



## Library Digitization in Bangladesh: A Developing Country Perspective

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### Abstract

*Digitization has become a practical necessity and reality with technology interventions to provide improved access to information sources, preservation and dissemination as required, at anytime; anywhere and any place as it were. Besides, digitization narrows down the “Digital Divide” between the have and have-not within the country, between individuals, developing and developed countries, those who can speak English and those who cannot, digital elite in urban and rural in terms of digital development itself. This paper aims to resolve simple questions relating to library digitization process as well as to find out the exact scenario of library digitization practices in Bangladesh*

**Keywords:** Library digitization, developing country, perspective

### Introduction

Digitization has become a practical necessity and reality with technology interventions to provide improved access to information sources, preservation and dissemination as required, at anytime; anywhere and any place as it were. Besides, digitization narrows down the “Digital Divide” between the have and have-not within the country, between individuals, developing and developed countries, those who can speak English and those who cannot, digital elite in urban and rural in terms of digital development itself<sup>1</sup>. Librarians and archivists find themselves facing the prospect of digitization. Everyone is doing it, everyone needs it. Discussions range nationally and internationally concerning what to digitize and the best means to present and retain digital objects. Yet newcomers may seek answers to simpler questions; what is digitization? What does digitization equipment do? What does digitization standards mean?<sup>2</sup>. Being a third world country like Bangladesh; is still trying to find answers of these simple questions, because library digitization is not still a familiar and well known topic in many libraries for Bangladesh. This paper aims to resolve these simple questions relating to library digitization process as well as to find out the exact scenario of library digitization practices in Bangladesh.

**Objectives:** The prime objective of the study is to explore the digitization and digital librarianship initiatives by the librarians and information professional in the private and public university libraries of Bangladesh. More specifically, the objectives of the study are: i. To have a look for the current digitization status among the libraries of Bangladesh special concern to the university libraries. ii. To examine different constraints of digitization in Bangladesh. iii. To examine the infrastructural facilities required for digital information system (Scanner, computer, software, OCR, output media, access points, network support).

**Literature Review:** There were not much literature support was found regarding library digitization in Bangladesh but lots of work has been done around the world. Loptain; provides a selective bibliography of literature which explores issues and provides guidelines on library digitization projects<sup>3</sup>. Liu focused on the library digitization practice in the USA. His survey of current literature reveals a number of prominent library digitization practices, methods and challenges, and highlights the best practices, trends and interests in library digitization pertaining to both policy and technology marketplace issues<sup>4</sup>. Yao and Zhao carried a comprehensive survey where they included ten key university library of China. The aim of this paper was to provide an overview of Chinese digital library projects via the corresponding web sites. The paper also seeks to illustrate the current situation of DLs in China by offering insights into the digitization of resources, technologies and services<sup>5</sup>. Iwhiwhu and Eyekpegaha examined the present digitization projects in Nigerian university libraries and the challenges they pose to effective information delivery. The results from the paper reveal that, the libraries lack written policy on digitization, inadequate ICT infrastructures and manpower, fund, and inadequate government support. Users are not given user education/digital literacy to enable them adequately utilizing the available digitized resources and services, thus posing challenges to effective information delivery<sup>6</sup>. Murthy, gives some guide lines on procedures and process of digitization on the basis of a practical experience at the National Tuberculosis Institute, Bangalore. He also discussed on various topics related to library digitization<sup>7</sup>. Wentzel includes detailed discussion on scanning process for library digitization project, where he includes, flatbed scanners, digital cameras, other digitization equipment, understanding resolution, bit depth, color space, file formats etc<sup>8</sup>. Jeevan gives attention to digital library development in India where he gives special preference to identifying sources of content for developing countries, especially in India. He discussed various

issues, such as; need and purpose of digital library, arguments for digitizing, what and how to digitized library materials, content indexing and metadata, formats, storage, retrieval, dissemination and many other crucial issues<sup>9</sup>.

## Methodology

For the particular study more than one methodological approach has been used. Beside the literature survey, close observation and in-depth interviews with structured questionnaire have been conducted on 20 public and private university libraries. Librarians and information professionals of the sample libraries were the population of the study. Postal, electronic and field visit was the medium used for data collection. There were another semi structured questionnaire was designed for some particular libraries who has been taken digitization project in their libraries. These libraries were BANBEIS, Directorate of archives and Libraries, Ministry of Cultural affairs Bangladesh, ICDDR, Bangladesh Institute of Development studies, Ayesha Abed Library. An interview with the highest level professionals was also conducted during fill up the questionnaire. The study concludes some major university libraries of Bangladesh including both public and private university library. For the purpose of reveal exact scenario, not only the well recognized university library has been included, but also some little known; with fewer collection and services, libraries from remote areas, are also has been selected and brought under the study. The sample libraries are: Dhaka University library (DUL), Bangladesh University of Engineering and Technology Library (BUETL), National University Library (NUL), Bangladesh Open University Library (BOUL), Bangabandhu Sheikh Mujibur Rahman Agricultural University Library (BSMRAUL),

Jagannath University Library (JNTUL), Shahjalal University of Science and Technology Library (SUSTL), Sylhet Agricultural University Library (SAUL), Jahangirnagar University Library (JUL), Noakhali Science and Technology University Library (NSTUL), Bangabandhu Sheikh Mujib Medical University Library (BSMMUL), Islamic University of Technology Library (IUTL), South-East University Library (SEUL), Daffodil International University Library (DIUL), Northern University Bangladesh Library (NUBL), North-South University Library (NSUL), Independent University, Bangladesh Library (IUBL), Ayesha Abed Library of BRAC University (BRACUL), American International University-Bangladesh Library (AIUBL) and East-West University Library (ESUL).

## Results and Discussion

**Concept of Digitization:** Digitization is primarily the process of converting written and printed records into electronic form. The content may be text, image, audio or a combination of these (multimedia). The output of digitization process is an electronic document that can also be hosted on Internet/Intranet. The electronic document may be in Portable Document Format (PDF) or Tagged Image File Format (TIFF). PDF format is usually used to store information on the Web, as the file size is relatively small and easily downloadable and transferable. PDF is also has a unique print/display format that is the same on any platform and can be read using Acrobat Reader (downloadable freely from the internet). TIF Format is mainly used for storing records of archival value<sup>10</sup>.

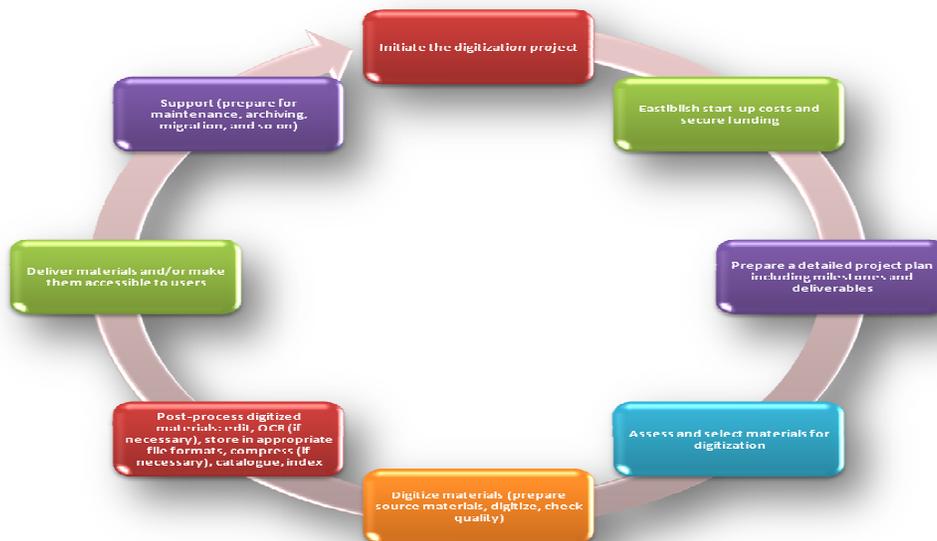


Figure-1  
Digitization process

Digitization process is extremely complex, difficult in manner, time consuming and needed highly qualified and experienced professional to do the job efficiently. There are basically three major phases of a digitization project. The main activities involved in the first phases relate to the preparation for digitization, and the actual process of digitizing materials. Once the source materials has been digitized the second phase begins, which is concerned with the processing required to make the digitized materials easily accessible to users. This evolves a number of editorial and processing activities such as cataloguing, indexing and compression. End-users can use the digitized materials only when the digitized materials are properly processed. There are other issues too, which come in the third phase; they relate to the preservation and maintenance of the digitized collection and services<sup>11</sup>.

The process of digitization also involves huge cost. In addition to paying for equipment and the digitization process, there are other type of costs, for example staff salaries and those associated with various related activities before and after digitization, such as movement of physical items, copyright clearance, creation of records and indexes, and so on<sup>12</sup>.

**Digitization Status in Bangladesh:** There are very few initiatives has been taken to digitized library materials among the libraries of Bangladesh, on the other hand Digital Library initiatives is still in the birth place. But still there are some initiatives have been found, though these are not any complete attempt in terms of real digitization or digital library initiatives. BANBEIS took Library and Documentation centre automation and digitization project in December 2008 and first phase of the project has been completed in December 2009. The project digitized a fair amount of document; includes a total number of 396 titles, 42,000 pages which were in 68 different subjects. Bangladesh national library also took a project in 1995 and that was completed in 1997. A total number of 54,000 books were digitized during the project. The project mainly digitized rare collection includes; Personal collections of “Tangail dhonbari”, personal collections of “Vaol Raja”, and Peronal collections of “Dr. Muhammad Sahidullah”. Secretariat library collections were also digitized during the project from 1972-1982. ICDDRB library also has a ongoing digitization project which was started in 2004. ICDDRB mainly digitized their various own publications. They produced different types of publications, such as: journal article, annual report, news letter, research monograph, research briefs, scientific reports, special bibliography, special publications, working papers etc. A total number of 2605 title is digitized so far. It is now a normal activity of ICDDRB library rather than a digitization project. So far 1,60,000 page has been digitized. Bangladesh Institute of Development Studies also has a ongoing digitization programme. They mainly digitized their own publication. BRAC University libraries successfully formed a Institutional repository, the main purpose of this project is to make the library capable for promoting e-library services with the e-resources of the library and ensure access to these e-resources for the teachers, students and researchers of BRAC University

and other institutes. Besides this Dhaka University library and East-West university library recently taken digitization project in some extent. The major digitization attempts are shown in the following tables:

**Digitization trends in Bangladesh:** It is observed that all the libraries in Bangladesh who entered to the digitization world followed all most the same procedure to digitize their library materials. All the inside story of digitized library materials are also same and very much straight forward. At first they select the materials for digitization and trace them, then an external organization has done the scanning (in most of the cases except some rare exceptions), for some materials OCR also applied, after that they hand over the digitized materials in CD-ROM and also in PDF files, library unit then take a several copy and also store them in the server, when post-processing is over (cataloguing, classification, indexing), then they linked the materials and upload in the web using open source software in most of the cases. During the investigation some problem were identified by the corresponding librarians/library in charge during the digitization project these are: lack of fund, lack of concept about digitization, lack of expert personnel, lack of coordination etc. Besides these, some other problem was involved, such as; fear of technology and new concept among the organization’s employee, backward and unhelpful attitudes etc.

**Major barriers for digitization: Lack of understanding:** Most of the libraries of Bangladesh are still in the darkness about the digitization concept. They do not have any clear idea about library digitization. Berceuses most of the libraries of Bangladesh are still not digitized, few libraries only taken library automation attempts and most of the libraries are proceed in manual system at every means. In this situation, it is not possible to understand the whole digitization process and its benefits.

**Financial Constraint:** Financial constraint is one of the major barriers for library digitization in Bangladesh. Here in Bangladesh, very few libraries have separate budget for library digitization, so it is very hard for the libraries to undertake any sort of digitization project for lack of money.

From the table-2 it is clearly shown that most percentages (35%) library budget is more than 55 lacks and less percentage (5%) library budget is less than 5 lacks among surveyed university libraries of Bangladesh but the problem is very few libraries (only 4 libraries) has separate budget (only 20%) for digitization.

**Lack of skilled manpower:** Skilled manpower is must for the library digitization activities, without that it will be the untouched dream all the time for the libraries of Bangladesh. For the digitization process libraries need smart, intelligent personnel with adequate technical and ICT knowledge, whereas, the picture is totally different in Bangladesh. Most of the libraries do not have that kind of personnel; few libraries have that kind of personnel but very small in numbers.

**Table-1**  
**Digitization attempts at a glance**

Name of the library/organization	Time Line	Types of document digitized	Project accomplished by
BANBEIS (Library and Documentation Center Automation and Digitalization)	December 2008-December 2009	The project digitized different types of documents, such as; research reports, educational statistics, National education survey, and education commission reports up to 1905-2009.	New Progati Prokashani Library Management System; with the technical help from DEVNET.
Directorate of archives and Libraries, Ministry of Cultural affairs Bangladesh (National Library renovation, accessories and equipment purchasing project)	1995-1997	The project mainly digitized rare collection includes; Personal collections of “Tangail dhonbari”, personal collections of “Vaoal Raja”, and Personal collections of “Dr. Muhammad Sahidullah”. Secretariat library collections were also digitized during the project from 1972-1982.	Directorate of archives and Libraries.
ICDDRBR IR (Institutional Repository)	It is an ongoing project which started in 2004.	ICDDRBR mainly digitized their various own publications. They produced different types of publications, such as: journal article, annual report, news letter, research monograph, research briefs, scientific reports, special bibliography, special publications, working papers etc.	Library team of ICDDRBR, taking help from IT department of the same institution with the additional help from DEVNET for scanning purpose
Bangladesh Institute of Development studies (BIDS Publication Digitization Programme)	2010 to continue.	All BIDS publications.	BIDS.
Ayesha Abed Library (BRAC University Institutional Repository)	Ongoing project.	Annual report, Research report, Internship report, BRAC University journal, Thesis.	Library division, BRAC University.

(Source: Field visit and interview with a semi structured questionnaire)

**Table-2**  
**Financial budget for the libraries (2008-2009)**

Frequency	Number of libraries	Percentages	Separate budget for digitization ( Number of libraries)
Less than 5 lacks	1	5%	---
5lacks to 15 lacks	6	30%	2
15 lacks to 25 lacks	1	5%	1
25 lacks to 35 lacks	2	10%	---
35 lacks to 45 lacks	1	5%	---
45 lacks to 55 lacks	2	10%	---
More than 55 lacks	7	35%	1

N=20 (Source: Survey Data)

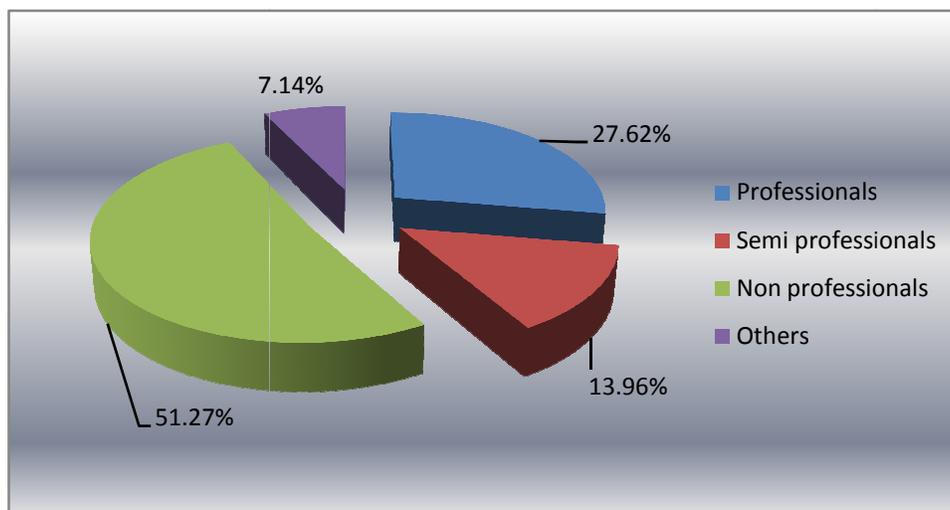
Figure –2 indicates that among the sample public and private university libraries, 27.62% have professionals, 13.96% of semi professionals, 51.27 % non professionals and 7.14 % have other categories of staffs. This statistics clearly prove that most percentage of the library staff is non professionals and other categories (58.41%) which is not acceptable at all.

**Inadequate infrastructural facilities:** As a whole the available infrastructural facilities of the libraries of Bangladesh are not in the satisfactory level. This kind of infrastructural facilities slows down the rate of digitization. The following table will justify the statements

Table –3 shows that most of the university libraries (45%) have total number of 0-10 computers and 60% library (most

percentage) has computer with internet connections in those computers. Most of the libraries has 0-10 scanners (95% library), digital camera (95% library), modem (90% library), UPS/generator (70% library), printer (95% library) and barcode generator (100% library). This statistics clarify the poor infrastructural facilities and hardware equipments among the university libraries of Bangladesh.

**Lack of standard and uniformity:** Libraries of Bangladesh do not maintain any sort of standard and here is no competition among the libraries to better serve the user. They still believe and practice traditional library activities and services and completely isolated from the modern library activities around the world.



(Source: Survey Data)

Figure-2  
 Percentage of professionals

Table-3  
 Available infrastructural facilities of the sample libraries

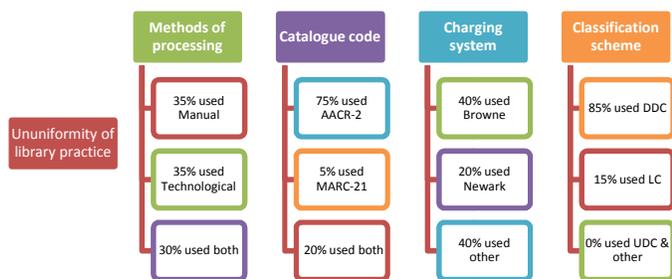
Frequency	Hardware equipments															
	Computer		Computer with internet connection		Scanners		Digital Camera		Modem		UPS/Generator		Printer		Barcode Generator	
	No. of lib.	%	No. of lib.	%	No. of lib.	%	No. of lib.	%	No. of lib.	%	No. of lib.	%	No. of lib.	%	No. of lib.	%
0-10	9	45%	12	60%	19	95%	19	95%	18	90%	14	70%	19	95	20	100
11-20	5	25%	2	10%	1	5%	0	0%	1	5%	3	15%	1	5%	0	0%
21-30	1	5%	2	10%	0	0%	1	5%	1	5%	1	5%	0	0%	0	0%
31-40	1	5%	1	5%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
41-50	1	5%	1	5%	0	0%	0	0%	0	0%	1	5%	0	0%	0	0%
51-60	1	5%	1	5%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
61-70	1	5%	1	5%	0	0%	0	0%	0	0%	0	0%	0	0	0	0%
71-80	1	5%	0	0%	0	0%	0	0%	0	0%	1	5%	0	0%	0	0%
81-90	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
91-100	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%

N=20 (Source: Survey Data)

Figure-3 indicates that 85% university library use Dewey decimal classification scheme, 15% used Library of Congress Classification scheme, 40% library use Browne, 20% use Newark and 40% library use other charging system. 75% library use AACR-2, 5% use MARC-21 and 20% library use other cataloguing code. This information clearly identify that there is no uniformity among the libraries of Bangladesh and also there is no uniformity in processing library materials either, here 35% sample library use technological method, 35% used manual method and 30% used both technological and manual method for processing of library materials.

**Problems with ICT and Automation:** As a developing country Bangladesh has technical limitations which are also pushing the libraries from behind to not take digitization attempts. Internet came late in Bangladesh, with UUCP e-mail beginning in 1993 and IP connectivity in 1996, SEA-ME-WE-4 submarine cable connectivity 21 May 2006. According to the Internet World Stats as of September, 2009 there are currently 556,000 internet users in Bangladesh and the internet penetration is 0.4%.<sup>13</sup> Here are also problems with ICT and automation, the following figures will reveal them:

it is clearly visible that most of the university libraries of Bangladesh mostly provide the traditional library services

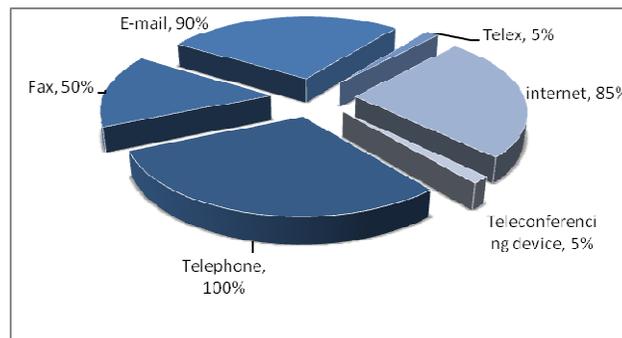


(Source: Survey data)  
**Figure-3**

**Methods and standard used for processing library materials**

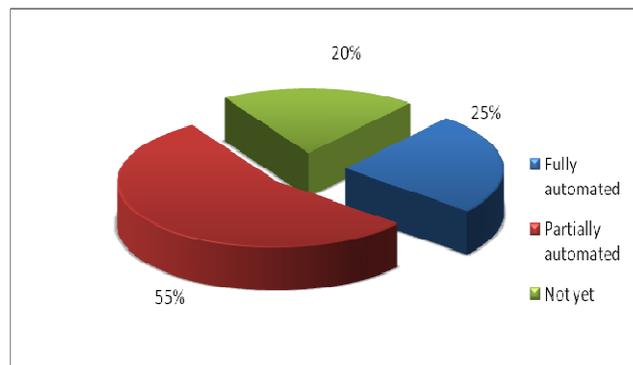
Figure- 4 and 5 indicate that 100% of the sample public and private university libraries provide telephone facilities. 50% libraries provide fax facilities, while 90% provide e-mail facilities. 85% of the public and private university libraries provide internet facilities, 5% of the libraries provide telex and teleconference facilities for the users as well as for library staffs. On the other hand it is shocking that only 25% of the sample public and private university libraries are fully automated while 55% are partially automated. But 20 percent of the sample public and private university libraries are not yet automated.

**Backward mentality and priority to traditional library services:** Most of the library professionals are still bear backward mentality and some of them have fear about modern technology so to library digitization. They are still comfortable with traditional library activities and services. From the table-1



(Source: Survey Data)  
**Figure-4**

**Availability of ICT facilities**



(Source: Survey Data)  
**Figure-5**

**Status of library automation.**

**Table-4**  
**Comparison of traditional and computerized library services**

Traditional services		Computerized and ICT based services	
Name of the services	% provide	Name of the services	% provide
Readers services	100%	Internet	90%
Reference services	100%	OPAC	60%
Abstracting and indexing	60%	Library websites	55%
Bibliographic services	75%	On line full text data base service	45%
Inter-library loan	55%	CD-ROM searches	50%
Reprographic services	75%	Intranet ( data sharing, file transfer)	55%
Printing facilities	60%	Access to commercial e-resources	35%
Help desk	85%	Electronic document delivery	45%
CAS	75%	Other	20%
SDI	55%		

(Source: Survey Data)

Table-4 expressed that the entire 20 surveyed university library provide readers and reference services. While 60% of surveyed library provides abstracting and indexing services, 75% provides bibliographic services, 55% interlibrary loan service, 75% reprographic services, 60% surveyed library has printing facilities, 85% has help desk. 75% provide CAS and 55% provide SDI services. While on the other hand 90% of the sample public and private university libraries provide internet facilities, 60% provide online public access catalogue and access to commercial e-resources. 55% libraries have library websites and provide intranet facilities. 50% provide CD-ROM search facilities. 45% provide electronic document delivery services, 35% provide access to commercial e-resources and 20% of the surveyed libraries provide other computerized services (Source: Survey data, 2010). This statistics clearly shows that university libraries of Bangladesh are giving less attention to modern library facilities than traditional library services.

**Unhelpful management:** Most of the library do not get proper help and assistance regarding provide ICT based library facilities and taking digitization project. Maximum top level personnel are not have library and information science background, so they are unable to understand modern library activities like library digitization.

**Unawareness of modern library trend:** Most of the libraries of Bangladesh do not have any sort of connection with the other libraries of the world, as a result they are unaware about the library development and modern library trends across the world. More over libraries of Bangladesh generally does not encourage its employees to go abroad and gain knowledge from the world renowned libraries. As a whole library of Bangladesh is always remain far behind from the modern library trends.

**Failed to understand the benefits of digitization:** As the libraries of Bangladesh do not have proper idea about digitization, so they are unable to realize the benefits of library digitization and usually not interested to take any kind of initiative regarding library digitization. While discussing some of the leading librarian of the country they mention the highest authority of their concern organization are not interested in digitization project mostly of their unawareness of digitization process, its benefits and never the less for its high cost.

**Copyright issues:** Copy right is another important issue which prevent the libraries of Bangladesh from taking any sort of digitization project.

**Recommendations:** i. Make library personnel's, users and the authority responsiveness about library digitization. ii. Knowledge construction about digitization project. iii. Provide necessary logistic and infrastructural facilities to handle electronic resources. iv. Find out the exact information need of the users. v. Inspire the users to use more electronic resources. vi. Inspire the library to take digitization project. vii. Insuring

Logistic and infrastructural support for digitization. viii. Arrange training program for the library personnel's as well as for the users. ix. And finally think smart, be smart, act smart to adopt any kind of new technologies.

## Conclusion

If the libraries of Bangladesh want to move forward for catch up the modern library trends and facilities, satisfied the users and as a whole want to make its mark for the overall development of the country this is the time to march ahead. First of all the libraries and its professionals must have to understand the benefits and process of digitization. To increase the awareness, different library associations of Bangladesh, such as LAB, BALID have to come forward and should organize seminars, workshops, etc. to create awareness among librarians about current developments in technology. It is crystal clear that library must put some separate budget for digitization in every year to its overall budget. Library professionals need some training to adopt the latest technology. Library and information science teaching and training institutions should introduce different types of training programs for unskilled library professionals. So that they can overcome their fear about digital technology and can enjoy the blessing of modern science. Practical digital librarianship course should be integrated in the LIS curriculum at the university level, so that the upcoming library professionals of Bangladesh gain some practical knowledge to handle and manage digital resources and can take digitization attempts. The governments have to co-operate with the libraries and have to allocate them adequate fund so that they can increase digital information resources. And finally National digital information resource task force should be created immediately; they will be monitoring the improvement of the overall digitization process of the country.

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