CHAPTER 1
Introduction
## Chapter - 1:

### Introduction

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1. Introduction:

Revolution in ICT (Information and Communication Technology) in the past couple of decades had drastic and far-reaching impacts on all aspects of human life. The Internet has added a new dimension to information technology, giving birth to such rich concepts as DLs (digital libraries), knowledge management and archiving of indigenous culture and heritage. DLs have emerged as a crucial component of global information infrastructure, adopting the latest ICT to promote an organizations structure that encourages communication between scholars across nations, and helps transcend disciplinary boundaries.

The tremendous explosion of networked information has affected the working environment of librarians in last decade. Though librarians have been organizing the world's information and making it accessible for centuries. But in recent past with the advent of INTERNET their roles has dramatically been changed. Focus has been shifted from traditional libraries to digital libraries including electronic resource management. Now the time of shrinking budgets, major emphasis is on the management of electronic resources including copyright, licensing concept, search engines and certain standards and formats. Establishing and maintaining access to electronic resources can be a painstaking, labor-intensive process full of administrative and technical challenges. Thus new scenario of library has come in to the picture. These welcoming transformations had beaten the various barriers of the traditional system.

The information landscape is changing rapidly. There are many reasons for this change. Users increasingly demand resources in Electronic format because of the associated advantages (such as their ubiquitous presence, search ability, manipulability and easy accessibility). More and more library staffs are now at ease with ICT and are happy to explore the functionalities of the software/hardware to the maximum extent. Librarians are also becoming proactive and creating partnerships with the academia to design environments where ICT is being integrated into the new teaching and learning experience. The library & computing services are being integrated to support users. The number of remote users is growing fast and demand access to resources from their homes, work places and while on the move.
Universities are slowly developing institutional repositories where the information generated by its staff is archived and made freely available worldwide. Information publishers, suppliers and agents are more aware of the developing market for electronic resources and are eager to supply electronics resources / services as well as print based materials only. Further, the World Wide Web (WWW) is an important platform for delivery of information and provides a basis for the paradigm shift from ownership of physical collections to access on demand. WWW being a real time information delivery channel has also made CD-ROM based delivery superfluous.

Paradigm shift is not only taking place within the library but throughout the University systems. This is because of the changes in curricula structure provision of distance education and delivery of teaching through VLEs, using the WWW platform.

However, current library management systems are not very helpful in the management of electronic collections as they were primarily designed for print based resources and lack the capability to manage electronic resources. Dedicated electronics resources access & management systems are now appearing on the LMS’ are also adding electronic resources management modules to upgrade their systems. These new generation systems will also help in the shifting of electronic resources.

Information explosion, a phenomenon of the past few decades, resulted in the exponential growth of printed matters, which created problems of bibliographical control, storage and dissemination of information. This adversely affected the service to users who had by now become more conscious and appreciative of the value of information. Information is a vital resource for socio-economic development. It affects everybody and its role is so pervasive that it has becomes so wide spread and there is a greater need of applying certain technology to information works and activities to accelerate of its use. It enables the storage, processing, retrieval and dissemination of information quickly and easily. The earlier libraries were open to their clientele for consultation within their premises. They have undergone radical changes and expanded their services over the years.

The modern libraries offer a variety of services like circulation of reading materials, reference services to the users, local information services to their clients,
getting reading materials for the users from other libraries on inter-library loan, online information services at national and international levels etc. Information technology (IT) covers all activities and technologies that involve the handling of information by electronic means i.e. information acquisition, storage, retrieval, processing, transmission and control. IT has influenced simple business activities to high level research and development work. The quality of work and activities has been greatly change by the presents of application of Information Technology. With the introduction of modern information technology in libraries, the role of library and information science personnel is undergoing a qualitative change. It is becoming a vital component in the overall resource management of library and information centers.

The library environment has been leading towards digital and the concept of “Electronic Library” i.e. paperless documentation and information services has been taking place. “Library Automation” is used to refer the extensive use of mechanical, electronic or microelectronic equipments to perform the functions and activities associated with libraries such as acquisition, serial control, cataloguing and circulation and also to library and information services and networking. The computers are of great significant with the advancement of telecommunication and reprography technologies facilitate information scanning and retrieval of details of micro and macro documents over vast distances in no time.

Information Technology (IT) According to ALA Glossary, “Information is the application of computers and others to the acquisition, organization, storage, retrieval and dissemination of information.”

Now-a-days, the current era is known as “Information Era”, information industry and the information technology are the most widely known concepts in the scientific world. Information technology in its strict sense is the new science of collecting, storing, processing and transmitting information. On the other hand, the meaning of information technology is the product of fusion of “Information Science and Technology”. Information Technology is the study of processes, especially computers, telecommunications etc. for storing, retrieval and sending information of all kinds. It covers all aspects of arts or science of processing data to produce
information. IT has transforming the human society to information society where information is the mainstay and life-blood of both individuals and organization.

1.1 INFORMATION TECHNOLOGY CHANGED THE ROLE OF LIBRARY PROFESSIONALS:

Libraries are knowledge banks. But as far as dissemination of information is concerned, it is not reaching the end users as effectively as it is supposed to. To maintain high standards of user services, academic libraries must continuously enhance their operations, services and understand how Information Technology (IT) fits into the academic environment. In today’s environment the librarians should help their user communities by getting updated themselves with the latest technology. LISP should understand that mastery of IT is critical to strategic success and to maintain high standards. IT’s importance extends beyond back office and operation, where it influences service and support. IT allows libraries to be responsive, flexible and innovative in the academic environment. The LISP should be taught about knowing how to manage information and IT functioning. The other important factors contributing to the sea change, is the increasing number of people who use and want to use Personal Computers. The computer literacy is ranging from illiteracy in many LISP to few experts. With the result most of the LISP does not still understand the issues that drive Information Science field such as need for good library application software etc. Most of the libraries still think application software as a liability. But the fact is that without application software nothing works. Mature libraries are which realize the service value of information and IT and assimilation of IT into the organization and service.

Today the change for any LISP is that how to manage knowledge, which is coming from all the available information sources. The success or failure of libraries mostly depends on the LISP who is in the middle of the hierarchy. They act as the bridges between the bosses and the subordinates. These are the people who lead the change and preparing them for the change is the key education task. For LISP, now being a PC literate alone is not sufficient, but he or she is also expected to be aware of the underlying issue such as infrastructure, application software and technological developments, in using information as a resource.
1.2 Importance of Engineering Education:

Technical education plays a vital role in human resource development of the country by creating skilled manpower, enhancing industrial productivity and improving the quality of life. Technical education covers courses and programs in Engineering, Technology, Management, Architecture, Pharmacy, Applied Arts and Crafts, Hotel Management and Catering Technology.

The technical education system in the country can be broadly divided into three categories: Central Government funded institutions, State Government funded institutions and self financed institutions.

1.3 Engineering Education: A Scenario

In its very broadest sense, the discipline of engineering is concerned with that body of theory and practice that is relevant to the design and construction of real-world artifacts arising from human endeavor. Engineering education is not only teaching in basic science, but also relies on training some personal and technical skills, modifying the student’s way of thinking in a more logical way to achieve creativity at the end. The main goal of engineering education is to model a creative ethical engineer in different engineering and allied domains.

Successful engineering activity requires wide range of skills and knowledge, because the corpus of documented materials relating to engineering is now so large, sub-domains of the subject usually have to be considered for example, electronics, bio-medical, computer, chemical, electrical and so on. Naturally, the fundamental purpose of engineering education is to impart relevant skills and knowledge to those people who are interested in gaining either a general awareness of the subject or who wish to become professional engineer and/or academic researchers.

1.4 Engineering Education in India

India has the potential to be a global technology leader. The India economy has been growing at the rate of 9% per year. The Indian industry has also become
globally competitive in several sectors and can increase its global market share. A critical factor in this will be the success of the technical education systems in India. With economic growth and the spread of technology, the demand for engineers has increased manifold. This has been matched by an increase in enrollments in engineering as well as in number of engineering institutions in India.

Engineering education in India is broadly structured into three levels – at the initial level, Industrial Training Institutes (ITIs) offer certificate courses, then polytechnics offer three year diploma courses and finally engineering, NIITs, IITs offer graduate and higher degree courses in various engineering disciplines.

1.5 Problems to be investigated:

The information explosion and recent development of IT have created problems in procuring, organizing and disseminating information for librarians and the actual users. The exponential growth of Engineering Education related literature is creating numerous problems. Even the biggest library system cannot afford to procure all the documents even on a micro topic. No individual can retain in his memory all that he reads his current future interest and the traditional library tools have become considerably ineffective in providing the specific information of an individual’s interest.

The present scenario in the field of Engineering Education is many drawbacks in the adequate library services. Many educational institutes do not have sufficient library sources and do not have a digital environment. In the lacuna of this facilities teachers, researchers, scientists and decision maker face many problems. Duplication of research work, adversely affect on manpower and money.

This fact shows that Gujarat has a well developed Engineering field but all the Engineering education and research institute do not have an effective information system which is required by this field. The dominated library & information centre face money crisis. Information explosion, interaction in information sharing to overcome this problem establishing and effective balanced digital environment is the only
solution. So, researcher has invested his brain to developing managerial skills for digital environment in engineering college for Gujarat. So, researcher suggests

"Developing Managerial Skills for Digital Environment in Engineering College Libraries in Gujarat"

1.6 Key Words
Developing Managerial Skills:

A skill can be described as the ability to translate knowledge into action that results in a desired performance. Traditionally it has been considered that managers use three skills in carrying out their tasks: technical, interpersonal and conceptual. To these may be added diagnostic and analytical skills. Not all of these skills are used in equal proportion. Managers at different levels in the organization need different kinds of skills, and libraries and information centre are no exception to this rule. As librarians or information personnel progress up the hierarchy of the organization, technical and interpersonal skills diminish in importance compared to the conceptual, diagnostic and analytical skills.

Digital Environment:

The term digital Environment is used in a wider context to include all sources, where the information is available in electronic formats and accessible with the help of computers. These sources include automated libraries, electronic libraries, virtual libraries, paperless libraries, networked libraries, libraries without walls and multimedia libraries, and all such terms are used interchangeably and synonymously.

Engineering College Libraries:

An establishment for engineering education, a college is place where students go to study after they have left school.

Gujarat:

This state is located in western India.
1.7 Need for the Study:

- To promote sharing of resources among the libraries of engineering colleges by collecting, storing, disseminating information and by offering computerized service to the users.
- To co-ordinate efforts for suitable collection development and reduce unnecessary duplication wherever possible.
- To enable the users to acquire the materials not available in their library from other libraries participating in the network systems.
- To establish a referral center for maintaining a central on-line union catalogue of books, serials and non-book material of all participating libraries.
- To develop a specialist bibliographical database of books, serials and non-book material for search and access for users.
- To process and maintain electronic and mechanical equipment's for fast communication of information retrieval.
- To evolve standards and uniform guidelines in techniques, methods, procedure, hardware, software and services for adoption by the participating libraries to facilitate pooling, sharing and exchanging resources and services.
- To co-ordinate with other national and international networks for exchange of information and documents.
- To create a database of projects, specialists and institutions for providing on-line information service.
- To assist locating out of print material and to facilitate fast retrieval in special areas.
- To take initiative for promotion of engineering research, development and innovation of information technology in engineering field.
- To prepare module of engineering college / institutions
- To prepare manpower for engineering field.

1.8 Functions of the Engineering College Libraries:

- To promote sharing of resources among the libraries of engineering colleges.
- Coordinate and communicate the resources and services.
- Facilitate efficient and economic inter – lending of information resources.
- Provide reprographic facilities.
- Establish centralized databank for quick information service.
- Formulate standards for information techniques, procedures, processes and service for use of the libraries forming part of the network.
- Establish co-ordination with other regional, national and international centers, engaged in information handling.
- Staff should be prepared for all types of services.

1.9 Aims and Objectives:
- To study the status of information technology in engineering college libraries.
- To collect the data regarding the engineering college in Gujarat.
- To collect the data of information resources stored at the library and information centers.
- To explore the possibilities to avoid the duplication of work like research, publication and resources and by that way economize the manpower and financial support.
- To explore the feasibility of establishing a common database for the all institute and to develop network in the field of engineering education.
- To find out the best format to exchange the metadata and the entire structure of proposed network including financial, manpower & techniques related to it.
- To establish a mechanism for information access, storage, retrieval and transfer in order to support the academic community.
- To provide information speedily and efficiently.
- To establish centralized databank for quick information service.
- To find out managerial skills in digital environment.
- To find out the awareness of new techniques in digital era.
- To find some guideline, which are better to serve the users.

1.10 Hypothesis:

The hypothesis is meant to provide the researcher with an opportunity, in advance of the actual data collection, to predict the results of the study. These predictions of the results are called the hypothesis of the study.
Predication was that the proper manpower & it was implemental or not. Second whether the data's are available for resource sharing or not, on the basis of his preliminary questionnaire, the researcher visited and given the questionnaire to librarians by getting feedback from them, it was prepared final questionnaires.

Today engineering college libraries in Gujarat are rapidly growing with the effect of gaining in importance. The Developing Managerial Skills for Digital Environment is the only way by which efficient, standardized and faster services to their clients are assured, besides access to a world wide data and information.

1.11 Scope of the Study:

The scope of the study is to evaluate and examine the present status of digitization, IT infrastructure and professionally trained manpower in engineering college libraries. The needs for professional personnel are format and continuing education programme and to suggest measures for improving manpower for digital environment. The idea is to provoke further discussion and reflections rather than to sharply draw any conclusion. The present study evaluated the different managerial skills possessed by libraries professionals working in more than 55 selected engineering colleges in Gujarat.

The library professionals here include the Librarians, Assistant Librarians, Library Assistants, Technical Assistant (Library), Reference Assistants, Cataloguer and Such other professional staff working in the library.

1.12 Limitation of the Study:

1. This study covers in its ambit those engineering college engaged in imparting only degree level courses in the field of engineering & technologies.
2. This study is primarily concerned with those degree engineering colleges functioning within the territorial jurisdiction of the state of Gujarat.
3. After 2009 engineering colleges are not included.