Chapter 3: Transformation in Libraries

3.1 Introduction:

Librarians and Librarianship have witnessed the revolutions in the LIS system and libraries are transformed from the manuscript libraries to virtual and cloud libraries. The revolutions have brought many changes in the professional activities as well as manpower requirement. There are many challenges also to be faced by the library profession also while adapting the rapidly changing environment in which librarians are expected to work differently than before. The information society is moving from industrial age to information age due to more usage of ICT. To manage with the changes library professionals have to transform themselves and their activities using ICT and trends. The revolutions libraries transformed different phases of libraries like: temple libraries (oral communications), manuscript Libraries (primitive libraries), Paper / Print Libraries (Traditional libraries), microform libraries, electronic libraries, digital libraries, virtual libraries, networked libraries and cloud libraries etc. These transformations are basically due to application of technologies prevailing during the period.

The management of libraries depends on the technologies and its application and hence every time librarians have to face different challenges in financial support and staff support. The changes are managed efficiently by the librarians by deploying the responsibilities and trained the staff to sustain in the profession. The impact of the changes is mainly reflected on: collection development, staff strength, library services, content management, finance, library organization, library profession etc. However major impacts are reflected on the finance, information profession, information activities and manpower structure (skilled and number).

The trends in the profession and its impact have been discussed by the different scholars since many years, viz. Fritz Machlup, Daniel Bell, Marc Porat, and others (Griffiths 1999). The traditional information access and management roles played by the information professions are expanding, particularly in the design and development of new information products and services and use tools to support information seeking and selection, analysis and synthesis of information content on behalf of users, and user instruction. The emerging recognition of companies as learning organizations, reinvention of government agencies, new directions for education in universities, colleges, and schools, promise new opportunities for information specialists to
reinforce and expand their facilitation of communication and learning process in organizations and communities (Griffiths 1999).

3.2 Status of Library System: General Overview

Libraries have a very old traditions and functions to support information society to develop culturally and academically strong society with the help of public, academic and special library systems. Education system is well supported by information published in different forms like books, journals, reference material, teaching and research aids and helps in extension of knowledge. Libraries in earlier period were collecting information in different forms like clay tablets, papyrus and due to invention of paper knowledge spread in the form of books etc. and temple or manuscript libraries transform to print media libraries. Libraries provide a useful reference service to the users form the decades in the traditional as well as in the digital libraries also. Libraries provide information as per the demands of users and the technology is used in the changing environment to support the different activities carried out in the libraries.

The role and functions of the libraries goes on changing from traditional print media and then to digital where information is being made available on the desk top of users. The users also require pinpointed information from the metadata available on the internet. The role and responsibilities of the librarian are changing day by day including traditional staffing pattern for performing different functions in the libraries. The education system is using both formal and non-formal informal ways for propagating higher education in India in e – learning and teaching. Libraries perform their roles in providing information form the period where informed is stored and preserved in the four walls of library. Library plays dominant roles in extracting knowledge and information from books, periodicals, magazines, old manuscripts, archives, articles, standards, reports, Government resolutions etc. The major changes in the libraries occur due to adaptation and use of technologies.

3.2.1 Developments in Libraries: Past to Present Scenario

Traditional era of publication started with maintaining information written and preserved on stones, cloths and metal wall’s and maintained and exploited information to society. The development of libraries is essential for the development of the civilization. From the old Gurukul system where knowledge was given to the students orally by the teachers / gurus was
the development of information recording in form of information sources used. The initial libraries were started from the temples and called as temple libraries. The information was written on the walls of temples so as to get information about society, culture etc. and needy person. In the initial period libraries were attached to the holy places and later transformed to public places.

Earlier information was provided through non-verbal communication such as signals, drumbeats, signs, symbols, facial expressions, and body language. After non-verbal communication verbal communication was introduced in form of origination of languages and then written communication was used to store information in form of cave paintings, clay tablets, ink, papyrus etc. The printing era began with Gutenberg in 1456. In 1883 Dewey became librarian of Columbia College, and in the following year established the School of Library Economy, the first institution for the instruction of librarians ever organized. In India the Central Library of Banaras Hindu University, Varanasi, established in 1917 with the assistance of Sayajirao Gaekwad III Maharaja of Baroda state (1875 to 1939), known for establishing libraries throughout his state.

India has also a rich cultural tradition of higher learning centers from the old times. These centers were identified as Gurukula, Paatshala, Taxila, Nalanda and Vikramshala where the courses were offered for advanced studies. Modern Universities in India came into existence with the recommendation of Wood Dispatch of 1854. In India three universities were started in Calcutta, Bombay and Madras in 1857 by the Britisher’s.

After Independence various commissions were appointed by Government of India. University Educations Commission was set up in 1948 under the Chairman ship of Dr S Radhakrishnan and Education Commission was set up in 1964 under the chairman ship of Dr D S Kothari which contributed for the improvement of higher education in India (1964–1966) UGC was established in 1956 to promote and coordination of university education and establishing standards for teaching learning and knowledge extension. There were 20 universities before independence and now there are about 500 universities in India. UGC Committee for University and College libraries was setup in 1957 under Chairmanship of Dr.S.R. Raanganathan and Education Commission setup in 1964-66 under the chairmanship of Dr.D.S. Khothari have significantly contributed for the improvement of library conditions in universities.
The University education commission (1948–49) headed by S Radhakrishnan had recommended that the University Librarian is the position equivalent to University Professor who has specialized in some aspects of library sciences and who has capacities for organization and management.

University grants commission appointed a committee in 1957 under the chairmanship of Dr S.R. Ranganathan for the higher academic and professional qualifications, the combination of academic and administrative responsibilities, and the practice in the universities all over the world indicate that the status and the salary scale of library staff should be same as that of teaching and research staff.

After the development of public libraries many universities and colleges (academic) libraries were developed. Later development took place and different parameters set for library staff, their nature of jobs, functions, working conditions, salary structure was laid down, keeping in consideration the traditional staffing pattern enunciated by of Dr SR Ranganathan, UGC, Kothari Commission, AICTE Norms etc. New subjects streams were introduced in the academics and information was required by the users through library. To cater the needs of the users the libraries provided information using books periodicals magazines reference books, maps, articles, standards specifications etc. Information was scattered throughout the globe. Libraries which were considered as the store houses of knowledge and used by researchers, teachers, students, academicians, lawyers, doctors etc. The information provided by the traditional library is print based referring to catalogues and indexes. Academic libraries were the sole custodians of the library in the traditional era. The change in the education systems came into existence after 1991 in India when globalization, privatization and liberalization was announced under the chairmanship of Prime minister P V Narsimaraao, and due to this anyone can introduce their goods in any market. The competitive nature started in every organization system, to prove their knowledge and wealth. During 1990 the computers came into existence in India. Due to globalization and impact of information communication technology, information explosion and growth of internet technology the information was available in e- formats; e- books which changed the role of library from traditional to digital era.

In the 21st century, the digital information in electronic format was required by the user to cater to their needs. The libraries and the librarians have to face new challenges in dissemination of
information in the changing scenario where information is available thought globe. Thus development of libraries from clay tablets, traditional library, digital library virtual library, electronic library and now in the current scenario the libraries on cloud is active and further development might take place based on developments. In all the conditions staff is an important factor to manage and provide services to the users as the technology changes the practices also changes and the staff strength with job requirement also shift. In the current ICT era it is proposed to have additional technical staff to carry out the services and provide immediate information to the users.

3.3 Transformation of Libraries.

Haldar (2009) indicated that innovation and development of Information and Communication Technologies (ICTs) and different library software’s and its application in the field of Library and Information Science (LIS) brought transformation in library management system. Not only library system changed due to these but the professional roles have also been changed and library professionals called as information advocate, consortia manager, consultant, content manager, facilitator, guide/teacher, intermediary, knowledge manager, researcher, sifter, technocrat web designer etc. Application of information and communication technologies (ICTs), in the library environment has shifted libraries from the traditional to hybrid and then automated library, digital library and virtual library. At presently it is shifted to Library 2.0. due to use of web tools and social media such changes, caused the transformation in the structure nature of library and LIS profession in a dynamic way. Now in this present situation the LIS professionals are playing all-round, multimodal roles to satisfy the different approaches of the end users using ICT. The librarians have to face the challenges due to ICT and other technologies and tools.

The major challenges in the profession are due to:
Role of librarian form administrative to multimodal.

- Need of different skills like Technical skills, Information Technology (IT) skills, Managerial skill (Sridhar, 2004).
According to National Knowledge Commission, India, skills required are: Library and information handling skills, Service orientation, ICT knowledge skills, Communication and training skills, Marketing and presentation skills and knowledge mapping skills. Sridhar (2004) also narrated different skills required to run the libraries and capacity building array the library professional in the electronic environment of twenty first century is a need. Information is generated and disseminated at the higher speed with the new resources available in the electronic form. The advanced technology in processing information, storage and transferring information at higher speed has changed role of libraries in providing information services to the users. The librarians and the library staff have to face new challenges due to transformation. The libraries are changing their way and style of working with due to the advent of new technologies. The new developments in disseminating and storage of information, the growth of new devices to store and retrieve the information in the digital form, the fast access of internet and web pages, competitive search engines, availability of very high networks with high bandwidth and the information made available in the form of electronic publishing has made the changes from traditional to digital libraries. Information communication technologies have brought dramatic changes in the working of library from traditional library to digital library. The library staff is providing information to the users in traditional form as well as using different resources available over net.

As technology is changing the information is stored in different formats for easy access by the users. The users need print material as well as online information to meet their demands. Earlier the users refer to books, hand books, reference books, articles, print journals to cater their needs. Now the user demands have increased as multiple information sources are being made available in databases or using search engines such as Google, Yahoo, Google scholar etc. Internet has played a major role in changing of library working in organizing and disseminating the information to its users and transformed the activities due to use of ICT in libraries for performing different functions.

The library profession is use and managing resources is also transferring due to librarians in digital form and library staff have to acquire knowledge of networking programming languages, digital library software’s, web site development, cloud computing, mobile computing, Server architecture, SQL, Video Conferencing etc. to adjust with transformation.
This new technologies transformed the role of librarian and libraries. Users also transferred their ways and now require information in digitized form and to get information access around the globe. With the advent of E-learning and teaching information is generated more in e - resources to support this new education system and due to this has changed the working of library and information services in academic libraries facing new challenges in the library profession. The information available in various electronic formats and making them available to the users is now challenging role of the libraries and librarians and here to shift from traditional to e - information content management by learning new skills, like automation and new technologies to manage and provide required piece of information to the users in the Knowledge society quickly. The information explosion even in the e-publishing is witnessed around the world due to web based information and communication technologies, globalization of networks and internet etc.

The impact of web based e-learning and teaching environment has influenced every facet of library and information services in academic libraries and providing new opportunities and challenges to library professional for involvement in knowledge based society including electronic and multimedia publishing, internet based information services global networking web based digital resources. Similarly emerging challenges of acquiring and providing access to electronic knowledge resources require librarians to change their role to information scientist by learning and applying new skills by understanding the evolving technologies to manage and provide quality online information service to the knowledge society users.

Due to globalization in the competitive world many libraries are automating their service providing information at greater speed. Developed countries like Australia USA, Brittan are offering online services to the users. In India many libraries are offering different kinds of online services such as online and, mobile catalogue access, two way text communication and podcasts which has digital collections modified for IPods, smart phones, online subscribed journals, e books. In the ICT era libraries and librarians have to produce more skilled manpower staff to generate information in the digital and physical form creating the portal through which the users can access the information to get more and more knowledge. Users are very much familiar with the technological advances in the networking and on the web. They require information on the
desktop with multiple electronic resources. The libraries and librarians now have to give traditional services as well as digital services to the users.

3.3.1 Causes of Transformation:
The applications of ICT and other techniques in different activities of libraries are the basic causes of transforming traditional libraries. The functions of libraries though remained same but transformed its methods due to digital content environment and its management. The main transformation visualized in libraries because the publishers and create more and more bibliographies, guides, syntheses, and higher-level abstractions of information content, directories, and so on, and increasingly involved in the creation information product activities. The analysis, synthesis, and packaging processes are going to increase dramatically due to use of digital technologies. Due to digital environment the information system is going to advanced and different search techniques used to mine the data from the warehouses. The overall change in the collection, organization, collection management, information staking, information retrieval and repackaging are the major areas in the library profession.
The need for transformation or re-engineering libraries is mainly due to:

- Information explosion as well as information overload
- Increased R and D in all sectors
- Readers varied demands and needs
- Limited budget
- Applications of ICT in all fields
- Availability of free information resources on internet and digital media

Among all these ICT revolutionized the system as information technology represents convergence of three strands of technologies, viz. computer, microelectronics and communications. There are many other technologies took part in addition to ICT like Internet technology, network technology, web technology, mobile technology, e-publishing, social networking etc. Rapid changes in information technologies during past three decades have drastically changed the functions and activities of information professionals in libraries. Thus it is the ICT which reshaped the library processes. In addition to these there are many aspects which support to transformation which is also based on the ICT factors like, development of
library home page, web page, subject gateway, library portal, webinars, RSS Feeds, Vodacasting, Podcasting, wikis, blogs, and news groups etc. caused the transformation in the functions.

### 3.3.2 Components of Transformation:

The transformation of the library system is due to mainly following developments:

- Computer and communication technology
- Library automation
- Networking of libraries and information resources
- Bar code, RFID and Smart card technology
- Web and Internet technology
- Social networking (Blogs, Facebook, Twitter, Apps, Skype, Wikipedia) etc.

### 3.4 Functions of Library Staff:

The basic function of libraries and the library staff is to provide pinpointed information to the users from the available resources. Many authors have described about the function and roles of libraries. In NKC report 2006 (2008) the function of libraries and staff reported and few other researchers have pointed out functions of libraries are:

#### 3.4.1 Traditional:

- For proper functioning of the libraries the librarian and his subordinate staff performs their duties in acquisition section, cataloguing Section, classification section, periodical section as well as different sections as per need.
- To identify and recognize different methods to procure books in library economically and qualitatively.
- To acquire books, periodicals, journals through proper vendors and as recommended by users and the management authorities.
- To circulate publisher catalogues among the faculties for the recommendations of books based on need.
- To communicate with the teaching faculty to recommend different titles, print journals required for the syllabus.
• To prepare budget for the purchase of different resources and equipment’s in libraries.
• To record properly acquired resources both print and digital.
• Process the material for access by catalogues and classify books, and prepare index terms and organize collection for effective use.
• To provide indexing; abstracting; reference service; information services etc.
• To provide information from the traditional sources including access to digital resources.
• To Provide Current awareness services as well as Selective dissemination service to the users using different resources.

3.4.2 Digital:

• To provide easy access to information to users available in various electronic formats.
• To identify the user’s needs and procure the information resources for the users.
• To procure e-Books and online journals and other digital publication to the users as per needs.
• To subscribe online journals, e-books, databases and provide internet facility for the utilization of resources to gain knowledge.
• To automate the library with library software and provide faster access and reference service to the users.
• To provide OPAC service with networking facilities to the users and help in resource sharing.
• To develop library website for getting information from different locations by giving links to resources.
• Libraries should have digital library software to access the digital contents subscribed and analyzed by the library.
• To provide access to back issues of online journals to the users.
• Learn skills to maintain the digital library in addition to technical.
• Library staff has knowledge of hardware and software to provide traditional as well as digital, electronic and virtual services using digital collection to users.
• Provide pinpointed information services using different digital resources like databases, reference sources

3.5 Exceptions of Users from the Libraries:

Users of academic libraries are generally students, teachers, researchers, scientists, managers, technical assistants, administrative personalities, engineers, doctors, public etc. Users require information on the topic of study and create new information using published data. To support user needs libraries to have to have good infrastructure, printed and digital books, periodicals, curriculum based books, different reference books etc. purpose. The users need to be oriented to use information resources efficiently and aware themselves about the services provided. Users also desire to collect information using technologies and electronic resources using web, online catalogues, database search systems and access to electronic publications etc.

The library provide online journals, OPAC services, e-books, scanning facility, reprographic facility, reference service, referral service to the users. The library staffs have good skills and provide information to the users more effectively and efficiently. Library is the heart of any organization and library staff disseminates information from the available resources to the users. The library hours extended for the students, users, teachers 24/7 providing online information using Wi-Fi.

Organization subscribe online journals form various publishers such as ACM Digital Library, ASCE Journals, ASTM standards and digital library, EBSCO Databases, Elsevier Science Direct, Emeralds e Books, IEEE/IEE Electronic library, McGraw-Hill Access Engineering to refer the articles published by research scholars. In the globalization and competitive era the libraries are bound to subscribe the online journals. The Library should have Bibliographic databases such as INSPEC, MathsScinet, SciFinder Scholar, Scopus Databases, Web of Science, for students, teacher higher studies.

User requires access to the digital library 24/7 and for this library has to put all this services on the web providing user id and pass word to the students. In the ICT, era students and the users are familiar with the electronic resources and are dependent on the print publications as well as on electronic and digital information. The librarian has to play a crucial role in the acquisition
and dissemination of both print and electronic resources of information. In the globalization and ICT era where knowledge is the important factor, the education system and the users are utilizing the pinpointed information. Information on the web and journals is vast; thousands of articles are published by the research scholars. The librarian using the technique of literature search has to provide the user the required article.

**3.6 Impact on Library Functions:**

The impact of different technologies have affected on different functions right from acquisition to the dissemination of information to the users and the staff of the libraries too. The drastic changes may be seen in the book trade industry and libraries due to e-publishing and e-resource generation at optimal level. This might change the acquisition, processing, organization, digital resource management, information services and information delivery, digital rights management etc. The terms and conditions and pricing structure of the information resources in digital environment are going to change drastically and new economic pricing models have developed including consortium activities. Thus the transformation is visualized in all the activities of the libraries and information centers.

It is very clear obvious that any of the functions of the libraries might not disappear in the process of transformation but might change the values in terms the functions and becomes on demand in nature viz. physical collection, library services and also staff strength (Number and quality of skills) etc. The libraries definitely exists but readers profile may change and libraries has to go to the users by providing desk top services. In the passage circulation activity may also diminish slowly and less prominent as the most of the collection will go over the digital. The library services may shift from generalized to user centric.

The major impact of ICT on the libraries is shifting the collection from print to digital and traditional libraries to digital libraries. The library services are changed and have based on the digital libraries or network and internet resources etc. In addition to these information storage and information retrieval is also shifted from print to digital.

**3.7 Library Staff in Changing Environment:**

In the light of profession, library is treated as a trinity of collection, user and library staff. Library is the center place where users find information in form of books periodicals, journals, E-journals CD’s CD-ROM DVD’s, primary sources, secondary sources, tertiary sources,
conventional and nonconventional sources. To get the information in organized form librarian and the management has to play a vital role which analyze and disseminate the information to the users in technologies which has changed the working of librarians from traditional library to digital library. User require information on the desktop instead visiting to libraries. The resources available to disseminate information to the end users are made available in e-forms, e-books and online journals, hypertext, hypermedia, multimedia, video lectures, online conferences, CD’s, DVDS, e-Learning resources, document delivery systems etc. There are the new avenues in the profession. This needs the changing patterns in librarianship from traditional to advance in the technological era. Library is important unit of any organizations or institutions. Library provides information to desired users from different resources. The libraries are continuously adapting effective ways to respond to the fundamental and interconnected missions of research, teaching and public service. Library is a trinity which works together to satisfy goals linking documents for users in effective way through library personnel. The technologies are now more used and caused changes in the practices in libraries. New resources in the form of electronic provide information to the users more effectively and efficiently. User demands are rapidly changing with the invention of new resources and technologies. Librarians and the library staff are trying to provide information services to the users over the desk top with the help of limited staff.

3.7.1 Library staff:

The library staff plays an important role in performing different functions of a library. Library staff helps user to get desired information from the documents required by them. In the traditional environment library staff is categories differently to carry out tasks.

1) Professional Staff who performs (Technical, professional and managerial task of libraries and are higher qualified in the profession). In academic libraries university libraries, the different positions like librarian, deputy librarian, assistant librarian, professional assistant, are considered as professional positions.

1) Supporting technical / Para – professional / Semi Professional (This group assists to technical work and has initial entry level qualifications in the profession), Involved in processing of documents technical work and delivering the different services to users.

2) Administrative and non-administrative Support: (This group of staff assists in administrative work of the library as well as helpers, shelves and attendants etc.) These groups are volatile and reformatted accordingly to type of libraries.
3.7.2 Role of Library Staff

The role of libraries is changing with the acceptance of Information and Communication technology. The libraries are moving from traditional libraries to digital libraries providing information to the users. Libraries collect all the information in form of books journals e books for the users so as to generate new technology. Libraries are changing their infrastructure and moving towards automation and computerization to give immediate access to the users using library software’s and OPAC services.

The role of librarian and library staff while performing advanced duties for user’s is changing with the change in technologies. The documents now used by the users are available in electronic form, digital form, online subscription etc. in addition to print media. For assisting users the library professionals have to acquire knowledge of networking, advanced computer applications, managing e-resources etc. In all the era library staff has its own importance. The National Commission Report chaired by Dr Kalpana Das Gupta briefed in her report the need, qualities and importance of library staff. Many researchers have highlighted different criteria specific to the importance of library staff and their role.

- Library disseminating information from the available resources and guide to the students and users from globalization to internationalization and helps in getting the desired information available in any form and format to the users.

- Libraries are now better known as Knowledge Resource Center (KRC) due to its support to user’s community and satisfying the mission and vision of institutions or organization.

- Libraries act as a lifelong learning process and information provider to the users.

- Libraries collaborate with other institutions and develop social culture and user’s welfare.

- Library personnel’s participate in conferences, workshops, and seminars to update their knowledge and provide information to the users in current scenario.

- Library transforms with the technological change for the effectiveness of its organization.

- For the vision and mission of institute the library staff has to plan budget for purchase of curricular resources in print and e – resources.
• Libraries and librarians have to help and support users to find out information in all sequences appearances providing desired results for the benefit of the organization.

• Library requires, use based and qualitative resources and organize them for the benefit of all the users.

• The library puts the information on library web and institutional web for easy access around the globe as well as for resource sharing.

• The library integrates orientation lectures etc. workshops for the users to make them user-friendly with the library resources.

• Library provides services to the users as per the need using technology. It gives traditional as well as digital service to its users as and when required.

• The library provides multiple access to the users and provide assess and download the required information.

• Library provides access to standard books, e resources, consortium, supporting research and motivation and vision of the organization.

• Library provides multiple primary generated information and knowledge increasing the college and intuitional strength.

• Library provides pinpointed information access using digital collection of library as well as other libraries.

• Library preserves old manuscripts documents of rare collection in digital form, print form etc. for users.

• Library gives education in all the streams through books, online journals, print journals, scholarly journals to the institute teachers and students.

• Library is place where people understand the new developments sit together and interact with each other create knowledge and disseminate new knowledge to others.
• Library environment enhances researcher to carry out his research satisfactorily. Libraries have dynamic infrastructure which creates an environment for study of virtual information to carry out the research activities.

• Library provides immediate information with huge reading space, and reference section (virtual).

• Library has good atmosphere and has intuitional membership with other academic libraries, research libraries, IITs, IIMs for gathering of new knowledge.

• Libraries take more responsibility to understand the queries of the users and support them by providing documents to solve it.

• Libraries have interpersonal intelligence and ability to understand user needs and support by providing pinpointed information for the benefit of the organization.

• Libraries understand the emotions of the users through self-control, trustworthiness adaptability, innovation to facilitate the require task.

• Librarians have social skills such as leadership, team capabilities, communication for the vision of the institution.

• Libraries through its resources guide the students and users to get knowledge and information from the resources available in the era of globalization, privatization and liberalization.

• Libraries are lifelong learning, supporting to value education and life skills development institute.

• Libraries are connected through EDUNET to different libraries for exchange of books and library resources.

The libraries came into existence in India after Kothari Commission and under the Chairmanship of Dr S R Ranganathan who gave more importance to the libraries and staff. The traditional libraries and academic libraries were functioning with fulfilling the demands of the users. New subjects are introduced in the curriculum. The information is rapidly increasing day by day and
the librarians acquired the books to satisfy the user needs. After 1991 the computerized system was introduced in India. Libraries started the process of automation with using user friendly library software’s. The digitization of old copies processed to keep the traditional information alive for the users. Libraries started developing digital libraries as well as traditional libraries with same staff. Information was exploded at higher speed to gain more and more knowledge and keep update with the current information. Libraries started providing information using digital and electronic resources. Multimedia, hypertext, animation, videos, presentations, lecture videos, online journals, e-books are new kind of resources. In a traditional library books, manuscripts, magazines are acquired for the organization and for the use of the users.

The digital library concept came into existence due to information explosion. Information was generated at the higher speed and it was required by the users, teachers, scientist, and research scholars. In traditional library the users had to move from one library to another for searching information but in digital library using computer and communication system where the information is accessed stored, organized and searched effectively. Information could be collected form any place using internet and satisfy the user needs. Internet has played giant role in getting information on the desk top of the users at ease. The libraries faced the challenges in organizing, acquiring and analyzing the information in all the formats so as to easily cater to the needs of the users. The development of libraries started in the 21st century moving from traditional library to digital library and now providing information on the cloud server to get 24/7 access to all the users.

3.7.3 Modernization of Libraries.

The traditional concept was changed in modernization of libraries. The new technologies are introduced in the information age to satisfy the user needs. Automation and computerization tasks are taken up and completed by the libraries to provide immediate services to the users. The digitization and information retrieval process was started using ICT. The libraries provide multiple accesses and started promoting the poly-media, electronic, digital and virtual libraries. Information technology used to manage the data processing into information and to store and retrieve the information. Libraries started using electronic and microelectronic equipment’s for processing and communication of information to its users. The use of telephone, radio, television, satellite transmission, computer, microprocessors are replaced by floppies, diskettes,
CD-ROMs, DVDS, Pen drives, Portable Hard Discs to provide infinite storage space of information. Libraries in India are very much influenced by the Information technologies. Day by day new technologies are introduced for storing and dissemination of information and libraries started using these technologies to store and retrieve the information. The internet technology is the development for accessing universe of knowledge available in multiple metadata forms, and users can get information sitting at any place. The libraries in the 21\textsuperscript{st} century are in process to provide the information to the user 24/7. For these the staff in the library should have proper skills to process the information and disseminate to the users in the 21\textsuperscript{st} century where the world is under globalization, privatization and liberalization. Libraries in the 21\textsuperscript{st} century are the providers of information, processors of standard information using information technology and networking facilities.

### 3.8 Library Professionals in Digital Era:

Librarians have to perform their duties in different environment like technical expertise in computing and telecommunication, commitment in solving organizations’ and user’s information needs knowledge of information seeking, and information use and commitment for information access and dissemination. Librarians are now facing difficulties and challenges due to new trends in information access and ICT. In the present electronic/digital era the professionals have to change themselves as the information profession which has changed. Now information specialists have to work and manage e-information resources in which various professional groups are expected to map out the strategies that lead to produce, manage, maintain and service to the users in providing information. Information professional has to work based on the nature of job as librarian, record manager, archivist, information manager, information adviser/instructor, information broker, and system networking. The roles of the modern librarians are briefed as follows –

**Librarians** – In addition to being library manager, they also act as technical processors and information provider and taking care of information quality in digital era.

**Information Manager** – To meet information needs of the user and know how to manage and deliver appropriate information to users by means of library services.

**Information instructor/adviser** – Ensure that user/staff know how to access relevant sources of Information in print and e - forms.
**Information Broker** – Collecting information from different sources and repackaging the same in the required format as per the requirement of information seekers.

Apart from these, information processor, metadata manager, information searcher are the terms used for the librarians. Information broker uses different technologies and techniques in handling, archiving, preserving and disseminating information. It is not only the role of libraries may shift but the activities may also change in libraries due to use of ICT.

Mainly the basic functions of a modern library are acquisition, processing (arrangement, classification, description, and housing), organizer reference & access to information, preservation and management and provide information services. But the main task performed in the digital era is transformation and activities carried out in different sections of libraries are:

**a) Acquisition** – Deals with acquisition of publications and records from creators’ custody as well as those lying scattered in different places. This has become major problem to the information professionals. The publications are available in multiple forms. E-publications involve complicated process of purchase due to nature, cost structure and licensee etc.

**b) Processing** – Preparation of digital materials for long-term storage is another problem faced by archivists and librarians usually used to put call marks on books to associate with the physical item with its storage location. Archivists used to pull staples, perfect order, refolder, and stabilize fragile materials. Today, they may need to think in terms of Dublin Core, full-text search engines, and SQL queries. Librarians are worried about temperature and humidity for digital storage and its processing procedure. The task of metadata development and digital resources management and preservation needs special efforts and skills of librarian.

**c) Reference and Access** – The library and information professionals needs to know not only the acquisition and processing of digital material but also to learn new skills. Since most of the data available in future libraries or digital libraries is in digital form. The services changed to virtual reference services and different information services using digital resources. The reference queries are conducted differently, but in digital-era patrons prefer self-service though different digital resources but they are ignorant about it. The library professionals’ role may be evolving from gatekeeper to guidance.

**Preservation:**
In the digital era there is no stable medium, librarians and records professionals may need to develop ongoing programs to counter recurring technical obsolescence.

**Management:**

Not all library professionals work directly with holdings. Managers need to know enough to ensure that the work is being done well. When repositories contract work to information technology specialists, it is essential to know how to manage those projects so that the work is robust and fits into a larger program.

**3.9 Skills, Knowledge, Competencies Required for LIS Professionals**

The basic goal of library and information profession is to provide access to information to needy users. The activities realizing this goal have evolved and transformed over the years due to use of ICT. The different activities includes information activities which have been guided by the developments in the field of storages, presentation and archiving of knowledge, collection development and organization of knowledge, information explosion and computers in information retrieval. Information professional involved in information gathering, storage, retrieval and dissemination on one hand and on the other hand the computer specialists who supports the needs of informational professionals. For successful implementation of digital library, it is essential that LIS professionals have to be trained and possess requisite knowledge and skills in this regard.

Digital revolution has altered library profession. Remarkable advances in computer and telecommunication and the advent of Internet have changed the entire information scenario. These rapidly changing conditions demands for efficient librarian’s activities. The skills of digital librarian are to be enhanced. The different skills to be acquired by the librarian are:

. **Management Skills:** which covers:

(i) **Conceptual Skills** – The mental abilities needed to analyses and interpret the information received from various sources and take complex decisions are the called the conceptual skills. It Includes the capacity to analyses and synchronize.

(ii) **Administrative Skills** – Abilities to follow policies and procedures, process all work speedily and minimize the expenditure.

(iii) **Human Relationship Skills** - It is the ability to interact effectively with the user, and to build team work at all levels. Librarian has to keep pleasant relation with the customers (user)
**Communication and IT Skills:** In digital era, a library professional should acquire following technical knowledge skills:

* Operating Systems – Windows, UNIX, LINUX.
* Word processing, graphics, spreadsheet and presentation.
* Bibliographic DBMS skills.
* Programming Skills (C, C++, Java, VB, Scripting Languages.)
* Web Page Development skills (HTML, ASP, PHP etc.)
* Information Retrieval Software skills Online CD-ROM and Internet security.
* Software Development and Support Environments skills – Oracle, MySQL, SQL Server.
* Content Management skills
* Networking skills etc.

**Scanning technology** - Scanners-Scanning file formats, OCR software
- Omni page- Text bridge-Fine Reader. Acrobat – Reader – Writer etc. digital camera – image capturing and storing, building a digital library projects skills etc.

**Information Skills:**
Information professional must have Skills of information collection, structuring, retrieval and filtering, conducting and use related skills. Skills of digital information and reference service as well as information retrieval skills form various information resources either print or non-print, digital etc.

**Presentation Skills:** These skills relate to cultivate reading habits among all levels of users. Present information to user as per their needs after repackaging; convey information to users using varied presentation technique.

**Measurement / Evaluation Skills:** These skills help in performing qualitative information resource collection development in libraries. These skills helps in evaluating the quality of information, regular and periodic analysis and assessment of user needs and design new resources and services by evaluating the result of present use.

**Search and Dissemination Skills:** helps in sound knowledge about tools and techniques, strategies, engines related to search, expertise in searching database, Web resources and catalogues etc.

**Knowledge Skills**
Information professionals need to know about knowledge resources technological facilities online resources (computer, online catalogues, websites, LANs file servers etc.) Financial resources (budget), management of human resources (skills for manpower training) and their development. The competencies required in LIS professionals is to: acceptance for the change, knowledge of user interaction with knowledge resources, provide quality based services and adoptive, flexible and resistant. Resourceful, Possess important excellent communication skills; constantly updating personal knowledge base by keeping in touch with the latest development, Create awareness among the users, make them accept the changes and be an information management strategist, etc. To work in the ICT era the librarian has to acquire technical knowledge and skills like operating systems having knowledge of Windows, UNIX, LINUX, word processing, graphics, spread sheet & presentations. In addition to this Database Management Systems (DBMS) including the skills general purpose programming, networking of libraries and web page development and content management etc. Information Retrieval Software for online usage, CD-ROM and internet, library software packages, acquaintances with digital library tool.

**Summary:**
Rapid growth of information technology, particularly, the Internet and associated technologies, has opened up an entirely new medium for providing improved information services and resources for the users. The future may require the librarians to reorient themselves, think creatively and adopt new technology skills to generate services and resources where their skills of structuring and organizing resources are put to its best use.

To cope up with the trends, LIS professionals have to move in right direction with having a vision of the traditional ways and to adapt to social and technological changes. The libraries are distinct from the internet cafes, librarians are the only suited professionals to guide scholars and citizens towards an appropriate evaluation of online resources to provide accurate information to the needy scholars. The digital or virtual library uses technology and networks to link people to resources with a goal of providing universal access to these libraries. Normally the linkages between other digital libraries and information services are transparent. Digital libraries are systematic means to collect, store, organize, and distribute information and knowledge in digital form. For the most part they are an efficient medium to deliver information to all sectors of
society. The librarian must attempt to bridge gaps of understanding, or sense making and accepting the transformation process improving the LIS culture.

References:


