CHAPTER 1

INTRODUCTION
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1.1 Background

The developments in Information and Communication Technology (ICT) have brought significant impact on all spheres of human life. The impact has been rather prominent in case of service activities such as education, libraries, banking, health, transportation, etc. ICT has made tremendous changes in the internet-based library resources and services, housekeeping operations, and other functions. Finding particular information from the internet through internet reference tools is very fast and convenient. Search engines provide tremendous opportunity to search and select information effectively and in a user-friendly manner. Before the advent of ICT, communication in the library was done through books, newspapers, microforms, slides, etc. As scientific knowledge increased, electronic communication systems began to develop. The use of ICT based products and services and computers led to the emergence of internet. Just as mobile communication revolutionized the daily lives of individuals, the internet has enhanced the effectiveness and efficiency of library operations, which has provided an opportunity to access customized information.

The internet represents one of the most successful examples of the benefits of sustained investment and commitment to research and development. It is a mechanism for information dissemination and a medium for collaborative interaction between individuals and computers independent of time and geographical barriers. Content created on the internet ranges from simple e-mail messages to sophisticated documents including text, sound, and images. The internet is an interactive, dynamic, borderless and infinite space for the production and dissemination of information.
As the information super highway is in constant transition, the role of the internet on education is in constant transition. The universities are the centers of higher learning, training and research. Universities play a vital role in generation and dissemination knowledge by providing opportunity to conduct research studies in various fields of knowledge. The output of research studies are represented through doctoral theses as a unique genre of information resources. The quality of research is dependent on quality of resources and facilities provided by universities for the promotion of research. The internet facilitates the researchers to access the latest information in their field of knowledge instantly at their figure tips. The present study explores the role of internet in promoting research in universities in Karnataka state and its impact on library usage in the present day.

1.2 ICT Trends and Academic Libraries

Currently, the ICT is predominantly used to denote a wide range of services, applications, and technologies, using various types of equipment and software, often running over telecommunication network. The importance of ICT is not the technology as such, but its enabling function in access to knowledge, information and communications, increasingly important elements in today’s education, library, health care, cultural, economic and social interactions. ICT, particularly the internet, is transforming all human activities dependent on information, including rural development and other areas. Internet is a powerful and economical tool for information resource sharing for the benefit of civil society.

Education is a process of human enlightenment and empowerment for achievement of a better and higher quality of life. The purpose of education is not only to train people for specific employment role but rather to train them to cope with their lives in the discipline, intelligence and will. Recognizing such an enormous potential of education, focus is on to provide quality education for all. A university is an institution of higher education and research, which grants
academic degrees at all, levels in a variety of subjects. It is an establishment where a seat of higher learning is housed, including administrative and living quarters as well as facilities for research and teaching.

The internet in universities helps to improve the educational process and to address problems related to weak collaborative partnerships, declining educational standards, rising costs, increasing student numbers and to meet the general increased demand for higher education. For education to reap the full benefits of ICTs in learning, it is essential that academic community including faculty members, researchers and students have basic ICT skills and competencies. The challenge confronting our educational systems is on how to transform the curriculum and teaching learning process to provide students with the skills to function effectively in this dynamic, information-rich, and continuously changing environment.

Library is dependent on life and change. Without the human and organizational changes that occur, the library would neither function properly nor meet its purposes. Dr. S.R. Ranganathan, the father of library and information science, formulated the five famous laws of library and information science. The fifth law “Library is a growing organism” is now being challenged by the tremendous progress of ICT and its speedy application in all fields, especially in the field of library and information science. Since the 1980s, each new step in library automation has changed library services. In hindsight, we can see a number of trends, among them: access from multiple locations, making more resources available, making information available in raw forms and diminishing role of intermediaries. All these trends have become possible by technological developments in the area of networking, file storage, and more graphic user interface. They have also been enabled by agreements on standards and protocols (like Z39 50, DC, etc) that permit the integration of information resources in various formats.
Over the past few decades developments in information technology have brought many changes to university library services and infrastructures in the country. The first wave of library computerisation took place in the 1990s in the form of library automation and the second wave included networking and resource sharing of electronic information. The third wave led the emergence of digital, online and virtual libraries. As many primary journals are being published on online and offline formats, it becomes necessary to equip the libraries to optimize the use of information. E-mail, online retrieval networking, multimedia and internet are the other important technologies, which can be used for faster access to information.

Technological innovation, long a hallmark of academic research, may now be changing the very way that universities, libraries and information providing institutions learn. For academic institutions, charged with equipping scholars to compete in today’s knowledge ICT, the possibilities are great. ICT is an umbrella term that includes all technologies for the manipulation and communication of information.

The current situation of academic libraries can be understood in several technological contexts. Library automation passed through a number of stages in arriving at the point now where libraries provide on-line access to wide range of electronic information sources and services. The existence of the Machine Readable Cataloguing (MARC) records developed at the Library of Congress in the late 1960s was fundamental to the rapid spread of library automation through the academic library community. Arms (1989) notes that the standardized of MARC record enabled the emergence of bibliographic utilities such as the On-line Computer Library Centre (OCLC), the Research Libraries Information Network (RLIN), and the western library network.

In the early 1980s, the fundamental reorientation of bibliographic information came with its availability through the OPAC. It provided users with entirely new ways to search bibliographic records representing a library’s
OPACs have been the pioneers in information delivery to end-users on the network, promoting the concept of "taking information to the user". By the mid 1980s, libraries began to mount locally bibliographic, abstracting and indexing (A & I), and other databases. These enabled users to search citation and abstracting databases of journal literature, locally produced data files containing campus information as well as the library catalogue. Reid (1996) summarized IT development trends for the 1990s as extensive communication networks, accessible distributed databases, and enhanced human interface workstations. Similarly, Mitchell (1997) describes the conditions that characterized the network as, immense potential for communicating important information, immense chaos in finding useful scholarly and educational tools as well as what promised to be immense user interest and acceptance.

Through their extensive collections and services, academic libraries have long been central to the pursuit of pure and applied knowledge throughout the world. The current paper based system in which libraries acquire resources just in case scholars and students need them, is increasingly difficult for university and their libraries to support and sustain. Given the converging forces acting on libraries, there is little likelihood that academic libraries can remain in their current form. The wider context of change in which academic libraries are operating often goes under the label the Information Superhighway. The literature of the past few years highlights the great scope or avenues for electronic university or electronic library. Dempsey (1996) provides a detailed overview of the academic library perspective on network resources discovery, and articulated a vision of networked library environment that resonates with possibilities. His visions were:

i. to connect every scholar in the world to every other scholar and thus reduce the barriers to scholarly interaction of space, time, and culture;
ii. to connect to the network all important information sources, specialized instruments, and computing resources worth sharing.
iii to build databases that are collaboratively and dynamically maintained that contain all is known on a particular subject; and

iv. to create a knowledge management system on the network that will enable scholars to navigate through these resources in a standard, intuitive, and consistent way.

Internet has become a global source of information with resources accessible at anytime by anyone from anywhere in the world. Internet is a network of networks. The word was coined by Advanced Research Project Agency Network (ARPANET) to describe collection of networks that is used with common protocol or set of rules for inter machine communication TCP/IP. Internet gives pathways that facilitate the exchange of information, data files etc. The network grew from a handful of hosts to networks of tens and thousand of hosts. In 1993 users were professors, scientists and engineers at University and government organisations. Internet is a common universal information space in which we communicate by sharing information. It is estimated that worldwide there are more than 81,000,000 (ITU, 2010) users. Approximately 69 percent of Indian population have access to Internet and it may grow further.

1.3 Traditional Libraries towards Virtual Libraries

Today, the advent of information technology has resulted in reducing the size of libraries. In fact, these smaller modern libraries are rich potential of information. It has been possible due to the digitization of information. The digital and electronic information is based on digitized data/information, which has gradually replaced paper-based records. As the visual information system in comparison to text based information system is getting more and more popular these days, the traditional libraries are becoming hybrid libraries as they are in the process of doing digitization of their documents and moving towards becoming digital libraries. There are number of terms which are used by authors to represent the concept of digital libraries. These terms are, polyglot library, electronic library, desktop library, online library, library without walls etc. The term ‘digital and electronic library’ are the common term used by majority of the authors. A digital library is defined as “an
organized collection of online full-text digital information focused on one or more specific subject areas” (Monopoli et al., 2002).

1.4 Need for the Study

Academic libraries play a vital role in educational system by disseminating the information to its users. Higher education is a learning process rather than a teaching one. The importance of libraries is felt more in higher education because they are the sources of information to acquire more knowledge apart from learning from classrooms as the libraries store the documents, which support the organisations main curriculum. Use of ICT in developed countries and access to those practical stories again through ICT has induced the library professionals to experiment with the same in their location also. The systematic study of the use of internet by the research scholars of university libraries is felt necessary because, there are no proper guidelines in computerisation of libraries. There is lack of ICT policies from the government and higher educational authorities.

Electronic resources play a vital role in the field of education and research. Electronic access to journals has become important and valuable tool for researchers and the user community is becoming more and more familiar with these tools and now they have started using them very regularly.

Karnataka state is one of the developed states in India having more than 600 million populations. Though it is one of the leading industrial states with modern technology provisions it experiences frequent electric and other infrastructural inadequacies. It is observed that the universities located in the state are not exception these inadequacies. Hence, there is a need to understand the status of provision IT, internet and their associated problems and prospects in Universities situated in Karnataka.

Since internet is mainly concerned with the communication channel, it is essential that other facilities like browse, download of information etc be
implemented in the day to day of the library activities. The research scholars mainly depend upon library for seeking information. But we have to adopt internet facilities for quick, up to date and easy access of information. The library keeps them abreast of the latest developments and nascent ideas in the field. It is necessary to know the extent to which the university libraries are providing facilities and services through internet to the research scholars. It is observed that hardly any study has been conducted in this area in Karnataka state. Therefore, there is a need at present to investigate various aspects of problem of internet facilities and services in the day to day activities of the library and hence, the investigator has taken up the present study.

The need is also felt, as there are a number of well equipped research and development libraries but then there is an ever increase in the use and popularity of academic libraries by academic community for their educational and academic requirements. As per the observation of the investigator it is found that ICT and internet based library use and facilities are not developed in the university libraries in Karnataka which are considered for the study as compared to other specialised libraries. With the advent of modern information technology there is an ever increasing demand for more precise and accurate information by the users. Further, with the use of modern technology and adoption of modern gadgets to store, organize and disseminate information the university libraries are surging ahead to provide accurate and precise information expeditiously. Hence, the need is felt to make a systematic study of these library services, adoption of technology and to suggest for the improvement in providing library and information services not only in the urban area but also to the rural areas. The current study is related to the internet use in university libraries in Karnataka. Finally the need is also felt to know systematically the contribution of university library in Karnataka.

The investigator observed that lack of internet based research study in Karnataka state being carried out by earlier researchers covering research scholars of various disciplines in the university system. Hence the present study
aims to cover the internet based information needs of the research scholars of humanities, social sciences and science disciplines in the universities in Karnataka state in the changing ICT environment. However, it is pertinent to identify the strengths and weaknesses of university libraries in terms of internet information resources and facilities available and services provided by them and also it is necessary to know the internet based information needs of the research scholars so as to formulate policies and suggest measures which contribute to the improvement of the university research in Karnataka state which could be applicable to India too. Therefore, there is a dire need to investigate various aspects of information requirements of research scholars in the universities for which the present study has been taken up by the investigator.

1.5 Statement of the Problem

In order to address the internet related issues in university libraries in Karnataka, the researcher undertook the present study and the research study is represented through an expressive title as mentioned below.

"Impact of Internet on Library Usage in Universities in Karnataka"

1.6 Definition of the Concepts

The key terms in the title of the study are defined in the following subsections.

Impact: The term is defined in Chambers 21st century dictionary as "effect or impression" (Mairi, 1999). In other words it is a study of understanding the effect of one process or technology on functioning of other product or service. This requires pre and post study of any product or service introduction. In academic institutions like universities, the pre and post study is difficult due to nature of courses and users’ departure after the completion of the same. Hence,
current users' perception and understanding of impact of internet on library resources and services is being considered for the present study.

**Internet:** ARPANET describes internet as a global network of interconnected computers using an agreed upon set of standards and protocols to request and transfer information amongst one another (Bane & Milheim 1995). Physical connections between computers, specific file types, TCP/IP, service providers and connectivity are main features of internet.

**University Library:** The University library is the library attached to a specific university. The universities that offer PhD programmes in various disciplines and are financed by University Grants Commission in the state of Karnataka are considered for the present study.

**Library Usage:** Library usage is the measure of use of resources and facilities available in library. As the study intends to study the effect of internet on library usage, it focuses on user's pattern of internet usage and their perception of its impact on library. The user population considered for the current study is full-time research scholars of different disciplines of universities in the state.

**Karnataka:** Karnataka is one of the 29 administrative states in India. It is located in south-western region of the country.

**1.7 Objectives of the Study**

The primary objective of the study is to assess the researchers' perception of impact of internet on library services in university libraries in Karnataka. The specific objectives of the study are.

- to understand the nature of e-resources, internet facilities, and other services provided by the university libraries in Karnataka;
- to know the pattern of library & Internet usage in the university libraries;
- to examine users' preference towards media of information resources,
– to identify the constraints and problems experienced by research scholars while using internet-based resources and services provided by the university libraries;

– to assess the research Scholars’ perceptions of impact of internet on academic efficiency and library resources and services in university libraries;

– to understand the requirement of internet education and training programmes for effective use of internet resources by research scholars, and

– to suggest measures for the improvement of internet, e-resources and service to meet the academic requirement in university libraries in Karnataka.

1.8 Significance of the Study

The main beneficiaries of the present study are university libraries and their research scholars Though the study is related to university libraries, some of the findings may be helpful to other libraries too This study is significant because,

1. It helps the university libraries in Karnataka state to identify the strength and weaknesses of the e-resources, facilities and effectiveness of the services and competency of their staff particularly with reference to requirements of researchers.

ii The outcome of this study will help the universities in planning and improving the service delivery in libraries with regard to electronic resources.

iii It will help to know the patterns of internet usage and to plan for more effective resources and services.
iv. The study will also be of significance to research, learning and teaching because it is expected that the academic community would be sensitised to the important role played by the internet and electronic resources as sources of information.

v. It helps the academic administrators to know the actual requirement of the researchers in the present day context and devise appropriate action plans and helps realise the importance of e-sources. It is hoped that more resources would be allocated to sustain them.

vii. The study serves as an expository on the value of using an internet embedded platform in the learning process of university education research scholars in Karnataka state.

1.9 Organization of the Study

The present study is divided into eight chapters. The brief outline of each chapter as follows

Chapter 1

The first chapter gives the Introduction to the present study. It provides the details about the technological development and major changes in the field of library and information centres. It deliberates on current ICT trends, need for traditional libraries to adopt modern technologies towards virtual library. It explains the issues that motivated the researcher for this study followed by specific objectives considered for the study. The chapter also outlines the organisation of this thesis.

Chapter 2

This chapter deals with the Review of Literature related to the topic of the research. It describes the ICT, internet, internet tools and services, internet based library services, networking and resource sharing. This chapter also provides an overview of internet, the ICT based resources, services, and its use.
in library and information centres. This chapter highlights the different levels of change keeping in view the demand for the same sources and services available in the library as well as in the university.

Chapter 3

This chapter provides an overview of Impact of Internet on University Libraries and the internet based tools, services, resources, available and its use in library and information centres. This chapter highlights the different levels of change keeping in view the demand for the same sources and services available in the library as well as in the university.

Chapter 4

This chapter describes the methodology adopted in conducting the present research study. It uses survey research method for obtaining primary data from the field and questionnaire is the research instrument designed to collect data from the field. The chapter explains the sampling method, sample size and mode of data collection for the study. It also explains the statistical tools and techniques used for data analysis. The chapter concludes with narrating the scope and limitations of the study.

Chapter 5

This chapter provides the profile of universities and their libraries considered for the current study.

Chapter 6

This chapter analyses the primary data collected from respondents. It uses excel spreadsheets and sophisticated packages like SPSS for statistical data analysis. The chapter contains tables and charts appropriate for the study with necessary explanation.
Chapter 7 and 8

Chapter 7 presents the major findings of the study including testing of hypotheses formulated for the study. The Chapter 8 concludes the study with a summary of findings and suggestions proposed for the better use of resources and services. It also provides directions for further research in the field.

Appendices and Bibliographical Reference

The Appendices and bibliographical reference are given at the end. The investigator has used endnote software to generate bibliography and American Psychological Association (APA), 5th edition style is used for presenting the bibliography.

To conclude, this chapter introduces the topic of research study by detailing technological developments, current ICT trends and major changes in the field of library and information centres. It establishes the need for the study followed by objectives of the study.

The literature related research studies are reviewed in detail in next chapter.