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## Constraints to Implement ICT based activities in Some Selected Academic & Special Libraries of Bangladesh: An Overview

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### Abstract

*This study deals with the importance of ICT in the libraries of Bangladesh. It delineates the current scenario of ICT in the selected libraries of Bangladesh. This paper, then explore some problems hindering ICT based library faced by the library authority and then recommends for adoption of these new technologies in order to improve their functions and information services to the users.*

Keywords: ICT, IBM-1620, Internet, CD-ROM, E-mail, CDS/ISIS, and E-Resources, LAN.

### Introduction:

Bangladesh is a semi-tropical river-irrigated country of south Asia. The economy of this country is largely agricultural, with the cultivation of rich the single most important activity in the economy. Despite sustained domestic and international efforts to improve economic and demographic prospects, Bangladesh remains one of the world's poorest, most densely populated excepting the city state of Singapore, and least developed nation (Phukan, 1999). As least developed nation of South Asia, Bangladesh is comparatively far behind the scene of ICT status not only than the countries of Southeast Asia but too the countries of its neighborhood especially than the India.

In the present age of Information and Communication Technologies (ICT), computer and related technologies have been making tremendous impact on different sectors of libraries and information centers. Bangladesh has also realized the value and importance of ICT based library in order to improve their services to users. Although the history of libraries and librarianship in Bangladesh goes back to more generations before but the present scenario of ICT in libraries is quite depressing (Nazmul, 2004).

### Aims and Objectives of the Study

[This study is designed and carried out with the view to determine the following objectives:

- i) To explain the importance of ICT in the libraries of Bangladesh.
- ii) To delineate the current scenario of ICT in academic and special libraries of Bangladesh.
- iii) To explore and analyze some of the major problems hindering ICT based library faced by the library authority.
- iv) Finally, to suggest some effective measures and to provide certain future directions for adoption of new technologies in libraries in order to improve their functions and qualities of information services to the users.

### Scope and Area of the Study

For the purpose of research a total of eight libraries including University and Special libraries on the basis of having comparatively better infrastructure of ICT in Dhaka, the capital city, is selected as the area of research work. This is because the relative status of ICT in the libraries of Dhaka is little bit better than other divisional cities of Bangladesh.

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The following table shows the area of research:

Table-1: List of Sample Libraries

Sl.	Name of the Library	Type	Location
1.	North South University Library (NSU,L)	Private University Library	Dhaka
2.	Independent University Bangladesh, Library (IUB,L)	Private University Library	Dhaka
3.	East West University Library (EWU,L)	Private University Library	Dhaka
4.	Bangladesh University of Engineering Technology, Library	Public University Library	Dhaka
5.	Dhaka University Library (DUL)	Public University Library	Dhaka
6.	Jahangir Nagar University Library (JUL)	Public University Library	Dhaka
7.	International Center for Diarrhea Disease Research, Bangladesh Library (ICDDR,B,L)	Special Library	Dhaka
8.	Community Development Library (CDL)	Special Library	Dhaka

#### Methodology:

It is very crucial or strategic step to determine appropriate methodology in research because the success of a fruitful research program much and more depends upon in what way the research work is conducted. For the purpose of collecting data a structured questionnaire was designed. An unstructured interview technique was also adopted in the case targeted library personnel who are working in the libraries as well as users of those libraries for clarification and authenticity of data. Direct or indirect observation on services, resources, personnel, technological and other facilities provided by the libraries were also being conducted. A number of literatures that include books, journals, research articles, research reports & other documents relevant to this field had been reviewed.

#### Importance of ICT in Libraries

Shariful and Nazmul (2006) has pointed out two main reasons that compel any library of the present age to implement ICT in day to day activities:

##### A) In terms of various problems faced by the traditional library systems

The manual performances of library were getting difficult because of the following main reasons:

- The size of recorded information is ever growing whereas space available at the disposal of each library is limited. No library can think of getting additional space every year, although the collection will grow continuously;
- Due to knowledge explosion, the society is faced with multidimensional information to such an extent that not only its storage has created challenge, but the organization of this bulk of information has also become unwieldy;
- Library operations, due to potential growth of information, could take many hours to perform manually;
- Due to information explosion, all sorts of house keeping jobs and information works can be performed by manually with less effective and less accuracy.

##### B) In terms of various facilities provided by computers and related technologies

The advantage of using computers and others telecommunication media/devices in managing libraries are manifold. Some of the advantages are enormous storage capacity, high processing speed, accuracy, reliability, repetitiveness, compactness etc. (Babu, T.A. 1999)

## ICT based Activities in the Libraries of Bangladesh

Bangladesh started its journey in computer village in 1964 with launching IBM 1620 machine at the Atomic Energy Center (Dhaka). Libraries of Bangladesh began to use computers from the early 1980s. The ICDDR, B Library (International Center for Diarrhea Diseases Research, Bangladesh) and AIC (Agricultural Information Center) were the pioneers to introduce computer concept in libraries. Computers were then used in these two libraries only to create bibliographic database on specialized fields. From 1980 to 1995 is the period where a little progress has been observed in the application of computers in libraries. The dynamic progress of ICT based application in libraries has been found after 1996 with adoption of Internet in libraries. At that time the use of computers were confined with bibliographic database maintenance and some word processing activities which can clearly be understood with following figure:

Table-2: List of Computer Operations Performed by Libraries.

Sl.	Operation	No. of libraries that computerized the process.
1.	Data base creation	47
2.	CAS & SDI	5
3.	Serial control	5
4.	CD-ROM search	14
5.	E-mail	9

Source: Zabed Ahmed, 1998.

Private university libraries has changed this scenario and brought a revolution in regard of ICT based activities. These private university libraries furnish the ICT based activities what special libraries started.

### Data Analysis & Interpretation

**1. ICT in Libraries:** The overall conditions of ICT in libraries of Bangladesh are not at satisfactory level. Some of the surveyed libraries played pioneering role for installing new technologies while some are trying to install ICT in their libraries to keep pace with modern technology based libraries. The following table shows the number of computer used in surveyed libraries.

Table-3: Number of Computer Used in Libraries.

Type of Libraries	No. of Libraries	Total no. of computers used
Private University Libraries	3	78
Public University Libraries	3	106
Special Libraries	2	17
<b>Total</b>	<b>8</b>	<b>201</b>

These eight libraries use 201 computers for keeping their day to day activities smoothly. Private university libraries use 78 computers (38.80% of total no.) where as public university libraries use 106 computers (52.74%) and special libraries use 18 computers (8.46%) for various data processing activities and rendering service to users:

### 2. Acquisition through ICT

In every library there is a need to develop e-collection in the form of e-journals, databases, OPAC, CD-NET based resources etc. to make them accessible to the users round the clock. The libraries under survey have more or less strong collection of e-resources that are explained below:



## (i) Mode of Accessing E-Resources

Table-4: Mode of Access to e-resources.

	Library Internet on LAN	Internet	CD-Rom network	Commercial service vendors
Yes	5	7	0	4
No	3	1	8	4

The above table reveals that a majority percent libraries under survey, i.e. 7 (87.5%) provide library service via their web sites. However 5 libraries (62.5%) libraries have intranet facilities and half of the total libraries (50%) have commercial online service vendors. It is surprising to note that no library (0%) has CD-ROM network based services.

## (ii) Collection of E-Resources

Table-5: Collection of E-Resources.

Collection of E-Resources	NSUL	IUBL	EWUL	DUL	BUETL	JUL	ICDDRBL	CDL
CD-ROM title	391	Y	200	NA	NA	500	2	NA
No. of titles on floppies	Y	NA	NA	NA	NA	NA	NA	NA
E-Database	Y	6	Y	NA	NA	NA	4	NA
E-Journals	146	600	Y	NA	NA	NA	Y	15
E-Reports	Y	NA	Y	NA	NA	NA	Y	NA
E-Content pages	Y	25	NA	NA	NA	NA	NA	NA
E-clippings	Y	NA	NA	NA	NA	NA	NA	NA
Link to Internet Resources	Y	Y	Y	Y	Y	NA	Y	Yes

The above table indicates various types of e-resources available in different libraries under study. Some of the libraries have supplied the exact number of each category of e-resources, but others have only indicated their availability or non-availability. The above figure reveals that the condition of public university libraries and special are quite despondency in the case of collection of e-resources. While private university libraries more or less deal with collection of e-resources.

## 3. Library Processing Activities Based Upon ICT

Libraries under survey use Information and Communication Technology (ICT) in their various processing activities such as data processing, communication, circulation, cataloguing, bibliography, serial control, preparing in house database. The table lists such activities performed by the libraries with the help of computer and related technologies:

Table-6: Activities Performed by Computer and Related Technologies.

Activities	Private Libraries	University	Public Libraries	University	Special Libraries			
	NSUL	IUBL	EWUL	DUL	BUETL	JUL	ICDDRBL	CDL
Data processing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Communication	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Circulation	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Cataloguing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bibliography	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Serial control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Preparing in house database	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes

The above table explains that in private university libraries 100% processing activities are performed with the help of computer and related technologies. In public university libraries 80.95% processing activities are performed with the help of ICT. On the other hand in two special libraries under survey 92.28% activities are performed with the assistance of ICT. For arranging bibliographic information with the assistance of ICT the libraries under survey follow different format of cataloguing.

#### 4. ICT Based Searching and Retrieval

Correct searching and retrieval ensures the proper use of library materials. Most of the libraries that are developed homemade software offer flexible searching options to users by means of which user can search by any bibliographical information such as author search, title search, keyword search, subject search etc. In reply to one question, 100% libraries claimed that they provide diversified search options such as, author, title and keyword and subject search at a time to users by means of which a user can get any information quickly. The following table illustrates the different services provided by libraries:

Table-7: ICT Based Library Services.

ICT based library services & facilities	NSUL	IUBL	EWUL	DUL	BUETL	JUL	ICDDRBL	CDL
1. CD-ROM Searching	√	√	√	×	×	×	√	×
2. Online Searching	√	√	√	√	√	×	√	√
3. Online Networking	√	√	√	√	√	×	√	×
4. Photocopying	√	√	√	√	√	√	√	√
5. Online Information Service	√	√	√	√	×	×	√	√
6. News clipping Scanning Service	√	√	√	×	×	×	×	×
7. Online Reservation Service	×	×	×	×	×	×	√	×
8. Database Searching Service	√	√	√	√	×	×	√	√

Private university libraries except online reservation service provides almost all services listed above. On the other hand public university libraries under survey do not provide CD-ROM searching services, news clipping services, online reservation services. The condition of JUL is very poor. This library provides only photocopy services among eight options of services listed above table. The ICDDRBL library provides almost all services except newspaper scanning service. The situation of CDL in the respect of providing ICT based services is not so much interesting. This library provides online searching service/online information service at limited scale to users.

#### 5. Internet Technologies

Now a day, Internet plays vital role in the libraries under survey. The authorities of libraries were asked to indicate their Internet facilities. The results are summarized below:

Table-8: Basic Internet Infrastructure of Surveyed Libraries.

Name of Libraries	First installation of Internet	No. of computer connected with Internet	Average users browse per day	Basis of Internet use			Charge for browse
				Institution member	Non institution member	Library staff	
NSUL	1995	20	700	√	×	√	Free of cost
IUBL	1996	25	100	√	×	√	Free of cost
EWUL	1998	14	100	√	×	√	Free of cost
DUL	1998	7	50	√	×	√	Free of cost
BUETL	2003	42	300	√	×	×	Free of cost
JUL	-	-	-	-	-	-	-
ICDDRBL	1994	12	50	√	√	√	Free of cost
CDL	2004	2	25	√	√	√	20 Taka per hour



From the above table it is clear that NSUL first installed Internet to provide Internet facilities to users. Among the 39 computers 20 computers are connected with Internet in NSUL. The JUL is the only library among 8 libraries which does not have any Internet facilities. In the case of computer connected with Internet line, BUETL plays very important role by connecting 42 computers. Among the special libraries ICDDRBL provides Internet facilities to users at a great extent. This library connects 12 computers with Internet line. More or less 50 users browse Internet per day from here. Among the authorities of the surveyed libraries 87.5% claimed that they provide Internet service to institution members only while 75% respondents provides Internet facilities to library staff. Only 2 libraries (25%) provide Internet facilities to non-institution member. No surveyed libraries, except CDL take any charge from user for browsing Internet.

## 6. Budget

For collecting data regarding budget the researcher faced tremendous problem. This is because it is one of the critical issues of library that indicate both weak points and strong points of library equally. Most of the authorities of libraries (especially government employee) fair for losing their jobs if he or she provides correct information. Some of them avoid the question of budget by saying that there is no definite budget or sky is the limits etc. But the researcher cleverly asked questions from several viewpoints of budget to retrieve approximate amount. So all the numerical value regarding budget provided by respondents are not accurate but approximate amount.

Table-9: Budget (2004-2005) in Different Libraries.

Name of Libraries	Total budget in the year 2004-2005 (lakh)	Budget for new technologies (lakh)	% of the budget for technological adaptation
IUBL	120	20	16.67
EWUL	20	6	30
DUL	270	10	3.7
BUETL	95	10	10.52
JUL	93.45	0.35	0.37
CDL	14.46	2.75	19

## 7. Library Personnel

Authorities of surveyed libraries are requested to mention their total library staff mentioning professional, non-professional, ICT knowledgeable personnel and ICT ignorant personnel. The results are summarized below:

Table-10: Personnel of the Surveyed Libraries.

Name of Libraries	Total no. of staff	Number of professional staff	Number of non professional staff	ICT knowledgeable personnel	ICT ignorant personnel
IUBL	22	10	2	10	2
EWUL	17	14	3	14	3
DUL	229	50	179	100	129
BUETL	45	39	6	39	6
JUL	49	12	37	6	45
ICDDRBL	5	3	2	5	0
CDL	26	4	22	21	5



From the above table it is observed that in NSUL there are 61.11% professional as well as ICT knowledgeable staff while IUBL has 45.45% professional and ICT knowledgeable staff. DUL has 21.83% professional staff and 43.56% ICT knowledgeable staff. BUETL has 86.67% professional as well as ICT knowledgeable staff. In JUL only 12.24% personnel have ICT knowledge while in ICDDRDB 100% personnel have ICT knowledge. In CDL 80.77% personnel has ICT knowledge.

### 8. Reasons and Problems to Introduce ICT in Libraries

The library authorities were asked to know why they had decided to implement the ICT in their libraries by throwing eight options. These options were-

- To increase library communication with home and abroad;
- To make document deliver easier;
- To reduce the number of workers;
- to expand the library resources and services;
- To save time and money.
- To ensure satisfaction in meeting the needs of library user;
- To access into more literature;
- To acquire current materials.

100% authorities mentioned all the points to introduce ICT in libraries except the point "to reduce the number of workers".

The authorities of libraries were also asked to know what problems they faced while introducing ICT in library activities. About 3 libraries (37.5%) were faced the problem of administrative complexity and reluctance of authority. Two libraries (25%) were faced the problem of limitation of budget. Two libraries (25%) were faced the problem of absence of proper planning and 1 libraries (12.5%) was faced the problem of shortage of skilled personnel.

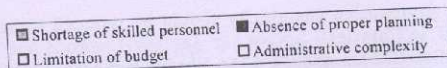


Figure-1: Problems faced by the library authorities to install ICT in libraries.

### Major Problems and Recommendations

Shariful and Nazmul (2007) has quoted a number of problems that constraint to implement ICT based activities in the libraries and information centers of Bangladesh together with some solutions how to overcome from this situation. These are as follows:

1. **Administrative barriers:** This problem is much more acute in public university libraries than private university libraries and special libraries. Administrators, policy makers, and government executives are not fully aware of the importance of ICT. Moreover, library administrators have failed to make its importance clear. Lack of knowledge of technological developments has created a significant barrier to the installation or development of ICT facilities in libraries.
2. **Lack of shared initiatives**
3. **Lack of skilled manpower:** Library professionals in Bangladesh do not have adequate knowledge regarding computer applications and automation.
4. **Lack of financial support:** Inadequate financial support has made possibility of ICT application in libraries more complex.
5. **Lack of infrastructure:** Inadequate physical facilities hamper the growth of ICT. Telecommunications infrastructure and an uninterrupted power supply are crucial needs for Bangladesh.

**6. Lack of ICT resources:** ICT means more than the use of computers. Less attention has been paid to other communication and related technologies. Some libraries have no Internet connection. Most have a manual circulation operation. They have no barcode readers for use in automated circulation. Most libraries are using microcomputers only with no server.

**7. Absence of local resources:** 50% of the libraries in the survey use the CDS/ISIS developed by UNESCO. Most have no system administrator or other means of developing other software.

**8. Lack of long-term planning**

**9. Psychological Barriers:** The reluctance of library personnel to accept new technologies hinders the development of ICT based libraries.

**10. Lack of ICT Training Programs**

**11. Lack of Networks:** There is no network, in the true sense of the term, among the libraries of Bangladesh.

**12. Lack of E-Resources Selection Policy:** The lack of a comprehensive collection development policy for e-resources means that the collections of e-resources in surveyed libraries are not significant.

#### **Recommendations:**

1. Well-trained and skilled personnel are essential ingredients for implementing ICT in libraries. Steps should be taken to develop properly trained and competent people for this purpose.

2. Libraries need funds to initiate the implementation of ICT. The government of Bangladesh can play vital role by allotting sufficient funds for purchasing and maintaining ICT in libraries.

3. The government's administrative complexity should be reduced to help create awareness of the importance of ICT in libraries.

4. The government of Bangladesh should make library and information services a part of national development initiatives, efforts, and plans.

5. Libraries need a suitable location with sufficient space for collections and services. To this end, government must create an information infrastructure for the country.

6. The libraries of Bangladesh should develop a centralized database, linked with other international networks, that includes all documents and sources of information available in the country, in order to support scientific research and to provide decision-makers easy access to information.

7. Libraries need strong support from their parent organizations and the government. This can be achieved only if there is such awareness regarding ICT. The Library Association of Bangladesh (LAB), The Department of Information Science & Library Management, University of Dhaka, The Department of Library & Information Science, University of Rajshahi, and any other professional organization should also organize seminars, workshops, etc., to create awareness among library authorities about the advantages of ICT.

8. Networking is one of the most effective ways of serving users' needs comprehensively. Networked access to databases would help get newly-published information to library users.

9. Professional organizations such as the Library Association of Bangladesh (LAB) and library administrators should organize short-term training programme for library professionals in computer applications in library and information services, online information retrieval, data processing, electronic publishing, and also software such as Microsoft Office, CDS/ISIS, etc.

10. A long-term plan is an essential component of the long-term implementation of ICT in libraries in Bangladesh.



11. A comprehensive collection development policy for e-resources should be maintained by the libraries in the study, in order to follow a set of standard practices for acquisition and management of electronic information resources. There should be specific budget for new resources and the renewal of existing resources.

#### Conclusion:

The growth of information that affects human lives has been so much far too many users that the traditional information retrieval system of libraries proved miserably ineffective. It is thus the information and communication technologies (ICT) that has come in existence to help solve these inadequacies, thereby generating an information revolution system, more especially in the beginning of the new millennium. The new technologies have not only transformed the shape of modern libraries but also created many exciting possibilities and opportunities.

Bangladesh is one of the few countries of the world which started to pace with the information technologies based world since 1964, but today we are still infancy in the context of ICT based libraries. A number of problems contribute to the low degree of ICT facilities in the libraries of Bangladesh. In Bangladesh special libraries were the pathfinders to install ICT in libraries. This trend of ICT has also changed the service patterns in some private and public university libraries. Though some special and academic libraries have performed a greater role in utilizing ICT in libraries yet they are also facing some tremendous problems that are affecting effective communication of information service to users.

This study selected eight libraries as samples. Three of them are autonomous one is part of an international body; one is a part of a government division while other is a non-government development organization. The researcher has identified numerous problems that hinder the development of ICT in libraries completely during this study with suitable recommendations how to overcome from this situation.

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