CHAPTER 4

E-Resources

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4.1 E-Resources:

The e-resources on magnetic and optical media have a vast impact on the collections of university libraries. “The impact of electronic product in general and in electronic Journals in particular is four fold. These are more useful due to inherent capabilities for manipulating and searching, providing information access is cheaper to acquiring the information resources, saving in storage and maintenance etc. and sometimes the electronic form is the only alternative.” The kinds of e-resources include:

- **Bibliographic Indexes:**
  This index contains reference of information leading to the usage of other resources, often they are referred as other e-versions of existing print indexes. Example includes MLA Bibliography, PsycLit, and Historical Abstracts.

- **Full-text Indexes:**
  It is just like Bibliographic indexes, which consists of analysed data. Mostly they are combined with bibliographic and primary index. Examples include Periodical Abstracts.

- **Journals:** This includes those available directly published by the publisher or an electronic aggregator such as JSTOR.

- **Application Software:** This includes all other types of electronic resources including computer assisted instruction, interactive multimedia and educational games.

- **Electronic book**

4.2 E-Journals:
With the advent of modern technologies there is an increase in the growth of electronic resources, especially the e-journals. Publishers have embraced the electronic media at different levels of enthusiasm but most of the reputed academic publishers are now operating in electronic environment. The academic libraries have spurred their interest in this field owing to the delays experienced in communicating research results, slowness in the flow of print media, increase overhead costs and stagnated budgets. Hence they are operating for e-journals, either mounted locally, and or licensing with publishers. University Grants Commission (UGC) (India) has initiated yet another ambitious project. UGC Info net, “which seeks to provide high speed internet connection, electronic access to professional literature and the development of multimedia content to supplement conventional learning and teaching”.

4.2.1 The Internet:

As a source of serious subjects of the universe of knowledge, has become information super highway and opened the floodgates for scholarly communication. It has become a very useful network of networks, the measurement of its size; impact and content often involve serious scholarly efforts. The internet provides many opportunities for librarians to provide increased and more efficient service to patrons.

Thus the university libraries ought to possess in their collection a combination of print and electronic media both as magnetic, optical disks databases or access online networks and download the information or data. In other words, the libraries have to handle internal and external control of resources. Because of this complexity, there is a shift from collection development to collection management.

Information technology has made it possible to earn access to information; all digital information accessed through databases, full text journals etc. can be accessed through computers on the networks both at work and from home. The concept of
'electronic library’ gave a new dimension to the libraries and it is time to gradually switch to electronic library with e-collections. E-collection building and management are such initiative tasks. The libraries planning for e-collection building should first formulate a policy as a guideline for the same.

In order to visualize the new dimensions of library trends and system, the organization of system must be a fundamental focus of the profession. There should be a clear cut relation between the organizations of information to the natural processes of information seeking and knowledge utilization.

The present age is, in fact, called as electronic information era caused by the explosion of electronic methods in every specialized field. There is a transit from the print media towards the magnetic tape, thus giving rise to electronic library. This is true even in case of university libraries. In the past information was in the form of handwritten prints, but it is now available on tapes, discs etc. This of course is a symbol of progress in the every concept of the form in which the information exist.

This electronic library is delivering information, whenever required to the user’s desktop, wherever that may be. This will enable a librarian to meet the need to provide their services in some electronic form rather than face-to-face contact with their users. As subject experts or faculty become more willing and more accustomed to using e-resource they become interested and increasingly dependent on technology for digital information access. In networked environment, information providers can supply their information directly to the end-user. Thus electronic environment will have changed the system and processes the library operates and interacts with its users. This has compelled the librarians to consider their own future as intermediaries. The electronic library will form a crucial part of an institution’s information services provision and is likely to leave a much wider remit than that of the traditional library.
The present university library is information based one. Information Technology since a decade or so has changed the whole system of information, particularly with the emergence of computers, telecommunication, E-mail, Fax, CD-ROM, Hypertext, multimedia, mobile phone system etc. All have made the flow of information from the point of origin to the location of its use continuous, easier and quicker.

The word Information Technology seems to have a wide implication, however, in this context it refers to electronic age related technology, particularly associated with the task of information acquiring, processing, preserving and dissemination irrespective of its location, purpose and form. Some hold that the information technology is a part of information; management is only a facet of information technology.

Obviously, the medium of publications for journals and for other forms of literature is shifting from paper print to electronic and their mode of distribution is also shifting. It is becoming network centered. Besides, libraries have converted their card catalogues into online catalogues. Efforts are being made now to provide union catalogues so that the library becomes essentially a gateway to a universe of resources in printed, electronic or other forms. Use of terminals of work stations to access databases of various kinds is now a routine for libraries. Most of them now add electronic resources to their collections in CD-ROM or other forms.

4.2.2 **ELECTRONIC PUBLISHING;**

E-library is transforming information as required by the user’s demand. Librarian, therefore provide service to the increasing need of the patrons in electronic form. He needs not to serve face to face contact with the users. In modern enviornment of information technology user is more interested and also accustomed to use electronic made of according information regularly and have become habitual and
depended on digital information access. Moreover in network environment the user can supply their information to other end users. This revolution has radically changed the environment and the library systems in which the library operates and interacts with users. The library professionals also rethink their role as information provider. The E-library has played a crucial role in university libraries/college’s information services.

The electronic resources, which are available in libraries today is the result of computer technologies, with powerful computers the information storage and delivery mechanisms, such as Compact Disk Read Only Memory and user-friendly interfaces. In most of the academic libraries in India Online Public Access catalogues (OPACs) have almost replaced traditional catalogues and offering enhanced search capabilities for accessing the local connection and often expand coverage to include the holdings of other area of regional libraries. Many libraries also provide a web interface to their library and information system. The library and information system with a web interface often includes direct links to electronic journals, books and internal resources.

Use of e- journals and full-text data is another important component of an integrated library system providing access to full-text resources in an electronic library setting. The consortia models help to provide better access to scholarly literature. The access to electronic resources enables the researchers to fulfill their need as when and where they want information. Full text electronic resources access to resources has opened the door without any boundaries location or library hours.

4.2.3 Electronic Sources:

The electronic resources of information are proliferating at an alarming proposition in the last decade. Several types of electronic resources have been noticed with the advantages over traditional resources. These are increasingly acquired in
libraries; particularly those are available in web enabled medium. Hence, knowledge on the resources is essential to those who are in information handling profession.

The electronic sources first introduced in 1960s with the advent of machine readable files, i.e. ERIC and a new version of Nation Library medicine online database. In 1970s OCLC and DIALOG, BRS and ORBIT become new development standard sources. Personal computers came in existence in 1980s, OPACs (to replace card catalogue) and CD-ROM database. In 1990s Local Area Network was developed replacing standalone workstations. In the same period, WINDOWS and INTERNET were introduced in the field of information technology. Many services were began via remote access to patrons of the library print version became replaced by electronic resources and the search techniques increased.

4.2.4 Need of E-Resources:

Many developments have been noticed over the years with respect to the electronic resources publishing. Publishers are interested in the issues such as increased publishing costs, change in readership, Change in user expectations, rights management and archiving. Authors and corporate institutions are now restoring for their own products as scholarly publishing, quality assurance. Libraries face the challenges of flood of new content and searching new options, providing their users with easy access to information wherever they reside.

4.2.5 E-Books:

The term ‘electronic-books’ can be defined broadly as an effective way of electronic reference for the works, monographs and textbooks. They might be delivered through via the Web or a hand-held device. Electronic-books offer some unique advantage over printed equivalents. Many consultants have predicted that the most successful e-books ventures are those that offer a relevant interactive experience and still developments are reported in the e-book world.
The potential advantages of e-books have been described in brief importability, instant access, searching capacity annotation, linking, Multi-media and long-term preservation, multiple titles in single book, includes online dictionary and link to other sites, old titles cannot go out-of-print, chapters can be increased by adding notes from several books update textbooks with minimum cost to user, distribution costs, depletion of papers and physical space. So too, they have the disadvantages; the expense of technology, inadequate screen resolutions, unavailability of titles in the right format etc.

Today, e-books can be used with a variety of devices, including, dedicated e-book readers or, of course, by desktop access i.e. a personal computer (PC) or notebook. There is a great range of reading devices on the market. Some can take support from imaging and technical material. There are varying screen sizes, different weights and memory/storage capacities.

4.2.6 **E-Book Software:**

An ideal screen technology for e-books should display 200-300 pixels per inch before quality matches paper. Current e-book devices just offer 100 pixels per inch. Both adobe and Microsoft have been working to produce a more comfortable reading experience by producing software that smoothes out the jagged edges of characters and makes text appear sharper. The adobe E-book reader software features the Cool-Type, font technology and two page layout. Microsoft has an equivalent using clear type technology. Besides the major e-book producers have their own software and they are essential when users go for their publications.

1. **EBX:**

The Electronic Book Exchange System is supported by the ALA, Adobe, Versa ware and others. It is a technical specification for the Copyright protection and distribution of e-books.
2. **Onix:**

The Onix (Online Information Exchange) System is now widely adopted as a standard defining how to describe e-books for the book trade.

4.2.7 **Preservation:**

E-books are the natural priority of libraries for preservation. As information professionals are interested in developing an ideal e-book collection, the preservation generates more debates. The act of keeping a copy such as back up is not permitted as per copyright and many ways of preserving digital content is not applicable for e-books. Digital content is fragile and prone to have many other problems.

It is the teacher who can integrate e-books into their teaching and know how to exploit the medium’s capabilities. Students may also be aware how e-books are advantageous. Many aggregators at present offer study tools alongside their e-book material, to highlight, note-taking and book-marking. The students in the major Cranfield study showed a strong preference for traditional methods of printing books, or entering notes straight into essays or project work online.

4.3 **Available Resources:**

A voluminous amount has been published concern e-resources for recent years. A survey on the *Library Literature and Information Science* database retrieved 1,026 items pertaining to electronic journals, published between 1992 and July 2002.

4.3.1 **Web Site and Internet Resource:**

Librarians should capitalize on the patron trust they have earned from their book recommendations and apply “well-developed and tested principles of reference reviewing” to Web resources. Collins criticizes Web-based reviewing tools, such as Magellan, as “mostly ingenious variations on the concept of ‘cool’”. Six Web site evaluation standards are proposed:

- Content-uniqueness, usefulness, and accuracy are listed.
The paper is organized around five major “considerations”, outlined below:

- Authority-ideally “an internationally known not-for-profit organization or expert”.
- Agenda-is the sponsor selling something or advocating an “idea” or “philosophy”?
- Scope-historical, cultural plus geographical coverage and limitations, as well as whether “unauthorized abridgement” is used.
- Up to datedness-the date the site was last updated does not indicate the extent of the changes.
- Accuracy-are the “glaring” factual errors or obvious bias? King implies that complete objectivity may be impossible.

Internet information resources offer a “toolbox of criteria” organized in outline format under seven headings:

- Scope,
- Content,
- Graphic and multimedia design,
- Purpose and audience,
- Reviews,
- Work ability,
- Cost.

4.3.2 **Full Text Database:**
A method for evaluating full-text database periodical content, developed in 1997 and pretested by the University of Hawaii at Manoa library, is explained by Brier and Lebbin. Three measurements were created:

- **Full-Text Value** - the number of titles in the database not subscribed to by the library but listed in Magazines for Libraries.
- **Abstract Value** - for titles abstract in the database, the number in the collection in proportion to the number of titles not in the collection.
- **Interlibrary Loan Value** - for abstracted titles not in the collection, the number in Magazines for Libraries in proportion to the number not included.

### 4.3.3 Electronic Journals:

National Online Meeting N.Y. (May, 1999) for comparing Web-based electronic journals with the print counterpart of the same title. Using an outline format, seven criteria are described.

- **Design and presentation**, including search options and graphics.
- **Ease of access**.
- **Coverage**.
- **Pricing**.
- **Archiving**.
- **Licensing terms**.
- **Other features**, including usage statistics tools and trial access.

The following hierarchy would be used for adding e-journals to the collection.

- “Print plus free online version”
- “Online only and free”
“Print or online, either one paid”
“Print plus paid online”

4.4 Multimedia and Hypertext Environment:

Information can be said to be human mind in action. When man starts thinking, a number of thoughts pass through his mind in some sequential order, with some relationship between the topics and the subjects, the through and action. This may be because of the relation that exists between every little thing in the universe. Hypertext is non-sequential way of arrangement so, as to represent the things in a more natural way. On the other hand multimedia is the information accomplished with graphics, sound, video, etc. put together to have an understanding and meaningful approach towards the required information.

The term hyper means over, text refers to the contents of a book and a media is the medium through which the test and the subject are interlinked. Hypertext is the text in natural language which allows computer to display non-sequential information (text). It allows the reader to link the various blocks of the text thus it is a higher form of text. Multimedia is a further extension of hypertext, with the author creating link between the information and the graphic, sound, music, video, etc. thus leading to the information a combination of a text, sound, and visual images.

The electronic resources of information are proliferating at an alarming proposition in the last decade. Several types of electronic resources have been noticed with the advantages over traditional resources. These are increasingly acquired in libraries; particularly those are available in web enabled medium. Hence, knowledge on the-resources is essential to those who are in information handling profession.

4.4.1 Periodicals:

A periodical is “a serial appearing or intended to appear indefinitely at regular or stated intervals, generally more frequently than annually, each issue of which is
numbered or dated consecutively and normally contains separate articles, stories or other writings.”

Newspapers disseminating general news and the proceedings, papers, or other publications of corporate bodies primarily related to their meetings, are not included in this term.

4.4.2 Audio-Visual Material:

Audio-Visual material has been defined as “materials in audio and visual formats which convey information primarily by sound and image rather than by text, e.g. charts, graphs, maps, pictures, slides, filmstrips, audio recordings, videotapes motion pictures, and models.”

4.4.3 Other material:

- Basic reference books
- Information literature
- Aids to thinking and acting-inspiration books
- Recreational reading material
- Pedagogical literature for teachers
- Bibliographical aids
- Literature on vocational guidance
- Nation building and character building literature programmes. Then only the objectives of automating the library functions will be fulfilled.

The University must procure the CD-ROM drive and the databases, available in their subject fields. The charge for the usage of CD-ROM packages should be uniform in all the colleges. All the Professional and other college libraries should computerized and should provide the computerized cataloguing, serial control, and acquisition and circulation services. The e-mail and the FAX facilities should also be made available in the libraries for the users to receive the required information in
time. All the libraries must be connected through LAN or WAN by which the resources can be shared among the users of various libraries. The young library professionals should be properly trained for handling computer in their day to day works. The librarians should acquire the skill to exploiting computers to the best of their advantage for increased productivity. The institutions should support the users by providing a document delivery service. There should be continuous communication and co-operation among the library and Information centers.

4.5 Proposed Model: Efforts of U.G.C.

This is a proof that the ETD archives and distributor services have evolved a successfully managed system. It to happen it requires a lot of stakeholders. As we know that India is a vast country and a large number of educational bodies grant the Ph.D.to a lot of people each year making it difficult to continue this repository system. A better service is needed in sustaining the services and infrastructure and funding the digitalization of e-thesis in the universities. The ETD repository should have four or more data banks to get the scholar present with the data. E-thesis should be valued and the candidate should be given participation objects either being the data provider or as an ordinary member. This repository lays/spread the idea of regulation presented by UGC in 2005. It was complaint that e-thesis should be used in each technical college at the national level. Now a day, the repositories are trying to maintain the zonal data banks in which the information would arrive from the best source of university. It would help in contributing data providing facility establishing the second participation option i.e. data provider.

4.5.1 Difficulties in ETD Repository Setting

In India participation of all stack holders for the successful management of ETD archives and distributions is a national repository can not be maintained and developed by a single agency because of a certain need of research centres awarding
of Ph. D degree. It needs a cost effective model which plays a key role in mainstay necessity in order to sustain the services and produce infrastructure for digitalizing thesis, which are now available in hard copy in universities and research institution. Thus it was felt to establish a national ETD repository with following networking – (1) four zonal data banks for providing data (2) A central agency as a service provider. This service will be on no profit basis. Every university will have the option as a centre of data provider or data service. UGC has passed a regulation in this regard in 2005 to establish a thesis repository and a central agency to work closely with other. But this program has long term preservation of E-Thesis and integration of management of ETD into the organization structure. The major issues of:

- Lack of expertise.
- Lack of support of professional and academic faculty.
- Lack of captainship control.
- Lack of funds.
- Lack of sounds infrastructure.
- Unawareness of access and security.
- Copyright problem.
- Intellectual property rights problem.

In University and research centres, libraries are the main centres of management and dissertations. There are copyright and licensing issues when technology applied for the repositories of them, ETD is a new program of thesis and discussions about colour diagram, images, hypertext links, animation needs and strong infrastructure. The question arises at which organization should be given responsibility for services i.e. INFLIBNET, VIDYANIDHI and INDNET. These can work as a zonal centres, ETD needs collaboration among the stakeholders.
There has always been an agency developing a National Union College of ETD or amalgamation of existing bibliographic database already in making by INFLIBNET, DELNET and other library network to avoid any duplication and maximizing access. There is a need of comprehensive database to be developed for providing guidance to researchers.

4.5.2 ETD SYSTEM;

It is a model format for main file. While developing ETD, it will need to convert files in different format to a unified format to preserve the contents and layouts of the original document. Though PPF format is popular and adopted in ETD systems particularly the text-based portion of thesis in PDFs, it retains the appearance of print version across platforms and browsers. MS access is the better format for audio files. Apple Quick time and MPEG Movie players can incorporate video clips.

4.5.3 Software to manage ETDs;

In a developing country like India there is a need of economical way to save digital content for future citizens by using variety of open source archiving, Copeland and Penmam has suggested suitable software for ETD system that can readily install a hardware, software and operating system. It shows how a user interfaces for administrator and author for this encouragement to submit content. The software should not support any file or file size.

(a) Interoperability: The software system must comply with the latest version of the ‘Open Archives Protocol for Metadata Harvesting’ (OAI-PMH), as well as satisfying individual institutional policies for integrating ETDs with other material in electronic repositories. This is an important to ensure that the system will import and export information from one system to another.

(b) Sustainability: Repositories are long-term commitments, and the institution should be confident that the software will offer continued support and development. This is especially important because much ETD, digital library, and institutional
repository software is relatively new and untested. As is common with much open source software, once a user community is established, the knowledge base can help ‘keep the ball rolling’, by offering support to new users.

The **Telex transmission** had become Unsophisticated with the evolution of sophisticated computer technology. Since then the computer has become, the key component of a communication system, allowing almost limitless capacity for information transfer, and facsimile transmission of actual documents, between any two points, processing relatively ordinary provisions, such as telephones, computer terminals, television screens and other ancillary equipment which is by no means expensive to purchase or difficult to maintain.

In today’s world, we are going through a veritable information explosion. Networks will help us greatly by increased accessibility and great economy. The University library networking is to aid resource sharing, for better utilization of resources within the limited budget and also for effective and efficient services. The accurate and speedy exchange of information across the globe has gained an immense importance in modern society. The need for information exchange, has taken us to the threshold of a new age that of information exchange through high speed data communication links.

Computer network is a large number of separate but interconnected autonomous computers for the exchange of information. The main goals of networks are resource sharing, high reliability, saving money and powerful communication medium.

### 4.5.4 BALANCING PRINT AND ELECTRONIC RESOURCES

In the pre World Wide Web environment, library collections consisted exclusively of items that could be counted, labeled, housed, and tracked. Materials that were difficult to inventory, such as realia, pamphlets, and brochures, were slow to be incorporated into our collections, only marginally included as unprocessed items,
or deemed to be out of collection scope. Particularly important materials in problematic formats were sometimes re-formatted or relegated to the special collections stacks where they could be given the required attention and oversight….Of course librarians acknowledge the increasing importance of, and reliance on, digital resources, but “a pragmatic view of the future of libraries” is one in which the collection is a hybrid, that is, a mix of analog and digital resources.

As much as e-resources dominate the global information environment, there is still a place for print and other physical media in libraries-not just in our archives and special collections that archive and preserve the historical or the unique but the books and magazines that people read daily.

Beyond the issue of energy infrastructure is also that of accessibility. For some reading on a computer screen is uncomfortable. E-book vendors have tried various readers and screens for reading with very limited success. Print on paper for extended reading will be a preference until technology can solve the problem of readability. The newest kindle does not do this.

Another issue of balancing print and e-resources is funding. How do you make a choice, or prioritize which formats will be favored? Does your energy infrastructure have a reliability problem? Can your library afford to collect multiple formats of the same titles/information sources? Are multiple formats even available?

Libraries can benefit economically in converting from print based to e-resource based processing. There are savings to be had in not processing print and using those resources instead to process e-resources. Temporarily duplicate processing will happen, but there is much in processing workflows that is just routine and not essential. “If the library community can establish regional or national strategies for the storage and long-term preservation of print collections, then individual libraries can confidently retire, or discard, their legacy print collections, especially those that are
available in digital formats, and ultimately move to repurpose high value campus space”.

4.5.5 **ELECTRONIC RESOURCE MANAGEMENT SYSTEMS (ERMS)**

Electronic Resource Management Systems (ERMS) are used “….to keep track of library’s digital titles, subscription and vendor/publisher information, and link resolution with more accuracy and less duplication.” ERMS are systems designed to manage the details involved in the acquisitions of e-resources, including subscription and licensing details, usage, cost, and access tracking and data gathering. In general, an ERMS is used for record keeping and budgeting activities, while CMS are used for access and authority control. In some respects, these functions can overlap. Several good standalone ERMS both commercial and open source are available and many ILS integrate some form of ERMS.

The status of ERMI was initiated to detail the functions that a good ERMS should have, including interoperability within ILS, data elements that an ERMS should be able to generate regarding the collection it is managing and specific items related to licensing agreements and interoperability with vendor acquisitions systems.

4.5.5.1 **Why Catalog E-Resources?**

Library catalog, books, videos, DVDs, mps, and a multiple of other information forms and artifacts in order to organize them so that the people who wish to read, consult, or view them can easily identify and retrieve these resources. E-resource cataloging studies have found that cataloging e-resource increases use and awareness of e-resources through the library (see, e.g., Skaggs 2006).

Adding or creating catalog records for e-resources in the library catalog accomplishes three important goals for libraries:

1. It establishes a uniform user interface for searching for Web-sites, books, serials, and other e-resources that the library owns or provides access to.
2. It encourages the use of high quality e-resources.

3. It encourages standards for Web resource quality and inters accessibility.

Libraries that have a policy of cataloging e-resources do not attempt to catalog every Web site but rather choose carefully which e-resources to catalog. The key question is, will cataloging a given e-resource add to library users’ access to the kinds of information they are looking for?

In general, e-resources to be cataloged are identified by a reference or technical services librarian or on occasion by students or faculty members. Some libraries have developed automatic cataloging of e-resources. Selecting librarians fill out a form and a perl script turns it into a basic catalog record.

The data entry field number 856 is used to add electronic access information; that is, the URL. When a library user retrieves a Web resources record, they may link directly to the site from the catalog, such as www.ohiolink.edu.

If a catalog record for the Web resources exists in OCLC, the decision may be made to download it to the catalog. If the e-resource will require original cataloging, catalogers look for the following criteria:

- Unique content-content that is clearly identifiable and can be adequately described through cataloging.
- Metadata information or other clearly identifiable bibliographic information that can be extracted to create a catalog record.
- Clearly and easily identified information provider or source.
- Information analogous to publisher that includes detailed attribution and valid contact information.
- Credible documentation that the e-resource content will be stable or continue for a foreseeable future.
Transitioning into the Digital Age begins with a historical tribute to the catalog and its original goals and purposes and transitions to the current issues for libraries to deal with in charging the catalog to newer more interoperable database options.

Cataloging e-resources does not necessarily mean that libraries will keep trying to make the MARC record work in ways it was not designed to work. Librarians may use a variety of other flexible and powerful database tools to catalog e-resources.

Developers are exploring many alternatives, including XML, as well as ways to make the MARC record work with Web resource metadata. In this section we will overview some of the issues related to cataloging e-resources with the MARC format as well as point to examples and resources of other metadata options. The literature on information seeking behavior of our users, including those using Google and other search engines has conducted some structured interviews. Her main findings and recommendations are that library catalogs as they currently exist are “long on problems and short on unique benefits for users” (9). Traditional cataloging is not cost-effectiveness and it does not integrate well into the global information infrastructure.
Calhoun proposed integrating catalogs with open Web discovery tools but uncovered obstacles to this idea mainly in the reluctance and resistance of library staff to implement the changes in workflow and bibliographic control that are necessary. Other obstacles are the money and cooperation needed for large-scale collaborations and copyright laws.

4.5.5.2 Document Delivery Centre:

The UGC (University Grants Commission) under the INFLIBNET programme selected this library as one of the six Document Delivery Centers in the country based on several parameters. Library is vested with the responsibility of providing Electronic Document delivery services to the scientists and researchers. With assistance from UGC under major research project, a Union List of holdings of 31 major libraries can be compiled. Under IDPAD project of ICSSR, holdings in the Social Science libraries in the twin cities were carried out and the project is handed over to the ICSSR.

4.6 DIGITAL INFORMATION

Emergence of powerful computers, access to electronic media, high-end scanners and OCR. Advance technology, audio-visual and multimedia technology has open new doors to deal with the collection and dissemination and information. It has become a global electronic village there have been digital resource self-service centre and librarians are information provider. The budget constraints have compelled the libraries from acquisition to accessing information centre. Thus libraries have started to give service of OPAC, CD-ROM, Online Database and Web resources and then erected a virtual library enviornment. The cost of digital library resources has been reduced in comparison with the print resources. Presently libraries have reached to the first stage of technological achievement. By achieving and making available the
printed publications in electronic format the libraries can start building a digital library apart from acquiring the material in digital format. This will help in building a technical infrastructure for the information society, which is depending largely on the print materials. The accessibility and ease of use can be improved substantially through the regulation of storage and access processes. When we have the possibilities for substantial enrichment of content, we should take advantage of the process.

In this digitally world, the transformation of information and communication technologies the Web and the Internet are auspiciously, surprising developments. The whole world is changing into a ‘Global Electronic Village’ by disappearing the constraints of time and space. The globalization of information has made the boundaries meaningless due to multinational and transnational companies. Thus the culture of ‘interactivity’ is growing.

The emerging virtual communities are expanding their use of a non-hierarchical, decentralized, interactive communication infrastructure that promotes self-reliance, critical thinking, and openness to diversify. Advances in communication and computing technologies in developing countries like in India, has put library and information professionals, in a better place to provide services.

In the present scenario, library and information professionals are feeling pressures for resource sharing and networking. This is mainly due to the forces of globalization and liberalization in developing countries like India. ICTs and high-speed networks have an immense potential to provide real-time access to vast amounts of networked information. Scholarly discussion lists, e-bulletin boards and Web-based conferences have given rise to new virtual communities that are engaged in a perpetual dialogue on various issues confronting us today. Thus, the Internet and Web enabled technologies provide a challengeable work for delivery of information speedily and economically.
4.6.1 **Databases:**

4.6.1.1 **CRIS INFAC Ind. Information:**

CRIS INFAC Industry Information Service presents a detailed and comprehensive analysis of the current trends and the long-term performance outlook on 41 industries in India. It includes the evolution of an industry, the regulatory environment, cost structures, nature and extent of competition, global trends along with statistical information on capacities, production, imports-exports, domestic and international prices, and consumption patterns. This information is updated on a regular basis.

4.6.1.2 **EBSCO Databases:**

EBESCO database has been a database of business world with a comprehensive index of business journals, magazines and other sources. This file contains indexing and abstracts for more than 3,800 business-related periodicals with coverage back to the 20th century. It also includes the research community’s foremost business thesaurus as well as searchable citations for more than 1,100 academic journals.

In addition, this database provides full-text for more than 3,000 periodicals, including nearly 1,000 full text peer-reviewed journals, the most found in any business database and a comprehensive archive available for the journals along with peer reviewed business articles in PDF prior to 1985. Post-1985 coverage is also unparalleled with current full text from leading journals in every area of business.

4.6.1.3 **Elsevier’s Science Direct:**

Science Direct is the web-based interface to the full-text database of Elsevier Science Journals and Academic Press (Ideal), one of the world’s largest providers of scientific, technical and medical (STM) literature. It offers bibliographic
databases and reference works. It offers more than 1500 scientific, technical and medical peer-reviewed journals, over 59 millions abstracts, over two million full text scientific journal articles, an expanding suite of bibliographic databases and linking to another one million full-text articles via CrossRef to other publishers’ platforms.

4.6.1.4 Emerald full-text

Emerald publishers the worlds widest arrange of management and library and information services journals, as well as a strong specialist range of engineering, applied science and technology journals. Our electronic databases allow instant access to the latest research and global thinking. Emerald established in 1967 by a group of senior academics formed MCB University Press, a publishing house that focused on niche management disciplines including strategy, change management, and international marketing.

4.6.1.5 IEEE / IEE Electronic Library Online (IEL)

The IEEE / IEE Electronic Library (IEL) covers almost one third of the world’s current electrical engineering and computer science literature, providing unparalleled access to publications from the Institute of Electrical and Electronics Engineers (IEEE) and the Institution of Electrical Engineers (IEE). The resource covers more than 950,000 documents from over 12,000 publications, including 120 journals, transactions, magazines, conference proceedings, IEEE Standards. More than 25,000 new pages are added per month. It provides access to more than two million full-page PDF images, including all original charts, graphs, diagrams, photographs, and illustrative material.

4.6.1.6 Indian Standards

The entire collection of 18,000 odd Indian Standards in included in this Databases. The database is updated once in two months / six months, as per
subscription order. The search engine allows you to identify, view and print Indian Standards by Standards Number, Standards Title, Text in the Scope of the Standards, and search-in-search (Nested search). You can also search for New and revised standards. Segments of Indian Standards are Civil Engineering, Chemical engineering, Electrochemical, Food and Agriculture, Electronics and Telecommunication, basic and Production Engineering, Medical Equipment and Hospital Planning, management and System, Mechanical Engineering, Petroleum, Coal and Related Products, Metallurgical Engineering, Water resources, Transport engineering and Textile.

4.6.1.7 Other Electronic Sources

a. **Insight:**

The J-Gate is an Internet Gateway and portal set up nearly two-years ago by Informatics (India) Ltd. It offers electronic journal literature. It provides seamless access to journals articles through database interface of 10,000 + e-journals. Currently J-Gate offers the following types of products/services:

- “Directory of e-Journals” that includes more than 10,000 journals listed with link to journal / publishers site.
- Table of Contents (TOC) for an equal number of journals.
- A comprehensive searchable database consisting of more than 10 Lakhs + articles added every year across all disciplines.
- More than 10,000 journals including 1200 + free journals and 22 Lakh articles across all subjects areas.
- Send e-mail to Authors requesting reprints of articles for journals not subscribed by your library.
- Locate a local library that has the journal.
- Search Database – By Author, Title abstract, Keywords, Author Address, and Broad Subject Categories.
b. **Nature:**

Nature is a flagship magazine of Nature Publishing Group (NPG). Launched in 1865, it is the world’s most popular weekly scientific journal. Genetics was the first Nature research journal.

c. **ASTP:**

Applied Science and Technology plus (ASTP) are a CD-ROM database (with access to the Web). The database provides indices and full abstracts to more than 556 key science and engineering titles, plus full-image of 160 titles. All titles are indexed from 1994 onward; the database is updated monthly. The resource is offered on Web with CD-ROM backup. While IITs and IISc have online access to ASTP, the NITs, SLIET, ISM, and NERIST get Web-based access as well as backup on CD-ROM.

d. **Springer Verlag’s Link:**

The Springer’s Link is the online e-books and e-journals service from Springer Verlag’s, one of the world’s leading scientific publishers. Key subject areas include: mathematics, Computer Science, Physics, Astronomy, Geosciences, Chemistry, Engineering and Medicine. The resources include over 400 current journals of the highest quality, as well as more than 20 block series. Currently over 3, 40,000 full text articles are available on Springer Link.

4.7 **Web of Science**

The ISI Web of Science provides access to information for all levels of academic, corporate, and government research. It offers a comprehensive, fully integrated platform that empowers researchers and accelerates discovery. It offers citations and cited reference searching. The ISI Web of Knowledge provides a single interface, enabling natural-language searches across multiple content sources: journal articles; proceeding papers.
References:

