Application of Information and Communication Technology (ICT) in Indian Management Libraries

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Abstract - *The purpose of this paper is to investigate the application of Information and Communication Technology (ICT) in the managementlibraries located in the National Capital Region (NCR) of Delhi, India. The study alsoattempts to examine what type of electronic resources and web based information services are offered to users of Management Institutes' libraries. The study found that all libraries covered under study were fully automated and Libsys is the most popular automation software used by majority of the libraries. Further it was found that all the libraries had intranet and Wi-Fi based internet connectivity. Availability of some key online databases are exclusively confined to only a selected few management libraries. The study revealed that majority of management libraries needs to upgrade their e-resource collection particularly with regard to various specializations of the field.*

Keywords: Electronic Resources, Online Databases, Management Institutions, Business schools, Management Libraries, NCR.

1. Introduction

The rapid developments in the information and communication technology sector have influenced almost all types and sizes of libraries' operation and services. Libraries these days are procuring and subscribing electronic and digital information resources as well as using advanced technologies to provide better services to their users. The growing demands of users for various types' information resources and services have compelled libraries to adopt advanced means and methods for the storage, retrieval and dissemination of information. Equally there is need to upgrade ICT skills of library and information professionals in order to ensure more efficient and effective functioning of library and information centres.

Particularly with respect to field of management studies, India over a period of time has witnessed enormous increase in the number of management institutions imparting management education. At present, there are there 19 Indian Institutes of Managements (IIMs) which are regarded as institutes of national importance. The AICTE annual report (2011-2012) (64) reported that, as on March 31, 2012 there were 3849 MBA/PGDM institutions with an intake of 3,89,848 students. On the basis of this figure it can be said that the total number of management libraries in India is also likely to be 3500+.With the increase in the number of institutions there is equally increase in the number of management libraries. Each management institution contains small or big library to support the information needs of highly demanding clientele. The issues of

information explosion, rising costs of information sources, transition from print to digital media and changing behaviors and expectations of users from the library is posing several challenges to management libraries as well.

2. Statement of the problem

In this changing era, the management libraries are also started making extensive use of ICT in order to provide effective services to their users. In India, very few attempts have been made so far to study the impact of ICT and availability of e-resources particularly in the management libraries. Thus the present study has been taken up to know the current status of management libraries with regard to their ICT infrastructure, competency of library staff with regard to various ICT operations and availability of e-resources and web based services. The study also highlights the availability of various electronic databases particularly related to management subjects in the selected libraries.

3. Review of related literature

It is now accepted fact that information and communication technology has tremendously transformed the libraries in the way that they operate and provide information resources and services to the users. Several studies have been carried out in the field to assess the impact of ICT and availability of e-resources and e-services in different libraries all over the world. Singh and Rana (99-101) stated that modern ICT is impacting on various aspects of library services and its users. Advancement in ICT has resulted in growth of digital information sources and digital media these days has become the dominant form of information storage and retrieval. The term Library no longer refer only to physical building located in a specific location but also to electronic libraries information resources. Krubu and Osawaru (2011) also supported that ICT presents an opportunity to provide value-added information services and access to a wide variety of digital based information resources to their clients. Furthermore, academic libraries are also using modern ICTs to automate their core functions, implement efficient and effective library cooperation and resource sharing networks, implement management information systems, develop institutional repositories of digital local contents, and digital libraries: and initiate ICT based capacity building programmes for library users. Gaur (189-203) analysed the status of digitisation of Indian Management Libraries through a survey carried out in 500 management libraries in India. His study reported that only 12 libraries out of 174 have started working on development of a digital library thus he stated that Indian management libraries must work hard to reduce the digital gap.Antherjanam and Sheeja (35-43) tried to assess availability of e-resources and the impact of ICT on different sections of CUSAT library, Kerela by observing the activities of different sections; discussions with colleagues and visitors; and analyzing the entries in the library records. Swain and Panda (74-85) in their study looked at the prolific growth of electronic resources during the last decade and attempts to measure the quantum of e-resources accessed in the academic ambience of Business School libraries in Orissa (India). Moreover, the study attempts to examine to what extent Electronic Information Services (EIS) are offered to users of Business School libraries in the State with an opinion pool of the librarians of the respective Business Schools. The study revealed that the internet-based e-resources are being well used compared with CD-ROM databases. Habiba and Chowdhury (74-90) analyzed the status of electronic resources facilities and services provided by the Dhaka University Library

(DUL). Singh and Madhusudhan (16-35) discussed about the changing facets of e-resources and current practices related to acquisition, selection, mode of procurement, promotion, etc of management libraries in National Capital Region of Delhi. Ahmad and Panda (2015) investigated the impact of the e-resources on traditional library services and predicts the probable future effects on the infrastructure of academic libraries with special reference to the academic libraries of Lucknow. In finding of the study, they reported that librarians of most of the academic libraries are in favour of delivering e-resources and services which changed the perceptions of contemporary users of academic libraries. Ndidiamaka (37-43)analyzed the impact of information and communication Technology compliant librarians on library services delivery on National Open University of Nigeria (Noun) Library. The results showed that inadequate ICT skilled professional Librarians, inadequate provision of ICT training programmes, inadequate power supply and inadequate ICT infrastructures hinder the effective use of ICTs in NOUN library.

4. Objectives

The main objectives of the study are as follows:
- To know the current status of management libraries with regard to their ICT infrastructure.
- To examine the competency of library staff with regard to various ICT operations.
- To find out the various types of web-based library services available in management libraries.
- To find out the various types of e-resources available in management libraries.

1. Methodology and analysis

The study is based on a structured questionnaire survey and personal interviews. The study is confined to the following nine prominent management institutions for the survey of their libraries to meet the objectives of the study. All the selected management institutes of NCR of Delhi have libraries of moderately big size and these are quite actively involved in providing access to electronic resources. The details of institutions/libraries covered are listed in Table I.

Table I:Details of Institutions/Libraries Covered under Present Study

S.No.	Management Institutions	Name of Library	Year
1	FMS, DU	FMS Library	1954
2	IIFT	Foreign Trade Library	1963
3	MDI	MDI Library	1973
4	DMS, IIT	IIT Central Library	1976
5	IMT	IMT Library	1980
6	FORE School of Management	FSM Library	1981
7	IMI	IMI Knowledge Resources Centre	1981
8	BIMTECH	BIMTECH Knowledge Centre	1988
9	Amity Business School (ABS)	Central Library	1995

Note:FMS, DU= Faculty of Management Studies, University of Delhi; **IIFT**= Indian Institute of Foreign Trade, **MDI**= Management Development Institute; **DMS, IIT**= Department of Management Studies, Indian Institute of

Technology; **IMT**=Institute of Management Technology; **FORE**= Foundation for Organizational Research and Education; **IMI**= International Management Institute; **BIMTECH**= Birla Institute of Management Technology.

The year of establishment of the libraries was the same as that of the institution. It was observed from the Table I that management libraries were established during 1954 to 1995. The oldest library i.e. FMS Library was established in 1954 followed by Foreign Trade Library of IIFT in 1963. The MDI Library which is located in Gurgoan was established in 1973, thus it is the oldest management library situated outside Delhi region. IIT Delhi, Central Library was established in 1976 followed by IMT Library, Ghaziabad in 1980. The FSM Library and IMI Knowledge resource centre was established in 1981. The most recently established library is Amity Business School's Central Library in 1998.

5.1 Working hours

The timings of libraries are very important in order to provide best library services and increased usage base. In era of electronic resources, the access to library services has been extended beyond its working hours. Various services such as WebOPAC, institutional repository, online reference service, remote access to databases; user orientation etc. is available 24X7 via the internet. The Table II displays working hours of the management libraries under study.

Table II: Working Hours of the Libraries under Study

Library	Working Days	Working Hours		Working Hours on Saturday/Sunday	
		Opening Time	**Closing Time**	**Opening Time**	**Closing Time**
ABS*	Monday to Saturday	9:00 AM	10:00 PM	9:00 AM	10:00 PM
BIMTECH	All Days	9:00 AM	10:00 PM	9:00 AM	9:00 PM
DMS-IITD	All Days	9:00 AM	12:00 Midnight	10:00 AM	6:00 PM
FMS	All Days	9:00 AM	9:00 PM	9:00 AM 9:00 AM	9:00 PM 5:30 PM
FSM	Monday to Saturday	9:00 AM	9:00 PM	10:00 AM	6:00 PM
IIFT	All Days	9:00 AM	8:00 PM	9:00 AM 11:00 AM	7:30 PM 7:30 PM
IMI	All Days	8:00 AM	12:00 Midnight	10:00 AM 9:30 AM	10:00 PM 5:30 PM
IMT	All Days	8:00 AM	6:00 AM	9:00 AM	10:00 PM
MDI	All Days	8:00 AM	12:00 Midnight	9:00 AM	10:00 PM

Note: *For full forms of the abbreviations, please refer to Table 1

From the above Table II, it can be seen that, seven libraries out of nine remained open on all days including sundays and holidays where as remaining two libraries also remained open for six days in a week. All the libraries remained closed on National and Gazetted holidays. The average

working hours of each management library ranges between 12hrs to 15hrs. The maximum working hours were of IMT library which remained open from 8:00 AM to 6:00 AM from Monday to Friday followed by MDI library which started its functions at 8:00 AM in the morning and remained open till 12:00 in the midnight. On the basis of discussion it may be said that management libraries remained open for a fair amount of time, but except IMT library none of the other library found to be working after 12:00 in the midnight.

5.2 Human Resources

Human resources of a library consist of staff members responsible for the operation and management of a library. The library has various types of LIS professionals working at different levels. The distribution of the staff of the libraries of management institutions under three broad staff categories is given in Table III.

Table III: Human Resources in the Libraries under Study

Library	Professional	Para-Professional	Supporting	Total
ABS*	13	12	9	34
BIMTECH	6	1	2	9
DMS-IITD	14	4	6	24
FMS	1	3	3	7
FSM	3	1	1	5
IIFT	3	1	-	4
IMI	4	2	2	8
IMT	2	4	2	8
MDI	4	3	1	8
Total	50	31	26	116

Note: *For full forms of the abbreviations, please refer to Table 1

As seen from the above Table III, the maximum number of staff constituted of professionals staff with total of 50 staff members while para-professional staff constituted of 31 staff members. The largest numbers of staff were found in ABS Central Library (34), followed by DMS-IITD Library (24) and this is due to the fact that these two libraries are centralized libraries that were catering to the needs of the users of several departments including Department of Management Studies. In case of other seven libraries under study it can be seen that BIMTECH Library (9) has largest number of professional staff followed by IMI Library (4) and MDI Library (4). The staff strength of IMI Library, IMT Library and MDI Library stands equal with strength of 8 staff members running each of these libraries. Overall the data related to human resource revealed that libraries who are part of autonomous public management institutions or autonomous private-self financed management institutions has average staff strength ranging from 7 to 9.

5.3 Competency of library staff

The future of any organization depends upon the competency of its staff. Competent staff in the libraries would helps in providing advanced services to its users. The librarians were asked to mention the numbers of professional/para-professional staff skilled in handling various ICT operations. The distribution of staff with regard their competency in various areas of ICT were tabulated in Table IV.

Table IV: Competency of Library Staff with regard to Various ICT Areas

ICT Areas	LIBRARY									Total (81)
	ABS (25)*	BIMTECH (7)	DMS-IITD (18)	FMS (4)	FSM (4)	IIFT (4)	IMI (6)	IMT (6)	MDI (7)	
Handling Library Software	13	2	14	2	2	3	6	1	2	45
Handling Hardware	1	2	4	0	2	0	0	1	2	12
Handling Networking	1	2	4	0	2	0	6	1	2	18
Designing Website	1	0	4	0	3	0	2	1	2	13
Digitization	13	3	8	0	3	0	2	1	2	32
Internet Searching	22	6	14	2	4	3	6	1	2	60

Note: *For full forms of the abbreviations, please refer to Table 1. Figures in parentheses is inclusive of total professional and para-professional staff.

The above Table IV shows that in ABS Central Library out of 25 professional staff 13 members knows how to handle library software and digitization whereas 22 staff members knows how to conduct search on internet. Only one member knows handling of hardware, networking, and designing of website. Majority of staff in all libraries under study were found to be skilled about internet searching. In BIMTECH library out of 7 members only 2 staff members knows how to handle software, hardware, networking and digitization and none were skilled in designing of website. With regard to professional staff of FMS library it can be seen that only 2 staff members were found skilled in handling software and internet searching and none of the members knows about handling hardware, networking, digitization, designing website. In case of IMT library also it can be seen that only 1 staff member out of 6 professional staff members was found to be skilled about ICT areas mentioned in the above table. The competency of staff members in IMI library and FSM library is fairly better as it can be seen that 3 staff members of FSM library and 2 staff members of IMI library also knows about designing of website. The analysis reveals that none of the professionals of libraries under study found 100% proficient in all areas of ICT. Thus this shows that there is need to conduct staff development programs on regular intervals for enhancing ICT skills of library staff.

5.4 ICT Infrastructure

In the present environment, adequate ICT infrastructure is must for ensuring optimum utilization of information resources and services. Under this section librarians were asked to state ICT infrastructure such as Hardware, software, networking available in their respective libraries.

Hardware

The hardware infrastructure includes computers, printers, scanners, photocopy machines, fax machines, micro readers, CD/DVD players etc. The Table V describes the availability of hardware components in the selected libraries.

Table V: Availability of Hardware Components in Libraries under Study

Hardware	LIBRARY								
	ABS *	BIMTECH	DMS-IITD	FMS	FSM	IIFT	IMI	IMT	MDI
Server	2	2	8	1	1	0	1	1	2
PCs: Library staff	20	5	30	5	4	8	5	9	8
PCs: Library users	100	6	112	59	5	4	10	12	3
Printers	10	1	5	2	2	4	4	4	4
Scanners	1	1	20	0	2	0	3	2	1
Photocopy machines	1	0	2	0	0	2	2	1	1
Screens	5	0	2	0	0	0	0	0	0
OHPs	1	0	2	0	5	0	0	0	0
Micro readers	0	0	0	0	0	0	0	0	0
Fax machines	0	0	4	0	0	0	0	0	0
CD/DVD players	0	0	1	0	0	0	1	1	0
Audio tape players	0	0	0	0	0	0	0	5	1
Video tape players	0	0	0	0	0	0	0	2	1

Note: *For full forms of the abbreviations, please refer to Table 1

The analysis in Table V on availability of hardware reveals that DMS-IITD Library has the highest number of PCs for users (112) as well as highest number of PCs for library staff (30). Out of 112 computers for users 12 were purely used as OPAC terminals. ABS Central Library also had 100 computers for its users and out of which 2 computers were used as OPAC. FMS Library has a provision of 59 computers for its members and these are installed in the computer room located at the second floor of FMS building. Out of 59 computers 9 were used as Bloomberg Database Search terminals and only six computers provide access to subscribed e-resources of the University of Delhi. In case of servers also it was found that DMS-IITD Library had the maximum number (8) followed by ABS Central Library (2), BIMTECH library (2) and MDI library (2). Apart from computers and servers, the hardware components which were found commonly in all of the libraries were printers, scanners and photocopiers. All of the libraries provided printing facilities to its members; seven out of nine libraries also provide scanning facilities, where as six out of nine provided photocopying facility inside the library. The other ICT components such as screens and over head projectors (OHPs) were found in ABS Central

Library and DMS-IITD Library. The FSM library also had 5 OHPs. None of the library had micro-readers. Only three libraries namely DMS-IITD, IMI and IMT had CD/DVD player and only two libraries namely IMT and MDI also had audio tape players and video tape players. Only DMS-IITD library has provision of fax machine facility inside the library.

5.4.2 Library Automation and Software Used in Libraries

Library automation basically refers to applications of ICTs for carrying out traditional housekeeping operations of a library such as acquisition, circulation, cataloguing, serials management etc and also for providing advanced library services such as CAS, SDI, user accounts etc. The Table 6 below gives the status of automation the selected libraries and library automation software used for this purpose. The table also highlights the operating systems used by management institute's libraries as well as digitization software, if any.

Table VI: Library Automation Software and Software used in Libraries under Study

Library	Automation	Operating System	Library Automation Software	Digitization Software
ABS*	✓	Windows XP	KOHA 3.9	-
BIMTECH	✓	Windows XP	NewGenLib and Vidya	-
DMS-IITD	✓	Windows 7	LIBSYS 7	Dspace
FMS	✓	Window 7	TROODON	-
FSM	✓	Windows 7	LIBSYS	-
IIFT	✓	Windows 7	LIBSYS	-
IMI	✓	Windows 7	LIBSYS	-
IMT	✓	Windows 7	LIBSYS	-
MDI	✓	Windows 7	LIBSYS	-

Note: *For full forms of the abbreviations, please refer to Table 1

From the above Table VI it can be seen that all of the libraries covered under study were fully automated and Libsys is the most popular software used by majority of the libraries and the most popular operating system revealed was Windows 7. With respect to digitization it was revealed that the process of digitization was being carried out in-house only by one of the library namely DSM-IITD using Dspace software. Two libraries namely ABS and BIMTECH found using KOHA and NewGenLib which are regarded as best open source integrated library management systems. In BIMTECH it was found that Vidya Software is used for issue/ return and NewGenlib for Web OPAC.

5.4.3 Networking

A network is a group of two or more computer systems linked together via telecommunication channels for sharing of information and resources. Two very common types of networks include intranet and internet. Table VII shows availability types of networking.

Table VII: Types of Networking in the Libraries under Study

Library	Intranet	Wi-Fi /Internet	Library Network	Library Consortium
ABS*	✓	✓	DELNET	UGC-Infonet, INDEST-AICTE
BIMTECH	✓	✓	DELNET	-
DMS-IITD	✓	✓	DELNET	INDEST-AICTE
FMS	✓	✓	DELNET	UGC-Infonet
FSM	✓	✓	DELNET, MANLIBNET	-
IIFT	✓	✓	DELNET	-
IMI	✓	✓	DELNET	UGC-Infonet, INDEST-AICTE
IMT	✓	✓	DELNET, MANLIBNET	INDEST-AICTE
MDI	✓	✓	DELNET	-

Note: *For full forms of the abbreviations, please refer to Table 1

Table VII revealed that, all the libraries had intranet, Wi-Fi based internet facility. With respect to ABS it was revealed that Amity has its own 1 mbps radio link for Internet and intranet connectivity which enables fast and easy access for 24 hours. Internet access is provided with Wi-Fi facility in the campus and the users of ABS Central Library can have access to library's subscribed e-resources through log-in into Amity Intranet Zone i.e. AMIZONE. With respect to DMS-IITD library it was revealed that the Library has its own sub-LAN, which, in turn, is connected to the fibre optic-based Campus LAN. With respect to IIFT campus it was revealed that the campus has a fibre optic cable backbone of 1 GB capacity that helps connect all buildings including IIFT Library. With respect to IMT Library it was revealed that high speed uninterrupted Internet connectivity from anywhere on the campus was provided through 45mbps dedicated Internet Lease Line whereas in MDI Library it was revealed that high speed Internet connectivity from anywhere on the campus was provided through 65mbps dedicated Internet Lease Line. All the libraries were also found to be part of DELNET (Developing Library Network) for sharing of information resources. Further, it was also revealed that four out of nine libraries were members of INDEST-AICTE consortium and three libraries were members of UGC-Infonet Digital Library Consortium.

5.4.4. Websites

A website, also written as web site or simply site is a set of related web pages typically served from a single web domain. In the present environment it has become very essential for libraries to have their own websites for providing access to electronic information resources and services of the library to its clientele. Table VIII enlists the URL of websites or webpage of management libraries covered under the present study.

Table VIII: Availability of Websites of Libraries under Study and their URL

Library	URL
ABS*	http://library.amizone.net/ http://www.amizone.net/AdminAmizone/Webforms/DigitalLibrary/Library.aspx
BIMTECH	http://bimtech.ac.in/library-information-centre/
DMS-IITD	http://library.iitd.ac.in/
FMS	http://crl.du.ac.in/fmsl/Index.html
FSM	http://www.fsm.ac.in/fac_library.html
IIFT	http://www.iift.edu/new/
IMI	http://imi.edu/delhi/infrastructure_library_information_service
IMT	http://www.imt.edu/Library/Library.aspx
MDI	http://www.mdi.ac.in/infrastructure/library.html

Note: *For full forms of the abbreviations, please refer to Table 1

Table VIII shows that only DMS-IITD had its own website where as all of the other libraries had their library webpage existed as a part of the main institution's website. All of these libraries provide access to e-resources through their webpage or website to their respective users.

5.5 Web Based Services Offered by Libraries

The list of 15 web based library services was provided in the questionnaire and librarians were asked to mark the services offered by their respective libraries. The Table IX shows the availability of web-based services in the libraries under study.

Table IX: Availability of Web Based Services in the Libraries under Study

Services	LIBRARY								
	ABS*	**BIMTECH**	**DMS-IITD**	**FMS**	**FSM**	**IIFT**	**IMI**	**IMT**	**MDI**
Online reservation	✗	✓	✓	✗	✗	✗	✓	✗	✓
Online renewal	✗	✗	✗	✗	✗	✗	✗	✗	✗
Online reference service	✓	✗	✓	✗	✗	✗	✓	✗	✓
New arrivals/ Updates	✓	✗	✓	✓	✓	✗	✓	✓	✓
WebOPAC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Remote access	✗	✓	✓	✗	✓	✗	✓	✓	✓
Online audio/video steaming	✗	✓	✓	✗	✗	✗	✗	✗	✗
E-mail alerts	✓	✓	✓	✓	✓	✓	✓	✓	✓
Online ILL	✓	✓	✓	✓	✓	✓	✗	✓	✓
Institutional repository	✗	✗	✓	✗	✓	✗	✗	✗	✓
User orientation	✗	✗	✓	✗	✓	✗	✗	✓	✓
Social	✓	✗	✓	✗	✗	✗	✗	✓	✗

networking									
User accounts	✓	✓	✓	✗	✓	✗	✗	✓	✗
Virtual tours	✗	✓	✗	✗	✗	✗	✗	✗	✗
Links to other websites	✓	✗	✓	✓	✗	✓	✗	✓	✓
Total	**8**	**8**	**13**	**5**	**8**	**4**	**5**	**9**	**10**

Note: *For full forms of the abbreviations, please refer to Table 1

Table IX above shows that maximum web based services were provided by DMS-IITD Library (13) followed by MDI Library (10), IMT Library (9). The library which provided least web based services to its users was IIFT (4). The services WebOPAC and E-mail alerts were provided by all of the libraries covered. Only BIMTECH Library was providing facility of virtual tours. The facility of institutional repositories was also available only in three of the libraries.

5.6 Availability of E-resources

The e-resources are resources in which information is stored electronically and which are accessible through electronic systems and networks. In the questionnaire the librarians were asked to mention the various categories of e-resources available in their respective libraries. The following table gives the availability of various types of e-resources in the selected management libraries.

Table X: Availability of Various Types E-resources in the Libraries under Study

E-resources	LIBRARY								
	ABS*	BIMTECH	DMS-IITD	FMS	FSM	IIFT	IMI	IMT	MDI
E-journals	✓	✓	✓	✓	✓	✓	✓	✓	✓
E-books	✓	✓	✓	✓	✓	✓	✓	✓	✓
E-reference sources	✓	✗	✗	✓	✗	✗	✗	✓	✓
Online databases	✓	✓	✓	✓	✓	✓	✓	✓	✓
CD-ROM databases	✗	✗	✓	✗	✗	✗	✓	✓	✗
E-theses and dissertations	✗	✓	✓	✓	✓	✗	✗	✓	✓
E-magazines	✓	✓	✓	✓	✓	✓	✓	✓	✓
E-newspapers	✓	✓	✓	✓	✓	✓	✓	✓	✓
E-patents and standards	✗	✗	✓	✓	✗	✗	✗	✗	✗
E-reports	✓	✓	✓	✓	✓	✓	✓	✓	✓
Online case studies	✓	✓	✓	✓	✓	✓	✓	✓	✓
Audio tapes	✗	✗	✗	✗	✗	✗	✓	✓	✓
Video tapes	✗	✗	✓	✓	✓	✓	✓	✓	✓

Microfilms	✕	✕	✕	✕	✕	✕	✕	✕	✕
Microfiches	✕	✕	✕	✕	✕	✕	✕	✕	✕
CDs/DVDs	✓	✓	✓	✓	✓	✓	✓	✓	✓
Total	9	9	12	12	10	9	11	13	12

Note: *For full forms of the abbreviations, please refer to Table 1

The Table X clearly shows that all the selected management libraries has e-resources like e-journals, e-books, online databases, e-magazines, e-newspapers, e-reports, online case studies and collection of CDs/DVDs. Two out of nine libraries i.e. DMS-IITD Library and FMS Library has collection of e-patents and standards. Similarly, e-reference sources were also found only in just four libraries. None of the library has collection of microfilms or microfiches. It is significant to note here that seven out of nine libraries has collection of video tapes/cassettes. The richest library in terms of availability of various types' e-resources was IMT Library followed by DMS-IITD, FMS Library, and MDI Library.

5.7 Availability of Electronic Databases in Management Libraries

In order to cater to the academic and research needs of their clientele, management libraries try to procure e-databases mainly on the subject areas related to the field of management studies such as finance, economy, international business, trade, banking, etc. The following table gives the availability of various e-databases both online and offline in the selected libraries.

Table XI: Availability of E-databases in Management Libraries

E-databases	Library									Total
	ABS*	**BIM TECH**	**DMS-IITD**	**FMS**	**FSM**	**IIFT**	**IMI**	**IMT**	**MDI**	
ABI Inform	✕	✓	✓	✓	✓	✓	✕	✓	✓	7
ACE Analyser	✕	✕	✕	✕	✕	✓	✕	✓	✓	3
ACE Equity	✕	✕	✕	✕	✕	✕	✕	✓	✓	2
Blackwell Reference Online	✕	✕	✕	✕	✕	✕	✕	✓	✕	1
Bloomberg Database	✕	✕	✕	✓	✕	✕	✕	✓	✓	3
Capitaline	✕	✕	✓	✓	✓	✓	✕	✓	✓	6
Cambridge University Press	✓	✕	✓	✓	✕	✕	✕	✕	✕	3
China Scope Financial	✕	✕	✕	✕	✕	✓	✕	✕	✕	1
Commodities, CMIE	✕	✕	✕	✕	✕	✓	✕	✕	✕	1
Commodities	✕	✕	✕	✕	✕	✓	✕	✕	✕	1
Commodity Price Bulletin	✕	✕	✕	✕	✕	✓	✕	✕	✕	1
Corporate Law Adviser	✕	✕	✕	✕	✕	✕	✕	✓	✕	1
CpEx Database, CMIE	✕	✕	✓	✕	✕	✕	✓	✕	✕	2

E-databases	Library									Total
	ABS*	BIM TECH	DMS-IITD	FMS	FSM	IIFT	IMI	IMT	MDI	
CRISIL Research	✗	✓	✓	✗	✗	✗	✗	✓	✓	4
EBSCO	✓	✓	✓	✓	✓	✓	✓	✓	✓	9
Econlit	✗	✗	✗	✓	✗	✗	✗	✓	✗	2
Economic and Political Weekly	✗	✗	✓	✓	✗	✓	✗	✗	✓	4
Economic Outlook, CMIE	✗	✗	✓	✗	✗	✓	✓	✓	✓	5
EIU Database	✗	✗	✗	✗	✗	✓	✗	✗	✗	1
Elsevier's Science Direct	✗	✗	✓	✓	✗	✓	✓	✓	✓	6
Emerald Management	✗	✗	✓	✓	✗	✓	✓	✓	✗	5
EMIS (ISI Emerging Markets)	✓	✗	✓	✓	✗	✓	✗	✓	✓	6
ETIG	✗	✗	✗	✗	✗	✗	✗	✓	✓	2
FT Database	✗	✗	✗	✗	✗	✗	✗	✗	✓	1
NextLinx	✗	✗	✗	✗	✗	✓	✗	✗	✗	1
HBP	✗	✓	✗	✗	✗	✗	✗	✓	✓	3
IGI Global	✗	✗	✗	✗	✗	✗	✗	✗	✓	1
IMF elibrary	✗	✗	✗	✓	✗	✓	✗	✗	✗	2
India Trades, CMIE	✗	✗	✓	✗	✗	✓	✓	✓	✗	4
Indianjournal.com	✗	✗	✗	✓	✗	✗	✗	✗	✗	1
Indiastat.com	✗	✓	✗	✓	✓	✓	✓	✓	✓	7
Industry Outlook, CMIE	✗	✗	✓	✗	✗	✓	✓	✓	✓	5
Indian Power Sector Database	✗	✗	✗	✗	✗	✗	✗	✗	✓	1
INFORMS Journals	✗	✗	✓	✗	✗	✗	✗	✓	✓	3
Inside US Trade	✗	✗	✗	✗	✗	✓	✗	✗	✗	1
INSIGHT	✗	✗	✓	✗	✗	✓	✗	✗	✗	2
ISID	✗	✗	✗	✓	✗	✗	✗	✗	✗	1
IMD World Competitiveness	✗	✗	✗	✗	✗	✗	✗	✓	✗	1
ITC	✗	✗	✗	✗	✗	✓	✗	✗	✗	1
J-Gate Social Management Sciences	✗	✗	✗	✗	✗	✗	✓	✗	✗	2
JSTOR	✗	✗	✓	✓	✗	✓	✓	✗	✓	5
MarketLine Advantage	✗	✗	✗	✗	✗	✓	✗	✗	✓	2
Mergers & Acquisitions Deal	✗	✗	✗	✗	✗	✗	✗	✗	✓	1
OECD iLibrary	✗	✗	✗	✗	✗	✓	✗	✗	✗	1

E-databases	Library									Total
	ABS*	BIM TECH	DMS-IITD	FMS	FSM	IIFT	IMI	IMT	MDI	
OUP	✓	✗	✗	✓	✗	✗	✗	✗	✗	2
Passport GMID (Euromonitor)	✗	✓	✓	✗	✗	✗	✗	✗	✗	2
Pressdisplay	✗	✗	✓	✗	✓	✗	✗	✗	✗	2
Private Equity Deal Database	✗	✗	✗	✗	✗	✗	✗	✗	✓	1
Project Muse	✗	✗	✗	✓	✗	✗	✗	✗	✗	1
Prowess, CMIE	✓	✓	✓	✓	✓	✓	✓	✓	✓	9
ProQuest	✗	✓	✗	✓	✗	✓	✗	✗	✓	4
Real Estate Deal Database	✗	✗	✗	✗	✗	✗	✗	✗	✓	1
Sage	✗	✗	✓	✓	✓	✗	✓	✗	✓	5
SUNS Database	✗	✗	✗	✗	✗	✓	✗	✗	✗	1
Springer	✓	✗	✓	✓	✗	✗	✗	✗	✓	4
States of India, CMIE	✗	✗	✓	✗	✗	✗	✗	✓	✓	3
Taylor and Francis	✓	✗	✓	✓	✗	✗	✗	✗	✗	4
UN COMTRADE	✗	✗	✗	✗	✗	✓	✗	✗	✗	1
Wiley- Blackwell	✗	✗	✓	✓	✗	✓	✗	✗	✗	3
World Bank Database	✗	✗	✗	✓	✗	✓	✗	✓	✗	3
WITS	✗	✗	✗	✗	✗	✓	✗	✗	✗	1
World Trade Atlas	✗	✗	✗	✗	✗	✓	✗	✗	✗	1
Others	✓	✗	✓	✓	✗	✗	✗	✗	✓	4
Total	8	8	25	25	7	33	12	24	30	-

Note: *For full forms of the abbreviations, please refer to Table 1
** For full forms of the abbreviations, please refer to Appendix 1

Table XI shows that EBSCO and Prowess were the only two databases which were available in all of the nine libraries covered in the study. It was found that seven libraries have ABI/Informand Indiastat.com. The databases namely Capitaline, Elsevier's Science Direct, ISI Emerging Markets have been available in six libraries. Economic Outlook (CMIE),Industry Outlook (CMIE), Emerald Management, JSTOR and sage were available in five libraries. Further, it was observed that IIFT Library has maximum number of electronic databases followed by MDI Library. The ABS Central Library do not subscribed to many of the management specific databases.

Suggestions:

The following are the suggestions with regard to improvement of ICT infrastructure, e-resources and web based services in management libraries of NCR which might help these libraries in strengthening and improving themselves.

- All most all of the management libraries should add variety of e-resources such as e-books, e-theses and dissertations, e-reports, e-newspapers, e- magazines, online cases studies, online audios/videos related to various specializations.
- The libraries namely FMS Library, IIFT Library and IMI Library needs to upgrade web based library services.
- The six management libraries namely, ABS Central Library, BIMTECH Library, DMS-IITD Library, FMS Library, FSM Library, and IMI Library needs to upgrade their electronic databases collection related to the field of management studies.
- In this era of digital transition, it is must for management libraries to conduct staff development programmes and workshops for making their existing staff much more competent in the field of ICT.
- To facilitate multi-user access, networked computer terminals providing access to licensed e-resources must be increased in the libraries. The bandwidth of majority of libraries also needs to be increased. Freely accessible printers and scanners will also help in increasing e-resource usage.
- Majority of the management libraries does not have a proper website, thus in order to provide effective services to their clientele, the management libraries must improve their websites.

Conclusion

In the current economic environment, Masters of Business Administration (MBA) courses, and the management institutions that teach them are playing powerful role. Thus, the libraries associated with these institutions should make continuous efforts to enhance their ICT infrastructure as well as other facilities. Management libraries are catering to the needs of highly specialized clientele, therefore selection of e-resources in these libraries should be done by keeping into consideration the various specializations of the field such as financial management, marketing management, human resource management, managerial economics, organizational behavior, international trade etc. The librarians of management institutions located in the NCR should also enter into collaborative ventures by forming consortia or library network for obtaining e-resources on sharing basis.

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