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Dear Opeyemi,

I am pleased to inform you that your revised manuscript; CHALLENGES FACING DIGITIZATION OF...has been accepted for publication in THE INFORMATION TECHNOLOGIST Volume 7 no 2, scheduled to appear in December 2010.

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CHALLENGES FACING THE DIGITIZATION OF UNIVERSITY LIBRARIES IN NIGERIA

A CASE STUDY OF FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA(FUT, MINNA)

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Abstract

This paper examines the challenges facing the implementation of digital technology in our university libraries. Data were collected from 68 respondents with the aid of structured questionnaire and analyzed using frequency, percentage, bar chart, and pie chart.

The finding shows that the following inhibit the digitization of our university libraries: Insufficient automation system, unskilled manpower, costly acquisition of hardware and software, inconsistent power supply, high cost of telecom services, and inadequate funding. Based on the findings this paper highlights the possible solutions to the above problems, the great benefits of digital technology which is efficient accuracy of library records and all other benefits as well. The resources the technology offers and the maintainable implementation process were also discussed.

Keywords

Challenges, Digitization, Digital Technologies, Universities Libraries, Nigeria.

1.0 Introduction

Digitization of libraries entails the use of digital technology to acquire, store, preserve and provide access to information and material originally published in digitized form e.g. audio visual format.

Application of digital technology to libraries assists in collection of electronic journals, software agents that supports inquiry based education, access to e-mail, internet and even personal information collection from any repository domain. Digital technology allows different users to have different knowledge on the particular application domain for which library has been created.

Digital Technology involves the application of computer, internet connectivity, physical networks and digital information sources (software for the maintenance). Its application also involves manpower- well trained personnel, Librarians or Network engineers for sustainability. Omekwu (2003) describes

digital libraries as “libraries without walls that depend on virtual reality of technology for the creation of highly sophisticated program”.

For proper maintenance & cost our libraries can be networked with another library e.g. University of Jos library, to ensure sustainability of services. This was justified by Pautler (1993)’. A digital library is not necessarily based in one actual library; it may be an amalgam of services and resources housed in a number of libraries which a network brings together.

Digitization according to Hamelink (1997) “is the process through which information (whether relayed through sound, text, voice or image) is converted into the digital, binary language, computer use”.

According to Oyekanmi (2002), a digital library is a computerized system which provides multiple access to entire collections of a library by means of electronic media.

Gappen (1993) defines a digital library a Remote access to contents and services of libraries and other information sources, an electronic network which provides access to and delivery from external worldwide library and commercial information and knowledge sources.

The objective of the study focuses on the need to find out why digital technology has not been adequately implemented in most of Nigeria University libraries, to find out the problems facing the implementation and to determine the perception of the library user towards the technology. Also, the objective is to find the possible solutions to the challenges, to determine the need for the technology and to find out the sustainable techniques that those universities adopting it are using.

2.0 Concepts of Digital Technology and Its Application

1. **Automation System:** Digital technology involves the use of automation system to run its application. The system uses computer system to aid easy storage, access, and retrieval of information. In libraries computers offer a tremendous assistance in terms of speed, accuracy and efficiency. Teddy (1980) and Rowley (1986) itemized the benefits of automation as: enhancing productivity, increased output, more productive tasks in documentation and information processing, network enhancement & perfect control of records management and retrieval.
2. **Internet connectivity:** Internet refers to information superhighway. The digital technology involves the use of internet to collect, store, search, & disseminate cultural, historical,

economic & scientific information in a digitized form either prints or non prints. Alasa and Ibenne (1998) cited the benefits of internet connectivity: quick and convenient information exchange, access to regular updates on topics of interest, access to experienced & expert individuals in thousands of field. Librarians have the opportunity for selection of books required in their institutions and order them without going from one bookshop to another. Electronic journals and news letter are made available on regular basis.

3. **Networking:** This entails linking of computers within a Local Region (LAN) or Wide area (WAN) to offer access to information, data and sharing of resources. This network of computers among universities will allow collections that are not available in a library to be accessed from another library having such collections within the framework of a network.
4. **CD-ROM Technology:-** CD-ROM potentials lies in storage capacity, compactness, portability, reduced shelf space and durability for the database. It has ability to play a wide repertoire of materials such as books, journals, directories, movies, games, video and educational materials. CD- ROM technology has positive impacts on document delivery services in libraries. Document delivery according to Kiondo (1997) refers to loan, sale or donations of documents from one library of information center to another. CD-ROM will continue to be relevant in our libraries because of its relatively cheap production and maintenance cost.
5. **Application Software:** This involves the software to run the digital technology.
 - a. **OPAC:** This refers to Online Public Access Cataloguing. It is a tool for information held in the library. Access can be made to OPAC from remote locations by subscribing to the tool. OPAC provides access to indexes, abstracts, electronic text & materials on the internet and also digitized materials from other libraries (Mohai,2002).
 - b. **TINLIB:** The Information Navigator for Librarians is software that has been in use for library automation projects in Nigerian University Libraries. The TINLIB library package is integrated software for computerizing all library procedures.
 - c. **GLAS:** GLAS is also application software for digital libraries.
6. **Telecommunication System:** The telecom system involves telephone, radio, television, fax, telex. Application of digital technology involves the use of these modems. These modems have facilities to view, hear, edit, store and forward messages. Some of these modems have

automatic re-dial & switching to avoid wasting time attempting to establish contact on busy line.

3.0 Methodology

The population of the study consisted of 150 library users and staff of Federal University of Technology, Minna (FUT, Minna). A random sample of 80 respondents was selected. A structured questionnaire was administered while 68 were returned. Data was analyzed with the use of frequency distribution, simple percentage bar chart and pie chart. Simple percentage was used to present the result(s) of the analysis.

4.0 Digital Technology In Some Universities In Nigeria

- a. Digital Technology in University of Ibadan:** Application of digital technology to University of Ibadan Library has brought a great success to cataloguing and researches. In 1975 the library started with the production of first automated serial catalogue with computer. The computer-produced catalogues were accurately fast and legible compared to the manual catalogue. The library is networked and also have about 50 computers connected to the internet. This premier university library has developed 2 automated computational systems namely ALS (Automated Library System) and PLS (Plessey Library System). The TINLIB software being used has been replaced by Alice for Window. CD-ROM based technology for CD-ROM databases search are in use now with 23 computers available for the operation.
- b. Digital Technology in University of Lagos:-** Plans to digitize the library is still underway but there are some preparations on ground that have been cleared for it. Presently, the library uses 7OPACS and every Librarian and official's uses computer for library operations such as literature search, record keeping e.t.c. The automated cataloguing module is in use presently. Also the TINLIB software being used has been replaced by GLAS.
- c. Digital Technology in University of Jos:-** The **University of Jos** library has digitized her General Studies Use of Library lectures over 1200 serial titles, over 85% of catalogue of documents and special collections strategic pan of the library, guide to the

library booklet. University of Jos Library uses bibliophile cataloguing software called “ITS for Windows”. The library has acquired interrupted power supply with the use of 800watts Solar Electric Power back up system in February 2002. The library is networked with the use of about 23 computers(Akintunde,2002) University of Jos Library has its own website at <http://www.uiowa.edu/intlinet/unijos/deptmts/libraries>

d. Digital Technology in University of Benin:- in 1999 computerization of library operation commenced. Over 60,000 monograph records have been automated. The library uses Oracle-Based software dubbed Strategic Library Automation & management Software (SLAM). Several volumes of monographs journals and 4-user TINLIB software has been introduced by NUC (Saani & Idiodi 2004).

5.0 Present Status & Reported benefits of Digital Technology to Libraries

From the view of institutions and other users of digital technology in Nigeria, table 3 shows Present status & reported benefits of digital technology to libraries

S/ N	FACTORS	NONE (%)	LITTLE (%)	MUCH (%)
1.	Digital Technology will make library services easier.	7.35	32.35	51.47
2.	Digital Technology will improve good quality of library services.	-	5.88	94.12
3.	It allows users to be creative	1.47	4.41	94.12
4.	It improves accuracy of library records	-	1.47	98.53
5.	Present satisfaction of the demand of library users	58.82	30.88	10.30
6.	It will relieve librarian of cognitive challenges & judgmental duties.	5.88	30.88	63.24
7.	Provision of up to date information is available	7.35	52.94	39.71
8.	It will much more reduce the circulation unit challenges	14.71	58.82	26.47
9.	Creation of additional work to librarian	48.52	36.76	14.72

Table 3: Present Status & Reported benefits of Digital Technology to Libraries

From the table 3 above one can infer that digital technology offers great benefits of accuracy (98.53%), current (39.71) and creative records (94.12%). It reduces stress of retrieving records for researchers, readers, librarians (63.24%) and the entire users (51.47%). Digital Technology will also improve good quality of library services (94.12%).

5.1 Digital Technology also offers these substantial resources

1. Electronic book
2. Electronic cataloguing
3. Electronic journals and articles
4. Electronic Interlibrary Loan
5. Abstracts and Bibliographies
6. Reference services
7. Electronic mail services
8. Periodicals
9. On line database searching
10. Teleconferencing lectures e.t.c

6.0 Findings

Table 1: Respondents Characteristics (Gender)

Sex	Frequency	Percentage(%)
Male	48	70.59
Female	20	29.41
Total	68	100

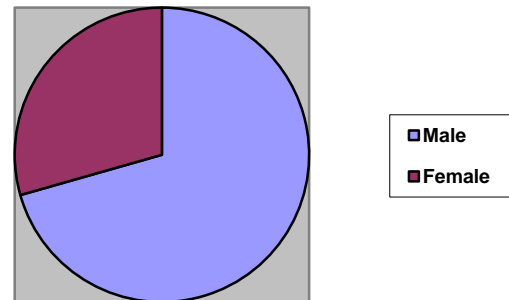


Fig 1: Respondents sex percentage

The table 1 and Fig.1 above shows the Respondents characteristics according to Gender :70.59% male and 29.41% female

Table2: Percentage illustration of Respondent's Qualification

Qualification	Frequency	Percentage (%)
Diploma	23	33.82
B.Sc/HND	35	51.57
Postgraduate	10	14.71

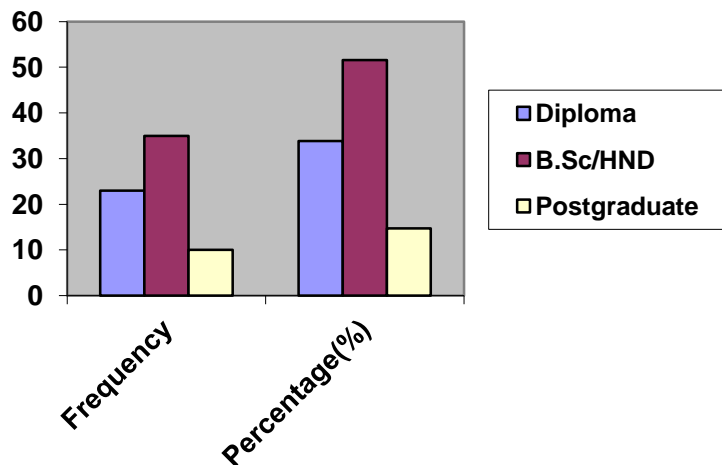


Fig 2: Respondents' Qualification

Table 2 and Fig.2 above show the percentage illustration of Respondent's according to Qualification: Diploma (33.82%), B.Sc/HND (51.57%) and Postgraduate (14.71%).

7.0 Challenges Facing The Digitization Of Our University Libraries

Based on the findings, table 4 below shows the percentage of the challenges facing the digitization of our university libraries: Insufficient automation system, unskilled manpower, costly acquisition of hardware and software, inconsistent power supply, high cost of telecom services, and inadequate funding.

Table 4 : Constraints Analysis to the use of Digital Technology

	FACTORS	MUCH (%)	LITTLE (%)	NOT AT ALL (%)
1.	Adequate funding	11.76	22.06	63.28
2.	Adequate computer system	14.71	29.41	55.88
3.	Computer literacy	44.12	50.00	05.88
4.	Internet connectivity	26.47	33.83	40.00
5.	Availability of Networked System e.g. LAN, WAN, e.t.c.	40.00	26.47	33.83

6.	Digital radio	-	7.35	92.65
7.	Wireless connection	20.59	29.41	50.00
8.	Electronic data interchange	-	-	100
9.	Marketization of some library services	20.59	36.76	42.65
10.	Frequent internet usage	14.71	-	58.82
11.	Acquisition of software is the costliest aspect	16.18	33.82	50.00
12.	Acquisition of hardware is the costliest aspect	13.24	39.71	47.05
13.	Cost of digitization is often higher than the benefits	02.94	26.47	70.59
14.	Adequate staff training	-	04.76	63.24
15.	Telecommunication system	7.35	23.53	69.12

Constraints To The Implementation Of Digital Technology And The Possible Solutions

1. **Funding:** The table 4 above shows that the funding of digital technology in Universities libraries is 63.8%. Universities libraries in Nigeria traditionally offer its services free. Due to advent of digital technology, there is need to draw a line between normal services that are offered free and those that should be offered for fees. This funding method will help us to subscribe for electronic material and websites that could not be afforded by individual but as a group. e.g. EbscoHost, Silverplatter. Also each university should see the need to plan adequately for the project. This effort will go a long way in solving costly acquisition of hardware, software and all other funding problems.

2. **Networks:** From Table 4 we have 26.47% of internet connectivity, availability of networked system, digital radio, wireless connection is 40%, 0% and 20.59% respectively. Also frequent internet exchange is 14.71% thus network availability is very low and those available are not properly functioning. To eradicate this problem we can implement a LAN to ensure self sustenance based on internal funding, we may also collaborate with two or three institutions for the maintenance cost.

3. **Telecom Cost:** There should be low telecom cost. From Fig 4 above the available telecom is inadequate (7.35%). Those available are costly, inconsistent, and inefficient in the billing rate. Internet access being conveyed by telecom system is inadequate. The problem could be alleviated by the use of wireless connectivity e.g. VSAT & Router or satellite dish.

4. **Power Supply:** The available power supply is unstable and unreliable due to inadequate facilities and poor maintenance. Each University should eradicate the problem by providing a standby Generator for their library to run these virtual services.

5. **Manpower:** From Fig 4 there is little (4.76%) staff training effort. Plans without effort of implementation are failure. There should be adequate effort to have skilled manpower that will train the librarians and the users. Librarians' enthusiasm, readiness to be trained on this digital technology is essentially needed. Their contribution in computerized system services is also needed.

8.0 Discussion/Steps towards the Implementation of Digital Technology

1. Organize a workshop for the implementation
2. Obtain satellite equipments with one (1) satellite channel. Radio Communication License
3. Obtain an Internet Protocol Address(IP) from Internet Service Provider (ISP) for services contract preferable
4. Installation of the VSAT (Very Small Aperture Terminal). The gateway router will be set up for internet connections.

9.0 Conclusion and further research

This study described the major challenges affecting the adoption of digital technology in our university libraries. The challenges have made our libraries a repository of books not center of knowledge acquisition. This study has researched the frequency of its adoption in our university libraries, present status and reported benefits of digital technology to libraries, constraints analysis to the use of the technology and possible solutions.

Further research can focus on elaborating mutuality of stakeholder benefits in relations to the adoption of digital technology

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