Course-III (A): University and College Library System

Unit 4: Networks, Consortia and ICT Applications

ICT APPLICATION IN ACADEMIC LIBRARIES

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INTRODUCTION

- Information is a dynamic and unending resource that effects all disciplines and all walk of life. It supports education, research and development. Information and communication Technology (ICT) facilitates transfer of electronic data/ information from one place to another, one person to another and from one library to another library.

- The impact of ICT is enormous and global in its magnitude, pervasiveness and usefulness because of its most distinguishing features of dramatic decrease in cost, size and tremendous increase in processing speed, storage and communication capabilities. ICT has profound effect on the progress and development of human civilization.

WHAT IS ICT ?

- IT is the broad term which means the application of technology in the handling and information transfer. It involves computers, electronic media, satellites, telecommunication and reprography.

- IT emphasis the use of scientific method, new technologies, management techniques and computers through trained human force to handle information collection, storage and retrival for the integrated development of society.

- According to Encyclopedia of Computer Science, "ICT is an imprecise term frequently applied to a broad areas of activities and technologies associated with the use of computers and communication"

NEED OF ICT

- The emerging trends of ICT and its application explore the opportunity to make more efficient the functions and services of library and information centres.

- Advantages like speed, accuracy and reliability in the process of information due to introduction of IT. This also helps customers in performing the search quicker and with precision.

- Due to escalation of periodicals and books, no library can afford to acquire all the publications. This necessitates an active resource sharing among libraries. This is really successful only through networking.

- Literature in almost all the fields is increasing tremendously in a multidimensional way. It is posing a major problem to have bibliographic control on the basis of manual operation. This is only possible through computer application.

- Information seeking behavior of the users is also changing. To cater the needs of the users, storage capacities of information as well as retrieval techniques should be applied to supply them with modern information.

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- Making the right information available to the right person at the right time, in the right form at the right cost, in the right place, to take action is the aim of any modern library service.

COMPONENTS OF ICT

- ICT is a generic term used for a group of technologies. ICT refers to the devices and tools used in the generation, gathering, processing, storage, retrieval, communication and delivery of information. It is the convergence of computers, communication and micro-electronic base technologies. In the recent years, IT has expanded so rapidly to include a wide array of devices, information products and services that transformed the role of a library into a gateway of accessing global information resources.

- Major components of computer, communication and other relevant technologies used in libraries:-

1. Computer Technology: The wide spread use of computer technology has made dramatic developments in the information transmission process in every field of human life. The current developments in computer technology include mini computers, microcomputers, personnel computers, portable computers, super computers. Using computers to assist in information processing began experimentally in the 1960s. The 1970s saw the growth of cooperative services and resource sharing among libraries.

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2. Communication Technology: Communication technology is the technology used to transmit the data either in analogue or digital form. Their is a wide range of communication technologies available.

3. Audio-Visual Technology: Motion pictures, television, videodisc are the main contributions of this technology. Videodisc is a new medium containing prerecorded information, which allows the user to reproduce this information in the form of images on the screen of a television receiver at, will. Videodisc technology offer high quality storage, image stability and speed of recall.

4. Electronic Mail: E-mail is the electronic transmission and receiving of messages, information, data files, letters or documents by means of point-to-point systems or computer-based messages system.

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5. Reprographic, Micrographic Technologies: The technology of reprography made a big impact on the document delivery system. Most of the research libraries have reprographic machines and provide photocopy of any document on demand. Using these two technologies, a library can condense the bulky archives and newspapers and solve the storage problems. They also serve the purpose of preservation and they help in resource sharing and also save the time of users.

6. Micro Forms: Microforms is a term for all type of micro-documents. The verities of microforms are microfilm, microfiche, ultra fiche.

7. Printing Technology: Thousands of years ago, people recognized the necessity of keeping records of their daily activities. Paper was invented and the art of writing and record keeping came to be defined. At present lasers and computers have entered the field of printing. Computer printers are three categories; line printers, dot matrix printer, and laser printers. Laser printers are popular today.

IMPACT OF ICT ON LIBRARY AND INFORMATION SERVICES

- Improved efficiency of library operations,
- Improved quality of existing services,
- Introduced new services,
- Improved collection management,
- Improved accuracy and control,
- Increased ability to share resources,
- Improve image,
- Improved management information
- Eliminate duplication of efforts,
- Rapid communication,
- Perform tasks not possible by the manual system,
- Improved uniformity and standardization,
- Improved users satisfaction,
- Facilitate effective utilization of funds, and
- Facilitate to market library services.

Areas of ICT application in academic libraries

The explosion of computer and communication technologies as ICT have effected almost all aspects of human life including library. Most important areas where ICT applied and played a dynamic roles are:

- <u>Acquisition System</u>: Acquisition system is concerned with finding book selection sources, searching and selection of books, placing of orders with a wise range of suppliers, keeping track of orders, receiving and recording of materials, settlement of invoice accessing and maintained detailed account of funds. Requisition of payment; order follow-up; receiving and accessioning of free gift items are also dealt with.

  Here, the computer is of immense help to the library staff as in computerized information systems the bibliographic details of the material are to be entered only once and at different stages for different jobs the computer, through the integrated software takes relevant bibliographical details for each book at each stage.

  Similarly in a computerized library it is easier and automatic to maintain bill register, expenditure register, vender directly etc in computer's memory.

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- <u>Cataloguing System</u>: Cataloguing is one of the important functions, which link user's requirements to the documents in a library. In cataloguing we take into account the various approaches of users in searching for a book in the library and make catalogue entries in order to ensure that each major search approach of a user is satisfied. Computerized catalogue is the most efficient tool in retrieving information about the documents in a library easily and quickly. The cataloguing system maintained titles-in –process file of all items that are accessioned. They are than catalogued.

  Cataloguing system provides the facilities to provide CAS such as SDI, special bibliographies, and lists of recent arrivals. It makes possible import/ export of bibliographic data in CCF, MARC and UNIMARC formats; and automates the stock verification process.

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- <u>Classification System</u>: Computerization provides the following benefits in classification:
  - Helps the classifier in the selection of isolate terms, grouping and arranging them in hierarchical sequence;
  - Helps a classifier in synthesizing the class numbers;
  - Saves time by avoiding reference to the schedules of scheme for classification on and often;
  - The constructed class number can easily be used as a query language in a typical retrieval system; and
  - Improves accuracy and speed in classification.

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- Circulation System: Circulation procedure in a conventional system is very lengthy and consume much of staff time in repetitive works. The use of technological devices such as computers, barcode scanners and its software in circulation help in performing these routine operations easily and quickly. Academic libraries are the most suitable candidates for computerization of circulation control systems as they frequently have high volume of circulating transactions per day.

  An automated circulation system provide information about the location of the item on loan, details of the items on loan to a borrower, record of reserves alerting the library staff on return of a reserved item by a borrower and print a book available notice to the one reserved, print recall notices for items on long-term loan, renewal of loan. Calculation of fines, printing of fine notices, analysis of summery statistics, printing due date slips, automatically generating orders fir lost books, and provision fir inter-library loan transactions.

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- <u>Serial Control System</u>: Serials include periodicals, newspapers, manuals, journals, proceedings, transactions etc. Serials are distinguished from monographs by their ongoing nature. The continuing nature if serials subscriptions creates problems and makes it a complex process requiring a separate control system.
- Benefits of an automatic serial control system are:
  - Help in ordering new journals; renewal/ discontinuation; sending reminders; receiving the journals.
  - Help in preparation of a list of periodicals received; preparation of a list of periodicals cancelled, preparation of a list of holdings.
  - Keeping the track of amount spent on subscriptions, binding etc, estimation of the budget for the next year. Announcement of the missing serials fir recording the same.

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- Article Indexing System: The article indexing system facilitates indexing and abstracting of articles from various journals, scanning of articles, entry of citation, and online searches on author, keyword and even word-based free text searches. This system also provides periodic documentation lists, personalized SDI, bibliographies on specific subjects etc.

- OPAC System: The ALA Glossary define Online Public Access Catalogue (OPAC) as "a computer-based and supported library catalogue (bibliographic database) designed to be accessed via terminals so that library users may directly and effectively search materials without the help of staff. OPAC system also provides the facility to request acquisition of titles, to reserve materials, and to send personalizes SDI, overdue/ recall/ collect notice and messages by e-mail.

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- <u>Web OPAC</u>: The concept of Web OPAC is recent origin and it is serving as a gateway to the resources not only held by the respective library but also to the holdings of other participating libraries without limiting to local collection but going beyond further to regional, national and international levels. It allow users to interact with documents stored on computes all over the world and makes easier access to catalogue data in the form of bibliographic records.

- <u>Storage Technologies</u>: For centuries paper has been considered as the appropriate medium for storing of information. But now the new technologies have succeeded in storing information on various media. Libraries have been using microfilm, microfiche and ultra-fiche, which help to store large volume of data in a comparatively lesser space than the print media.

OTHER DIANAMIC APPLICATION OF ICT IN LIBRARIES

<u>DIGITAL LIBRARIES</u>

- The growing impact of ICT has compelled the library professionals to use these technologies effectively to provide information services. Digital library is nothing but extension of conventional library which is the storehouse of distributed electronic resources and information seekers are using these resources locally or globally.

- Need:
  - Information load
  - Resource Sharing
  - Library challenges

- Challenges:
  - IPR & copyright
  - Technological challenges
  - Challenges related to preservation
  - Challenges related to inadequate finance & infrastructure
  - Lack of expertise.

LIBRARY CONSORTIUM

- Library consortium sis a cooperative arrangement among groups of libraries or institutions helping to derive the best possible purchase bargain from publishers due to collective buying power. In other words, it is a kind of agreement between various publishers and cooperative group of libraries/ information centres, for accessing the large number of e-journals published by various publisher/ group of publishers on highly discounted rates.

- On the one hand it permits access to large number of electronic resources at a highly discounted rates, and on the other, it meets the increasing pressure of diminishing library budgets, increased users' demand and rising cost of journals.

- The library consortia mainly deals with resource sharing in digital environment.

- Example of Library Consortium in India:
  – FORSA
  – CSIR
  – INDEST
  – IIM Consortium
  – JCCC for libraries
  – UGC- INFONET Digital Library Consortium
  – MCIT Library Consortium

LIBRARY NETWORK

- Network is a refinement of the idea of resource sharing on which a group of individuals, institutions are interconnected for a common cause.
- Library network means connecting together a group of individuals/ institution/ libraries, scattered geographically over a wide area, whose computer and computer equipments are connected to each other by communication links, protocols and appropriate software. When such a group decides to exchange the individually available information through computer application, then a network is being developed.
- Examples of some library networks are;
    - OCLC
    - INFLIBNET
    - DELNET
    - CALIBNET
    - BONET
    - ADINET
    - MALIBNET etc.

RFID

- RFID (Radio Frequency Identification) is a wireless data collection technology that uses electronic for storing data. It is an automatic identification method, relying on storing and remotely retrieving data using devices called RFID tags or transponders. An RFID tag is an object that can be attached to or incorporated into a product for the purpose of identification using radio waves.

- RFID systems have been in use in libraries for book identification, for self checkout, and for sorting and conveying of libraries books and AV materials.

INTERNET TECHNOLOGY

- Internet is the world wide, publicly accessible network of interconnected computer networks that transmit data by packet switching using the standard internet protocol. The internet provides unprecedented opportunities for storage, retrieval and dissemination of information. Internet provides access to the most diversified sources of information hosted by individual and various organizations worldwide on a vast network of servers.

- The internet has become an indispensable resource for libraries worldwide to enhance the collection, improve services and operations. Internet has made easy access to information sources/ documents like books, journals, e-publication etc. The internet can be successfully utilized for providing reference services.

Reasons for users' dissatisfaction with the application of ICT

- Inadequate ICT infrastructure
- users are not trained for ICT based information services
- Inadequately trained library professionals in ICT application
- Limited computer literacy among library users
- Inadequate publicity for the ICT based resources and services
- Rigid ICT use policies implemented by the library
- Discouraging attitude of library professionals towards their users

Problems of ICT application

- budget allocations to their libraries were not adequate
- ICT skill and expertise of library staffs were not satisfactory
- ICT awareness of library users is an important factor that enables them to become more effective end users.Librarians stated that training in the use of ICT was inadequate
- librarians indicated that electronic information resources were inadequate

Conclusion

- Application of ICT in libraries has become inevitable in an era of information explosion and widespread use of digital information resources. Effective application of ICT in libraries helps in performing their operations and services most efficiently.

Thanks