Use of Information Communication Technology (ICT) in Research and Development Libraries in Karnataka: A Study

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Abstract

The advancement of Information and Communication Technology (ICT) has made a tremendous improvement and change almost in all walks of life. Especially the magnetic word information technology has been changed in all corners of the global areas. Present paper presents the results of a research study conducted to survey the use of ICT in R & D libraries. It describes about library staff, classification & cataloguing method followed status of digital library, infrastructural facilities and barriers in use of ICT in R & D libraries. From this study it confirms that most of the research and development libraries are automated and most of the libraries having good infrastructure with regards to ICT tools.

Keywords: Information Communication Technology, Library Automation, Digital Library, R&D Library, Bangalore

1.   Introduction

Information and Communication Technology (ICT) is being increasingly used in library and information services for the acquisition, storing, processing and dissemination of information. Libraries and information centers have been using ICT based resources and services to satisfy the diverse information needs of their users. At the same time it is found that the use of information and communication technology has become increasingly important in R & D libraries. R & D libraries are switching over to ICT based resources and services at an accelerated pace. E-journals, CD-ROM databases, online databases, e-books, web based resources and a variety of other electronic resources are fast replacing the traditional resources of R & D libraries.

This is a crucial moment to bring up successful case studies in Information and Communication Technology application in libraries as well as raising awareness about the use of Information Technology in R&D libraries specifically information processing, organizing, storing, searching and retrieving Information Technology environment. Also it is right time to carry out case studies to examine and evaluate the existing application of ICT facilities in research libraries in a region particularly in a developing country like India. In India, Karnataka is characterized as the hub of IT activities and developments as well as the centre of R&D organizations in India. So present analytical study is expected to provide fundamental understanding on the current status of ICT applications in R&D Libraries of Bangalore and would also prove quite useful for suitable modifications or improvement of existing research and development libraries in Karnataka.

2.   Scope & Limitations of the Study

The study addresses only few selected R & D libraries in Bangalore city, these are well placed than other academic, particularly college and school libraries in terms of fund and manpower. The selected R &

D libraries such as National Aerospace Laboratories (NAL), Indian Institute of Science (IISc), Central Power Research Institute (CPRI), Institute for Social and Economic Change (ISEC), and Centre for Ecological Sciences (CES) are studied in detail.

3. Objectives

The objectives of the study are as follows:

♦ To understand the use of modern information and communication technologies in R & D Libraries

♦ To know different types of technology involved in the library activities.

♦ To know the status of the digital library.

♦ To know the classification & cataloguing scheme adopted.

♦ To know the practical opinion of different librarians and their suggestions about library automation.

♦ To bring to light the significance of information and communication technology in R & D Libraries.

♦ To know the barriers in the use of ICT in R&D libraries.

4. Research Methodology

Keeping in view the objectives of the study, an effort is made to evolve a suitable methodology for the research. The study will be designed, developed and carried out to determine and analyze the current status and use of ICT application in research and development libraries of Karnataka state. Survey method is used to collect the data. A well designed questionnaire is used as principal tool for the collection of data. Apart from questionnaire, interview and observation methods will be adopted for data collection. 83 questionnaires were distributed among 83 LIS professionals working in selected R&D libraries and got the 100% response from them by getting 83 filled questionnaires back.

5. Data Analysis & Interpretation

The present chapter reports the analysis of data gathered through the questionnaire designed for library professionals of R & D libraries of Bangalore. The group of research libraries surveyed ranged widely in terms of nature of library users served, funding agency, budget, collections, services, infrastructure facility, database, automation software, Internet, security, training to library professionals and users, etc. The abbreviated form of names of research institute is used in this study to represent their respective research libraries. It is observed from the questionnaire that, the oldest or first established research library is IISc (1909), followed by CPRI (1960), NAL (1965), ISEC (1972) and CES, IISc. (1983). The age of libraries has some impact on collection and other.

5.1 Position of Library Professionals

Name of Library	Table 5.1: Position of Library Professionals				
	Permanent	Temporary	Contract	Trainee	Total
IISc	18	04	03	09	34
CPRI	4	-	-	5	09
NAL	13	1	1	10	25
CES, IISc	1	1	2	-	4
ISEC	9	-	-	2	11
Total	**45 (54.87%)**	**6 (7.22%)**	**6 (7.0%)**	**26 (31.70)**	**83 (100%)**

The Table 5.1 clearly shows that, there are 83 library professionals working in five research & development libraries. Out of 83 library professionals, 45 (54.87%) are permanent; another 6 (7.22%) members are-temporary, followed by 6 (7.22%) are working on contract and remaining 26 (31.70%) are trainees. Out of 5 research libraries IISc and NAL have more permanent library professionals and as well as more trainees to run their library smoothly. Whether the professionals are permanent or temporary, adequate number of professionals is important for effective functioning of a library.

5.2 Library Working Hours

Table 5.2: Library Working Hours	
Name of the Library	Working Hours
IISc	8 AM to 11 PM
CPRI	9 AM to 5.30 PM
NAL	8.30 AM to 5 PM
CES, IISc	10 AM to 5 PM
ISEC	9 AM to 6.30 PM

The Table 5.2 demonstrates that, all five research libraries under the study work eight hours per day, some libraries work more than eight hours per day. IISc (8 a.m. to 11 p.m.) library for a long time, when compared to other libraries. But as per the observation in library, the library users can access their sources and services round the clock, as the most research libraries provide web-based services.

5.3 Classification Scheme Followed

Table 5.3: Library classification scheme followed				
Name of the Library	**DDC**	**CC**	**UDC**	**Others**
IISc	Y	-	-	-
CPRI	-	-	Y	-
NAL	-	Y	-	-
CES, IISc	Y	-	-	-
ISEC	Y	-	-	-
Total	**3 (60%)**	**1 (20%)**	**1 (20%)**	-

Information searching is the main function of the professionals in R & D libraries to provide quick service. In order to provide quick information service, the method of classification is played significant role. The table 5.3 specifies that the majority (60%) libraries follow DDC (Dewey Decimal Classification), followed by CC (Colon Classifications system) (20%), UDC (Universal Decimal Classification (20%).

5.4 Cataloguing Method Followed

Table 5.4: Cataloguing Method followed				
Library	**AACR-II**	**MARC**	**CCC**	**Others**
IISc	Y	-	-	-
CPRI	Combination of AACR – II and CCC		-	-
NAL	-	-	Y	-
CES, IISc	Y	-	-	-
ISEC	Y	-	-	-
Total	4		1	-
Percentage	80%	-	20%	-

Catalogue is a key to the library collection and also a tool for retrieving required document/information. For effective use of library resources library should have convenient catalogue system. The table 5.4 clearly shows that 80% libraries follow AACR – II Cataloguing method 20% libraries follow CCC. The CPRI Library adapted Combination of AACR – II and CCC.

5.5   Catalogue Made Available in Library

In order to know how catalogue is made available in library and to know the followed systems such as Catalogue Card, OPAC, web based OPAC, and others should be asked.

Table 5.5: Catalogue made available in the Library	
Catalogue of Library	**Percentage of Use**
Card Catalogue	-
OPAC of Library	40%
OPAC of LAN	20%
Web based OPAC	40%
Microform Catalogue	-

Table 5.5 indicates that 40% of research & development libraries catalogue are made available on OPAC of the library and web based OPAC followed by (20%) research & development libraries made available on OPAC of LAN.

5.6   Status of the Digital Library

	Table 5.6: Status of the Digital Library		
Library	**Digitized**	**Partially Digitized**	**Yet to Digitize**
IISc	-	Y	-
CPRI	-	-	Y
NAL	-	Y	-
CES, IISc	Y		-
ISEC	-	Y	-
Total	**1 (20%)**	**3 (60%)**	**1 (20%)**

The Table 5.6 reflects that 3(60%) research & development libraries have partially digitized their libraries and CES, IISc library have completely digitized its library. CPRI library have a plan to digitize its library.

5.7 Availability of the ICT Facilities

Table 5.7: Availability of ICT facilities		
ICT Facilities	**Respondents**	**Percentage**
Printer	40	48.19%
Barcode & Scanner	30	36.14%
Video Conference	30	36.14%
Telephone Intercom	20	24.09%
Library website	50	60.24%
Computer with access to internet	75	90.36%
Computer with access to online database	60	72.28%
Computer	80	96.38%
LCD	21	25.30%
Computerwith library software	60	72.28%
Computer with access to LAN	55	66.26%

ICT based resources and services to satisfy the diverse information needs of their users. ICT facilities are using in R&D libraries specifically information processing, organizing, storing, searching and retrieving Information Technology environment. It is observed from the table 5.7 that the majority of libraries using computers (96.38%), Computer with access to internet (90.36%), Computer with library software (72.28%), Computer with access to LAN (66.26%), and less libraries are facilitate the LCD (25.30%),Video conference (36.14%), Barcode & Scanner(36.14%) etc.

5.8 Barriers in ICT Applications

Table 5.8: Barriers in use of ICT Applications					
Barriers	**5**	**4**	**3**	**2**	**1**
Cabling and installing of both electricity and optic connections	2	0	1	2	0

Renovation of the library infrastructure (Redesigning)	1	3	1	0	0
Changes in the nature of job, gap and psychological stress between the old and young staff who are fluent in application of ICT	1	2	1	1	0
Impact on job manual and library procedure	0	2	1	1	1
Keeping abreast of new developments/trends	0	3	1	1	0
Lack of user education programme	1	1	2	1	0
Misuse of ICT equipment for non official purpose	0	2	1	1	1
Inadequate trained staff in IT applications	2	1	0	2	0
Lack of funds	0	0	2	2	0
Lack of network facility	0	1	1	2	0
Frequent power cuts	0	1	1	0	3
Lack of In-house maintenance programs	0	2	1	0	2
Role of management	0	1	1	3	1
Lack of official policy guidelines	0	2	0	2	1
Non availability of consultation services	0	0	1	2	2
Others	0	0	1	1	3

Note: 5- Strongly agree, 4- Agree, 3- Undecided, 2- Disagree, 1- Strong agree.

Table 5.8 revels that lack of user education programme, Inadequate trained staff in IT applications, keeping abreast of new developments and changes in the nature of job, lack of in-house maintenance, gap and psychological stress between the old and young staff who are fluent in application of ICT are the main barriers in use of ICT applications in R&D libraries.

6. Findings & Suggestions

6.1 Findings

♦ It is observed from the study that, majority of research libraries classify their documents according to DDC (60%) and UDC (20%).

♦ For Cataloguing they follow AACR-II (80%).

♦ The catalogue of these research libraries are also made available through OPAC (40%) followed by OPAC of LAN (20%) and Web based OPAC (40%)

♦ The research libraries have good infrastructure facilities like Internet (90.36%), library website (60.24%), Online database (72.28%). 66% of research libraries have LAN and printer other facilities.

♦ It is clear from the study that, 70% of the research libraries have automated their library. Around 60% have partially digitized their library

♦ The main barriers of ICT application are lack of user education programme, Inadequate trained staff, keeping abreast of new developments and Changes in the nature of job, gap and psychological stress between the old and young staff who are fluent in application of ICT.

6.2 Suggestions

♦ Research libraries should adopt a hybrid collection development policy.

♦ All research libraries should concentrate on procuring online database of journals, books, patents, thesis/ projects and others

♦ Majority of research libraries should give stress on need-based, value added users services through automated library

♦ For the new digital environment the existing rare and valuable documents should be digitized in a phased manner for preservation and for future use.

♦ All research libraries should catalogue, classify and Index the web-resources for the effective use.

♦ All research libraries should safeguard their resources by implementing any one of the electronic security systems in addition to professional security. It may be video cameras, closed circuit television, electronic security systems, etc.

♦ Research library professionals should get wide varied user education programmes for maximum utilization of Information Technology based library facilities and services.

7. Conclusion

The Research & Development libraries have given due recognition and importance in terms of collection, budget, infrastructure facility, staff and users. In the Meanwhile they are using Information and Communication Technology, as a source for book selection, display of new arrivals for library publications and for database creations. These Research libraries have good infrastructure facilities to provide the services through LAN, Web based and through automated library and to continue the routine activities of the library. Majority of them have Internet servers that are used for various purposes. These Research libraries are using standards to create internal databases, which are used for information retrieval purposes. Some of research libraries mobilize the library funds through projects, running short-term courses, marketing the manpower and the sources and services.

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