

Use of electronic resources in Indian academic libraries

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ABSTRACT

Libraries function as an essential integral component in higher education system. Academic libraries in India are facing a lot of problems due to so many legal, procedural, financial, bureaucratic system and working patterns. A lot of efforts have been taken in past few years to overcome these drawbacks. Electronic resources are playing a vital role in this regards by sharing through consortia for university libraries UGC-INFONET and INDEST-AICTE consortium is two major initiatives for university library users. The paper studies the trends in acquisition of e-resources and its impact on their print counterpart. The study also compiles all e-resources accessible at IITs (Indian institute of Technology), NITs (National Institute of Technology) technical university libraries.

Keywords: E-resources (electronic resources); Consortia; IITs (Indian Institute of Technology); NITs (National Institute of Technology); University Libraries in India, E-Journals

INTRODUCTION

Today is the age of electronic resources and developed information technology. From the sunrise to entire period of moon light every one's life depends and route with the application of electronic resources. One cannot do anything in his /her personal and professional acts and deeds without using e-resources, even leisure hours cannot be spent in absence of these resources. The internet and the web are constantly influencing the developments of new modes of scholarly communication. Libraries have witnessed a great metamorphosis in recent years both in their collection development and in their services structure.

In the last several years, many research studies have focused on use of electronic and print resources in library. Both faculty and students use electronic resources and readily adopt the e-resources if the sources are perceived as convenient, relevant and time saving to their natural work flow.

Libraries of all sizes and types are embracing digital collections along with the print collections for many years to come Printing technology was the only via media to store the required readable literature and hand written material for a very longer period, but after coming up the digital technology it has been considered as the best substitute of print counterpart, as it is very economical and time saving device. The reading material is available at very low cost of financial expenditure. Because print collection is heavily

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weighted and is bearing more expensive maintenance cost for keeping those intact and safe while digital collections are easy to keep safe, at low maintenance cost. Keeping this view in mind libraries prefer digital collections. In this way the usages of electronic resources the total processing and space costs are taken into account. Electronic collections may also result in some over all reductions in library costs. This conclusion came out after many research surveys and research techniques. Now librarians using electronic resources in performing their duties and implementing library functions smoothly and transparently, Hear it is worthwhile to clear that some research studies and conclusions seem contradict and it becomes very difficult to judge which valid & reliable findings is, But it is fact that librarians can use to make important decisions about collections, services and product design. As the matter of fact electronic resources are documents in electronic forms or can be accessed via electronic transmission through e-books, journals, newspapers, research reports, scripts and monographs etc., these resources have become critical part of the learning environment, particularly in the higher education, and bring tremendous benefits to organization and individuals to perform their work more effectively and efficiently. The benefits of e-resources have been well documented.

OBJECTIVES

The Specific objectives of the study are to:

1. Understand the concept of E-resource in Indian Libraries.
2. To identify the various sources of E-resource, consortia services and collection of libraries.
- 3 Discuss the e-resources problem faced by Indian library managers.
4. Review the quality resources in Indian institute of Technology and National Institute of Technology.
5. Examine the utility of e-resource and consortia services in Indian Libraries.

Delimitation of the study

The present study is confined to the e-resources facility and consortia services in Indian institute of Technology and National Institute of Technology.

It is delimited to Indian institute of technology and national institute of technology libraries are technical education only.

It is delimited to university libraries of general, technical and vocational education only.

Sampling

Seven IIT's(Indian Institute of Technology), five NIT's(National Institute of Technology) eight universities in India are taken for the purpose of this study.

Scope of the Study

The study is focused on the scholars, researchers and library managers (technical I.T. experts, and library professionals skilled, semi-skilled and non-skilled) of few named Indian IITs, NITs, and private engineering Colleges and Universities around the country. The survey was conducted at 5 IITs, 54 Technical Universities 9 NITs around the country.

METHODOLOGY

To complete this research project over the usages of electronic resources in Indian libraries some methods like survey, interview of users, observing the attitude of users as an experiment etc.; were adopted. Survey of users is typically done by sending a questionnaire to a randomly selected percentage of university faculties, members of professional organizations and library managers. In this process 832 questionnaires were sent to 7 IITs to 20 NITs and 149 technical University libraries out of which 585 had responded. Apart from these personal visits had also been undertaken. During this mode of survey 5 IITs, 9 NITs, and 54 technical Universities were visited and held interaction with 351 library managers, 114 technical experts and 120 library users including faculty members, researchers and students. Some information also gathered from the supporting staff of libraries. In this way data were collected and analysis as per result shown in the following analysis.

Survey Analysis

A survey was conducted to collect the data regarding use of electronic resources at Indian institute of technology, National Institute of Technology and Technical University libraries. During survey information and data collected through questionnaire, personal visits and having personal interviews with faculties, students, visitors, scholars and library users. The response received from 585 user members. The result of that survey can be viewed in the following tables having number 1 to 9.

Table 1: Distribution of researchers by rank

	Library Managers	Technical Experts	Library Users	Percentage
IITs	175.5	57	60	50%
NITs	105.3	34.2	36	30%
Tech. University	70.2	22.8	24	20%
TOTAL	351	114	120	
	585			100%

Table 2: Regular visitor of the library

Time spend	No. of Users	Percentage
Over 30 Hours/week	29.25	5%
20-30 Hour/week	35.1	6%
10-20 Hours/week	40.95	7%
5-10 Hours/week	46.8	8%
Less than 5 Hours/week	58.5	10%

Table 2 shows most of the users visit library and the utilized the library for a maximum of 5-10 hours in a week. Some of them use 20-30 hours in a week as well.

Table: 3 Information Services Offered by the Library

Library Services Offered by library staff	Excellent	Good	Satisfactory	No
Abstracting Indexing Services		4		
Circulation	10		4	
E-Journal/Journal services	24	10		
Database/OPAC search Browsing		14	4	
Display Board Service				
Inter library Loan				24
Reference Services Reprographic				
Technical Enquiry Services				26

Table: 3 Shows the rating of information services provided by the library. It reveals that most of the users members have used e-journal, some of them found it excellent & some of them it is good for some faculty OPAC is good, very few members says that circulation service is excellent and some of them it is satisfactory. Display board service inter library loan reprographic, reference service and technical inquiry service are not provide or there is rack of awareness.

Table 4: Purpose of seeking Information

Purpose	No. of Users
For updating knowledge	29
For doing research work	29
For doing PhD	21
For guiding researchers	19
For discussions	7
For Entertainment	15

Table: 4 Shows that most of the user members seeking information for updating their knowledge for during the research work. Only few of them are using for discussion and entertainment.

Table 5: Sources of Information used by user members

Sources of Information	No. of Users/members
Discussion with colleagues	17
Consult a knowledgeable person in the field	25
Consult library managers	20
Discussion with librarian or references staff of your library	6
Discussion with librarian or references staff of other library	3
Review articles/Thesis	30
Abstracting Journals	5
Indexing journals	11
Library catalogue	3

Table: 5 Shows that user members are searching information from various sources some of the users are taking help of knowledgably person in the field discussing with colleagues. Most of the user’s members are reviewing of the articles or thesis for the some. Other source search as indexing / abstracting journals/ library catalogues, discussion with librarian/ library staff of the library and other libraries are other sources of searching the information.

Table 6: Formal Sources of Information

Formal Sources of Information	No. of Users
Book/Monographs	21
Scientific technical journals/ periodicals	20
Patents/Reports/Standard/Specifications	9
Conferences/workshop/Seminar Proceedings	19
Online-Journals/Database/Archive	21
Internet/Intranet sources as Audio/video CD-ROM/DVD	21
Review articles/Thesis	9

Table: 6 Shows the various formal sources of information consultant by the user members. Most of the facilities are dependent on the books and journals and gradually they also come to depend upon journals and Conference/Seminars proceedings and internet/intranet etc.

Table 7: Sources of Having Knowledge of Current Development In the field

Sources of Information	No. of Users
Scanning of current issues or Print/online journals	38
Scanning recent issues of abstracting tools	8
Attending conferences	28
Internet/E-mail alert	3
Through services from library as CAS & SDI	29
Personal Communication	14

Table: 7 Shows that for the purpose of updating their knowledge they highly depends on print and online journals. Some of them also gain knowledge through services from library as CAS & SDI and also from attending conference.

Table 8: Sources of obtaining Journal In the field

Sources of Information	No. of Users
Personal subscription to print journals	33
Person subscription to online version	9
Library's Online/electronic version	45
Library's print subscription	27
Inter library loan	6

Table: 8 Shows that most of the users members use library electronic resources. Some of them also depend on personal print journal subscriptions. Just a few of them personally subscribe online version or through inter-library loan.

Table 9: Problems faced while Information Seeking

Problems	No. of Users
Material is not available	32
Library Staff are unwilling for services	3
Incomplete Information Materials	23
Information sources are so far located	3
Lack of coordination among IT experts and library managers & staff	12
Do not know how to use the catalogue	23
Lack of knowledge in using the library	12
Information scattered in too many sources	9
Information is too vast	3

Table: 9 Shows the problem encountered in information seeking by the user members. It is clearly shown that users want more material related to their discipline. Some of them

do not know how to use catalogue. There is also some incomplete information. In this table problems faced by library managers technical professionals and library users during library function & working, have been included. The main problem so faced by the library users and managers are related to coordination among staff and managers, administrative procedure and bureaucratic system. In this regard there is a common feeling noticed during personal visits of the IITs, NITs & technical University libraries.

Uses of electronic resources at Indian Institute of Technology libraries

India has large advantages in the information race. It has a large higher education sector-in the third largest in the world in student number after china and the United States. Most of the world's leading publishers have electronic Journal (e- Journal) access services at present.

IIT(Indian Institute of Technology) Bombay:- IIT Bombay subscribes to the full text versions of 222 e-journals covering a large number of publisher such as Elsevier, AIP ,ACS, ASCE ,SIAM ,LOP, RSC ,OUP , Wiley, etc. list of 158 free electronic Journals and Magazines are also accessible through their site.

IIT (Indian Institute of Technology) Madras (www.iitm.ac.in/) provides full text access to their clientele to the Science Direct service of Elsevier and the ACM Journals, in addition to more than a dozen titles online.

IIT(Indian Institute of Technology) Delhi:-IIT Delhi Library (www.iitd.ernet.in/) has a much wider coverage of full text e-Journal. These include Science Direct from Elsevier, IEEE/IEE Electronic library, American physical Society. AIP. ASCE, Chemweb etc. Their subscription to a group of eleven bibliographic databases called "Materials Science Collection" from Cambridge Science Abstracts (CSA) is another noteworthy service . TIFR(www.tifr.res.in/) has the full text facility of all the springer Journals through the LINK service. Some of the CSIR Labs with their individual efforts have already established excellent facilities in e- library operations.

Science Directory is already operational in four CSIR Labs i.e. National Chemical Laboratory Pune (www.net-india.org/) National Institute of Oceanography Goa (<http://www.nio.org/>) Central Drug Research Laboratory Trivandrum(www.cdriindia.org/) IITs known for their 'culture of excellence" impart world class training in engineering and technology, and conduct research in the relevant fields for advancement of learning and dissemination of knowledge. There are seventeen IITs around the country out of which seven are well known and noted IITs, Each of the IITs has a large well equipped, well maintained rich computerized and large central library with good collection of e-resource. All these libraries have been using web based e-resources since late 1990s. These libraries provide access to over 15,000 e-journals, e-books and databases in all major disciplines to their users and spend large sum of money to acquire these resources.²

The following table No.1 shows total use of all 14 e- resources at IITs from 2004 to 2012.

Table: 10 Usage of e-resources at IITs Indian institute of Technology

Institute	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
IIT Bombay	688,419	1,031,467	921,334	1,111,908	1,188,166	1,366,786	1,413,060	1,449,922	12,511,870	10,422,932
IIT Delhi	873,850	943,997	955,766	851,770	973,434	1,170,458	959,507	1,031,799	1,167,691	8,928,272
IIT Guwahati	75,100	160,138	228,400	350,717	443,786	476,694	451,884	482,879	501,982	3,171,580
IIT Kanpur	296,511	675,325	766,395	913,749	1,008,828	1,003,190	990,734	989,732	871,192	7,515,656
IIT Kharagpur	516,579	692,419	843,680	1,046,741	1,312,923	1,740,544	1,556,504	1,495,662	1,525,925	10,730,977
IIT Madras	524,635	1,312,718	1,205,759	1,381,990	1,409,103	1,444,460	1,390,752	1,334,907	1,250,838	11,255,162
IIT Roorkee	258,724	465,785	502,883	605,286	729,560	815,687	858,419	832,790	953,873	6,023,007
Total	3,233,818	5,281,849	5,424,217	6,262,161	7,065,800	8,017,819	7,620,860	7,617,691	7,523,371	58,047,586

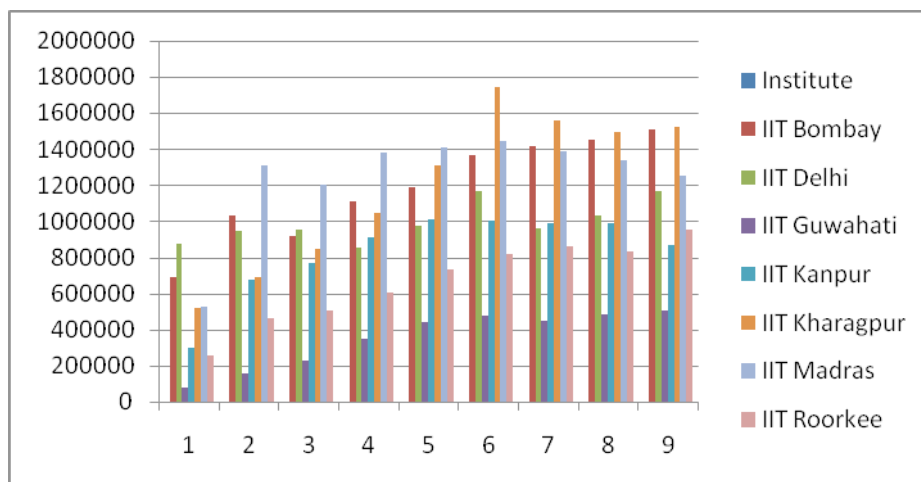


Figure 1: Trends in Usage of E-Resources at IITs

Table show that during the period of nine years from 2004 to 2012 the down loads have increased from 32, 33,818 to 76, 17,691 C.C. an increase of 135% which is remarkable. It is only due to the rising inclination of the library managers and users. This is in consideration with the fast development of information & communication technology which made the library management & function very easy, fast and updated as well. More over it was felt that through this use of E- Resources one can get latest & updated information at any time and anywhere around the globe at very low cost of investment. Through this system one can easily acquire and keep the required study & research material infect for very longtime. Due to these advantages the figure of E-Resources

users raised up to 135% or more. IITs libraries spend a significantly large proportion of their budget to acquire e-resource. E- Resources in all IITs have been very well obtained and are being used heavily. The IITs have been fortunate enough to receive the financial support from ministry of Human Resource Development (MHRD) government of India in carrying out their web based digitization activities. All the IITs have automated their libraries using proprietary Library Automation Software. All IITs have copy right agreement with the publishers.

Uses of electronic resources at National Institute of Technology (NITs)

The NITs are a group of public engineering institutes of India to offer degree course at bachelors, masters and doctorate levels in various branches of engineering and technology. All NITs are autonomous, which enables them to set up their own curriculum. There are 30 NITs around the country. NITs have a central library equipped with technical books, literature, fiction, scientific journals and other electronics material. All most all the NITs have digitalized their libraries, with the facility of high speed connectivity of internet. Users can access on line journal and other periodicals through AICTE-INDEST consortium. Video conferencing facilities are also available at some NITs, and others are upgrading under the World Bank funded TEQJP scheme.

Uses of Electronic Research at University Libraries in India

According to the free encyclopedia, Wikipedia, there are 573 university level institutions including 129 deemed universities and 115 Privet Universities in India as per table. it is really a great challenge to ensure effective coordination and communication. All universities are functioning under various education and R & D systems like all India council for technical Education (AICTE) and university grants commission (UGC) All universities are having central library, which are the hub for information storage and dissemination with the setup of six consortia such as UGC-INFONET,INDEST,IUC, DAEF, HELINET, FORSA & CSIR. UGC-INFONETE-Journals consortium initiative was undertaken by the UGC to facilitate free access scholars in all fields and disciplines by the research and academic community through joint partnership of INFLIBNET and ERNET. These efforts had a noticeable impact on research and academic community. The access is based on IP range the effort of UGC-INFONET and INDEST-AICTE Consortia are appreciable and considered as a boon in education system in India. In future consortia approach will be much more popular in user community and that day is not so far behind when consortia approach will expend the country's information base. The research output will increase multifold. It is pragmatic solution to many problems, like shrinking / static budgets, facing by Indian Academic libraries.

Table: 11 List of technical universities in India area wise

State	Central Universities	State Universities	Deemed Universities	Private Universities	Total
Andhra Pradesh	3	33	7	0	43
Arunachal Pradesh	1	0	1	1	3
Assam	2	4	0	2	8
Bihar	1	15	2	0	18
Chandigarh	0	1	1	0	2
Chhattisgarh	1	10	0	4	15
Delhi	4	5	11	0	20
Goa	0	1	0	0	1
Gujarat	1	18	2	11	32
Haryana	1	10	5	6	22
Himachal Pradesh	1	4	0	12	17
Jammu & Kashmir	2	6	0	0	8
Jharkhand	1	7	2	1	11
Karnataka	1	22	15	2	40
Kerala	1	11	2	0	14
Madhya Pradesh	2	15	3	7	27
Maharashtra	1	19	21	0	41
Manipur	2	0	0	0	2
Meghalaya	1	0	1	8	10
Mizoram	1	0	0	1	2
Nagaland	1	0	0	2	3
Odisha	1	13	2	3	19
Pondicherry	1	0	1	0	2
Punjab	1	7	2	3	13
Rajasthan	1	14	8	25	48
Sikkim	1	0	0	4	5
Tamil Nadu	2	24	29	0	55
Tripura	1	0	0	1	2
Uttar Pradesh	4	23	10	16	53
Uttarakhand	1	9	4	10	24
West Bengal	1	20	1	1	23
Total	42	287	129	115	573

E –Consortia :- Library consortia is a group of two or more libraries which have agreed to cope rats with one another in order to fulfill certain similar need usually resource sharing .Consortia are basically evolving a form of cooperation among the libraries which come together to share resource electronically.¹¹The explosion of Information and inadequate information centers urged the libraries to adopt new means and ways for collection development and to reduce the cost of journals subscription, the new device consortia came in to existence. Consortium came as a boon with following more advantages:

- Provides ability to share resources without sacrificing the individuality of each member library.
- Collections enable each member library to support scholarly research.
- Consortia-based subscription provides to wider knowledge at lower cost.
- Cooperative research and development in application of information technology enhances service and realizes cost efficiencies.
- Consortium negotiates a purchase price, so that users can reap the benefits of more resources than would be available through on library.
- Uncertainties in legal issues are handled with more confidence.
- Consortium has bargained better terms of licenses for use, archival access and preservation of subscribed electronic resources. Which would not have been passable for any single institution?
- Consortia based subscription is helpful to provide better library services to their users, likewise current awareness service, , select dissemination services.
- Unlimited subscription can be done, because e-Journals demand neither library space nor maintenance costs nor can they be stolen from the library.
- No time bound while providing better services to the users, as available 24 hours a day, 7 days a week.

Consortia in India

Besides of these world consortia Indian academic institutions had also done great efforts for formation of library network mainly due to the radical changes in the functioning of the libraries. The fact that financial crunch in these libraries forced them to find out some sort of cooperation and search this kind of solution. As a result formal library network came in to existence. Such as CALIBNET, DELNET, INFLIBNET, MANLIBNET, PUNNET, MALIBNET, gave a real boost to library automation activities in the country. Many libraries in India came together voluntarily for resource sharing and cooperation.⁹ Following are the major consortia in India:

- FORSA Consortia:-This is a cooperative venture for providing access to select number of Journals in the field of Astronomy and astrophysics.
- CSIR :-Counsel of Scientific and Industrial research consortium,
- The Council of scientific and industrial research India has 40 scientific laboratories engaged in basic as well as applied research in various disciplines.
- IGCAR:- Indira Gandhi center for Atomic Research Consortium In this consortia, the institution associated with atomic energy and space, have established IGCAR to cater the needs of the scientist working in BARC, ISRO etc. on reasonable prices.
- IIM:- Indian Institute of Management Consortium All six IIM's developed a consortium to subscribe e-Journals centrally.

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- URLC:- Urdu research library consortium This consortium has been established by Urdu research library to cater the need of researchers in this field.
- INDEST :-Indian National Digital Library in Science and Technology This Consortium is a major initiative under the department of Secondary and higher education, Ministry of Human Resource and Development in 2002 to set up a consortia based subscription to electronic resource for technical education system in India.⁸
- UGC-INFONET CONSORTIUM:-In terms of users, the UGC- INFONET Consortium is the largest consortium in India with a vision and plan to reach out to all universities and colleges affiliated to these universities,¹⁰
- UGC-INFONET E-Journal Consortium is a Joint initiative of UGC and ERNET India, new delhi under Ministry of Information Technology, for networking of Indian Universities.

Finding of the study

The finding of the study can be summarized as below:

- All the students, research scholars of academic libraries are aware of e-resources and they all feel comfort in using them.
- More than 88% of them use it daily for research work.
- 78% prefer electronic format while 20% both print and electronic.
- Low internet connectivity is the major obstacle while accessing e-resources.
- Procedural delay due to administrative polices are the main hurdle in using e-resources.
- Lack of coordination between technical experts and library professional.

SUGGESTIONS

In India all consortia are working in their own way for their organizations. There are many technical problems which most of the consortia in India are facing. There is no standard pricing models for consortia like a print version for libraries. All consortia may come together to resolve these issues in a manner to avoid financial and audit problems. For this purpose there must be uniform models for consortia and all related institutions must have coordination among them after having meeting at common plate form.

All IIT's Need to focus on designing and delivering products and services to meet the Identified needs of their Users.

There is strong need to have a well –defined e-reference policy in an organization for effective and efficient building of e-reference sources and also to deliver comprehensive and dynamic e- reference services.

Electronic resource system requires staff interface that enables library staff to efficiently carry out the work.

The library should create awareness among the users by conducting programmers, such as orientation program, demonstrations, conference, and seminars and through notices.

CONCLUSION

Changes in earthly life is a regular phenomenon at every step of moving wheel of time changes appear moment to moment, resultant that after every interval of time apparent changes appear in the regular system of life. It can also be seen in the function and set up of libraries systems. All academic libraries in India specially IITs(Indian Institute of Technology) NITs(National Institute Of Technology) and university libraries have been transformed from their conventional set up and working to digital form by using electronic resources all type of libraries are embracing digital collections. E-resources in all academic libraries have been very well used by spending a significantly large proportion of budget. Academic libraries have really understood that consortia based subscriptions is cost effective. Through there are some contradictions in the findings even then some clear messages emerge. In term of information seeking it is clear that library users and library managers seem to be comfortable with using electronic resources having wide variety of ranges and sources. It is also evident that where ever high quality electronic resources are made available people use them.

REFERENCES

- Ali, N. 2005. The use of electronic resources at IIT Delhi library: A study of search behaviours. *The Electronic Librarian*, 23(6), 691-700.
- Jagdish, A. 2003. *The International Information & Library Review*, Vol.35, no.1: 1-17.
- Lice Z Print .2006. A study of users' perceptions, preference and use information processing and management, 42(2), 583-592.
2014. Available Online from http://en.wikipedia.org/wiki/List_of_universities_in_India
2014. Available Online from http://en.wikipedia.org/w/index.php?title=National_Institutes_of_Technology&action=history
2014. Available Online from http://en.wikipedia.org/wiki/List_of_universities_in_india
2014. Available Online from <http://mhrd.gov.in/nit>
2014. Available Online from <http://www.ugc.ac.in>
- Current Science* , 84(7), 10 April 2003
2014. Available Online from [www. Inflibnet.ac.in/info/ugcinfonet](http://www.Inflibnet.ac.in/info/ugcinfonet)
2014. Available Online from www.library.yale.edu/consortia/FORSA.html

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