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THE EFFECT OF EMERGING TECHNOLOGIES AND ARRANGEMENTS ON UNIVERSITY LIBRARIES

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ABSTRACTS

Library and information science's ultimate goal is to find, collect and arrange information so that it is collected and transmitted in advance or on demand to users. The widespread use of computers, the increased dependence on computer networks, the rapid growth of the Internet and the proliferation of quality and quantity of information forced libraries to implement new means and methods for information storage, retrieval and dissemination. We are mindful of the importance of information technology and also recognise that library resources are as important as their fundamental values. Libraries are now changing their position from custodians of traditional information services to providers of digital information resources that are service-oriented. A library is regarded as an essential and integral component of any research institution of high quality. Study in engineering is no exception to this. Today's technical libraries, as technical education requires them to play a supporting role, are required to be multi-disciplinary, multi-mode, and multi-media. In order to know what they really want from the library, libraries must constantly stay in contact with the research community. Contacts can be made in the form of help for inquiries, virtual presence in online environments or personal contact. In order to anticipate and respond to demands from researchers, libraries need to step away from a passive, reactive position to a more active one. Libraries can recognize all the differences in learning and in research practice that arise in the research community through staying in touch. This allows librarians to ensure that they have a variety of services to address all diverse needs and also to recognize that different resources will be used in different ways by individuals. Libraries are unable to have a one-size-fits-all library and expect it to be effective; awareness and empathy are the foundation of effective services.

***Key words**: Libraries, information science's, traditional, Education*

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INTRODUCTION

The education system in India is largely traditional and not tailored to modern social needs, although the situation is improving, albeit at a low rate. The colleges primarily have the corresponding authority for undergraduate and postgraduate education. As an institution for the exchange and dissemination of information, the library has undergone major changes from ancient times until today, when computers were not used for printing and publishing purposes, the manuscript used to be stored by librarians and users were not accessible to the public for constant use, the library often remained limited to the selected library in mediaeval times.

The library held a central role in the twentieth century with a strong foundation in culture, in government organisation, in the business sectors of industry, in government organisation. As a consequence, the modern library is divided into serval categories based on the nature of the distribution of records, the nature and specifications of the types of documents involved, so these are known differently, such as public, academic and special libraries, etc.

The academic libraries address students, scholars and faculty, taking into accounts their needs for academic teaching and study. College plays a significant role in the continuum of schooling. Without a library, a college is like a tree with no roots. Any college's status is calculated through the location of the library it maintains. Every college library should therefore become an instrument of teaching itself. It is expected that a college library will help the college's goals. Thus, a college library's fundamental purpose is to support its parent body to carry out its programmes. In every field around the globe, the college library plays an important role. With UGC's kind help, the college libraries of Gujarat are well established. Each Gujarat grant-in-aid collection is well equipped Using different types of library automation software and implementing creative ideas to build the library with IT tools and techniques. The Gujarat college libraries have become advanced with the proper use of IT. If college libraries are also well-equipped for IT applications, library users can benefit more and more.

Our everyday lives as well as study and educational practises have been influenced by information needs and complex information resources. The expeditious distribution of

information and the revolutionization of information handling practises in research and academic libraries in India have resulted in the new information communication devices. Academic libraries are centres of information resources, mainly connected to college and academic institutions, and have benefited to a large degree due to rapid technological changes. The introduction of digital computers in telecommunications and audiovisual technology has opened up new avenues for scientific and technological knowledge to be gathered, processed and disseminated.

IT application levels have become a measure of the level of wealth of a country. Countries that struggle to plan for and use IT efficiently are likely to lose their global competitiveness because of the pervasiveness of information technology. IT has altered and will continue to change the way we work, do business, connect and interact. Knowledge has become the lifeblood of organisations and is known as the 21st century currency. It is no accident that there is no affluent or developing nation in the present information age that is information-poor, and no information-rich country that is poor and undeveloped.

Each occupation such as e-banking, e-business has been affected by information technology; these days, electronic media, e-commerce, e-marketing, e-government, telemedicine, wired money, virtual collages and digital libraries have become buzzwords. Inventions such as the Internet, the intranet, cell phones, satellite communications and wireless technology have connected people and information and have radically changed the way in which science, technological, commercial, educational and cultural information is recorded, organised, transferred and accessed. Due to the use of information technology in automated acquisitions, machine readable cataloguing, circulation controls, online information retrieval, selective distribution of information (SDI), resource exchange, electronic paper delivery, CD-ROM/DVD databases, online journals and visual electronic databases, libraries have experienced a significant shift in the last two decades.

Definition of Library Effectiveness

Definitions of library efficacy varied from technological productivity steps to vague goodness claims, but most concentrated on mission accomplishment, profitability, customer satisfaction, staff management, and the organization's ability to thrive. It would appear that

the terms quality and effectiveness are used to mean the same thing based on a reading of professional attempts to figure this out achieving a quality of service that meets the knowledge and research needs of faculty, students, and other users to a high degree; that contributes demonstrably to the success of the I When one attempts to define the effects of this concept, roadblocks quickly tend to be successful by what criterion, meeting what standard of requirements, at what cost, for what reason. An efficient library is defined as a library that performs well in comparison with other libraries, given the context in which it operates. An efficient library is defined here as a library that performs well in comparison with other libraries, given the context in which it operates. Achieving productivity in library facilities is regarded as the fundamental duty of the management of the library.

History of Library Effectiveness

The history of library efficacy can be traced back to 1938 when Walter C Eells wrote "Measurement of the Adequacy of a Secondary School Library: A report on one stage of the co-operative study of secondary school standards." He found that the library with the largest percentage of the most recent published titles is superior to one that does not have these titles. His primary focus was to assess the selection of books on the basis of recent publications. However, it was only during the late sixties that assessment of library and information system efficiency became a major concern.

Measuring Library Effectiveness

Lynch describes measurement as "the method of determining the magnitude or size or quantity of something". "Effectiveness must be measured in terms of how well a service meets the demands placed on it by its users. Library efficiency can be calculated in terms of many functions. Since the 1970s, administrators of academic libraries have been concerned with the problem of efficacy and how to measure it. The measurement results can be used to test the library's efficiency and thereby decide whether it is successful or not. Evaluation of the library helps explain what functions well or badly and what its existing strengths and weaknesses are. User evaluation can provide invaluable value for Data for libraries to reorient their collections, facilities and operations in order to better satisfy their information needs.

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Selection of Criteria for Measuring Library Effectiveness

Evaluation systems consisting of three stages are the most widely accepted: performance, cost-effectiveness and cost-benefit? Effectiveness is' how well the system achieves its targets.' The cost of the service may be added to examine the cost-effectiveness of the service until performance is calculated. Finally, this approach acknowledges that efficiency and profits are not the same; thus, in contrast to the benefits offered by that service, cost-benefit measures a service based on the cost. It is possible to assess each of these conditions from various tests. For example, effectiveness combines a measure from the system's internal point of view (targets) with another measure (most likely one from the external view if that objective is based upon the user).

Various new services for the search, distribution and use of information have been launched by libraries today. It is possible to assess the effectiveness of these programmes by the following aspects:

- Consumer overall performance
- Information transmission in a timely manner - response time
- Availability and use of materials
- Availability and use of services and devices
- App experience of data searching methods
- Higher cost of delivering information
- Content accessibility
- Price and cost
- User satisfaction

Information and communication technology (ICT)

Information and Communication Technology, typically abbreviated as ICT, is sometimes used as an extended synonym for Information Technology (IT), but is usually a more general term that emphasises the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers, middleware, and software, storage and audio-visual systems that are needed. In other words, ICT consists of

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IT, telecommunications, broadcast media, all forms of audio, video processing and network-based control and monitoring function transmission. The concept was first used in 1997 in a study by the UK government of Dennis Stevenson and promoted in 2000 by the UK's new National Curriculum documents. The term ICT also refers to the combining (convergence) of audio-visual and telephone networks with computer networks by means of a single system of cables or links. There are major economic benefits to integrate the audiovisual, building management and telecommunications network with the computer network system using a single centralized system of cabling, signal delivery and management (huge cost savings due to the removal of the telephone network). This in turn has facilitated the growth of organizations to show their specialization in the process of combining the various network structures with the word ICT in their names.

INFORMATION TECHNOLOGY

UNESCO describes information technology as "the disciplines of science, technology and engineering and the management techniques used in the handling and processing of information; their applications; computers and their interaction with men and machines; and social, economic and cultural related matters". **L**ibrary-relevant information technologies primarily include:

1. Computer technology
2. Telecommunications technologies
3. Reprographic technologies
4. Library technologies
5. Technological communication

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COMPONENTS OF INFORMATION TECHNOLOGY

The general term Information Technology includes a wide variety of sub-technologies. It is the integration of computers, communication and technologies focused on micro-electronics. IT is experiencing rapid and creative growth. In recent years, IT has grown so rapidly to include a wide variety of devices, information products and services that have turned the function of a library into a portal to accessing global information resources. Successive advances in IT have greatly enhanced their capabilities, resulting in better technical devices, technologies, products, services and quality solutions.

EFFECT OF INFORMATION TECHNOLOGY ON LIBRARY

The technology revolution has made several improvements to how librarians and library employees manage their day and provide users with information. Libraries were book-focused institutions up until ten years ago. They had only printed catalogues of cards; online databases had barely become instruments for answering questions in the librarian's arsenal. Public access terminals and modern online public access catalogues became omnipresent in libraries in the early 1990s to exchange information about library collections and library acquisition management. During the mid-1990s, CD-ROMs were introduced. These CDs contained vast volumes of data that were loaded into single-use PCs or deposited in small LAN CD towers. In the late 1990s, not for libraries, but for trade, schooling, government and the general public, the internet became the lifeblood of knowledge exchange. The internet is the most democratic but confounding tool ever created for information. On the one hand, problems with storage and access are removed, but because everyone can put whatever they want on the World Wide Web, users also find inaccurate or incorrect information and use it as "fact." On the internet, there are now three billion websites and the number continues to increase. While the internet is a fantastic thing, it is not a replacement for the campus library or, more importantly, the librarian. In fact, much of the information of the world before 1970 does not appear in any structured or holistic way on the web.

SOME LATEST TECHNOLOGICAL DEVELOPMENTS USEFUL FOR LIBRARIES

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Cloud Computing is the latest information technology application that is really useful for libraries. Cloud storage provides libraries with many unique opportunities that can help minimise the cost of infrastructure and improve capacity and efficiency for certain forms of automation activities. Cloud computing has made huge strides in other market sectors and is now starting to see further use in library science. It can be split into two parts of the cloud computing system: the front and the back end. They are linked through a network, typically the Internet, to each other. The front end is the side seen by the user of the machine, or client. The back end is the part of the system's "cloud." There are different devices, servers and data storage systems on the back end that create the "cloud" of computing services. To ensure everything runs smoothly, a central server manages the system, tracking traffic and client demands. A collection of rules called protocols are followed by servers and remote computers doing most of the work and storing the data.

RESEARCH METHODOLOGY

Sampling Design

The research was carried out among the students and faculty members of the University Libraries in Delhi. This research study is to measure the impact of Information Technology (IT) on quality of service as perceived by University Library users. The study has a total sample of 80 from 100 questionnaires issued, among them 75 students and 25 faculty members. The samples were randomly selected from out of the regular users of University Libraries of Delhi. The advantage of a random sampling method is that the results can be analyzed faculty-wise and student-wise, drawing certain conclusions from each category of respondents. Both qualitative and quantitative data were collected. The instrument for data collection consisted of structured (open/closed-ended) questions. The questionnaire was administered to a sample of students and faculty members to collect data on their perceptions of quality of service with application of IT at University Libraries in Delhi.

Table: 1 Constituent Sample and Response

S.No	Respondents	Number Sent	Number Returned	Percent Returned
1.	Faculty Members	25	20	80.00%
2.	Students	75	60	80.00%
	Total	**100**	**80**	**80.00%**

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RESULTS AND DISCUSSION

Experience and gender-wise distribution

The experience and gender-wise distribution of library workers respondents is reflected in Table. Of the 25 respondents, 13 **(52%)** have 6 to 10 years of experience, consisting of 10 male and 03 female respondents, followed by 07 **(28%)** librarians with less than 5 years of experience, including 05 male and 02 female, 05 **(20%)** librarians have 11 to 20 years of experience, consisting of 05 male and 00 female librarians.

Table- 2 Distribution of respondents on the basis of Experience and Gender

S.No	Educational Status	Male	Female	Total
1.	**Below 5 years**	05	02	07 **(28%)**
2.	**6 to 10 years**	10	03	13 **(52%)**
3.	**11 to 20 years**	05	00	05 **(20%)**
	Total	**20**	**05**	**25 (100%)**

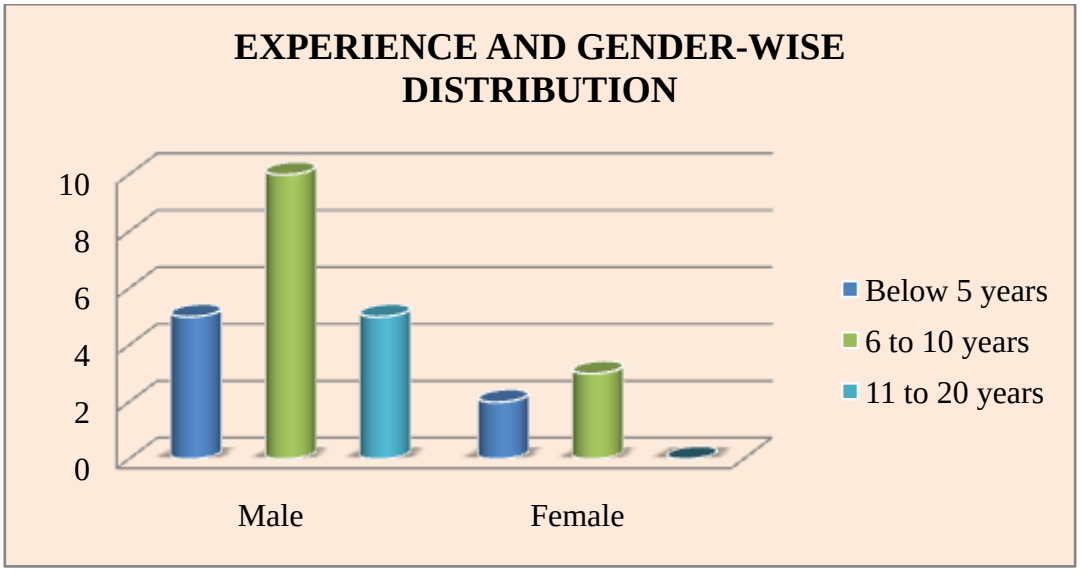

Figure- 1 Distribution of respondents on the basis of Experience and Gender

Seating capacity in libraries

Research centre library seating capacity data show that in 20 (26.6%) research centre libraries there is 101-200 seating capacity, followed by 201-300 seating capacity in 30 (40.0%) libraries, 301-400 seating capacity in 10 (13.3%) libraries, capacity of over 500 seats in 05

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(6.66%) libraries and capacity of 401-500 seats in 10 (13.3%) research centre libraries. The Chi-Square test showed a substantial difference between the seating capacity frequency groups (X2 = **25.458**; P = 0,000).

Table- 3 Distribution on the basis of seating capacity in liabraries

S.No	Seating capacity	Frequency	Percentage	X^2	P-Value
1.	**101-200**	20	26.6%	**25.458**	**.000**
2.	**201-300**	30	40.0%		
3.	**301-400**	10	13.3%		
4.	**401-500**	10	13.3%		
5.	**Above 500**	05	6.66%		
	Total	**75**	**100%**		

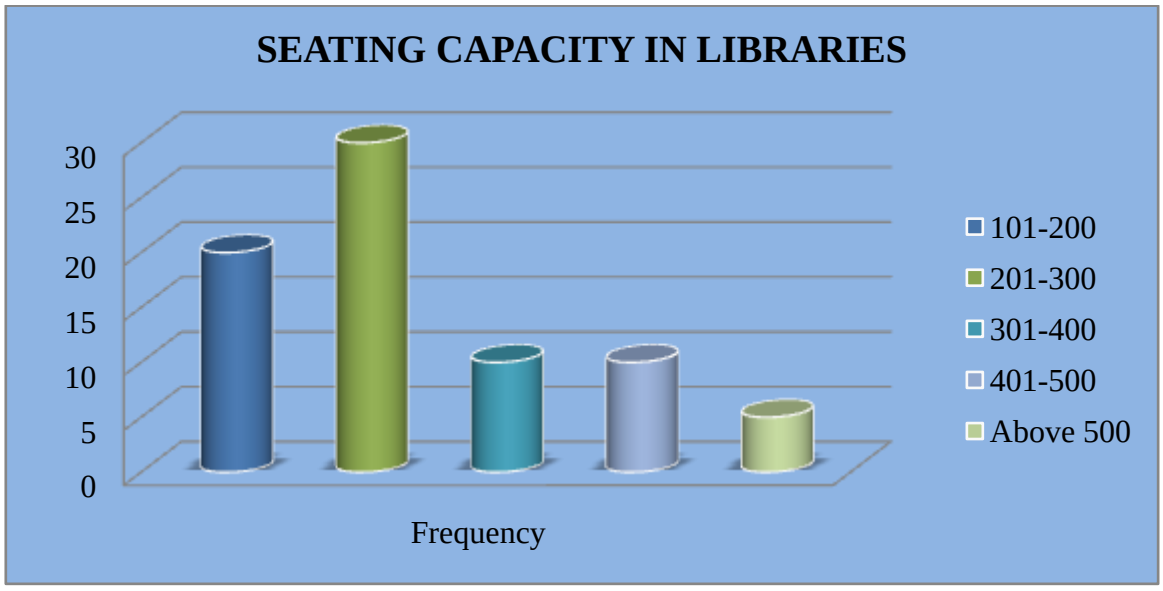

Figure- 2 Distribution on the basis of seating capacity in liabraries

Number of books borrowed per day in libraries

Table display the details on the amount of books borrowed by users every day in centre libraries. The number of books borrowed every day in 25 (33.3%) research centre libraries is 101-200, followed by 201-300 books borrowed in 25 (33.3%) libraries, 301-400 books borrowed in 10 (13.3%) libraries, over 500 books borrowed in 05 (6.66%) libraries. The Chi-Square test showed a large difference between groups of book frequencies borrowed from the

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library in different capacities per day (X2 = **33.188**; P = 0,000), showing that most centres had at least 101-200 and 201-300 books from the library per day.

Table- 4 Distribution on the basis of Number of Books Borrowed

S.No	Books Borrowed	Frequency	Percentage	X^2	P-Value
1.	**101-200**	25	33.3%	**33.188**	**.000**
2.	**201-300**	25	33.3%		
3.	**301-400**	10	13.3%		
4.	**401-500**	10	13.3%		
5.	**Above 500**	05	6.66%		
	Total	**75**	**100%**		

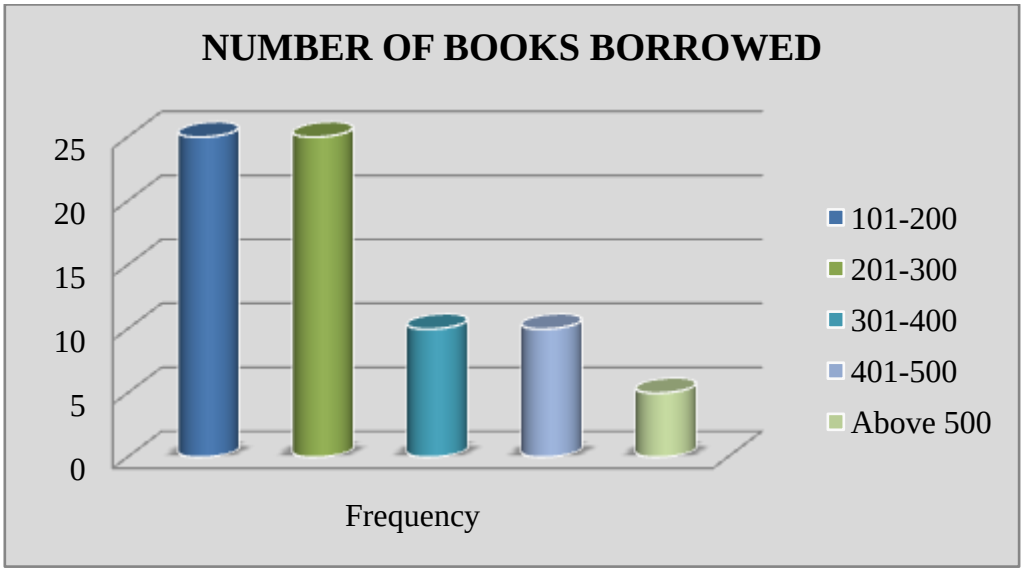

Figure- 3 Distribution on the basis of Number of Books Borrowed

Fund allocation for the purchase of books and journals in libraries

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Table: 5 Distribution on the basis of Fund Allocation for the Purchase of Books and Journals in Libraries

S.No	Basis for Fund Allocation	Strongly Agree	Agree	Strongly Disagree	Disagree	Not at all	X^2	P Value
1.	**Centered on recommendations from the library committee**	20	15	12	10	18	6.587	.059
2.	**Based on AICTE criteria**	30	15	10	05	15	58.483	.000
3.	**Based on the advice of the principal**	19	11	14	06	25	10.254	0.10
4.	**Centered on the recommendations from HOD**	27	13	10	14	11	39.458	.000
5.	**Based on feedback from users**	30	12	10	08	15	2.885	.450

Data for the distribution of funds for the purchase of books and journals in VTU research centre libraries on a separate basis. The Chi-Square test showed a substantial difference based on AICTE standards (X2 = 58.483; p = 0.000), based on HOD recommendations (X2 = 39.458; p = 0.000), based on principal recommendations (X2 = 10.254; p = 0.10) and a non-significant difference based on user recommendations (X2 = 6.587; p = 0.059) based on library committee recommendations (X2 = 2.885; p = 0.450).

Steps undertaken for better use of internet in libraries

The measures taken for the better use of the Internet centre in libraries are shown in Table. 75 (91.5 percent) research centres recorded maintaining updated computer systems, 02 (50 percent) libraries reported maintaining log books to document user entry and exit, 04 (100 percent) libraries opened their internet centre from 8 am to 8 pm, 03 (75 percent) libraries maintained enough computer systems for students to access the internet, Chi-Square analyses showed major discrepancies for computer systems being modified and preserved.

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Table- 6 Distribution on the basis of Steps Undertaken for Better Use of Internet in Libraries

S.No	Equipments	Frequency	Percentage	X^2	P -Value
1.	The Internet Centre is available between 8 a.m. and 8 p.m.	03	75%	62.010	.000
2.	Modified and managed operating systems	02	50 %	58.000	.000
3.	The Internet centre is available for up to 24 hours.	03	75%	33.122	.000
4.	To ensure user entry and exit, log books are retained	04	100%	85.900	.000
5.	Some programmes are separately reserved for faculty & researchers.	01	25%	25.325	.000
6.	A sufficient number of computer systems are available for students to use the Internet.	03	75%	66.333	.000

CONCLUSIONS

The digital machine, and thus the technological drive with the growth in the quantity and output of technical and other documentation, has had an influence on the way library managers operate. The evolution of semiconductor technology and the rise of the microcomputer in the mid 1970s was one of the main events that had a huge impact on the way librarians work and operate. At relatively low cost, reasonably high-powered machines were available, and more importantly, the microcomputer signalled a profound revolution in the way computers were viewed by us as humans. As remote mobile communications increase, the power of these two converging technologies of increasingly sophisticated and powerful computers at very reasonable rates, and the revolution of networks to incorporate both wired and wireless networks, provide possibilities that have never been accessible before, some of the ideas and thoughts of librarians There are ways for us to take advantage of technology. Therefore, India's library climate has become more volatile and the overwhelming importance of information technology in library functions and operations has encouraged researchers to examine library dynamics in the face of recent information technology developments. The subject of this work of study is significant, critical and highly

contemporary. Broad ranges of importance, related to the understanding of the different components of information technology, dynamics between the components inter-se and with library operations and functions, and the understanding of library management and operational aspects in the face of advances in information technology in India, with specific reference to selected libraries of Delhi. In addition to its practical applications, the researcher believes that his work would make a major contribution to the body of information. The researcher assumes that, in addition to its practical use, this study would also make a huge contribution to the body of information. Some of the contributions are summarised as -

- The gaps in the literature available in the field of research will be filled by this work.
- This thesis may lead to understanding the prevalent use of information technology in library management.
- In the current practises, it can recommend change and suggest alternative practises.
- Although this study is an initial attempt, it will provide a fairly suitable framework for future researchers.
- This work can also satisfy the need to set up a proper database in the field of analysis.
- The results of this study can be verified or debunked by future researchers, either by replicating this study or by expanding the results. Some points of reference may also be given in future studies conducted within a fair period of time.

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