INFORMATION COMMUNICATION TECHNOLOGY (ICT) INTERVENTION IN LIBRARY AND INFORMATION SERVICES

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ABSTRACT:
The emerging and fast growing Information Communication Technologies (ICT) and their application in libraries especially academic libraries have continued to revolutionize the pattern and scope of library services. The ICT facilities as applied to library functions, virtual and the digital library concept are examined as well as constraints militating against the effective utilization of them. The new roles of libraries and information managers and the challenges facing them as well as measures to make them relevant in the new dispensation are highlighted.

INTRODUCTION

Libraries were primarily established as a storehouse of knowledge where collections of records on various book forms were kept mostly in religious temples and royal palaces. The quest for knowledge occasioned by the renaissance and industrial revolutions gave rise to increase in paper production and written records which widened the scope of library collections and services. Libraries thus became the nexus of communication systems to the rapidly expanding information society.

New dimensions in technology, cultural, dynamism, social-political awareness and information technology breakthrough have given rise to information society. Information society denotes developments in information communication and media technologies, and the consequent emphasis on information and knowledge as they affect information seeking society. The information society is characterized by:

i.   Ease of information access; Interaction richness; and Low interaction and information costs (Kim. 2002)

The concept of the information society is the product of the convergence of several distinct forces in the 1990s. These include rapid technological advances in the information technology sector, the widespread recognition that computers can be used to process and communicate information; the spread of simple, inexpensive and powerful computer networks. These changes have greatly altered and widened the nature, scope and pattern of library and library services. In fact most libraries in developed countries are now members of networks that generally generate and facilitate access to information.

PURPOSE OF STUDY

Information Communication Technologies and their application in libraries have indeed continued to revolutionize the pattern and scope of library services. The purpose of the study therefore is to:

i. Create more institutional awareness on application and implementation of ICT facilities in library functions and information services,

ii. Identify such distinct areas information communication technologies have revolutionized library functions and services especially in academic libraries

iii. Examine the concept of virtual and digital libraries,

iv. Examine the problems and challenges of ICT utilization in libraries, to librarians and information managers,

v. Highlight the new roles open to libraries, librarians and information managers to make them more relevant in the new dispensation.

SCOPE OF THE STUDY

The paper is focused on the implementation of ICT facilities in library housekeeping operations. Examples of some university libraries randomly selected across the country where ICT facilities have been implemented are chosen to buttress the technology intervention in academic libraries. The selection could not cover many university or academic libraries because most of these institutional libraries are yet at policy formulation stages or at best data conversion and staff training stages.

THE CONCEPT OF INFORMATION COMMUNICATION TECHNOLOGY (ICT)

Information Communication Technology (ICT) is the application of communication technologies consisting of hardware, software, networks and media for collection, storage, processing, transmission and presentation of information via voice, data, text or images (Qiang 2003). It is the mechanism of capturing, processing, storing, transmitting, communicating information (Cochrane, 1992).

Thioune (2003:11) described ICT as the possibilities offered by the convergence of data processing technologies, electronic data, media and telecommunication, a convergence that has become evident over the past few years. Accordingly, he grouped ICT into two categories-•traditional and new ICTs. Traditional ICTs include radio, television, fixed line telephones and facsimile machines long exiting with us. The new ICTs are the modern computers and specific data applications accessible through computers such as E-mail. Internet. CD-ROM: etc ICT is often referred to as information Communication and Media Technology (ICMT). These contemporary formats and types of information resources associated with ICTs have been discussed by Anaeme. 2004. Okoye. 2004) include:

Computer:
The computer is an electronic machine that can accept or receive, store and process data when instructed to produce meaningful information.

The computer technology stands out the most basic element in information communication technology as most other facilities output through it. The computer hardwares available

include IBM. Apple Macintosh. Zinox. etc whose processor types range from Intel 80386-80586 (the Pentium). Softwares for library use include CDS-1S1S. TINLIB.XLIB. Alice for windows etc.

2 CD - ROM (Compact Disc Read - Only Memory):
This is a rainbow-coloured disc made from poly carbonate material with a capacity 1o store over 600 megabytes (MB) of data which is more than 330,00 typewritten pages of work or over 750 volumes of average sized books. The CD-ROM can only be read but not written on. However, data content of CDs can be down-loaded or copied to floppy disk, flash drives on which changes could be made or parts printed out.

CD-ROM databases available are numerous and include MEDLINE and IDEX MED1CUS, CAN-HEALTH for medical practices, ECONLIT, a bibliographic database on Economics; PAYS, an index and abstract in economics, politics and social issues worldwide. E-Granary and EBSCO-HOST among numerous others.

3 FAX (Facsimile Transmission): Fax is an ICT medium which enables a document to be scanned and converted into digital form transmitted through a fax machine using the recipients fax number. The original document is reassembled exactly at the recipient end as an exact copy or a facsimile.

4 Video Conferencing: This is an ICT based multi-media which enables information, discussion, news, conferences and knowledge sharing between various sources of information at the same time and target audience some distance away to communicate face to face electronically. Through video conferencing participants can at the same time share knowledge.

INTERNET AND FACILITIES
The Internet is a networks of computer interconnected worldwide. Each of these computers store myriads of digitized information and can be accessed globally in the Internet. The Internet is often called information super highway. The ability of the Internet to enable global sharing of information with others has made the libraries function of acquisition, storage. processing and dissemination of information a generalized function using sophisticated gadgets.
Internet facilities that make worldwide accessing of information include:

E-MAIL (Electronic Mail)
E-mail services make possible the exchange of messages, information between persons, organization, institution or bodies over a telecommunication interface. The use of paper medium is completely eliminated. Through E-mail services messages are capable of being received from any where across the globe.

White pages: A directory of users, which contain information on E-mail addresses, telephone numbers, postal addresses available on the Internet.

Newsgroup: A directory of professional bodies or groups that share and exchange information on the Net. Subscribers of a Newsgroup- post their e-mail addresses and all messages are automatically posted to all.

Usenet: This is a public access network like the newsgroup for group discussion on specific topics. It is facilitated by the Internet as an access point for information dissemination.

ICT APPLICATION IN LIBRARIES
COLLECTION DEVELOPMENT
Collection development encompasses library activities related to collection development such as selection -policy, acquisition and maintenance of stock, preservation and weeding. Automated collection development policy will enable libraries to:
i.   Record suggestion, and request from library users on wish list or the order list,
ii.   Processing of items received from suppliers.
iii.   Budgetary control of purchases and general library expenses to ensure all faculties benefit.

The above processes were manually checked compiled, filed and rechecked when orders arrived. This is quite laborious and resulted in ineffectively and duplication. The application of ICT facilities offer the opportunity to electronically compile and place and receive orders from vendors as well as make payments appropriately.

At the University of Lagos Library, the Graphical Automation System (GLAS) acquisition module is used to keep track of disbursement for book purchase along courses/disciplines. The University of Nigeria, Nsukka Libraries use the X-L1B acquisition module to prepare orders.

On the Internet, book publishers and vendors have placed their catalogues on network accessible using their web addresses e.g

Butterworths-	http//www.butterworths.co.uk
Spectrum Books-	http//www.specrrurnbooksonline.com
Fourth Dimension-	http://www.fdpbooks.corn
Lexis-Nexis-	http://www.lexisnexis.co.za
Sweet & Maxwell-	http://www.smlawpubl.co.uk

Similarly CD-ROM databases are useful sources of collection development. The Laws of Federation of Nigeria (LFN) 2004, Judgments of the Supreme Court of Nigeria and Laws of Lagos State are now available on CD-ROMs. The Federal University of Technology. Owerri and Imo State University Libraries to boost their collection development have acquired e-Granary and EBSCO HOST CD- databases on current journals. Information communication Technology in collection development has made possible library acquisition of books and journals on -line on CD-ROM databases, or referred to directly on the network without having to physically acquire them.

CATALOGUING AND CLASSIFICATION
Cataloguing and classification is central to library operation. Cataloguing and classification

provides access to information in many forms and formats by bringing related works together (collection) assist users find what they want (location) and provide opportunity to know other works users are not even aware of (collocation). The quality of the catalogue and classification determine to a great extent the usefulness of the enquiring facilities provided by the library and its services generally.

ICT intervention is cataloguing tends to eliminate manual operations, copying of Cataloguing !n Publication (CIP) data from a printed book or Machine Readable Catalogue (MARC) tape. Online cataloguing made possible by 1CT involves searching, location and copying cataloguing data through computer and networks worldwide. On-line cataloguing is facilitated by creation of Machine Readable Catalogue (MARC) and On-line Public Access Cataloguers (OPAC) from where required data could be directly transferred to cataloguers own system depending on the flexibility of the computer software in use.

Automated cataloguing is evident in Nigeria universities libraries. The Kenneth Dike Library, University of Ibadan started computerization in 1975 when the library prepared the serials catalogue using its university's main frame computer. By the last quarter of 1997. Buscon. a computer agent contracted, had completed entry of 135.000 records into Kenneth Dike Library, database (Faniran. 2002). The University of Lagos Library, which started automation with T1NLIB. has changed to GLAS (Graphical Library Automation system). The T1NLIB was found not to be flexible and expansive in data capturing. Presently, the library has 34.000 titles/records in TINLIB while 17.000 titles are in GLAS cataloguing database. At the same time, the library is pursuing a retrospective conversion process (to convert manual catalogue to electronic database) for the OPAC (Zaid, 2004)

The University of Nigeria. Nsukka and Enugu Campus Libraries are not left out in the race for library automation. The Nnamdi Azikwe Library. Nsukka stated with a computerized list of Serials Holding of the Library using the university mainframe computer. The Library management later opted for automated cataloguing systems using TINLIB. Along the line it changed to X-LIB which was more flexible expansive in data capturing than TINLIB. At both Enugu and Nsukka Campus libraries, new books catalogued are keyed into the computer while retrospective conversion is yet to start. Both libraries at Nsukka and Enugu have embarked on automated user registration.

The Federal University of Technology. Owerri (FUTO) adopted Alice for Windows software for the Library automation. It is developing it's OPAC System.

CIRCULATION SERVICES: The circulation section is the point at which users register in the library, borrow and return materials. With ICT applications, it will now be easier to determine what materials are available, who has what, when is it due and reservations made. Again, automated registration will reduce multiple student registration and clearance of users from indebtedness to the library.

THE VIRTUAL LIBRARY CONCEPT

The Virtual Library Concept is used to describe libraries in which computer and telecommunications technologies make access to a wide range of information resources possible. This concept is today being referred generally as "digital library" or "electronic library": "community network", or simply as "library without walls". The virtual concept emphasizes more on access over ownership of collection (Federal Ministry of Education. 2001, Daniel, 2002)

That is to say virtual library makes accessible wide range of materials worldwide without geographical limits or barrier created by individual library ownership. Daniel (2002:57) provides a comparative picture of a real library and a virtual library thus:

A purpose-built physical building with library furniture, hard/print copies of books, journals and other library resources given a traditional concept of a "real" library. In other words. walking from shelf to shelf in the imposing buildings of the main library of Ahumadu Bello's University. Zaria. or the University of Nigeria. Nsukka. or the University of Ibadan. Ibadan and picking up books to read gives a sense of a "real library". Fortunately, however, ICT today provide the possibility of the same user walking through aisles of these libraries and picking up the books from his or her desk virtually, using ICT as a tool. This is the concept of virtual reality.

He went further to define a virtual library as:

A collection of library resources (based on a set of data base information! in electronic/digital format at various locations which can be assessed and used with great ease using computer information, telecommunication technologies for the purpose of teaching, studying, researching, learning, leisure and decision-making.

The above scenario of the library concept of virtual library presuppose a situation where the books and other library material sitting on the shelves may disappear and the tables and reading carrels in the circulation, reference, serials and Africana sections or indeed the public areas are dismantled and refitted with computer networks, each user facing and working on a system, thereby making the library reading rooms mere library cyber-cafes or where the user sits in his room connects the library internet resources.

The prospects and advantages of a virtual library project are provided by Okebukola, 2002: Daniel. 2002: Okoye, 2004).

a.   To improve the quality of teaching and research in institutions of higher leaning in Nigeria through the provision of current books, journals and other library resources.

b.   To enhance access to academic libraries serving the higher education community in Nigeria to global library and information resources.

c.   To provide guidance for academic libraries on applying appropriate technologies used in the production of digital library resources; and

d.   To advance the use and usability of globally distributed network information resources

SERIALS COLLECTION AND CONTROL

Serials are publications issued in successive parts at intervals and intended to continue indefinitely. Serials by their nature present difficulty to library managers in collection and control. They are numerous and include such publications as journals, newspaper, magazines, manuals, monographs, proceedings, transactions and memoirs of societies. Serials are usually very current and therefore represent indispensable materials source for teaching. learning and researching.

The collection of serials and their control in libraries are facilitated by the application of information communication technologies. Some vendors and subscription agents such as Sweets. Blackwell/WSafari, etc. offer subscribed access to their online databases. Ulrich. a notable serial Vendor had Ulrich Plus CD-ROM (Compact Disk Read Only Memory) database accessible through the Internet and World-Wide Web (www). There are other silver coated CD-ROMs such as AlDSline. Medline. Psychic. Index to Foreign Legal Periodicals. Library and Information Sciences Abstracts (LISA) that contain journal articles and abstracts. There is also AGORA (Accesses to Online Research in Agriculture), which provides access to 150 journals in agriculture, biology and related sciences. Other include EBSCO-HOST and E-Granary for current journals in various disciplines: The Essential Electronic Agricultural Library (TEEAL) also kwon as "Library in a box which comprises 256 disks covering full text articles of 130 core agricultural journals from 1993 to 1998 (Ikhizama, 2004)

The implication of 1CT intervention in serials collection and control is that libraries worldwide can have access to numerous journal titles online without having them physically displayed on racks or shelves.

REFERENCE, CURRENT AWARENESS SERVICES AND SELECTIVE DISSEMINATION OF 1NFROMAT1ON

Reference services, current awareness and selective dissemination of information are aspects of information services in libraries. These were manually done by newspaper cuttings and clippings, library billboard postings etc. The manual process reduced the scope of information searched and disseminated. The application of ICT has widened and enhanced the scope of literature searching in these areas. The provision of full text CD-ROMs such as the International WHO's Who. British Pharmacopoeia; World Debt Tables make reference services easier and quicker. The MEDLINE in CD-ROM is indexed using Medical Subject Headings (MESH) and covers over 3.700 journals; it is electronically searched using WinSPIRS retrieval logging module. A study conducted on the use or MEDLINE database at the College of Medicine. University of Lagos shows that students and researchers in medical related studies prefer the use of electronic resources such as MEDLINE (Akinade and Ogunyade, 2000). The study further revealed that MEDLINE has indeed simplified the task of searching and retrieving information from medical literature and that databases have become important tools for primary health care physicians and patients, as information obtained from computer search are at times critical to sound patient care and treatments.

Similarly. CD-ROM databases are available in International Bibliography. History. Business and Social Sciences. Political Service. Library and Information Science, legal periodicals, etc, abstracts and full text entries.

Indeed, electronic information database has remarkably revolutionized library operations and services. There are so many varieties of information communication technology that can be used to obtain current information worldwide so long the information is digitalized or electronically offered.

PROBLEMS OF ICT UTILIZATION IN LIBRARIES AND CHALLENGES TO LIBRARIANS AND INFORMATION MANAGERS

Information Communication Technologies application and utilization in Nigeria is bereft with problems also associated with developing countries. Some of 'the problems are briefly discussed and the challenges they pose to librarians and information managers. Some solutions are offered.

Inadequate Infrastructure:

This includes epileptic power supply from the new Power Holding Company of Nigeria (PHCN), and absence of standing generators for most libraries. As such Librarians have to grapple with the provision of alternative power supply. Again, most libraries are not originally designed for library purposes interim accommodation measures are often made.

Funding:

Funding of libraries has become perennial problem for library managers. This affects the library management supports to reposition the libraries and their parent institution is exacerbated by monumental level of corruption in the country, greed, avarice and inordinate ambition on the part of policy and decision-makers. The intervention of Education Trust Fund (ETF) is a welcome measure and it is hoped that the funds will be judiciously utilized. Libraries can improve their funding through library endowment funds and by designating sections of the library to generous benefactors,

Automated System Development, System Applications and Management

Computerized system development is a continuous process that progresses through choice of computer systems, application softwares, installations, conversions from existing manual operations to the automated system, post installations evaluations and management. These stages and issues need to be adequately planned for.

Most libraries engage in library automation without adequate planning. Hence library managers begin to change from one software to another worsening their lean fund and creating lapses in ICT utilization. Libraries intending to automate need to employ experts in system design and vendors offering post installation maintenance packages. They also seek expert advice early enough on the application soft wares most suitable to their environment.

Staff Problems:

Lack of adequate training of staff hinders effective ICT utilization in libraries The increasing quest for digital library services calls fro aggressive staff training and re-orientation in line with electronic or virtual library concept. Continuous education through seminars, workshop, etc. in the area of computer technology and management information services is a sine qua non for libraries and librarians to enable them effectively utilize the opportunities offered by ICT. In fact librarians and information managers need to retrain and double as system analysts.

Information Policy Formation:

The country lacks information policy that will guarantee standardized database formulation, compatible or application soft-wares and hard -wares to ensure interconnectivity and accessibility. The Nigerian Universities Commission (NUC) should ensure that Universities under it conform to some standard that will enable such institution benefit from the virtual library project and be able to draw from a common library database in a wide area network (WAN).

Collaboration and Consortium Linkage:

Policy formation and implementation in Nigeria is generally fraught with economic, social-political and infrastructure problems. As a result of limited human and material resources available to libraries nationwide, the need for libraries is inevitable. This will ensure maximization of scarce resources, reduce waste while giving opportunities to access and draw from holdings of participating libraries in the consortium. Academic libraries within each of the six geo-political zones in the country can conveniently embark on consortium linkages within the zones.

CONCLUSION

The emerging and rapidly growing information communication technologies and their application in library and information services have continued to change the scope and patterns of library services. The use of MARC. OPAC and CD-ROMS databases in various fields of knowledge, computer application Internet and e-mail services have enhanced the services of academic libraries in some Nigerian universities and make relevant the virtual library concept. In spite of these, the applications of ICT in library operations are hampered by numerous problems especially among developing countries like ours. Libraries, librarians and information managers must therefore be dynamic with the new trend, train and retrain in computer use and as internet information navigators. This is the only way they can effectively utilize the enormous opportunities offered by ICT facilities in libraries and also ensure their relevance in the new dispensation.

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