

THE ROLE OF INFORMATION TECHNOLOGY (IT) IN THE ACADEMIC LIBRARY

¹Fagbe, Abimbola O. (fagbea@babcock.edu.ng) ²Amanze, Ruth C. (amanzer@babcock.edu.ng) ³Oladipo, Sunday (oladipos@babcock.edu.ng) ⁴Oyenuga, Ebenezer (oyenugae@babcock.edu.ng)⁵: Adetunji, Oluwatofunmi O. (adetunjo@babcock.edu.ng)

1. Assistant Librarian, Laz Otta Memorial Library, Babcock University
2. Assistant Director, ICT, Babcock University, Nigeria
3. Senior Database Administrator, Registrar's Office Babcock University, Nigeria
4. Software Developer, ICT, Babcock University, Nigeria
5. Administrative Officer, Registrar's Office Babcock University, Nigeria

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ABSTRACT

Academic libraries and information centers play important roles as sources of valuable records, which help to meet the information needs of the society. In modern settings, these centers are often equipped with state of the art information technology (IT) resources in order to facilitate information acquisition, dissemination and access to resources domiciled in remote repositories which where beforehand not possible. To this end, the impact of information technology (IT) in academic libraries in Nigeria in order to meet the scholarly needs of their patrons cannot be

overemphasized. Factors that should be considered in setting up fully functional IT compliant libraries include: availability of space, technical know-how, trained IT manpower, funding, and maintenance culture. Having outlined these, the perception to IT resource and availability of adequate training for the eventual users of these resources could also pose significant challenges. Finally, this paper outlines a number of factors that could affect the full implementation of IT services in academic libraries. It is therefore recommended that a research be carried out to determine which of these factors play the most significant roles in transiting a paper based system to a fully automated IT driven academic library.

KEYWORDS: Information Technology, Academic Library, Availability of Space, Trained IT Manpower, Funding and Maintenance Culture

INTRODUCTION

Information plays a very important part in human life. Since the mid-21st century, the role of information has increased immeasurably as a result of social progress and the vigorous development in science and technology. In addition, Trostnikov (1970) pointed out that rapid expansion of a mass of diversified information is occurring, which he referred to as “information explosion”.

As a result of information explosion, the need for scientific approaches to information and for the clarification of its most characteristic properties has led to two principal changes in interpretation of the concept of information. Initially, it was broadened to include information exchange not only between man and man but also between machine and machine, as well as the exchange of

signals in the animal and plant worlds Trostnikov (1970). The pace of change brought by these emerging technologies exerted a considerable effect on the way people live, work, and play worldwide. It is obvious that this emerging trend in technology is challenging the traditional process of teaching, learning, and the way education is managed. Thus, information technology, as an important area of study in its own right, is having a major impact across all curriculum areas in our institutions.

According to Wallace (1991), the 1970s were characterized by improvements in computer storage, as well as in telecommunications. As a result of these advances, ‘turnkey systems on microcomputers,’ commonly referred to now as *integrated library systems* (ILS) finally appeared. Kochtanek (2002) also stated that ILS included necessary hardware and software which allowed the connection of major circulation tasks, including circulation control and overdue notices. As the technology developed, other library tasks could be accomplished through ILS as well, including acquisition, cataloguing, reservation of titles, and monitoring of serials.^[6]

With the evolution of the Internet throughout the 1990s and into the 2000s, ILSs began allowing users to be more actively engaged with their libraries through OPACs and online web-based portals. Users could log into their library accounts to reserve or renew books, as well as authenticate themselves for access to library-subscribed online databases. Inevitably, during this time, the ILS market grew exponentially.

The organization of information/knowledge is an essential preliminary in the academic library to its effective exploitation and dissemination. As the quantity and quality of knowledge expands, the need to organize it becomes more pressing. A vast number of different means of organizing information have been devised and exploited since the earliest times. With the vast output of new information and ever-increasing degree of specialization in all areas of human knowledge, heavy

demands are being placed on library information storage and retrieval systems, which can be scarcely met by the traditional methods except with the use of IT devices. The improvements and changes in computing and telecommunications and the integration of the two fields have had a huge role to play in the methods of information processing and dissemination in academic libraries; thus improving the quality of use to which such libraries are put.

Elisha (2006) affirms that, academic libraries play a prominent role in providing information services in various forms to researchers, scientist, policy makers, planners etc. he went further to state that a well-organized academic library should have ICT to assist both patrons and Thus, today's library information systems is comprised of software systems capable of capturing, transmitting, storing, retrieving, manipulating, and displaying of information, that support the personnel, organizations, or other software systems. This systems are referred in the library setting as automated system consisting of software that has been developed to handle basic housekeeping functions of the library that are majorly Acquisition processes, Cataloguing and Classification, Circulation, Reference Services, and Serials Control and/or Management, all of which are still complemented with manual operations.

DEFINITION OF INFORMATION TECHNOLOGY (IT)

Information Technology (IT) has been variously researched by many scholars. Thus, Information Technology is considered in the library to be concerned with acquisition, processing, storage and dissemination of information-textual, numerical, pictorial and vocal. In other words, it is considered as a broad-based term comprising the gathering (acquisition), organization (packaging), storage and retrieval (dissemination) of information that can be in textual or

numerical (books, documents), vocal and pictorial forms (audio–visual) or a combination of all the above (multimedia), using a combination of computer and telecommunications devices.

According to Marshall (1984), IT is the coming together of computing and telecommunications for the purpose of handling information; the application of technologies to information handling; including generation, storage, processing, retrieval and dissemination.

Emuakpor (2002) went further to describe IT as all forms of technology applied to the processing, storing and transmitting information in electronic form; stressing that the physical equipment used for this purpose include computers, communication equipment and networks; fax machines and electronic, pocket calculator. Ayo (2001) viewed it as the use of computer system and telecommunications equipment in information handling; consisting of essentially three basic components which are: Electronic processing using the computer; Transmission of information using telecommunication equipment; and Dissemination of information multimedia.

From the above aforementioned, it becomes explicit that IT in libraries comprises all the electronic infrastructure and facilities employed by libraries to improve and provide efficient services. Such facilities, in broad term, consist of hardware, software and communication links between the service outlets of different libraries to facilitate the sharing of common resources; especially the library networks.

Osundina (1973) pointed out that the library of today should not merely store documents and preserve them; it must also devise means by which the contents of such documents can be rapidly and effectively transmitted for use. Ogunsola (2004) explained that the pace of change brought by new technologies has had a significant effect on the way people live, work and play worldwide.

Capron (2000) revealed that mail, telephone, television, radio, books, newspapers and periodicals are the traditional ways users send and receive information. However, data communications system-computer system-also transmits data over communication lines such as telephone lines since the mid-1960s. Internet use has, today, revolutionized access to information for the business world, libraries, education and individuals. A few of the most popular include E-mail, www (World Wide Web), FTP (File Transfer Protocol) Usenet, and Telnet. All these technological devices are regarded as central to the concept of globalization. The Internet and its technology continued to have profound effects on the promotion of information sharing; especially in the academic world, making possible rapid transactions among businesses and supporting global collaboration among individuals and organizations. These technologies have the potentials to develop “virtual campuses” and “virtual libraries” thus, increasing students’ access and participation (Ogunsola, 2004).

According to Daniel (2000) Nancy Schiller was one of the first writers to use the expression “virtual library” which she defined in 1992, simply as “libraries in which computer and telecommunications technologies make access to wide range of information resources possible”. Today, the concept is referred to variously as “digital library”, “electronic library”, “community network”, or simply “library without walls” (Ogunsola, 2004).

ADVANTAGES OF IT IN LIBRARY SERVICES

Introduction of Information Technology (IT) in library has enormous advantages. According to Igbeka (2008), and Adeleke (2014), they enumerated the benefits of IT to library services as follows:

- Help researchers for effective literature review search needs.

- To introduce and provide new services, revitalize the existing services by providing faster access to the resources, by overcoming the space and time barriers.
- The Online Public Access Catalogue (OPAC) is the computer form of assisting library users to catalogue library materials.
- To provide need-based, (tailor made), browsing and retrospective search services to the users.
- To have large number of databases in CDs.
- Computers have aided libraries with digital library which occupies little space but large storage capacity.
- To utilize the staff for providing better information services.
- To retrieve and disseminate the information in user-defined format.
- To develop/upgrade the abilities of professionals.
- Information is preserved, conserved over a long period of time without image or quality degradation.
- To encourage networking and resource sharing at local level.
- Placing orders, checking to avoid duplication of books, price, ordering etc. are done very effectively using ICT technique.
- To have access to a number of national and international journals which are being published only in machine readable form.
- To digitize the documents for preservation and for space saving.
- To capture, store, manipulate, and distribute information.
- To improve the efficiency of library functions.
- Helps in the process of the serial control, preparing union list of serials and circulating via e-mail to the branch libraries at different locations.
- To improve the cost effectiveness of library operations.
- To support library functions such as circulation, serials control, acquisition control, stock maintenance and other routine office works and developing in-house database.
- To access library catalogues databases of other libraries through library networks.
- Global integration of library services.
- Universal access to information due to the use of Internet.
- Increased innovation and transformation of knowledge found in hardcopy books into softcopy.
- Change in the philosophy of the library from being a physical structure housing books to a database for universal access of information.
- IT has reduced the services/organization of the library by storing, retrieving and discrimination of information in real time.
- Library automation has been of tremendous help to the library workers.

AVAILABILITY OF INFORMATION TECHNOLOGY IN ACADEMIC LIBRARIES

The demand for distant education in Nigeria is increasing, although this is still based on the traditional technology of print media. Thus, there is the need to integrate IT into the distant education programme. Majority of higher institutions in Nigeria, even those with good Internet connectivity, are still at a low level of integration of ICT in teaching, learning, research, library, information and managerial services (Ogunsola, 2004).

In a research, Ekong (2005) pointed out that some of the first generation university libraries, and a few others, digitalization is taking place in many of their libraries and library information networks are established with connectivity through the university campus network to the Internet. The Centre for Learning Resources (CLR) Covenant University, Ota has been placed on the platform of full application of ICT because funds are made available for such innovations. Ogunsola (2004) explained that some Nigerian University campuses are now jam-packed with IT facilities. It is no longer strange to see lecturers and students doing their research and other academic works using various IT devices like e-mail and the Internet. Students can absorb more information and take less time to do so with the use of IT. Ogunsola (2004) declared that librarians or any member of the academic community at Obafemi Awolowo University Library can now easily find information concerning any book in the Library of Congress in the US.

Ogunsola (2004), in his opinion stated that University libraries can be transformed into a new information services unit, providing electronic cataloguing (OPAC), electronics acquisition/serials control, electronic interlibrary loan and calculation functions. Nigerian academic libraries should not be left out of this global educational revolution.

Ekong (2005) pointed out that both the Federal Government of Nigeria and International funding agencies are now interested in the general development of IT in Nigerian universities. He also

noted that, the Federal Ministry of Education embarked on the establishment of the National Virtual (Digital) Library Project, to provide, in an equitable and cost-effective manner, enhanced access to national and international library and information resources and to share locally available resources with libraries all over the world using digital technology; among other objectives. A model Virtual (Digital) Library at the National Universities Commission (NUC) will be the laboratory of the university-based libraries.

Many academic libraries had, at different times, planned to automate their activities, but had to drop the plans mid-way due to certain inadequacies, which Madu (2002) enumerated to including: Economical, Manpower problem, Political instability, Capital, Geographical isolation, Social cultural and Exposure. Consequently, libraries especially those of tertiary institutions have had difficulties in their attempts at achieving full application of IT in the conduct of their operations; thereby failing to benefit maximally from such adoption. The justification of this study thus lies in the central and critical role that IT plays in education generally and library operations in particular as attested to by Nwizu (2008) that the use of audiovisual and electronic resources has broken the barriers of time, distance, and locale, which impeded the growth of formal education, just as Adeyemi (2004) emphasizes that students use these resources to complete major assignments. He further stressed that “Audiovisual and electronic resources have the potential for enhancing student learning. The role of these resources in teaching and learning is one of the most important and widely-discussed issues in contemporary education policy”.

Omekwu (2006) observes that Nigerian libraries generally lack functional Web access, and do not have home pages. Some institutions have an institutional website, but the library has no presence there. The websites of such institutions are being used for only admission purposes. A

library homepage should be a component of an institution's website. Libraries must upload their bibliographic records to become part of global resources and should also be able to download information. As none of the institution's libraries have a web presence, they do not exist in the virtual environment. Etebu (2010) opined that without vast array of Internet facilities, librarians will not be helpful to their clientele. It is only when they are skilled in the use of the Internet that they can teach other library users to navigate the World Wide Web.

APPLICATION OF INFORMATION TECHNOLOGY

Information technology application in library and information field has made remarkable progress in the world. Information Technology not only affects the technical services of libraries but also shapes the library services that are being offered to the public. Worldwide libraries have been exploring new technologies for providing better and faster access to vast information resources and efficient information services to their users. Information Technology has offered better solutions to achieve greater level of efficiency, productivity and excellence services in libraries (Sahu et. al, 2011).

Abubakar (2010) observes that we now live in a changing society where information technology has taken the center stage and is accompanied by massive increase in knowledge which leads to a new paradigm in the Library and Information Science (LIS) field. Similarly, the advances in the sciences and in the application of Information and Communication Technologies (ICTs), particularly the Internet, Intranet and other network technologies have continued to impact positively on the methodologies of library and information service delivery, education and training of information professionals as well as in the area of information seeking behaviour and use. Thus, ICTs have now become common features in all fields.

Library and Information Science (LIS) education in this changing society where changes occur due to the emergence and advancement in Information and Communications Technologies (ICTs), requires the LIS professionals to acquire new IT skills for survival, Nigerian LIS schools are expected to brace up for this challenging situation. The influence of Information and Communication Technologies (ICTs) is now manifested in every sphere of human endeavor including the LIS field which is considered as pervasive (Kumar, 2014). Abubakar (2010) noted that the inclusion of ICTs into many professions has led to today's society been addressed as the Information Society.

Many tertiary institutions' libraries in Nigeria are not computerized, and are not internet connected, and where some ICT facilities exist they are zealously guarded (Etebu, 2010). Adeoye (2011) laments the fact that the application of ICTs in Nigerian tertiary Institutions shows consciousness of the significant role ICT can play in delivering library services, even though ICT is not fully embraced by most of the higher education libraries in the country. The problem of plagiarizing other people's work and the sheer volume of information available also makes selection of the most suitable information technology a complex task (Smith, 2005). ICT offers veritable solution in this regard.

CONSTRAINTS TO EFFECTIVE INFORMATION TECHNOLOGY AVAILABILITY AND APPLICATION IN ACADEMIC LIBRARY

- Lack of trained Information Technology (IT) Manpower
- People's negative attitude to change in technology;
- Encountering technical problems in the course of usage;

- The conversion of analogue information into digital format and its storage capacity place a high demand on the bandwidth of the University.
- Crashing of a computer due to virus, malware, hackers etc can have a large negative effect of loss of data and exposure of information to non-users
- Availability of funds
- Maintenance Culture

CONCLUSION

It could be concluded that organization of knowledge represent an important intellectual pillar on which the practice of the library profession rests. They constitute the scientific base for the librarian's claim to professionalism. Application of information communication technology in library services in the academic libraries raises the question of the depth of organization of knowledge. How long should a catalogue entry be and what access points are required? The shorter the entry, the better for automated catalogue records. Adequate and availability of ICT facilities and peripherals have the impact of reducing distance, increasing the volume and scope of information that can be handled or processed within a given time and increasing the ease of searching by patrons.

RECOMMENDATION

For effective use of information communication technology facilities in organization of knowledge, the following recommendations are made:

1. The parent body of libraries should make appropriate effort to increase subvention to the libraries so as to enable them to embark on necessary information communication technology programmes.

2. Computer training for all the library staff and library users.
3. Provision of work stations for all cataloguers to do online cataloguing, thereby reducing the problems created during cataloguing and mistakes made by data entry clerks. All these work stations should be connected to UPS.
4. Provision of a Local Area Network (LAN) in the divisions where organization of knowledge is performed. This will facilitate quick revision of cataloguing and classification records by the supervisors.
5. Ensuring constant power supply in the library especially where cataloguing is handled. This can be assured by the provision of a stand by electricity generating set as a substitute when there is power failure from Power Holding Company of Nigeria.
6. Retraining of staff in the areas of basic cataloguing rules.
7. Adequate provision of ICT facilities to ensure uninterrupted workflow.

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