CHAPTER - 4

DIGITAL RESOURCES

4.1 IMPORTANCE OF DIGITAL RESOURCES:

Library is an information centre and every change in library infrastructure, resources and services is a development. During 21\textsuperscript{st} century libraries have changed their working and operating skill by adopting new technologies. The recent change has been due to increase in information communication technology in library activities and developing online services available computer based information in digital form. The question arises what kind of new changes and activities have been developed. During last decade libraries have been applying more and more ICT in library tasks and activities in collection development and acquisition, classification, cataloguing the documents, reference service, library finance and communication.

Moreover, there has been a development in computer based information resources and in library services offered. They are mainly in the form of optical disc like CD-ROM/DVD and online through internet and World Wide Web. Therefore, library provides access to-

(i) Resources on optical disc on stand alone micro computers or through local area network,

(ii) Micro computer that can access information sources provided through networks and WWW. This is free of charge or on after payment of license fee to producers and distributions.

There is proliferation of resources and each library try to acquire more and more resources but due to limited funds, it is not possible. On the other hand, users access such resources which are their requirement. Deciding a resource to use and selecting the most suitable source is a challenge for users. Further, once the selection of resources made, the user interface offered by a retrieval system. It takes time to learn the skill before the resource is accessed in best way. There are many resources similar, but difficult to
identify their suitability. The library provides tools to assist the users. These efforts are continuous against decentralisation, disintegration and lack of interpretability of available information resources, service and system. Internet also offer a good proportion of sources, but how far they are useful or undesirable is a problem before the users. Many libraries have installed computer based filtering system which offers information services to users. There are many information which are not available free of charge and libraries have maintained a system for identification and authorisation of users in digital environment, digital information systems and information contents.

Current awareness service is provided by libraries to inform users about information sources with the help of internet as it saves the time of users. Information base is not simple to users particularly the potential users. ICT has made it easier, but still it is difficult and complicated with the advent of new resources and more complicated access methods.

Librarian’s role is important to be a guide to users. He can provide necessary assistance to users in managing the information sources. It is based on computer hardware and software. A website can be created on the basis of personal login and personal profile that is created and stored in computer in advance. There is a journal crisis and that is getting worse every year. Therefore, the librarian, users and the publishers are responsible to thought of it and solve the problem:

(i) There is short of skilled librarians,
(ii) Users are not well aware with the systems and the available resources,
(iii) Publishers/Vendors are charging fee for accessing their journals or publications.

Librarians have made efforts and contributing towards open access to scientific information. Moreover, librarians are digitalising the documents of more priority first and important for wider use. There are two imperative factors for libraries to build e-resource collection for their potential users. The products are stored in digital form, and the user community use tools that support sharing the resources. The advancement in technologies
have representing the digital information including visual manifested information. Cell phones, portable headphones are technological developments that support cyber infrastructure. These technologies have also developed search engines, content sharing and social environments like MySpace and Facebook. In fact digital libraries are based on integrated environment. It is the responsibility of digital library to collect digital products and make them accessible, i.e. the activities like selection, endorsement, organisation and cooperative efforts. Librarian play an important role of information intermediary to the web. Libraries are adapting to information needs and responding to information seeking behavior of their users.

There are general policies of selection of resources and these apply for e-resources. Librarians find it easy to navigate web through web browsers and editing HTML and CSS and applying current management systems. Web browsers installed on personal computers are access interfaces. Selection criteria have been based on collection development policies, evaluating the quality, determining the relevancy of resources to the information need of library users. E-resources may be free based or require subscription or licensing arrangement. Free based databases are web accessible. Web accessible versions resources and serials were previously available in print.

E-books and e-serials access is expensive, but acquiring version is more expensive. Free e-resources involve expenditure of (1) Staff time, (2) Staff training for identification, selection, evaluation, cataloguing and linkage process. The proliferation of internet access is done through web. All information resources are accessed through web. It is more important to see or decide the location of the library. Where a digital library should be, so that more information may be accessed by the user at least cost and least effort through internet or World Wide Web. Library should be located on a specific place in specific area. Digital library should be located at such area that digital library component should be added and accessible from everywhere at all times through internet and WWW. On the other hand, users should not be neglected the important informations stored in non-digital documents.

To solve this problem, library should be more user friendly and well equipped with digital components. Library staff and the librarian should also be more professional and
skill and may be able to face the challenges in more digital environment. He should have knowledge of new skills, background, attitude, expectations in comparison with traditional libraries, as digital components are more dynamic, unstable and trendy, which may cause:

(i) To adapt new methods and technology in new environment,
(ii) To learn permanently about digital components,
(iii) To meet the continuous change and evolution in new digital technologies.

The other concept is to whom the library serve. Who are the existing users? Who are potential clients? Users are their in every library. They change their interest and attitude. Hence, services are also rendered with changing trend and based on I.T. The ICT allow users to access information contents, services and systems through internet and WWW. I.T. allow the libraries at least partially to the need by establishing connectivity with authorisation, authentication to access the contents.

4.1.1 Digitalised Resources:

Digitalisation has become a crucial issue in the development of digital libraries. Majority of libraries have been digitalising their collection, policy design and technological problems. Data are collected and stored for further transition of information from internet to user. It is obvious that academic libraries access more resources and historical artifact/documents and also contribute to the preservation of material at large scope. University libraries are digitalising archives of newspapers, artifacts, historical documents and images.

Now it is important to convert information in digital format. No library can produce entire digital products as it is expensive and time consuming. In a digital library user work simultaneously with multiple distributed information resources that differs in content, form and source types.

There are three services the library serve in learning programme:

(i) Sharing the physical and human resources,
(ii) Libraries serve a cultural role in presenting and organising artifacts and ideas,
(iii) It serves social and intellectual roles by bringing together ideas and users.

Internet has been proved as a source of exchanging information in the global world. World Wide Web has been a most advanced browsing system and searching system deployed on internet. WWW enables an user to access hundreds of databases and make information available to the user community. CD-ROM databases are also available on LAN and WAN. National information system has a digitised capability to support computer communication facilities, i.e.

(i) Online access of subject databases,
(ii) Full-text journal’s articles,
(iii) Interactive access to CD-ROM databases,
(iv) Online catalogue of journals,
(v) End-users training.

4.1.2 Infrastructure:

There are two parts of usage of digital libraries, i.e. (i) Software and (ii) Hardware.

(i) **Hardware:**

(a) Minimum P-IV with multimedia configuration,

(b) Scanners: There are three types of scanners used in digital libraries,

(1) **Flatbed scanner:**

It has a glass plate onto which the source document is laid face down. The coupled device charged allow to convert analog to digital. It moves beneath the surface of glass and records the reflected lights as an array of pixels. These scanners are quick and less costly.
(2) **Sheetfed scanners:**

These are useful for loose leaf documents. This type of scanners has a remarkable speed, but expensive.

(3) **Drum scanners:**

In this scanner the source document is actually attached to a glass drum and expensive.

(4) **Slide and microfilm scanners:**

These scanners are measured in dot per inch. 300 dpi is minimum for textual material. 600 dpi is good quality resolution.

(c) Digital camera: It is useful in case of fragile and brittle items because these items cannot bear the pressure of flatbed scanners.

(d) Barcode printer is required to print the barcode levels,

(e) U.P.S.,

(f) LAN network for networking,

(g) Server.

(ii) **Software:**

It covers processing, capturing, delivering the image and capturing. LAN environment software should be preferred and also which should work in web OPAC. Ex. - LibSys, SLIM++, Minisis, SOUL and Librarian etc.

(a) It should be user friendly,

(b) Catalogue should be searched and browsed,

(c) It should made available complex search. It should help online,

(d) It can be upgraded with latest technology,

(e) Necessary changes may be made according to requirements.
(iii) **Digitised collection:**

The specificity of multimedia is that it contains not merely text but also images, sound. It can do indexing searching or be found through hypertext links. Hypermedia version of hypertext is a base of many contemporary databases. It made combination of words, images and sound increased for common information users. The textual data can be retrieved through a computer system and display on screen.

(iv) **Tools for digitised access to resources:**

There are many tools which help in accessing information resources-

(a) E-mail,
(b) Mailing list,
(c) Newsgroups,
(d) Bulletin Board,
(e) Webforms,
(f) Polling,
(g) Instant messaging,
(h) Chat,
(i) Conferencing,
(j) Internet telephony,
(k) Video conferencing,
(l) Virtual world.

(v) **Bulletin Board:**

When information is need in mainframe computer to provide information on a particular subject and sent to editor by e-mail or stored in Bulletin Board in some way, comparable. Bulletin Board may be subdivided in content page, index and provide facilities for searching and accessed through a network like e-mail. It is
updated continuously. Its access is efficient. Material can be downloaded for local storage for future reference.

(vi) **Conferencing:**

Conferencing may be chat conferencing. It is done online. It is a private form of communication and used immediately and can be saved for future reference or training purpose. Video conferencing is another tool of conferencing. It is not in common use but increasing. Desktop video conferencing is also being in use.

(vii) **Standards:**

ANSI, America developed Z39.50 standard and maintained by Library of congress. It was approved by ISO (International Organisation for Standardisation) for remote searching. The client computer then convert this search into Z39.50 complaint form and send it to host server. The server than convert it a form acceptable to the database and then the search is carried out.

(viii) **Metadata:**

It is an additional data added to any information source to manage it as in the property box of files.

(a) Metadata can be included as part of the resource,

(b) It can be separated as in a library catalogue,

(c) It is a specified form of cataloguing,

(d) It is done on grand scale.

Meta terminology differs as used in library. It is on the language of XML rather them database. The title, description are called elements in metadata. These elements are made refined as data created or data issued. Authors name is called a value under encoding schemes, which are based on list of controlled terms in a given format.
(ix) **Dublin Core metadata:**


All such case elements are accepted. The creators of resources will include a metadata description terms in header of HTML document using HTML, Metatag. Metadata play an important part in improving effective access to e-resources.

(x) **Online catalogue:**

OCLC database is a largest cataloguing method in the world. Records are held in the OCLC MARC format which is similar to LC MARC format. The database can be searched online and record can be downloaded.

### 4.1.3 Evaluation of E-Resources:

Electronic data can be updated easily and quickly than print version information. Databases are updated regularly. Web based resources and entire resources are updated frequently than CD-ROM or printed equivalents. The digitisation of hardware and software are costly.

By storing the files on computer in digital format are made easily at least cost. A digital library is capable to provide information on user’s desk or at home. Libraries have changed their activities and infrastructure. Majority of the libraries have OPAC and e-reference tools, i.e. CD-ROM. OPAC has been a tool to increase e-lending services.

### 4.1.4 Change in Scholarly Communication Process:

Scholars convey their learning and knowledge to each other through scholarly communication process. The process of scholarly communication denotes to ideas of
valuable raw material, turns into a digestible consumer product. Academicians convey their knowledge through the process and exchange ideas. This process is complex and involves various channels and participation of authors, publishers, librarians and others scholars, who participate in direct and indirect communication.

There are few challenges before scholarly communication process:

(i) Increase in publication cost,
(ii) There is rapid increase and diversity of serials and monographs,
(iii) Increase in users and variety of information,
(iv) Diversification in location and also geographical location,
(v) Surrender of copyright,
(vi) Organising scientific literature by means of cataloging, classification, indexing, archiving, arranging and access activities.

In pure sciences, journals have inverse importance and constitute a central point of scholarly communication process, which contribute to scientific research and inviting comments, criticism, testing, replication and rejection.
4.2 VIRTUAL REFERENCE RESOURCES:

Internet is a good source of ready reference. There are online dictionaries, encyclopedias, thesauri, glossaries are available for ready reference. All such reference sources are compiled by libraries and made available to researchers. These reference resources help in solving the queries of researchers.

Research conduct researchers and prepare research reports, i.e.

(i) Meaning of particular word,
(ii) Meaning of abbreviations and their expansion,
(iii) Synonyms or antonyms.

Reference resources are properly evaluated in quality and relevance sequence.

There are other valuable reference resources:

(i) Patents,
(ii) Standards,
(iii) Online databases,
(iv) Current events,
(v) Conference proceedings,
(vi) Translation websites,
(vii) Online interactive education websites,
(viii) Online full length documents available on internet,
(ix) E-journals,
(x) CD-ROM’s/DVD,
(xi) In-house bibliographies,
(xii) E-news clippings,
(xiii) Referral service databases,
(xiv) E-reports and E-patents,
(xv) OPAC.
4.2.1 **Physical Digital Collection:**

(i) E-books,
(ii) E-collection,
(a) E-publication,
(b) E-reports,
(iii) E-journals,
(iv) OPAC,
(v) In-house bibliographic databases,
(vi) CD-ROM’s,
(vii) Other digitalised documents.

4.2.2 **Virtual Digital Collection:**

(i) E-journals,
(ii) E-periodicals,
(iii) E-newspapers,
(iv) Reference collection,
(v) Subject resources.

4.3 **CD-ROM (Compact Disc Read Only Memory)**

CD-ROM technology came in mid 1980, but become popular in 1990. CD-ROM format has been very useful for reference material or reference tools and useful to large number of users. This technology require initial investment which may be high but at later stage it become cost-effective. This technology offers unlimited access facility to all users at no extra charge. CD-ROM can be put to work with PC with the help of CD-ROM drive. It can also run by LAN (Local Area Network).

All University libraries and the special libraries have initiated the process of acquiring CD-ROM’s. CD-ROM databases are being accepted as a popular media in libraries. These databases have been created by several publishers. It need a specific selection criteria and extra care.
There are many factors which help in evaluating CD-ROM's:

(i) Ease of installation,
(ii) Reasonable price,
(iii) Good technical report,
(iv) License restrictions,
(v) Reputation of publishers,
(vi) Database contents,
(vii) Database coverage,
(viii) Amount of databases,
(ix) Currency of databases,
(x) Frequency of update,
(xi) Technical quality,
(xii) User support,
(xiii) Type of data,
(xiv) Appropriateness of data,
(xv) Richness of contents,
(xvi) Specialty of contents,
(xvii) Convenience of access to data,
(xviii) Useful life of product,
(xix) User interface,
(xx) Standardisation,
(xxi) Cost,
(xxii) System requirements.

4.4 INTERNET RESOURCES:

Internet is a network of networks. It has given unexpected vistas for information seekers during last decade. Internet has been widely spread in the whole sphere of human life and become popular and commercial means of communication across all geographical boundaries. It help in accessing information anywhere, anytime and by a large number of social community, organisations, academic institutions.
Internet is a key information tool. There is vast amount of information collected on internet and the World Wide Web. There is large amount of journals and other information sources available on internet. There have been many criteria’s for print resources.

However, the e-resources require a more serious criteria of evaluation, i.e.

(i) Credibility of quality and contents,
(ii) Sources covered,
(iii) Comprehensiveness and completeness of resources,
(iv) Relevancy of information,
(v) Ease of use,
(vi) Reliability of resources,
(vii) Stability of resources,
(viii) Cost of resources,
(ix) Copyright,
(x) Hardware,
(xi) Software.

Internet contains quality of information without any editorial check. There are large number of websites, which cannot be listed, which addresses to access them directly. To access information, large number of sites are traced on internet. There have been many irrelevant informations on internet, but information is not always useless. These may be useless today, but useful by tomorrow. Internet is a dynamic source, but many sites disappear automatically without any notice or warning. The other problem is the large number of users to use internet and create traffic congestion and delay in obtaining access to it.

4.4.1 Websites:

Website is composed of web documents, which is a electronic record collected through catching or archiving. It is centrally owned and Universally accessible on internet. But nobody can justified its quality as it is changed frequently or at a certain period.
Moreover, it is also difficult to know the nature of website as which website to access and what kind of information.

In fact, to find a particular information a user search or access many websites to find relevant information through internet. The user has to go or search the internet on bulk of sites to identify the most relevant site available on one aspect or subject. There are few criteria’s which can be followed to search relevant information. It is difficult to evaluate websites as they developed speedily, change speedily. It depend on data also but difficult to evaluate the quality of data and reliability of databases so far their terms of design, contents and accessibility is concerned.

There are few criteria’s of a good site:

(i) Authority of parent body,
(ii) Purpose and scope,
(iii) Accuracy,
(iv) Accessibility,
(v) Convenience,
(vi) Arrangement,
(vii) Timeliness,
(viii) Currency,
(ix) Archiving,
(x) Licensing,
(xi) Cost.

4.5 OPEN SOURCE SOFTWARE’S:

Digital library is centre which facilitate creation, organising, and managing multimedia digital contents. It also provide search retrieval and other services over computer network and other electronic media. There are fast development in digital technologies which have effected the way of accessing and interacting with information. It has also put the libraries beyond physical boundaries. Digital libraries have potential to empower users to conceive, assemble, build and disseminate new information collection. It also match the users work pattern by understanding the libraries, their systems and relation with library
tools. Digital libraries are capable to access, sharing and preserving digital document collections. These libraries also accumulate locally produced collection of information and build a repository of scholarly publications.

Open Source software’s were initially created in 1960. In 1983 free software foundation was established by Richard Stallman and the term ‘Open Source’ was introduced in 1998. Recently Novell acquired Suse Linux as Open Source. Linux and Open Sources linked Open Source market.

The term ‘Open Source’ is defined as:

(i) The software which can be freely distributed,
(ii) It should have a source code,
(iii) It has derived works and modifications may be made,
(iv) The license is not specific to products.

‘Open Source Softwares’ was a source code along with software with free of charge. It guide the user about the changing instructions of software, change of behavior, functions etc. It allow liberty to make any change and amendment in the software project. This software is run on internet. Its websites carry much information like discussions, documentation, bug databases etc. Every user has liberty to make changes in software, and the user code contribute to changes and back to the project. This code will maintain the software and avoid problems at the time of upgrading the software.

Digital library needs digital software. Commercial software’s available in market are too costly and beyond the reach of most libraries, being high installation cost and annual maintenance cost or updating cost. Its remedy is Open Source Software. Open Source Software’s have opened the doors of libraries to create and share information through digital library collection. It is economical and cost saving.

There are three main Open Source Software’s:

(i) DSpace,
(ii) Greenstone,
(iii) EPrints.
‘DSpace’ has been developed by Massachusetts Institute of Technology (MIT) and Hewlett-Packard (HP) as digital repository to maintain intellectual output of interdisciplinary research.

This software support:

(i) Digital preservation,
(ii) Planning and managing institutional repositories,
(iii) Allow workflow,
(iv) Allow customisation,
(v) It support community based content.

‘Greenstone’ Open Source Software work for building and distribution digital library collection. It has been developed by New Zealand Digital Library Project of University of Waikato and developed and circulated in collaboration with UNESCO and Human Info NGO.

It can handle:

(i) Multilingual documents,
(ii) Search facilities,
(iii) Browsing facilities.

‘EPrints’ Open Source Software has been developed by University of Southampton. It used minimum expertise. It can be installed by any library in the world.

It can:

(i) Integrate advance research,
(ii) Extend metadata,
(iii) Allow customisation to local requirements.
Specific features are as under:

(a) **DSpace:**

Free
Operating system : UNIX, LINUX, Windows
Web server : Apache and Tomcat
Language : Java and JSP
Database : PostgreSQL
Resource identifier : CNRI handles
Dublin Core : Qualified Dublin Core
METS : Yes
OAI-PMH : Yes
Subscription : Yes
Support file formats : Doc, pdf, html, ppt, jpeg, gif, audio, video etc.
License : GNU
Associated software’s : Java, Apache, PostgreSQL or Oracle
Emblem : ![DSpace Emblem](image)

(b) **Greenstone:**

Free
Operating system : UNIX, Windows
Web server : Apache and IIS
Language : C++, Java and Perl
Database : Its own Database
Resource identifier : No
Dublin Core : Dublin Core
METS : No
OAI-PMH : No
Subscription : No
Support file formats : Doc, pdf, html, jpeg, gif, postscript etc.
License : BSD
4.5.1 Information Sources over Web:

The web has increased the complexity and gradually transformed from an online publication media to a platform for carrying out complex tasks, i.e. sorting, learning, communication and collaboration.

The following sources are available on web:

(i) E-books,
(ii) E-journals,
(iii) E-discussion list,
(iv) Usenet news,
(v) Data and software archives,
(vi) E-mail based information sources,
(vii) Campus wide information system,
(viii) Web OPAC,
(ix) Online databases,
(x) Guide to information sources,
(xi) Search engines,
(xii) Subject gateways,
(xiii) Web Directories,
(xiv) Online chatting,
(xv) Customer service information,
(xvi) Organisations Directories,
(xvii) Bulletin Board informations,
(xviii) Full-text of documents,
(xix) Portals,
(xx) FAQs (Frequently asked questions).

4.5.2 Barriers in using Web Resources:

There are few problems faced while using web resources:

(i) Some web resources are very costly, which are hardly used by users,
(ii) Resources are difficult to adapt to the needs of the users,
(iii) Trust on contents on published web resources,
(iv) No standardisation of format of resources,
(v) Connectivity problem with internet,
(vi) Limited access to internet,
(vii) Printing problems,
(viii) Computer hardware problems,
(ix) Computer software problems,
(x) Lack of support of management,
(xi) Lack of funds.
4.6 **TYPE OF RESOURCES:**

(1) Static e-resources: Fixed information which never change,

(2) Dynamic e-resources: Fixed information but changeable,

(3) Living resources: Server and client based information resources,

(4) Subscribed electronic information resources,

(5) Free electronic information resources:
   (a) Open access journals/Free journals,
   (b) Institutional repositories,
   (c) Individual websites,
   (d) Individual blogs,
   (e) Discussion forum.

(6) Offline resources:
   (a) CD-ROM,
   (b) DVD,
   (c) Audio-Visual.

(7) Online resources:
   (a) e-books,
   (b) e-journals,
   (c) e-Thesis,
   (d) e-dictionary,
   (e) e-directories,
   (f) e-handbooks,
   (g) e-newspapers,
   (h) e-encyclopedia,
   (i) Webring,
   (j) Network databases,
   (k) Library websites FAQs,
   (l) Web OPAC,
   (m) Digital archives,
   (n) Bulletin Board,
   (o) Virtual conferences.
4.6.1 **E-Journals:**

E-Journals have changed the environment of scholarly communication and the behavior of users. The library users are increasingly demand for e-journals round the clock and their easy access. User’s access full-text articles and abstract from all fields of sciences. Most of the e-journal articles are available immediately after peer review and before the print version are issued. They gain online access to multimedia features not available in print journals, such as video, audio and spreadsheet files.

The main features of e-journals value-added services are as under:

(i) Early availability of articles before hand,
(ii) Full-text in both HTML and PDF format,
(iii) Abstract of articles,
(iv) E-mail alerting service.

There is a increasing trend of using e-journals and more foreseeable future. Many libraries are practicing of maintaining parallel print and electronic version of journals. It is being unsustainable and also unhappy with deals, which prohibit print cancellation.

E-journals are preferred because of:

(i) Convenience (24x7 access),
(ii) Space consideration,
(iii) Improved access to a greater number of titles leading to increased fulfillment of needs and expectations.

**The majority views about e-journals are:**

(i) Print format require more space, while networks, computer hardware and software and system staff are required to provide access to e-journals.
(ii) E-journals need no more space or accommodation, while print format require more accommodations.

(iii) There has been decrease in photocopy by 60%, since e-journals were introduced.

(iv) E-journals are no longer need any shelving.

(v) The reservation of reserve material has been reduced.

(vi) ILL services have been decreased.

(vii) Information readily available at all time and simultaneously used by many.

(viii) Articles can be put on web as soon as they are ready.

(ix) The searching capability saves time and cost of users.

(x) Entire archives are available on desktop computer.

(xi) Articles can be updated by using animation, virtual reality and interactive mathematical chart.

(xii) There is flexibility in e-journals, while this quality does not exist in print version.

(xiii) Journals generally do not data back as far as their print counter parts.

(xiv) E-journals are accessible to all users regard less of geographical location. Anyone can browse services for access online.

(xv) E-journals posted to the web are fully interactive and hence potential increase in collaboration between author and reader increases.

(xvi) Online journals may be disseminated from production to distribution.

(xvii) E-journals are greatly scholarly facilitation because of ready and quick access.

(xviii) E-journals contents proliferation of paper.

4.6.1.1 Pricing Factor:

There were only few peer review journals, but online journals are growing dramatically. By 2008 the e-journals were more in number than print journals. Due to inflation there is a rapid price rise of journals each year due to currency exchange rates, increase in page numbers, volumes, postage charges, handling cost etc. The cost of publishing of e-journals can be divided in five categories:
(i) Building and management of e-journals,
(ii) Computer and network facilities,
(iii) Editing, training and marketing,
(iv) Creation of material cost i.e. authors, editors, and reviewers,
(v) User cost like P.C., printer and internet connectivity.

The e-journal package create more problem of budget. There are few journals that are not more demanded but subscribed. On the other hand, many more demanding e-journals are most costly and create budget problem.

1.6.1.2 Librarian’s Initiative:

Consortia is a useful source of subscribing journals. Many libraries join hands and give their order to seek more discount. Many large libraries has established their information repositories and digitising their resources. SPARC (Scholarly Publishing and Academic Resources Coalition) programme involves authors, publishers and librarians. It support lower cost, direct compatibility to high prices e-journals.

1.6.1.3 Demerits with e-Journals:

There are few demerits with e-journals:

(i) Poorly referred e-journals are not always referred.
(ii) Access problems are increasing in gaining speedy access to e-journals because of poor bandwidth and communication link.
(iii) They required special reading equipment, unless there is also printing version.
(iv) Every publisher have his own password and this different create problem.
(v) Illegibility is doubtful as many journals are scanned.
(vi) In many cases the type face is so small it create problem in reading.
(vii) It needs basic computer literacy while accessing e-journals.
(viii) It consumes more time to access and also proved costly.
(ix) It has been experienced that e-journals are less accessed than consulting the printed journals.
(x) There is much plagiarism found in e-journals. Moreover, user can change it, easily edit the plagiarism, copy the entire document.
(xi) There are variation in quality among e-journals articles has caused less usability and acceptance of merit of articles published.
(xii) It find difficulty in reading on computer screen.
(xiii) Many of the journals are often not included in indexing and abstracting services.
(xiv) It may have archival problems.
(xv) Many a time’s websites are changed and change their URL or disappear together.
(xvi) It is difficult to establish a source and authority of material in general.
(xvii) Many a time search engines ignore PDF file.

Therefore, it needs proper guidance to users about specific features of the e-resources. Users should also be informed about usage terms and conditions of fair and legal use. It is also necessary to educate user about function and strategies of e-resources to increase effectiveness. There are many University libraries who have developed their institutional repositories for e-journals and other scholarly contents. Libraries should establish a permanent archive for journals, articles based on citation.

4.6.2 Online Databases:

University libraries generally provided access to web accessible resource, online databases and information retrieval. The initial stage of access databases was the full-text databases accessed with the help of many search engines. There were few databases before 1990, but this number increased during last decade. The change situation has created many problems like listing them on manual, maintained web pages and become unmanageable. Delhi University library system has moved from static web searched by
different research scholars on online databases and web search engines. The researchers choose two types of search engines, Yahoo and Google. Dialog was also chosen to represent one comprehensive and online database system. Google was their first choice.

There were three elements were identified:

(i) System performance,
(ii) Interface design,
(iii) Content coverage.

It was very difficult to claim which type of online information retrieval system had higher precision. Google was found more popular. Dialog offered low precision.

4.6.3 Local Collection:

Information is a vital element for an institution. There have been so much information proliferation through seminar/conference proceedings, committee reports, exhibitions conducted by various departments. Reports of Alumni Association, Parent-teacher meetings, Students grievances, Placement cell activities, History of academic excellence, Anti-ragging committee, University development council meetings. All such information, if digitalised may be very useful to academic community.

We may categorise local collection as under:

(i) Committee meetings and minutes,
(ii) Conference presentation,
(iii) Course contents,
(iv) Department workshops organised,
(v) Ph.D. Thesis,
(vi) Drawings and display style,
(vii) Faculty agenda and minutes,
(viii) Alumni association meetings,
(ix) Library committee meeting proceedings,
(x) Local maps,
(xi) P. G. dissertations,
(xii) Local newspaper clipping,
(xiii) Interview minutes,
(xiv) Students papers,
(xv) Video recordings,
(xvi) Working papers,
(xvii) Anti-ragging committee meetings,
(xviii) Placement cell activities,
(xix) Parent-teacher meetings,
(xx) Student’s grievances.

4.6.4 E-resources and Academic Community:

Every library has connectivity with internet resources to provide service to its users. The library is an integral part of academic institution of higher learning. There are two major factors which makes the maximum use of machine readable resources. The users of academic library require resources relating to his studies and class assignment and that in time frame.

E-resources is an electronic product. It also refer to full-text databases, e-journals, images, collection, CD-ROM and WWW. Today libraries face changes and sustaining traditional role. E-resources are evaluated on the basis of their quality and reliability. Books and journals undergo some type of selection process to acquire in library. But in case of e-books and journals, users are required to know the computer knowledge and need less evaluation than print sources. It is possible to find reliability, reputation on internet.

4.7 PRINT Vs E-RESOURCES:

User always in need of uptodate and current information particularly in sciences. The credentials of author should be judged. Information may be choose from reliable source and from a scholarly journals.
On the other hand there are few evaluative directions:

(i) The author of the page or website,
(ii) Site of institution is not bias to information,
(iii) Whether site source is credible,
(iv) Effective design of site and graphic inter phase with sites readability. Site should be easy to navigate,
(v) Audience of information, whether general or specific.

There is transformation of knowledge from information to knowledge and knowledge into information. Information is a knowledge which is made visible and accessible through the process of transformation. Information products are information resources and developed to assist in transformation. The information contents may be stored in a variety of formats including print, audio, video graphics and images. The information products may be stored in Meta-containers, i.e. websites. Internet store additional information products.

Digital library is not a replacement for physical library. Digital products cannot replace print format completely. What e-resources can do as information provider, print resources cannot do because of variety of specification qualities of e-resources, i.e. quick and easy access, current information and without geographical boundaries. The creation of library collection is a cycle and assessed by information need. It needs an information audit to help identity the resources and currently used information resources.

The library collection should not consider information need, but also anticipated information need. Information product may be born analog or born digital and thus they may or may not require conversion before being included in digital objects in digital library collection. The information products may originate within the organisation or may be purchased or subscribed or licensed from outside publishers or vendors. Internal information products may be document traditionally, but selected specifically for a particular purpose in a customised collection. The internal resources may be supplemented by external resources i.e. commercial databases and periodical index.
The important benefit of e-resources is its quality and accessibility at anytime and anywhere via electronic communication.

Digital format offers convenience of storage and maintenance, cost effectiveness, ability to benefit the global users. A large number of web based course ware and teaching aids are being developed to facilitate flexible open learning by Universities and adopted such course material for their curricula. Libraries provide such course material to the learners and teachers and thus contribute to open learning. This is done by providing link to the course ware sites through subject gateways or provides local access after downloading the material.

4.7.1 Subject Gateways:

It is one of the important way to search quality resources in a particular subject area in use of subject based internet gateways and directories. It allow easier access to web based resources in a specific subject area. It is basically a dynamic catalogue of predominantly online resources. Some libraries include print resources also.

Generally, access to subject gateway is provided through library website. It is designed to help users in search of a high quality information on internet; quickly and effectively. A simple subject gateway list web based and print resources both with link to library websites. There have been many important gateways to access web based resources and also print based resources.

(i) Physical Sciences Information Gateway (PSIgate),
(ii) BIOME,
(iii) BioWeb,
(iv) Social Science Information Gateway (SOSIG),
(v) Google Directory of Social Sciences,
(vi) Artifact,
(vii) Humbul Humanities Hub,
(viii) Humanities and Social Sciences Online,
(ix) Google Directory of Arts and Humanities.
Collection Development

I\textsuperscript{st} stage : Selection, review, respondent to request.
II\textsuperscript{nd} stage : Maintenance, assess, replace, remove.
III\textsuperscript{rd} stage : Purchase.
IV\textsuperscript{th} stage : Catalogue and process.
V\textsuperscript{th} stage : Circulation/Access.

4.7.2 Digital Acquisition:

Collection development depends on the understanding of strength and weaknesses of collection, availability of shared resources and information need of community. Virtual library has both considerations. First it is a dynamic collection and secondly it has a hybrid collection which is a both virtual and physical collection. The collection building and its effective policy can meet the immediate needs of users, by selection, sharing, archiving and facilities of accessing intellectual contents.

Intellectual contents includes indexing, abstracting and full-text databases i.e. e- journals and e-books and also free internet sites. Generally, vendors select full-text articles contained in resources. There are few multidisciplinary databases which offers integrated access to multiple resources by discipline. Libraries make separate budget provision for e-resources. An special fund is considered for acquisition of electronic material. Sometimes it is very difficult to evaluate e-resources in large libraries by a single person or expert and as such a team of experts perform this task. A selection policy is also framed for evaluating complexity of identification, selection procedures and background information.

It includes prerequisites:

(i) Need of type of resources,
(ii) Replacement issue of indexing and abstracting journals,
(iii) Licensing of full-text databases or journals available online,
(iv) The formats, multimedia or numeral are determined,
(v) Time and energy of staff used,
(vi) Budget provision,
(vii) Actual work flow process.

There are many factors which judged the quality of digital contents, i.e.

(i) Authority of resource,
(ii) Comprehensiveness,
(iii) Completeness,
(iv) Currency,
(v) Accuracy,
(vi) Clarity,
(vii) Uniqueness,
(viii) In case of print version, it needs to determine whether contents in e-version are available which are in print version,
(ix) If graphics are included in electronic version, whether it has clarity and consistency,
(x) While selecting or acquiring a database, it should be ensured that access to all titles and articles.

There are many other issues which require attention:

(i) Cost of acquiring and maintaining a resource and its reflect on value and integrity, while applying sustainability.
(ii) During trail of e-resources, their usability, ease of use, graphic designs and navigability should be considered.
(iii) Usage statistics should be determine as it offers a quantitative method of evaluating the use of e-resources.
(iv) Access is critical component. It needs proper attention to surrounding access, copying restrictions and authenticity affiliated to network and remote users. Other considerations are print, download, e-mail of content and cut and paste from the resource.
(v) Quality of cataloguing record, its descriptive system and descriptive metadata like purchasing a book without title page, table of contents or index.

(vi) Providing performance level of e-resource by vendors, i.e. performance level, response time, server down time and disconnection. There should be a trial of product for identifying technical problems.

4.7.3 Features of Electronic Resources:

There are many valuable features found in electronic resources, which are not found in print version:

(i) Full-text searching,

(ii) Direct linking with text or image of one document or resource to the text or image of the other document,

(iii) Organise and display search results allowing users to customise the display,

(iv) Allow value-added services to users through internet, i.e.

(a) CAS,

(b) Continuous revision,

(c) E-mail list,

(d) Option for creating personal profile online.