

- Navigating Databases for Key Subjects: 45 members have contributed more than 290 disciplines;

- An application platform operated on networks, which are Unicode, Z39.50, ISO10160, and 10161 compliant. The platform includes:

- online cataloguing server and client, through which librarians can download and upload MARC records and holdings;

- data-making tools and database servers for TOC and other self-made databases;

- web-based search engines for accessing self produced databases;

- software for ILL and desktop document delivery services.

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.

4) Describe major developments in library networks at international level?

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10.7 LIBRARY CONSORTIA: INTERNATIONAL

10.7.1 CARLI (Consortium of Academic and Research Libraries in Illinois)

CARLI was formed in July 2005 to serve the consortia needs of academic and research libraries in Illinois. There had been consortia existing in Illinois since the 1980s prior to the formation of CARLI. These were:

- Illinois Cooperative Collection Management Program (ICCMP), formed in 1986, provided statewide collection studies and grants.

- Illinois Digital Academic Library (IDAL), formed in 1999 to provide centralised electronic resource licensing.

- Illinois Library Computer Systems Organization (ILCSO), formed in 1980, provided the shared integrated library system Illinet Online which later became I-Share.

CARLI took birth as a result of consolidation of these three consortia. Its mission is to create and maintain a rich, supportive, and diverse knowledge environment to facilitate teaching, learning, and research through the sharing of collections, expertise, and programs.

Membership

CARLI serves 8.5 lakh students and thousands of faculty and staff covering almost 94% of the higher education clientele in Illinois. It has 145 libraries as its

members. Any institution that is recognised by Illinois Board of Higher Education (IBHE) and a member of Illinois Library and Information Network (ILLINET) can join CARLI. Those institutions that do not meet the above criteria may also be considered for membership to the consortium.

There are two kinds of members, viz., governing members and affiliate members. The difference is due to the facilities in terms of services provided and programmes available to them. Governing members are eligible for all services and can participate in all programmes whereas affiliate members can avail most services and programmes.

Services

- E-Resource Program

  Participating libraries are provided access to a large number of e-resources in a consortium mode enhancing the collections of individual libraries. It not only increases access to resources for libraries but also provides access to collections of lasting value. CARLI has arrangements with EBSCO, Sage, Springer, etc whose databases are provided free to all members. Besides these, CARLI helps its members by providing access to other databases on discount.

- I-Share

  I-Share database is the union catalogue of all participating libraries. It contains 11.5 million unique bibliographical records and 36 million item records. These pertain to 82 CARLI I – Share member institutions. I- Share acts as an OPAC also for individual libraries.

- Document Delivery

  I-Share libraries allow users to borrow documents form other libraries. Libraries are assigned user id which can be quoted to borrow documents from other libraries. Libraries participating in the I-Share programme have to pay a fee. This goes towards paying the vendor of the Voyager software that is used for I-Share.

- Training

  CARLI organises training programmes for the staff of participating libraries. It also conducts training programmes for the users. Webinars are also conducted on topics related to e-resources for their effective and efficient utilisation.

10.7.2 CONCERT (CONsortium on Core Electronic Resources in Taiwan)

The CONCERT was set up in 1990 to take advantage of the growing popularity of web-based full-text documents. It consists of members mainly from universities, colleges as well as research institutes in Taiwan. As the coordinator of CONCERT, Science and Technology Policy Research and Information Center (STPI) tries its best to fully exploit the economies from group-purchase and resource sharing. In the year 2002, CONCERT leased 22 international database systems, partly funded by the Ministry of Education and National Applied Research Laboratories.

Objectives

The main objectives of CONCERT include the following:

- To enhance sci-tech policy research and establish knowledge bank: major themes include critical national issues; and

- To establish national integrated information service mechanism.

Features of CONCERT

The following are some of the salient features of CONCERT:

- **To Sustain Academic Research Progress** — developing and integrating national information resources and introducing international information resources to foster the domestic research through our information service databases like CONCERT, ILL, etc.

- **To Support Policy-Decision Makers** — providing critical insights for governmental policy decision-makers by undertaking policy research of S&T development and value-added analysis, establishing the monitor system of manpower allocation in the S&T industry as well as performing information & communication security endorsed by the Executive Yuan of ROC.

- **To Facilitate Circulation of Industrial Innovation** — serving as a major dissemination gateway of knowledge innovation in support of cutting-edge technology research through taking part in nation-based nanotechnology programme, performing patent analyses, and offering technology transfer interface, and bringing about economic benefits as a result.

- **To Enhance S&T Cooperation Across Nations** — accelerating bilateral & multi-lateral collaboration via participating in the information activities worldwide, and introducing our research accomplishments throughout nations as so to upgrade our image.

International Cooperation

Cooperation with international Organisations is not just a means to acquire international resources; it has also opened more channels to disseminate the information about the national S&T activities and performance to the international arena. It provides access to over 100 databases to about 230 members. There are two types of members, full or core members, 9 at present and affiliate members that number to 220. The members include universities, national and private (70), science and technical universities and colleges (51), junior colleges (15), R&D organizations (30) and government organisations (18).

10.7.3 SANLIC (South African National Library and Information Consortium)

SANLIC is a consortium of higher education and research libraries in South Africa. It works with a mission to provide high quality research materials to participating institutions at cost-effective rates. Its mission is to "facilitate, on a nonprofit basis, affordable access to scholarly electronic information in support of the learning, teaching and research activities of its members. This is achieved mainly through collective negotiations with publishers and aggregators. It also promotes the use of high-quality, open access electronic information resources". It offers access to e-journals, e- books and open access resources. It also publishes

regularly its newsletter 'SCANLiCTALK' informint its clientele about its activities and resources.

10.7.4 CURL (Consortium of University Research Libraries)

The CURL is a Consortium of University Research Libraries in UK. Several activities of CURL are funded by the JISC. The CURL helps member institutions to build distributed and hybrid research library in their institutions with an aim to help researchers all over the world: i) to search, locate and request resources of all kinds in different formats, easily and quickly from their desktops; ii) have quick and easy access to an increasing amount of electronic resources, both born-digital and digitized; iii) have physical access to manuscripts, archives or printed items that have not been digitised and cannot be moved, wherever these are held; and iv) have other printed items from outside their own institutions delivered to them efficiently. The CURL's mission is to increase the ability of research libraries to share resources for the benefit of the local, national and international research community.

The total membership of CURL has grown to 28 libraries in UK including 22 university libraries, as well as the British Library, the National Library of Scotland and the National Library of Wales.

Services and Projects

CURL's services and related projects are as below:

Online Databases: The CURL database consists of bibliographic records of documents available in members libraries as well as data from other sources (like Library of Congress). Records are stored in UKMARC and can be accessed via telnet or Z39.50 client. The database is available to non-members of CURL on charged services. The database currently consists of more than 38 million records, which is growing constantly. As libraries progress their retrospective conversion programmes the number of records for older material and for non-book material is increasing. The records are of good quality and CURL has established bibliographic standards for contributors and records are flagged to indicate standard. The service is open to any non-profit organization.

COPAC (http://copac.ac.uk/) : Copac is a union catalogue that provides free access to the merged online catalogues of members of the CURL. There are some 30 million records on Copac representing the merged holdings of 26 CURL member institutions, including the British Library and National Library of Scotland, plus special collections from a small number of non-CURL libraries. The remaining CURL libraries' catalogues are also being loaded. The Copac web site contains service information and support materials. Copac is funded by the JISC.

Archives Hub (http://www.archiveshub.ac.uk/) : The Archives Hub is a collaborative service, which provides a single point of access to descriptions of archive collections held in universities and colleges throughout the United Kingdom. Over 60 institutions are contributing high-quality information to the Hub, which covers over 20,000 archives. The website is free to use and contains information relevant to a wide range of research areas. The service is funded by the Joint Information Systems Committee (JISC) and is overseen by CURL. MIMAS runs the service at the University of Manchester and development work

on the Archives Hub software is undertaken by the Cheshire Development Team at the University of Liverpool.

Britain in Print (http://www.britaininprint.net/) : The Britain in Print project, funded by the Heritage Lottery Fund, is a collaborative venture led by Edinburgh University Library involves participation of ten CURL libraries including the Edinburgh Royal College of Physicians and the Mitchell Library in Glasgow. All ten libraries have significant collections of pre-1700 British books which are not yet catalogued in electronic form. Launched in January 2003, the Britain in Print project will provide free access to information about the rich collections of early British books that are held in twenty-one of the nation's most important libraries.

CURL-CoFoR (http://www.cocorees.ac.uk/): CoFoR (Collaboration For Research) is a new CURL initiative, set up to provide its members and other research libraries with practical tools (templates, guidelines and recommendations) for collaborative acquisition and retention. It will also give special attention to techniques for serial de duplication and to the mapping of relationships between research activity and library provision.

10.7.5 EIFL (Electronic Information for Libraries)

EIFL is a not- for- profit organization based in Europe to provide access to knowledge through a global network to developing and countries in transition in Africa, Asia, Europe and Latin Amercia. Starting with providing access to e-journals libraries in Central and Eastern Europe in 1999; it has spread wings enabling access to knowledge for learning, teaching, research and sustainable development into 60 countries.

Programmes

EIFL provides the following programmes:

- **EIFL-Licensing:** EIFL negotiates with publishers to provide access to scholarly material for research and education on discount rates. It provides consortia access to libraries in more than 60 countries. E-resources ranging from scholarly journals, e-books to bibliographic databases from more than 25 vendors are available. It also trains local librarians in the licensing and management of e-resources. An estimate puts the savings in subscription fees accrued from consortia purchase of the order of $215 million achieving a discount of 97%.

- **EIFL-OA: Open access**: EIFL is a strong advocate of open access. It helps institutions to build and sustain open access repositories.

- **EIFL-FOSS**: **Free and open source software for libraries:** EIFL helps libraries to install and use free and open source software . It also provides training to professionals to use open source software.

10.7.6 ICOLC (International Coalition of Library Consortia)

ICOLC refers to International Coalition of Library Consortia. It is a Consortium of Consortia, and first met informally in 1997. It comprises over 200 library consortia across the world and the Coalition represents thousands of member

libraries worldwide. The Coalition serves primarily higher education institutions by facilitating discussion among consortia on issues of common interest. Additional information about the ICOLC can be found at http://www.icolc.net

Activities of ICOLC

To accomplish the task, it performs the following activities:

• It conducts meetings twic e ayear generally in March/April in North America and September/ October in Europe to keep participating consortia informed about new electronic information resources, pricing practices of electronic providers and vendors, and other issues of importance to directors and governing boards of consortia.

• The Coalition meets with members of the information provider community, providing a forum for them to discuss their offerings and to engage in dialog with consortial leaders about issues of mutual concern.

• It also maintains listservs and web pages for the benefit of its members.

10.8 SUMMARY

This Unit delineates the activities and services of library networks and consortia in India and abroad selectively. It begins with an introduction to the developments of library and information networks in India. Thereafter, the activities of INFLIBNET and metropolitan area networks in India have been discussed. Library consortia have come up in a big way in the country. Some of these from different areas and fields have been taken up and discussed here.

OCLC has the credit of introducing the concept of resource sharing and networking. It covers a major portion of international networks in this Unit. Other important networks like RLG, Janet, CALIS, etc have been covered. EIFL has played an important role in spreading e-resources in developing countries. Its activities have been discussed followed by that of ICOLC.

Note: Students are advised to visit the relevant websites for more details.

10.9 ANSWERS TO SELF CHECK EXERCISES

1) INFLIBNET is playing a major role in the development of library automation. The thrust is more in following areas:

Library Networking: INFLIBNET is a national body which is promoting library automation of Indian University Libraries. INFLIBNET is providing leased line for university libraries to access Internet for communication among scholars, students and researchers. With this network backbone it is connecting the libraries and information centres in universities, deemed to be universities, colleges, UGC information centres, institutions of national importance and R&D institutions, etc.

Same line is used by Indian universities to access online e-journals subscribed by UGC under UGC-INFONET scheme. INFLIBNET has become the hub for UGC-INFONET program.

Library Automation: INFLIBNET has developed a automation solution for Indian libraries called SOUL (Software for University Libraries). It works in client server environment. Currently, it is developed in Windows environment and UNIX version of SOUL is under development.

Education: INFLIBNET runs courses in library automation and training in SOUL. The duration of courses are one week. It also provides on site training for library staff. It also conducts workshops and seminars in designing and developing digital libraries.

2) DELNET runs following services for its members:

    • Inter Library Loan Online;

    • Retro-Conversion and Creation and Maintenance of Bibliographic Databases;

    • Training Programmes;

    • Conferences, Lectures and Workshops;

    • Newsletter;

    • INTERNET, Electronic Mail AND Videoconferencing. Besides, there are many databases to which it provides online access:

    • Union Catalogue of Books in Common Communication Format (CCF);

    • Union List of Current Periodicals: in science and technology, social sciences and humanities;

    • Union Catalogue of Periodicals.

3) The salient features of the UGC-Infonet are:

    • Scaleable Architecture to grow from Universities to affiliated Colleges;

    • Nation-wide Terrestrial Backbone using Fiber Optic links;

    • Integrated Satellite WAN supporting broadband and SCPC VSAT technology;

    • Comprehensive Network Management Systems for overall monitoring of the network, down to each and every device;

    • Linkage with other Academic and Research Networks all over the world;

    • Data security and virus protection using firewalls and Intrusion Detection Systems;

    • Dedicated Data Center for Web hosting, e-Journals and Mail Boxes;

    • Mirror sites spread all over the country for content hosting;

    • Broadband Multimedia and Video Channels for Distance Learning.

4) The library networks in USA are at the most advanced level of development. The some of the enabling factors responsible for successful development of library networking in USA includes long tradition of cooperation among libraries, introduction of library automation as early as from 1960's, advances in information science during 1970's and 1980's and introduction of MARC format by the Library of Congress in 1968. The Library of Congress has played a pivotal role that led to the development of successful networks such as OCLC, RLIN and other networks in USA.

In USA, the OCLC is a non-profit membership organization serving 50,540 libraries in 84 countries and territories around the world. Its mission is to further access to the world's information and reduce library costs by offering services for libraries and their users, and to be the leading global library cooperative, helping libraries serve people by providing economical access to knowledge through innovation and collaboration. Research Library Group (RLG) is another important library network in USA that is devoted to the mission of "improving access to information that supports research and learning". In UK, JANET is a network operated and developed by UKERNA under a Service Level Agreement from the Joint Information Systems Committee (JISC) of the UK Higher and Further Education Funding Councils. JANET is connected to the equivalent academic networks in other countries and to many commercial networks in the UK and abroad forming part of the global Internet. Consortium of University research Libraries (CURL) is a library network fully devoted to enhance cooperation amongst university libraries in UK.

10.10   KEYWORDS

CAS (Current Awarness Service)	:	A service designed to aid research workers in keeping themselves abreast of the current developments taking place in their subjects of interest.
CD-ROM Database	:	An organised collection of information available on a CD ROM
Centralised Database	:	It refers to centralised storage and usage of unified reference information.
Consortia	:	A group of libraries or other organisations that form a partnership to achieve a goal, such as resource sharing, that cannot be achieved by the individuals alone.
Digital Collection	:	A digital collection is a body of materials in digital format treated as a group or considered as a whole.
Document Delivery Service	:	A service whereby the Library provides full-text copies of the documents research papers, conference papers journal articles etc. to the users on demand irrespective of the location and form of the original
E-Resources	:	Electronic information resources accessed via the internet.
Gateway	:	A network point that acts as an entrance to another network, such as the server through which people on a company's local area network access the internet.

Inter Library Loan : A cooperative arrangement among libraries by which one library may borrow materials it does not own from another library.

Internet : The vast collection of interconnected networks that all use the TCP/IP protocols and that evolved from the ARPANET of the late 60's and early 70's.

Intranet : A private network inside a company or organisation that uses the same kinds of software as the Internet, but is only for internal use and is not connected directly to the global Internet.

MARC : Machine Readable Cataloguing. The MARC formats are standards for the representation and communication of bibliographic and related information in machine readable form.

Metropolitan Area Network : A network of computers spread over a metropolitan/city-wide area such as buildings located throughout a town or city.

Online Database : A database located in a remote computer and accessed through the Internet.

Online Union Catalogues : Union catalogues of the libraries available online.

OPAC : Online Public Access Catalogue. It is an online catalogue of a library collection that is available to the public.

Resources Sharing : Collaborative arrangements made between libraries for mutual assistance, by the sharing of resources or division of costs, which can be advantageous and efficient.

Retro conversion Service : Retrospective Conversion Service is a service that involves conversion of a library's paper catalogue records into machine-readable form.

SDI : SDI is a current awareness system which alerts the user to the latest publications in his/her specified field(s) of interest.

Shared Catalogues : A form of cataloguing undertaken by the Library of Congress and other agencies responsible for material bibliography.

Union Catalogues : Union catalogues reveal information about the collections of more than one library. They are a way for groups of libraries to share information about their collections in a consistent way, both for cataloguing and inter-library loan purposes.

| **Virtual Reference Service** | **:** | Virtual reference is reference service initiated electronically where patrons employ computers or other Internet technology to communicate with reference staff, without being physically present. Communication channels used frequently in virtual reference include chat, videoconferencing etc. |

10.11 REFERENCES AND FURTHER READING

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