

# E- libraries: Introduction to higher learning institutions of India

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## Abstract

The development of Information Technology is of global in its magnitude. The conventional libraries confined within a physical space are fastly transforming into digital information resources centres and effective library services. This paper describes the advance technologies used in libraries of higher academic institutions in India. The growing technologies has made revolutionalised changes in Indian society by making information available to people in different new ways. The paper highlights the changing concepts of libraries from traditional to conventional forms with different perspectives of ICT in Libraries of institutions imparting higher education.

**Keywords:** Information technology, Digital, Computerized, Hybrid, Virtual, E-resources, E-learning, Hypermedia, Multimedia

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## INTRODUCTION

Library is an integral part of every higher educational institution. Digital technologies, digitization and online information resources have made changes in the role of libraries. Information Technology has given a new shape to the learning process. The world of today is now embossed with new technological era and the profession of librarianship is comforted today with the availability of technology. Librarianship is the professional activity of selecting, procuring, organizing, preserving and making data available in most efficient ways for the people to identify, locate, access and use information and resources in a creative way. Librarians are the people having expertise in organization of universe of knowledge. The increasing role of technology in libraries has a significant impact on changing roles of libraries. **Jagdambika Prasad and Suman Lata Yadav, 2014** expresses that the learning has now shift its focus from 'Teacher centric

to Learner centric' education system. E-Learning is important aspect for extending access and changing learning behaviour and academic works.<sup>6</sup> **D.S.Singh and Nazim Mohammad viewed** that the contents of documents can always accessible regardless time or place to be read electronically through internet services. Paper based information has been transfer to electronic delivery, text centred mode transfer to multimedia and from physical presence to tele presence or virtual presence. The modern libraries are now sharing common technology revolving around electronics, computers, telecommunication, printing and reprography popularly known as ICT. The libraries are now equipped with collections of CD/DVD-ROM, CD Networking, Barcoding systems, Electronic Publishing, Hypermedia, Multimedia, Telefascimile, Radio data pagings, Networks, Artificial Intelligence, Speech synthesis, Electronic mails, Robotics, etc.<sup>3</sup> IIT's in India are the brand for scholars persisting in higher education in world of science and technology. These are the institutions which is considered as dream of every bright scholar to achieve remarkable success in their professional careers in the whole world. The scholars from IIT's are recognized as best and offers best packages all around the world for their excellence in their subject areas of science and technology. The infrastructure and facilities are also provided to these institutes are in a way to cope up with the global world of today. It is evident that many IITians of India are holding prestigious positions and embossing with their great new ideas, innovations for developing the

human society in the whole world with the help of science and technology.

### OBJECTIVES

- To know about the library facilities avail in higher educational institutions-IIT's of India.
- To know the status of IIT's libraries moving from printed to paperless collections.
- To know about status of the use of E-resources in IIT's of India
- To know about the new ICT tools implemented in libraries of IIT's in India.
- To know about the new ICT techniques practiced now in modern libraries of IIT's.

### Scope

The paper has been designed to know the status of library facilities and use of e-resources in the 16 IIT's of India which are having national importance.

### Limitations

- The present study has been only delimited to 16 IIT's of India'
- The data pertaining to study were collected through Online and Internet resources.
- The reliability of the facts depends upon the honesty of respondents.
- The nature of library users were not taken into consideration which might have affected the facts.

### REVIEW LITERATURE

India is one of the leading country worldwide for education and IT sector. Education has now great impact of IT technology for gaining higher educational opportunities. Libraries plays a perspective role for every higher academic institution. Most of the activities in Indian Libraries are now using IT for acquisition, cataloguing, classification, circulation, reference work, preservation, conservation and archiving processes. A large number of college and universities are at various stages of automation. Today, the emphasis is to provide the users with required information on desktop rather than face-to-face interaction. Digital Environment brought about revolutionary changes in the services of the libraries. Now, the most of the libraries in India used e-documents, e-journals, e-thesis, e-research reports and e-newspapers. IIT institutes in India are considered as best higher learning academic institutes. Indian government has planned to open each IIT of national importance in each state with world class infrastructure and facilities. There are now many IIT's and IIT's colleges in India to encourage science and technology but only 16 IIT's in India are considered as institutions of having national importance. The Institutes of Technology Act, 1961 lists 16 institutes which are as follows in table-1:

Table 1

Institution Name	Establishment	City/Town	State	Website
IIT Delhi	1963 (founded in 1961)	New Delhi	Delhi	<a href="http://www.iitd.ac.in">www.iitd.ac.in</a>
IIT Bombay	1958	Mumbai	Maharashtra	<a href="http://www.iitb.ac.in">www.iitb.ac.in</a>
IIT Kharagpur	1951	Kharagpur	West Bengal	<a href="http://www.iitkgp.ac.in">www.iitkgp.ac.in</a>
IIT Madras	1959	Chennai	Tamil Nadu	<a href="http://www.iitm.ac.in">www.iitm.ac.in</a>
IIT Roorkee	2001 (founded in 1847)	Roorkee	Uttarakhand	<a href="http://www.iitr.ac.in">www.iitr.ac.in</a>
IIT BHU	2012(founded in 1919)	Varanasi	Uttar Pradesh	<a href="http://www.iitbhu.ac.in">www.iitbhu.ac.in</a>
IIT Kanpur	1959	Kanpur	Uttar Pradesh	<a href="http://www.iitk.ac.in">www.iitk.ac.in</a>
IIT Guwahati	1994	Guwahati	Assam	<a href="http://www.iitg.ac.in">www.iitg.ac.in</a>
IIT Hyderabad	2008	Hyderabad	Telangana	<a href="http://www.iith.ac.in">www.iith.ac.in</a>
IIT Gandhinagar	2008	Gandhinagar	Gujarat	<a href="http://www.iitgn.ac.in">www.iitgn.ac.in</a>
IIT Bhubaneshwar	2008	Bhubaneshwar	Odisha	<a href="http://www.iitbbs.ac.in">www.iitbbs.ac.in</a>
IIT Patna	2008	Patna	Bihar	<a href="http://www.iitp.ac.in">www.iitp.ac.in</a>
IIT Indore	2009	Indore	Madhya Pradesh	<a href="http://www.iiti.ac.in">www.iiti.ac.in</a>
IIT Jodhpur	2008	Jodhpur	Rajasthan	<a href="http://www.iitj.ac.in">www.iitj.ac.in</a>
IIT Mandi	2009	Mandi	Himachal Pradesh	<a href="http://www.iitmandi.ac.in">www.iitmandi.ac.in</a>
IIT Ropar	2008	Rupnagar	Punjab	<a href="http://www.iitrpr.ac.in">www.iitrpr.ac.in</a>

According to T.Ashok Babu, A.Large and B.R.Bose, the library services are the core of academic services and finds a unique place in Academic Service Centres. Now, the higher educational institutions planning for computerized, digital, semi-digital, hybrid and virtual libraries where the information is stored in digital form and can be easily accessible to users with the help of local networks/computers. The concept of a digital

infrastructure is related to many things from internet connection to information management with a whole range of connected services such as data storage, security, interactivity and more. When new techniques are introduced, it is very important to know how the use of new techniques and tools to do activities in a more and efficient way. The digital shift comes as a need for new roles and skills.<sup>1,2,4,5</sup> According to Talab Seyed and

**Pramod Kumar Singh**, the libraries are considered to be the fountain of knowledge and wisdom and the librarians are the real heroes of the digital revolution in higher education. They are the ones who have seen the farthest, done the most, accepted the hardest challenges and demonstrated most clearly the benefits of digital information. They have turned their field revolutionalized by professional trainings to cope up with the changes in digitalized world of today. In modern ICT equipped libraries, the librarians are providing best efforts from their part to provide the information to library users in a digital environment of today. The modern libraries of IIT are facilitated with different new facilities with special collections which needs to be handled and preserve by the librarians for their users in the E-learning environment. Various technologies regarding E- resources should be managed and provided by the future libraries which needs a highly IT savy librarians for today and tomorrow to provide required information to brilliant minds of the library users in the form of E-resources. So, the future librarians must be a great IT savy with lots of read and knowledge about different subjects so that they can deal with the requirements of intelligent minds as well cope up in the professional competencies in the IT growing world.<sup>(7-11)</sup>

### METHODOLOGY

The present study is based on the survey method using questionnaire which is distributed personally to different libraries and some were sent through mail to receive answers from the respondents. Keeping in mind the above objectives a well structured questionnaire was designed for eliciting the use of E-resources and modern ICT tools by faculty, staff and students in the libraries of Indian IIT's. The primary data collected through Questionnaire regarding collections, e-resources and different modern new technologies are distributed to different IIT institutes. The secondary data is collected through text books, reference books, journals and various e-resources. The answers to them are received online through e-mails and internet services. The data collected was analyzed with the help of different tables, percentage and line graph.

### Data Analysis

Based upon the responses of Questionnaire, the collected data is analyzed. The modern libraries of 16 IIT's of having national importance are having their own websites and are facilitated with different new facilities in their libraries which are as under in table-2:

Table 2

Institution Name	Library	Collection	A.C Facility	E-Resources
IIT Delhi	Computerized	3.5 Lacs	Yes	Yes
IIT Bombay	Computerized	4.4 Lacs	Yes	Yes
IIT Kharagpur	Computerized	3.5 Lacs	Yes	Yes
IIT Madras	Computerized	3 Lacs	Yes	Yes
IIT Roorkee	Computerized	3.5 Lacs	Yes	Yes
IIT BHU	Computerized	50000+	No	Yes
IIT Kanpur	Computerized	2 Lacs	Yes	Yes
IIT Guwahati	Digitalized	2 lacs	Yes	Yes
IIT Hyderabad	Digitalized	1.5 Lacs	Yes	Yes
IIT Gandhinagar	Digitalized	20000+	Yes	Yes
IIT Bhubaneswar	Computerised	50000+	No	Yes
IIT Patna	Computerized	1.2 Lacs	Yes	Yes
IIT Indore	Computerized	60000+	Yes	Yes
IIT Jodhpur	Computerized	5000+	No	Yes
IIT Mandi	Computerized	15000+	No	Yes
IIT Ropar	Computerized	40000+	Yes	Yes

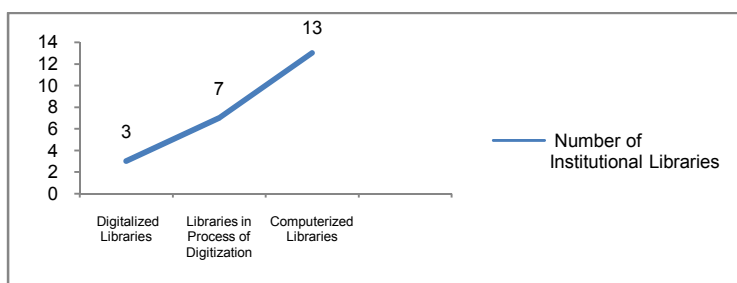


Figure 1.1

The table-2 shows that the different library collections vary from 15000+ to 3.5 lacs. Out of 16 IIT's there are 13 institutes which are having computerized library services and 3 institutes are moving towards digitization of library services. Most of the libraries are facilitated with A.C facility and all of the institutional libraries are using E-

resources. Based on data, it can also be seen through line graph clearly. The illustrated figure.1.1 shows that the higher academic institutional libraries are on the way of digitization and all are having Computerized Libraries with E-resources and new technologies of ICT world with them.

**Table 3**

Institution Name	Use of E-Resources by Faculty in Percentage	Use of E-Resources by Students in Percentage
IIT Delhi	80	85
IIT Bombay	80	75
IIT Kharagpur	85	80
IIT Madras	90	86
IIT Roorkee	80	75
IIT BHU	80	88
IIT Kanpur	85	80
IIT Guwahati	75	70
IIT Hyderabad	85	85
IIT Gandhinagar	80	80
IIT Bhubaneswar	70	75
IIT Patna	85	87
IIT Indore	70	70
IIT Jodhpur	68	65
<b>Total=16</b>	<b>1113/16 =69.5%</b>	<b>1101/16 =68.8%</b>

Now, every IIT library is having E-resources with them and the faculty as well as students are interested in using e-resources rather than print material of books present in the library collections. E-journals and E-books are largely in demand. The percentage of E-resources used by faculty and students in libraries of 16 IIT's can be seen through

table-3. The library users are now more convenient in using Internet and Online resources. It is seen that from 70% -90% library users are interested in using E-resources in their learning. It is hoped that soon when the libraries will get digitalized then the users of E-resources will be 100%.

**Table 4**

Institution Name	Wi-Fi Connection	Barcoding	OPAC	Smart Card	CCTV	RFID Technology
	Yes/No	Yes/No	Yes/No	Yes/No/In-process	Yes/No	Yes/No
IIT Delhi	Yes	Yes	Yes	In-process	No	Yes
IIT Bombay	Yes	Yes	Yes	No	No	No
IIT Kharagpur	Yes	Yes	Yes	Yes	Yes	Yes
IIT Madras	Yes	Yes	Yes	Yes	Yes	Yes
IIT Roorkee	Yes	Yes	Yes	Yes	No	Yes
IIT BHU	Yes	Yes	Yes	In-process	No	In-process
IIT Kanpur	Yes	Yes	Yes	Yes	No	Yes
IIT Guwahati	Yes	Yes	Yes	In-process	No	In-process
IIT Hyderabad	Yes	Yes	Yes	In-process	No	In-process
IIT Gandhinagar	Yes	Yes	Yes	In-process	No	In-process
IIT Bhubaneswar	Yes	Yes	Yes	No	No	No
IIT Patna	Yes	Yes	Yes	In-process	No	Yes
IIT Indore	Yes	Yes	Yes	In-process	No	In-process
IIT Jodhpur	Yes	Yes	In-process	No	No	No
IIT Mandi	Yes	Yes	Yes	No	No	No
IIT Ropar	Yes	Yes	Yes	In-process	No	In-process

Table-4 shows that the different new technologies like Barcoding, OPAC, WI-Fi Connectivity, Smart Card, CCTV and RFID technologies are now introduced in the IIT libraries. Now, the users of libraries are interested in gaining informations on their laptops and mobile devices

in place of searching and reading print materials. The modern libraries are now converting from computerized media to digital media. As the IIT's of India are considered as institutions considered under national importance so the government of India trying best efforts

to provide better infrastructure and facilities to these institutions to compete with the developments of science and technology worldwide. Out of 16 libraries of IIT only one library is not having OPAC otherwise all the libraries have Wi-fi connectivity OPAC and Barcoding system with them. The facilities like Smart Card, CCTV and RFID technology are in process in maximum libraries.

### Findings

The maximum IIT's library are fully computerized and soon in a process to get digitalized. It is to be noticed that nearly 70% of the faculty and students of IIT's are using E-resources in their learning process. The Digital Libraries received wide attention in modern era as it allows the users to access the digital information from anywhere across the world. The concept of hybrid and virtual libraries are also under consideration for these higher education imparting institutions. The present day society has transition of knowledge from print format to electronic format as well as online which has also given

rise to the problem of its preservation in digital form. But, Digital Preservation is a major issue of concern and vital part of creation and management of any digital collection otherwise it can easily become inaccessible and useless in just few years.

### EXPECTATIONS

The libraries are considered as the heart of every academic institution which are now expected to adopt and implement ICT application for better development and utilization of their information resources. The increasing popularity of E-books, Audio-books, Video streaming technologies, Smartphones and Mobile devices have given rise to the concept of E-Libraries. The concept of Computerized, Digitalised, Semi- Digitalised, Hybrid and Virtual Libraries are under consideration and the figure.1.2 shows expected picture of future libraries for Higher Educational Institutions of tomorrow.

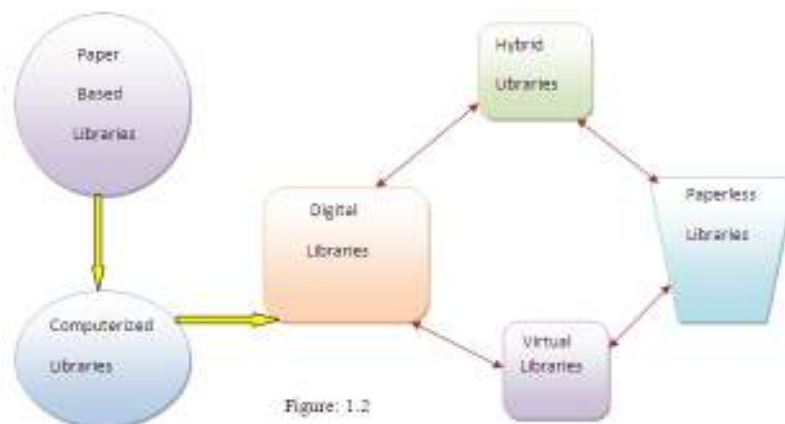


Figure: 1.2

Figure 1.2

### Suggestions

In this digital era, the librarians are the professionals who are able to act as an efficient leader with necessary skills or act as a facilitator to help the users to find the needed information. Changes are inevitable. Technological change has a greater impact in LIS profession. It is evident that the LIS professionals have to acquaint themselves to ever changing environment in order to sustain themselves in the profession. People in coming years will no more think of coming to library for books/journals or library collections, they would be able to connect themselves by own to different digital libraries which needs value based services to attract their users. The librarians now require lots of knowledge and read to know requirement of their intelligent digital users of their library. They needs to be great IT Savy to face the professional competencies in modern digital world of today.

### CONCLUSION

In this modern digital era, the libraries are moving towards e-libraries and virtual libraries. The introduction to various new technologies are adopted by the modern libraries. The role of a librarian in current environment and information age is very diverse. They must be well qualified and trained to handle properly the electronic resources and new technology in libraries. New challenges are continuous and are being faced by the professionals to provide quality services especially in digital environment, the libraries have to respond positively and played a vital role as information facilitator. The electronic environment provides an opportunity for libraries as well as for library professionals to design and disseminate the new services.

### Keynotes

- Large collections can be searched and retrieved through IT tools.

- Qualified trained staff required.
- Digital Libraries can help in minimizing the use of paper which in result is a major beneficial step for forestation in many countries.
- The digital libraries including E-libraries and Virtual Libraries results to create paperless libraries in future.
- Use of E-journals, E-books and E-mails can make information transfer in the libraries at very fast speed with help of Internet services.
- Digital Preservation is now a major issue of concern for future generation.

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