Chapter 4

MANAGEMENT AND USAGE OF E-RESOURCES: A CONCEPTUAL FRAMEWORK

4.1 INTRODUCTION

The communication of information had begun with the beginning of human civilization, however its modes have been changing from times to time. During ancient days, people recorded their experiences in the form of inscriptions and later in manuscripts. The invention of printing press, invented by Gutenberg, had revolutionized the ways of written communications by publishing in printed form. In the current twenty first century, the communication modes have again taken the turn and converted into digital modes. The century is, therefore, termed as digital era where information are being collected, stored, shared, retrieved and disseminated in electronic forms via Internet. Information and Communication Technology (ICT) including Internet technology have made revolutionary changes in human life by facilitating easy communication and easy access to information located virtually anywhere in the world. The traditional libraries are now being replaced by digital libraries/virtual libraries/e-libraries/subject gateways/e-print archives/digital
repositories, which have now been recognized as excellent sources of useful information.

The potentialities of ICT have been forcing all the organizations engaged in manufacturing as well as services, to essentially adopt to this modern way of communication. Libraries have always been the pioneering institutions in implementing the innovative ideas and related technologies to render better services to their users, as such these libraries are now being automated and their collections are being digitized at faster rate in order to maintain reposition towards a sustainable future. The information resources available in modern libraries are in electronic form, which are known as electronic resources or simply e-resources.

Information in electronic form has become an essential need of the modern information society. All the activities in the field of education, research, industry, entertainment, etc. now have direct involvement in digitization. The recent innovative advances in IT such as telecommunication, software development, access to information databases are transforming many of the traditional library procedures, practices and functions. These technologies have insisted librarians to shift their focus from traditional procedures to modern exhaustive accesses to literature available in databases and on-line systems. In this emerging process of digitization, printed materials are being transformed to electronic form and the new category of resources, so created is termed as e-resources.
4.2 IMPORTANCE OF E-RESOURCES

Libraries are committed to provide knowledge based quality services to its users. In the modern digital era, the advent of Information and Communication Technologies (ICTs) has drastically transformed the ways for collection, processing, storage, retrieval and communication of information. Particularly, the Internet has completely transformed the traditional methods of processing information from storing to communication. It has insisted academic libraries to replace the traditional library services with the IT based innovative library services. These advanced services use information in electronic form. It has created the need of digitization and acquiring, storing, disseminating and retrieval of information in the same digitized form.

E-resources have now become an important component of modern libraries, which are being used in various activities of the library and information science like library automation, library management, library and information network, information repackaging and dissemination. In e-resource generation and process, ICT is deeply involved in the activities such as scanning, imaging, storing, processing, retrieving and transmitting the information.

In modern libraries, the need of e-resources is realized as the library budget for acquisition of documents are shrinking, users and resources have increased manifolds, and the users expect quick and easy access to information. E-resources have the following better features over print resources:
(a) **Easy to handle information explosion**

The exponential growth of information as well as subsequent increase in publications can be managed successfully through e-resources.

(b) **Easy to manage users’ explosion**

E-resources facilitate use of resources by several users simultaneously. As such, these resources can manage the huge and multi-dimensional demand of information easily.

(c) **Faster access to information**

Information in digital form can be accessed speedily by users, distributed over local, regional, national and international levels as well as all varied time zones. These resources provide both direct as well as in direct access through intermediaries. Unlike printed documents, in campus or LAN environment, access and dissemination of information is instantaneous.

(d) **Low maintenance cost**

E-resources can be accommodated in very little physical space as such these require very low maintenance cost as compared to traditional resources.

(e) **Minimum storage space**

E-resources can be stored in very little physical space as compared to traditional paper based resources.
(f) **Better quality of information**

E-resources facilitate copying of the original documents in a number of times without any degradation in quality thereof.

4.3 **E-RESOURCES: A SMART WAY OF LEARNING**

The libraries have supported multiple formats of documents for decades, from paper and microforms to audiovisual tapes and CDs. However, the newest media, electronic-resources have now been considered by the academic society as the best way to access, store, share, disseminate and preserve the information. The attractive features of information in digital form have insisted these libraries also to adopt the modern technology and automate the library services accordingly.

The Internet and the universal adoption of the World Wide Web have enabled the distribution of scholarly information and research outputs faster, conveniently and more extensively. The publishing sector is also shifting to publishing online, making its impact all over the world, academic libraries being no exception. E-resources are, therefore, being considered future resources for the patrons of the academic libraries.

4.3.1 **E-resources: The Definitions**

E-resources refer to those documents that are available in electronic format and can be accessed, stored, shared, disseminated and preserved with the use of computers and other information technologies. All the collections of the library materials available in the form of e-books, e-journals, CD-ROMs, bibliographic databases, and other web-based resources are all electronic resources. According to
International Federation of Library Associations and Institutions (IFLA),\(^1\) e-resources are ‘those materials that require computer access, whether through a personal computer, mainframe, or handheld mobile device, and may either be accessed remotely via the Internet or locally.’

Arora\(^2\) defines e-resources as resources in electronic format or computer-processible format that provide information or an indicator to the information and are generally accessible over the internet or stored on media like CD-ROM/DVD-ROM or other electronic storage devices.

The American Library Association in its Glossary of library and information science\(^3\) defines e-resource as: ‘e-resource is the application of computers and other technologies to acquisition, organization, storage, retrieval and dissemination of information’.

E-resources as defined in Anglo American Cataloguing Rules, 2\(^{nd}\) edition\(^4\) are those material consisting of data and/or computer program(s) encoded for reading and manipulation by a computer with the use of a peripheral device directly connected to the computer or remotely via a network such as the Internet. This also includes software applications, electronic texts, bibliographic databases, etc.

According to the International Standard Bibliographic Description for Electronic Resources \{ISBD(ER)\}\(^5\), e-resources are those materials which are codified for the computer elaboration, including materials which require use of a peripheral.
In a research article, Bajpai has defined electronic resources as ‘those electronic products which require computer access or use of any electronic product that provides access to a collection of data, be it a full text base or electronic journal and image collections, other multi-media products and numerical, graphical or time based as a commercially available title that has been published with an aim to being marketed.’

4.3.2 Kinds of E-resources

E-resources are now available in several forms. Some of the important forms are as follows:

(a) E-books – Electronic media equivalent to printed books are known as e-books. These can be accessed on-line all the time in full-text version, with the use of computer and internet together. E-books are also available as CD-ROM and can be purchased like printed books, which make their circulation very convenient. On ordering e-books, no handling charges are involved except one time cost and it is delivered instantly without delay via e-mail on user's computer directly from the provider.

E-books, in addition, have the following advantages over printed books:

(i) E-books can be carried easily in pen-drive, CD-ROM, etc.,

(ii) Text size of e-books can be modified whenever requirement arises,

(iii) Instant delivery of e-books is possible through Internet, and
(iv) E-book saves paper, printing and packaging cost, etc. hence lot of money and efforts are saved.

Now-a-days, e-books are provided in the following three formats:

(i) Plain text- Plain text e-book requires no specific software by the reader. Such e-books are readable on any type of computer having any operating system capable of reading text files.

(ii) HTML- such e-books can be read with already installed browser on the computer.

(iii) PDF (Portable Document Format)- E-books in PDF format are readable on windows computers having adobe reader software, and have worldwide electronic distribution. E-books in this format are compact and amenable to be shared, viewed, navigated and printed, as and when permitted by concerned publishers.

Among free e-book websites, some of the important websites are

- Good read books- www.goodreads.com/ebooks,
- Open culture books- www.openculture.com/, and
- Free ebooks- www.free-ebooks.net

(b) E-journals- Electronic media equivalent of printed magazines or journals accessible through electronic transmission are known as e-journals. These are provided online by the publishers to the subscribers directly. The publishers provide the facility to search specific article by using key-words, name of writers or title of the article, while browsing through their volumes. E-journals permit full-text accessibility on-
line as digital version of any print journal, which can be accessed via internet. So these serve as a faster source of information for the user worldwide within shortest possible time slot. Some of the well-known publishers that provide online –e-journals are

- American Physical Society www.aps.org/
- Taylor and Francis www.tandf.co.uk/journals/
- Cambridge University Press www.journals.cambridge.org/

(c) **Electronic Theses and Dissertations (ETDs)**- All the theses and dissertations produced at universities are important sources of information and knowledge for further research. A large number of universities have converted their theses and dissertations collection into digital form and have made it available on Internet for global access.

In India, as per the latest guideline of the University Grant Commissions, it is compulsory to submit digital copy of the theses while submitting the physical form to the respective university for the award of Ph.D. degree. A number of universities have also implemented Electronic Theses and Dissertation programmes, where researchers submit theses in electronic format. Some initiatives such as *Networked Digital Library of Dissertation and Theses (NDLTD)* (www.ndltd.org) in development of web based union catalogues of ETDs submitted over 100 libraries throughout the world are worth-mentioning. The Shodhganga @ inflibnet centre facilitates for research scholars to access
Ph.D. theses online available with Inflibnet centre, Ahmedabad. 180 Indian universities have signed memorandum of understanding (MOU) with Inflibnet to join this project till October, 2014.

Some other popular ETDs are

- Indian Institute of Science
  http://etd.ncsi.iisc.ernet.in/

- Scholars’ Bank (University of Oregon)
  http://libweb.uoregon.edu/

- DissOnline (German National Library)
  http://search.dissonline.de/

(d) CD-ROM (Compact Disk - Read Only Memory)- An optical disk meant for storage of digital data, which can be accessed and searched through computer is known as CD-ROM. A CD is made up of polycarbonate plastic weighing 15-20 gm and 1.2 mm in thickness. The program area of CD covers radius from 25-58 mm. A thin layer of aluminium applied to its surface which makes it reflective. The layer is protected by a film of lacquer. Optical discs have now become very important as a medium for storage and dissemination of information and these represent alternative method of access to on-line databases, whether commercial or academic.

These CDs are very cheap, portable, convenient to use, eco-friendly with bulk storage capacity. Many formats of compact discs are available, e.g., write once and data storage (CD-R), rewritable compact disc (CD-RW), video compact disc (VCD), super VCD, photo, pictured (CD-i), and enhanced CD, etc. It has been
realized that CD-ROMs have many advantages over on-line mode, because they cut telecommunication charges, usable for end-user and save lot of time. One has no consideration for involvement of any cost for lengthy and complex search and downloading the required contents.\(^8\)

\((e)\) **Subject Gateways**- Subject gateways allow libraries and related organizations to explore the usefulness of their subject expertise in the organisation of knowledge in the world of network-based, digital information. It is termed as clever way to information. Subject gateways are also known as subject-based information gateways (SBIGs); subject based gateways; subject index gateways, virtual libraries; clearinghouse; subject trees; pathfinders; quality-controlled subject gateways, etc.

Subject gateway is one of the most useful ways to discover quality resources in a particular subject area. A subject gateway thus is a facility that allows easier access to web based resources in a defined subject area. These are basically a dynamic catalogues of pre-dominantly on-line resources, though some libraries include information on print resources as well. Generally access to subject gateways is provided through library website, designed to help library users discover high-quality information on the internet in a quick and effective way. It is different from the search engine. At a search engine, general resource is available while a subject gateway is a “gathering place of discipline specific resources.” A simple subject gateway may list web based sources or print resources on a given subject with links to the website of the resources and some useful information such as key-words,
class number, description and how to access. Advanced subject gateways offer searchable catalogue or even full-text search facility on listed sources.

Some popular subject gateways are

- Argus Clearing House  [http://www.clearinghouse.net/]
- Internet Index  [http://sunsite.berkeley.edu/InternetIndex/]
- Internet Public Library  [http://www.ipl.org/]
- WWW Virtual Library  [http://www.edoc.com/]

(f) E-databases- Electronic database (e-database) consists of e- resources integrated in highly organized manner so as to provide controlled access to it by their subscribers. Most of the electronic databases are bibliographic in nature which are online version of existing indexing and abstracting services such as Chemical Abstracts, Index Medicus, Biological Abstracts, etc. Some of the electronic databases contain textual information, news, statistics, commodity prices, etc. Several full-text of encyclopedia, directories, dictionaries and articles from journals are now available on compact discs (CD-ROM) as well as on the Web.

Some of the popular online databases are

- DELNET’s Union Catalogues and databases  [http://delnet.nic.in/]
Online union Catalogue of Indian universities

(http://indcat.inflibnet.ac.in/)

(g) **E-Patents** - All the patent issuing authorities provide their complete full text patent records on-line. United States patent documents can be searched and downloaded free of cost from [www.uspto.gov/patft/index.html](http://www.uspto.gov/patft/index.html). Commercial organizations such as Derwent also provide downloading of full-text patent from either an on-line database vendor (e.g. Dialog, STN) or directly from their site to the subscribers.

(h) **E-Course Material**: Many web based course ware and teaching aids are being developed to facilitate flexible open learning by many academic institutions and commercial organizations. Many universities have adopted such course material for their curricula. Libraries can provide access to course material to the learners and teachers and thus contribute to open learning. This can be done by providing links to the courseware sites through subject gateways or provide local access after downloading the material.

Some popular websites that provide web based course material are

- Ask *ERIC*  ([http://ericir.syr.edu/](http://ericir.syr.edu/))

- CAREO-Campus Alberta Repository of Educational Objects Alexandria  ([http://www.careo.org](http://www.careo.org))

MERLOT-Multimedia Educational Resources for Learning and Online Teaching (http://www.merlot.org/)

› GEM- The Gateway to Educational Materials (http://www.thegateway.org/).

4.3.3 Characteristics of E-resources

E-resources have several attractive features in comparison to their physical equivalents, as such, users are now demanding information preferably in digital form. The fast access and delivery of digital information online directly to the user’s computer save their time as well as postal charges. Their 24 x7 availability increase their usage at anytime. Watts and Ibegbulam\(^9\) have rightly revealed that electronic resources with their characteristics of flexibility, portability, searching facility, storage and access/dissemination are beneficial in terms of time and space. Consequently, all the physical documents available in traditional libraries are now being converted into electronic form. The main characteristics of e-resources are:

- Ability to facilitate fast access to information
- Ability to handle the huge quantum of information.
- Ability to satisfy increased demand of information
- Ability to reduce the need for physical space
- Ability to handle multilingual contents
- Provide access to distributed and remote information resources
> Provide better searching and retrieval facilities

> Break time, space and language barriers

> Same e-information can be shared by many at the same time

> Paradigm shifts both in use and ownership

### 4.3.4 Attractive features of e-resources

E-resources are being preferred over print–resources because of their following attractive features:

(i) **Easy and Fast Access**: E-resources can be accessed easily and speedily than their printed counterparts. These reduce the gap between produced and the end user. The user can access any particular part of a book/journal within minutes or even seconds on computer.

(ii) **Multiple Access**: E-resources provide multiple access facility. Many users can access same e-document at different places at a time on different computers.

(iii) **Fast Publications**: On-line publications of e-resources save the time required at different stages, i.e., time required in submission, referencing, revision, editing, composing and communication networks.

(iv) **Much possibility of availability**: The probability of availability of e-resources is much higher than their physical counter part. Their ability of quick and comprehensive search for specific contents improve their availability.
(v) **Multimedia Compatibility:** In addition to text format, e-resources can be supported by different multi-media formats i.e. sound, video, interactive three dimensional models, etc.

(vi) **Fast delivery:** These resources can be delivered on-line instantly using e-mail facilities or provided at the webpage. These resources can also be given to the potential users by copying in portable storage device, viz.CD-ROM, DVD, pen drive, etc.

(vii) **Low cost:** In comparison to the printed resources, e-resources are cheaper, as these resources eliminate paper, printing, postage costs etc.

(viii) **Low storage space:** The electronic storage devices viz. hard disc, CD-ROM, DVD, pen drive etc., used for storage of e-resources, require very little space as compared with the space required by other physical forms.

(ix) **Complete archiving:** E-resources facilitate the access of complete set of publications i.e. all back volumes of the journals starting from the first issue to the recent issue, if subscribed for complete archiving. All on-line articles are exact facsimiles of the print originals.

### 4.3.5 Drawbacks of E-resources

E-resources suffer from following drawbacks also:

(i) **Inconvenient to use:** Use of e-resources is observed inconvenient as compared to the physical print–resources. These resources can be accessed
only on computers within specified area (in case of Intra-net), as such are not found so convenient to use as print versions have portable reading material. Reading on computer screen is observed 30% slower than that on paper.

(ii) **Dependency on Internet download speed:** The access of e-books or articles from a journal through Internet depends on the download speed, which is sometimes very slow, as such takes several minutes to make available to the users.

(iii) **Dependency on electricity:** Regular supply of electricity is must for the access of e-resources, either through electricity supplier line or UPS.

(iv) **Dependency on technology:** Use of these resources require IT related devices for storage and display viz. compatible hardware and software, high speed Internet connection and knowledge of technology updation and utilization.

(v) **Copyright restrictions:** Use of copyrighted e-resources is not possible without permission of the copyright holder except in accordance with the fair use of licensed agreement.

4.4 **MANAGEMENT OF E-RESOURCES**

The increasing role of digital documents in the present age of digital era has insisted librarians to manage these resources effectively. Management of e-resources helps the user community in identifying and accessing appropriate e-resources. The management policy of a library, also comprises the activities performed in relation to
the development of the vision, the mission, the goal and policies of the library. It is also concerned with the strategic planning of libraries in present and future operations, motivation of staff to enhance their skill and expertise in e-library associated services and operations.

Effective management of e-resources, in the present age of Information explosion is a very complex process. It has been realized due to the increasing central role of these e-resources, the large budgets involved in their acquisition, the endless variation in the packages offered by the hundreds of players in the market (such as subscription agencies, publishers and interface providers), the frequent changes in business models, and above all, the lack of automated tools.

According to Prakashe\textsuperscript{10}, management of e-resources involves effective planning and policy development for acquiring, providing access, facilitating users for optimal utilization, budget allocation for these resources, subscription renewal and managing skilled staff for proper functioning of e-resource services. Librarians should have professional as well as technical skills to manage all these resources. They should pay special attention in vendor negotiation, trouble shooting, link maintenance, inter-database linking, etc., so as to utilize the investment made in subscribing all the e-resources in their respective libraries.

4.4.1 Planning for E-resources

Electronic resources present several challenges to the traditional library operation and workflow as such proper planning for e-resources is realized for smooth management of e-resources. The challenges faced by the traditional libraries
include operational issues such as assignment of staff to manage e-resource related services, staying in-step with technological and vendor changes in e-resources, budgeting limited resources for their procurement and communication with vendors and amongst librarians and administrators. Access related challenges include management tools like openURL knowledge bases, federated searching, catalog records, and authentication.

4.4.1.1 Planning policies for E-resources

In electronic resource management, planning policies communicate the goal and mission of the respective library, set guidelines of practice and to perform management related activities. An e-library need policies to address issues such as collection development issues, licensing issues and user access related issues. Planning policies of a library help to develop appropriate collection and utilize optimally all the available resources. The library policies may be related to issues like acquisition, trouble shooting, security of database, user access, etc.

4.4.1.2 Workflow for E-resources

In electronic resource management, some workflow functions are unique which include licensing, access set-up, link maintenance, trouble shooting, inter-database linking, vendor negotiation etc. The entire workflow of a library may be managed within a library’s integrated library system (ILS) for the purpose of order tracking, budget and payments, catalogue access and inventory. The ILS can alert a
library when the subscription of an e-resource is overdue, display all of a library’s holdings, and inform the users about the availability of a particular resource.

E-resource management systems (ERMS) can further improve the access and utilization of available e-resources in a library. The planning, policy making and documenting workflow activities are interwined activities which are hallmarks of professionals. It is expected that libraries must regularly work for creating policies, documenting their workflow, and planning in all aspects of electronic resource management.

4.4.2 Selection, Evaluation and Acquisition of E-resources

E-resource selection decision for a particular library is based on its ability to satisfy user’s needs. Demand from subject experts, regular users and head of the institution influence the selection decisions. E-resource selections for a library are also influenced by collection development policy of the institution.

4.4.2.1 Collection development policy for E-resources.

The collection development policy of an institution helps to take decisions relating to e-resource selection. The policy is a blueprint for the e-resource selectors and helps them to ensure uniformity in procedures and appropriate balance in the library collection. While formulating a collection development policy, following components should be considered appropriately

1. The policy should articulate the institutional mission of the library, the purpose of the policy, and the users for whom it is developed.
2. It should describe the procedure adopted for approval of recommendations for specific e-resource acquisition, i.e. whether selections are made by a committee or by individuals.

3. It should describe the user community to be served.

4. It should identify selection tools suitable for the library.

5. It should present criteria and guidelines for the e-resource selectors.

6. It should describe access versus ownership issues clearly. It includes decisions regarding whether electronic access is sufficient to meet the user’s needs or whether the library should add print subscriptions.

7. The guidelines for weeding, cancellation, retention, preservation and replacement of e-resources should be included in the policy.

8. The policy should also include guidelines for collaborative collection development i.e. participation in consortia.

9. It should also include the expectations from e-resource providers with regards to training, technical support, compatibility with existing platform, and so forth.

10. It should also include general guidelines for licensing requirements for e-resources.

**4.4.2.2 Selection process for E-resources**
Content, like other library resources, is the primary selection criteria for e-resources. However, in case of e-resources, quality, pricing, technical support, and licensing receive additional consideration. The selection process of an e-resource for a library involves steps: identification of e-resources and evaluation of e-resources.

- **Identification of E-resources**

  Identification process of e-resources includes publishers’ catalogue study, reviews published in various print and electronic sources, recommendations of subject experts, etc. Some of the electronic sources that help in the identification process are:

  - Electronic Journal Access ([http://www.coalliance.org/ejournals](http://www.coalliance.org/ejournals)) - It provides listings of electronic journals on the web, directly from publishers, professional societies, or similar entities.

  - WorldCat([http://oclc.org/worldcat](http://oclc.org/worldcat)) - It helps to find bibliographic details as well as availability in other libraries worldwide.


  - Ulrich’s Periodical Directory: The directory is the world’s premier periodicals reference source providing important bibliographic, descriptive, and access information. It is available in print and on-line in digital format. It is published by R.R. Bowker([http://www.Bowker.com](http://www.Bowker.com)).
Serials Directory-The directory is available in print and electronic format which is published by Ebsco( http://www.us.ebsco.com). It provides access to the most up-to-date and accurate bibliographical information as well as current pricing structures for popular serials.


NewJour (http://gort.ucsd.edu/newjour/)- It is an electronic discussion list hosted by the University of California, San Diego, which helps to identify new electronic journals.

4.4.2.3 Evaluation of e-resources.

Evaluation of e-resources enables the librarians to select e-resources most useful for the library. Evaluation criteria for an institution is described in the collection development policy. It is linked with the characteristics of the e-resources. Some of the factors that help in the evaluation process are reputation of the publisher, objective of the e-resource, coverage of the e-resource, technical support from the publishers, subscription facility provided, etc.

4.4.2.4 E-resource Acquisition process

Acquisition process for e-resources involves four steps-(i) verifying the bibliographic information for the product, (ii) identification of various pricing options (iii) reviewing the license and business agreements and (iv) ordering and acquiring the product for the library collection.
(i) **Verification of bibliographic information**

In order to verify various bibliographic information for an electronic product, various details about the e-resource are studied viz. content provider of the e-product, coverage, frequency of updates, and cost. The verification enables the librarian to acquire correct e-resource for the library.

(ii) **Identification of various pricing options**

Various pricing options for the selected e-resources are studies before placing the final purchase order. The various variables, considered for the purpose are:

(a) **Institution size**: The e-content provider charges according to the level of usage of its e-resource. They charges more for large universities with multiple branches, locations, or site compared to small sized universities or community colleges.

(b) **Product type**: The type of the e-resource viz. electronic journals, aggregate databases, full text databases etc. have different pricing models.

(c) **Journal package deals**: Some e-resource providers offer bundled sets of titles in an electronic journal package. The provider insists to acquire the entire list of journals without permitting any individual selection.

(d) **Content access**: Sometimes the price of e-resources is based on the type of access to contents.

(e) **Number of e-resource users**: The price of e-resource varies with the number of potential users. Some e-resource providers offer price based on full-time equivalents of students, while others include the total number of enrolled students, staff, and faculty members as potential users. The price of e-resource may also be decided by
considering the number of simultaneous users or unlimited access including remote access, and so forth.

(f) **Consortia:** E-resources provided through a consortia have generally cheaper price. In consortia deals, expensive electronic products can become affordable for small libraries because several libraries establish the collaboration so as to share the cost.

### 4.4.3 Renewal/cancellation of E-resources

Renewal of the subscription for E-resource for next period depends on the individual contracts which may be signed for one or more years. The majority of the e-resources are renewed every year. The content provider, generally, sends a reminder to acquisition department of the respective library, for renewal ahead of time with pricing and a copy of the contract. Most of the time, the core e-resources are automatically renewed unless there is a significant price rise or a change in the licensing terms. But non-core electronic subscriptions are reviewed by selectors based on several evaluation criteria before the actual renewal is processed by them.

The e-resources that are not found useful for the libraries are not subscribed for the next term. When the subscription is paid, refunds are not possible, as such the subscription decision is taken timely. The evaluation process for renewal, selectors consider different criteria such as ranking based on quality and usage, breadth, access, audience, cost-effectiveness, uniqueness and budget of the resource. The acquisition department inform the publisher in case of cancellation of the e-resources. The final list of subscribed e-resources is reconfirmed before placing the order to know the actual need of the users.

### 4.4.4 Organisation of E-resources

Organisation of e-resources is an essential activity for smooth functioning of an electronic library. It requires that the e-resource manager should have good professional skills to organize the available resources effectively. These managers should have skills like
computing, database management, networking, and other IT related skills. According to IFLA\textsuperscript{11} guideline, following points should be kept in mind by e-resource managers while organizing the e-resources:

- To organize the e-resources within the context of other resources and websites;
- To provide access either by alphabetical or under specific subject headings;
- To include those resources either in OPAC or to make different list for browsing;
- To organize accessing under a separate authority;
- To check the method of access to e-resources, abstracting or full text form.

Organisation of e-resources should be in such a way that the users can retrieve different sets of information or records on searching by even subject headings.

4.4.5 Licensing and copyright issues

Electronic resources are provided to use under the terms and conditions of a license agreement. A license agreement is a contract between a user/subscriber (licensee) and a e-resource owner/vendor (licensor). A subscription for an electronic resource generally entails the signing of a written license agreement or the acceptance of certain terms and/or conditions. This written contract determines the rights and obligations of both the parties involved, including the services that the licensor will provide and the conditions that the licensee must adhere to in order to use the
electronic resources. The license permits the licensee and its patrons to use the vendor’s electronic resources and/or content pursuant to the agreed upon terms and conditions for the time period specified.

A license is negotiated to protect all the interests of both the parties. The licensor wants that the library should subscribe its e-contents duly protecting his/her property rights. On the other side, the library tries to gain sufficient access to the electronic resources at a reasonable price, duly satisfying the needs of its patrons.

4.4.5.1. Essential components of a license

A valid license should comprise following essential components

- The parties involves should have the legal capacity to make a contract i.e. no party is minor or mentally ill.

- There should be no legal barrier to the formation of the contract i.e. the contract should not enter through fraud.

- The contract should offer promise and acceptance that should be sufficiently definite.

- In the contract, there should be certain considerations regarding payment, training, performance of services etc.

Negotiation of a license helps both the parties involved to satisfy their required needs in a peaceful manner. If a library cannot negotiate a license to meet its basic needs, then the time comes when the library must walk away from that e-
resource and spend its time exploring alternative avenues to obtain access to that or similar digital information. In order to protect all the interests of the library and its patrons, the librarians should have sufficient knowledge of the requirement of its users, budget for subscription, licensing language and past experience with the vendors, so that a perfect license can be negotiated with the respective vendor.

4.4.5.2. Copyright implications for e-resources

Copyright law protects the rights of the e-content author who creates the original work. The copyright law was first enacted by the British Parliament in the Statute of Anne in 1710 for physical documents. The law provided copyright protection for authors for 14 years and again renewable for another 14 years if the author was still alive. In the present copyright law (1976) and its amendments, there is automatic copyright protection for works that are original and are “fixed in a tangible medium of expression.” In order to be fixed, the work must be in a form that is not merely transitory. In this simplified law, many copyright formalities have been rescinded to bring United state copyright law into harmony with international copyright treaties.

- Digital Millennium Copyright Act

The United States, being a part of the international community, is harmonizing copyright laws around the world specially for World Wide Web and electronic resources. In the year 1998, the Congress of United state passed the Digital Millennium Copyright Act (DMCA) which offers immunity from liability for on-line
service providers under certain circumstances, which immunity is very helpful to academic institutions that generally qualify as on-line service providers. This law is slowly evolving to accommodate electronic resources and to try to address the principle of balance that has been the primary basis of United States copyright law from its beginning. It enables the publishers to protect the interest of the original owners of the digital documents.

4.5 USAGE OF E-RESOURCES

E-resources are procured in off-line or on-line form. On-line e-resources can be utilized by accessing on computer through the Internet connectivity. Off-line e-resources can be accessed by running the portable storage devices in the computer drive viz. CD-ROMs, DVDs etc.

4.5.1 E-resource search techniques

The different e-resource search techniques used to access desired information speedily from the available e-resources of a library, as described by Anderson et al are:

4.5.1.1 Keyword search

It is a very simple and easy search technique used to access desired information from the e-resource collection of a library. This technique can be used to search information from all kinds of databases. In order to search information with the help of this technique, a keyword relating to the desired information is typed in the search box and on pressing the enter key, a list of titles containing the keyword
appears on the computer screen. On clicking on any title, the complete document can be downloaded. The complete study material can be saved in the hard disk of the computer as well as the same can also be carried with the user in a portable storage devices for further study.

4.5.1.2 Advanced search

The advanced search techniques use two or more search terms to get access of specific desired information. For this purpose Boolean search techniques based on Boolean commands is used. The common Boolean commands used for this purpose are ‘AND’, ‘OR’, ‘AND NOT’ and ‘OR NOT’.

In order to use Boolean command ‘AND’, Boolean sign + is used between two keywords, it shows all those documents which have both the keywords. For command ‘OR’, Boolean sign / is used between two keywords, it presents all such documents that have either of the keywords. When the user does not want to show the documents having some specific words, the undesired keywords are used with Boolean command ‘AND NOT’ i.e. ‘ ’ When the user does not want to show the documents having any of the specific words, the undesired keywords are used with Boolean command ‘OR NOT’ i.e. ‘-/’s . When the search terms are used by applying the sign *, before and after the keyword, it helps to search all the documents containing the keywords in plural or having synonyms.

4.5.2. E-resource preservation
Several activities are involved in the Preservation of electronic documents, ranging from simple replication and storage to more complex transformation, depending on the assessed value and risk to the target content. The digital preservation techniques involves keeping the data and database in logical order as per the latest technology of digitization available and using the hardware and software such as emulator. The digital preservation of documents can be classified as short-term, medium-term and long-term preservation.

4.5.2.1 Short-term preservation- Preservation of the digital materials to access for a definite period which is not extended beyond the pre-decided period is termed as short-term preservation. Such documents are not found useful after some specific time period as such the preservation devices can be formatted.

4.5.2.2 Medium-term preservation- Preservation of the digital materials to access for a well defined period but not for unlimited period, till the existing technology changes is termed as medium-term preservation. The documents preserved for medium term are found useful for certain specific time period after which all such storage devices can be formatted.

4.5.2.3 Long-term preservation- The digital materials preserved to access for an indefinite period is termed as long-term preservation. Such documents are recognized as ever-green information documents as such preserved in the library forever.
4.5.2 E-resource Management Systems

In order to utilize all the available e-resources effectively, multi-purpose e-resource management systems (ERMSs) are provided by the publishers or other institutions. These are the computer software which are provided by the service providers to the libraries. These systems enable the users to access all the available e-resources in a well centralized manner. According to Sadeh & Ellingsen\(^{13}\), some of the popular ERM systems, are discussed hereunder

(i) **HERMIS**

Harrassowitz E-resource Management and Information Solutions (HERMIS) is a popular ERM product from Harrassowitz Booksellers and Subscription Agents. It is an electronic subscription system which has a complete workflow for ERM. A complete list of tools, viz., tools for resource identification and evaluation, activation of e-resources, license management, ordering, payment, cancellation, renewal, public access through A-Z listing and usage tracking are available in HERMIS ERMS.

(ii) **Gold Rush**

Gold Rush ERM system is a standalone ERM originally developed in 2001 for the member libraries to organise their e-resources. From 2003 onwards this product is given to outside the alliance mainly because of its cost-effective ERM solution. Gold Rush boasts a fully customizable subscription record with the ability to order databases in the public interface
and link resolver page and the ability to link directly to the article bypassing
the link resolver. Its suit of functionalities include, Public Search Interface (A-Z) listing for easy listing of e-resources, subscription management for managing e-resource subscription, OpenURL link resolver for link resolving and a content comparison module for comparing the contents.

(iii) CUFTS

CUFTS is an open source ERMS which is a part of the researcher suite of open source library discovery tools developed by the Simon Fraser University library. The thrust of CUFTS is to allow the libraries to centralise all of the details about their e-collections, including licensing terms, renewal dates, contacts, and more. CUFTS ERM also features a renewal notification system, reminding the approaching deadlines and an A-Z list of e-resources available in the library. CUFTS allows the management of e-books, evaluation of the collection and license management.

(iv) EBSCO’s ERM Essentials

EBSCONet’s Essential ERM comes with the slogan ‘Manage Less, Deliver Morethrough Smart E-Resource Management’. With its long history of print subscription management in the library market, ERM Essentials integrate the e-resources acquired through EBSCO so that all the needed information for resources is loaded from the EBSCO integrated Knowledge-base which acts as the central source of updating e-resource information.
EBSCO’s Integrated Knowledge Base serves as the basic corner stone on which the EBSCO Management and Discovery Solutions are built which also allows tracking e-collection development decisions, including trials, evaluations, orders and renewals. EBSCO AtoZ and LinkSource along with EBSCO’s OpenURL link resolver provide the needed impetus for an effective ERM solution. EBSCO claims with the use of ERM Essentials hours of labour especially in consolidating the publisher and license data and the human error are minimised.

(v) **TDNet Open ERAM**

It is a low cost, integrated e-resource and management solution for providing a flexible open platform ERM. The core of OpenERAM is the master knowledge base which has metadata of over 370,000 unique titles covering journals and e-book manager. This is a NISO compliant OpenURL enabled full-text resolver which also has a powerful search analyser for federated searching across external sources and internal repositories, for abstracting, categorization and analysis of retrieved items. It has a ‘License and Acquisition’ module which helps in the e-resource procurement and to tackle license-related issues.

The ‘Advanced Statistics’ feature provides various statistics needed for the evaluation of the use of e-resources. It has separate modules for ‘eBook Management’, ‘Public display of titles (A to Z listing)’, ‘Collection evaluation’, ‘Authentication and Access Management’, ‘License Management’ and ‘Powerful Reporting Management’ which includes usage of resources
across different facets with COUNTER (Counting Online Usage of NeTworked E-resources) compliance. OpenERAM also provides acquisitions data as well as cataloging functionality whereby MARC records are provided to customers through its holdings manager.

(vi) **Ex Libris Verda**

Ex Libris has a very strong library market in Europe has Verda as its centralized repository product for ERM which takes care of e-resources workflows such as acquisitions, trials, usage, costs, access and administrative data. Verda boasts a comprehensive knowledge base which helps librarians to choose the desired resources from the e-resource market place. Verda confirms to the open system standards by providing SUSHI (Standardised Usage Statistics Harvesting Initiative)-based user statistics and other related reports.

**References**


