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Information and Communication Technology and Society: Re-Examining the Roles of Libraries in Nigeria

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Abstract

Information and Communication Technology (ICT) has revolutionalised every aspect of library operations and services. This paper discusses the changing roles of libraries in Nigeria brought about by advances in ICT. Through review of literature from various databases such as SCOPUS, Google Scholar and Ebscohost, the study provides a conceptual background of ICT application in Nigerian libraries; examined its importance and opportunities for librarians; as well as the associated challenges. The paper therefore provides useful insight on the importance of ICT in knowledge society and Nigeria in particular, through libraries. The last part of the paper further explores the implications of the reviewed literature through a PEST analysis. This paper will therefore be useful to policymakers on library issues as it contributes to the debate on the need for ICT tools in library operations and social informatics development in Nigeria.

Keywords: Information and Communication Technology, Information Society, Libraries, ICT Competencies

Introduction:

Over the years, the human society has evolved gradually from agricultural to industrial society and finally to present day information society. Accordingly, information is now considered an essential commodity and critical factor of production distinct from land, labour and capital, in nature and purpose. The rise and continuous advancement in information and communication technology (ICT) which permeates every aspect of human endeavour, has equally drastically affected the way we do things, including library services, operations and management. Before the advent of ICT, library collections existed mainly in print format while librarians mainly served as storekeepers who provided access to resources domiciled in the library. This implies that library services were restricted to the confines of a building called the library. Today, the physical location barrier is broken and libraries are increasingly becoming digitalised whereby resources are now sought and accessed in digital or electronic formats through various

technological and communication means, and services remotely provided, all with the aid of internet.

According to Abdulsalam, Okezie and Agbo (2013), the term ‘library’ is derived from the word “liber” which translates ‘book’ and its origin is as old as man’s civilisation. It is the organised collection of information resources that are systematically collected, carefully processed, organised, stored, preserved and disseminated with the assistance of trained personnel whose jobs it is to provide services that meet the information needs of users for education, research and recreation purposes. Essentially, they are integral parts of the social system which is often regarded as the treasure-house of knowledge (Rajkoomar, 2012). In other words, libraries are service-oriented institutions that are responsible for the collection, organisation, storage, preservation and provision of access to learning resources, propagation of basic knowledge, preservation and dissemination of information, human culture and civilisation. In defining the library, four basic elements are usually present – the building/structure; the personnel; the resources/materials and the users. The users are otherwise variously called clientele or patrons.

There are different types of libraries such as public libraries, academic libraries, national libraries, special libraries, private/personal libraries and school libraries. Each of these libraries exists to fulfill the mission of the parent institution, the body or person establishing it, by performing distinct by similar functions or services to either the existing clientele or the prospective patrons (Quadri, 2014). This notwithstanding, public libraries remain the only library offering free and unrestricted access to its resources without discrimination, whereas others have limited scope and users. The multitude of information resources available in libraries ensures different access to scholarly information which in turn enlarges the development possibilities of education, culture and research.

Traditionally, libraries perform a wide range of services for the purpose of meeting its mandate of providing information services to the users. Aina (2004) identified specific services of a typical library to include lending and circulation services, inter-library loan and document delivery services, reservation services, reference services, current awareness services, exhibition and display, library publications, user education, information literacy programmes, literature search, selective dissemination of information, extension and outreach services, rental and reprographic services, among others. To this end, libraries acquire a variety of print and non-

print information sources including books, journals, periodicals, audiovisuals, as well as multimedia materials.

However, the 21st century characterised by data explosion and information starvation as a result of continuous advancement in information technology makes it imperative for libraries to adopt ICT as a way of improving on information services and sustaining relevance. This is because people need to access timely information with ease, and this can only be done through the application of ICT to library services. Aliyu (2015) affirms that no library or information centre can function effectively in today's world without making use of information technology.

Information and Communication Technology (ICT) has been variously defined by scholars although, with common emphasis on the use of computer and associated technologies for generation, storage and dissemination of electronic information. According to Igwe (2011), ICT is the application of technologies consisting of hardware, software, network and media for collection, processing, storage and dissemination of information in vocal, textual, pictorial and multimedia formats. Similarly, Raji (2018) noted that ICT is a comprehensive term that is used to refer to those technologies used for collection, storage, editing and communication of information in various format. Saidu, Tukur and Adamu (2014) described ICT as the application of computer-based technology and internet in providing a wide range of information and communication services to users. However, while some scholar have attempted to draw a distinction between information and communication technology (ICT) and information technology (IT), Eghworo, Ogo and Ayomanor (2015) argued that both are similar concepts which can be used interchangeably. Information and Communication Technology therefore embodies a variety of technologies that support information and communication including networks and applications. In today's global village, information technology typically represents what industrial machines represented during the industrial revolution; they have revolutionized ways of working, transformed the economy, had an irreversible impact on the way people live, and have shaped a new information society. The use of ICT improves access to digital information, bridges the digital divide and also improves standard of living.

The Information Society

A society is a group of people with distinct culture and language occupying a given geographical location. The human society is dynamic in nature, and so, it continuous to change with time and

place. Over the years, society has experienced gradual revolutions that shaped the course of existence. The major revolutions are agricultural revolution, industrial revolution and the present ICT revolutions. Suffice to say that the ICT revolution gave birth to information society. Therefore, an information society is a society which considers information as a marketable product or services i.e. a product or service that has the attributes of being bought and sold in the information market place at a given price (Eghworo, Ogo and Ayomanor, 2015). In this type of society, citizens have the ability and skills to generate, evaluate, utilise and disseminate information products and services in both tangible and intangible forms. It is a commodity which has become absolutely necessary for national development. Information society epitomizes the new world order where the growth and development, power, wealth, influence and position of a nation in the comity of nations depend to a large extent on the accessibility and utilisation of quality information.

In identifying the characteristics that defines an information society, Isazadeh (2014) noted the following:

- i. Information society is global in principle, which implies that there is free flow of information across national borders. Thus, the barriers hitherto experienced in access and use of information is substantially eliminated. It also envisages a society where the gap between the rich information nations and their information poor counterparts will be narrowed down.
- ii. Information society advocates and promotes clarity, precision, honesty, openness and unhindered access to information. It does not permit dishonesty and unnecessary secrecy that formerly characterised access to some information. For instance, in Nigeria, the feature may be related to the Freedom of Information Act which gives citizens the legal rights of access to any information.
- iii. Information society is ruled by knowledge, competence and only informed decisions and actions. It is a society where citizens are well informed with zero tolerance for incompetence. The quality information and knowledge at the disposal of the citizens of information society provide an environment, where only informed, knowledged, and competent individuals can survive as managers and leaders of the society.

- iv. Information society is a new environment, a new game, with a whole new set of rules. Citizens are expected to learn the rules and play the game by the rules. Those who cannot adapt to the new environment or violate the rules may not survive.

The imperativeness of information and knowledge prompted the desire, the need and commitment over the world, to create a people-centered, all-inclusive and development-oriented information society, where everyone can create, access, utilize and share information and knowledge, enabling individuals, communities and peoples to utilize their full potential in promoting sustainable development and improving their quality of life (UN/ITU, 2005). The World Summit on the Information Society (WSIS) is at the centre of the efforts aimed at facilitating these objectives.

Information and Communication Technology (ICT) and the Library

Information and communication technology (ICT) which permeates all professions and human endeavours has equally tremendously affected library services and activities. All over the world, traditional libraries are becoming ICT compliant while new ones being set up are largely digitalized. In Nigeria, the adoption of IT in libraries dates back to 1980s when the National Institute of Tropical Agriculture (IITA) Ibadan library and documentation centre catalogue was converted from print to electronic format. This was followed by the Federal Institute of Industrial Research (FIRRO) Oshodi library in 1988. Since then, ICT gained widespread adoption in Nigerian libraries (Aliyu, 2015).

A lot of factors were said to be responsible for the adoption of ICT in the library. According to Islam and Islam (2007), the accelerated adoption of IT in libraries and information centres was in response to challenges posed by the continuous growth in size of recorded information without commensurate library storage space; information explosion with its attendant storage and organization challenges; difficulties associated with manual operations; as well as the need for efficiency and accuracy in catering for the information needs of users within the shortest time possible. Consequently, the need for the adoption of ICT in libraries became indispensable for the provision of value-added information products and services that satisfy users' needs. The essence is to ensure that library routines activities including selection, acquisition, processing, dissemination and preservation of information resources which were hitherto provided manually, may now be carried out with the aid of computers and other communication technologies such as

scanners, printers, mobile phones, internet among others in performing routine activities and render services to users.

Krubu and Osawaru (2010) observed that the emergence of the internet as the largest repository of information and knowledge changed the roles of librarians from intermediary to facilitator; brought new tools for information dissemination and shifts from physical to virtual services environment and replacement of some conventional information services with new and web-based ones. Hence, with the aid of ICT, the roles of librarians as well as users' satisfaction of library services are significantly enhanced. This is more so because while the librarians do not need to be physically present before they can provide essential library services, users on the other hand do not need to visit any location called the library before they can access information. Service provision and access to information takes place online with the aid of internet-enabled devices.

Scholars have equally identified areas of application of information and communication technology (ICT) in the library; services that can be carried out using ICT; as well as its benefits. Siddike, Munshi and Sayeed (2011) and Vijayakumar and Vijayan (2011) stressed that ICT can be applied into any or all of the following housekeeping operations of the library which are acquisition, cataloguing, circulation, serials control, networking, technical communication and library administration, among others.

However, some common library services such as CD-ROM search, Online Public Access Catalogue (OPAC), email, internet, facsimile, reprography and other services can be effectively carried out using ICT. Although, Vijayakumar and Vijayan (2011) broadly categorised ICT based services of the library into three:

- i. Apparatus and amenities: These include computers, OPAC, CD-ROM, scanner, Radio Frequency Identification (RFID), tele tex, facsimile, photocopy, printing technology and bar code.
- ii. Customer services including document delivery services, interlibrary loan, indexing and abstracting services, chat services, current awareness services (CAS), selective dissemination of information (SDI), scanned copies, bulletin board services, electronic services and e-resources and digital library.

iii. Electronic sources include audiovisual materials, internet, library website and databases.

Similarly, Kumar (2017) observed that information technology can also be used in the library for email, voice mail, telephone and fax communications; videoconferencing, social media, library security including short circuit television (CCTV).

Advantage of ICT in the Library

Information and communication technology (ICT) brought tremendous changes into the world of librarianship. The adoption of ICT in libraries' routine operations shaped and revamped many areas of activities such as library automation, digitization, Web 2.0, Library 2.0, Barcode technology application, the internet and web-based services, networking technology and scanning technology and a host of others (Parvez, 2011; Rehman & Shafique, 2011). ICT facilities are being used in all types of libraries to manage resources; promote efficiency in library operations; and at the same time, cater for information need of users. The impact of ICT in libraries cannot be overemphasised as there is no aspect of librarianship that ICT has not been useful. It is line with this that Ezeani and Ekere (2009) argued that ICT is a medium by which quality services can be achieved. In the same vein, Nwalo (2002) observed that it is very important for librarians to adopt ICT usage in their library operations if they are to be relevant in this 21st century information world. Extant literature indicates that there are proven tremendous impact of ICT in library operations in Nigeria (Nwalo, 2009; and Ramana, 2006). Adebisi (2009) buttressed the foregoing by stressing that ICT provide libraries with the capabilities to locate, store, retrieve and disseminate information across the globe.

The benefits of information technology in library services and management cannot be over-emphasized. Ashikuzzaman (2014) submitted that ICT in libraries helps to improve the quality of library services; saves the time of users and librarians; saves space of the library; avoid repetition of efforts; facilitates quick and easy access to information; makes library work easier, faster and less tedious; guarantees users' remote access to library's collection; reduces the workload of library personnel; guarantees more adequate security of library resources; provides round the clock access to information; facilitates collaboration and resources sharing among libraries; and improves libraries overall efficiency and increases its visibility.

Traditional Roles of the Library in the Society

In every society both developing and developed, library is the centre of all activities. Every sector of a society's life including education, economic, social, political and even service-oriented sector needs the library. Individuals, government and nongovernmental organisations need information which is recognised as a critical factor of production. The library whose responsibility it is to provide adequate and reliable information, plays a very crucial role in the overall development of the society by providing those information and services that enable members of that society to develop their full potentials and become better informed citizens. In this regard, public libraries play the most important role worldwide in helping to narrow the information gap by providing free access to information to every member of the public irrespective of age, background, gender or creed.

The roles of libraries in the educational life of any society cannot be underestimated. Since educational institutions do not exist in a vacuum but in the society, they need the libraries to support formal and informal education, learning and teaching, research, mass literacy and other activities of the institution. In addition, public libraries essentially, among other things, offer members of a given society the opportunity to continue their education throughout their lifetime; make independent decisions and engender cultural development of individuals and social groups. They also help to cultivate good reading culture and habits among members of the society. Libraries also serve to provide relevant information to stakeholders in the education sector that ultimately guide them in decision-making processes.

Again, as repositories of valuable historical and cultural information, one of the major concerns of libraries is to preserve recorded knowledge the society; its culture, past and present historical events, some of which may not be found elsewhere, for transmission from one generation to another. Indeed, without the library, some important societal facts may be lost, as it would be difficult to accurately preserve large collection of recorded human knowledge for future generation.

More so, libraries play a critical role in reshaping the society by constantly creating awareness of new and emerging opportunities for employment and skill acquisition, particularly among the less privileged. In democratic societies, libraries help the citizens become better informed so they are able to exercise their rights and participate actively in the democratic processes of their

communities. State and its actors recognise libraries as indispensable partner in societal growth and development. Hence, they rely on them to not only store and preserve documented government decisions, policies and programmes, but to also publicise same, for the benefits of the entire society.

The Changing Roles of Libraries in the Information Society

The changing dynamics and paradigm shifts in the traditional roles of libraries brought about by the emergence, development and advances in information and communication technology (ICT) and the associated changes in scholarly publication pattern, access and use of information, creates both opportunities and challenges for libraries and library professionals. This is more so because libraries are social institutions, both the library and the society are inextricably connected. Thus, primary goal of any library is to acquire and provide information sources and services that satisfy the information needs of the community it serves. Members of the society comprise people of all ages and status, men and women; children and adults; literates and illiterates; rich and poor; and even the physically challenged. This gives rise to complexities in serving them especially because their information needs and skills for accessibility vary considerably. Since every library user expects it (the library) to meet certain expectations in providing necessary information that satisfies his or her need in any format, it becomes imperative that libraries adjust to emerging realities created by information technology.

Consequently, Onuoha and Obialor (2015) observed that information technology has become an integral part of modern librarianship whereby many libraries are already digitalized while others are in the process of doing so. They went further to state that formal tools of library operations are gradually phasing out and are being replaced by modern technologies. Application of ICT has transformed library routine activities and professional behaviours. Notably, huge amount of inventories are now being replaced by databases; while knowledge of manual cataloguing and classification is required to be complemented by demonstrable competencies in ICT databases and copy cataloguing. ICT has also helped to replace lengthy and complex subject headings with keywords. ICT has equally transformed the overall role of librarians from bookkeepers or guide to information to facilitators of information sharing.

Although, Marshall Keyes argued that evolving towards virtual or digital library creates a change in the 'locus of control' as the library's resources is moving outside the library itself. This

implies that as electronic information resources are now stored off-site, libraries no longer have control over the amount of information available to the end user. This notwithstanding, Olise (2010) argued that failure to recognise the role of information technology in library operations in Africa portends great danger for its future existence and relevance. The development of an information society establishes preconditions for the emergence of digital libraries and the provision of alternative services that libraries must take into cognizance. Similarly, Quadri (2014) averred that libraries wishing to overcome the challenges posed by information technology must as a matter of urgent necessity train their personnel in areas such as digital content creation, new metadata formats, software development and systems administration. He went further to suggest that efforts should be shifted from building local collections of information resources, to providing access in order to retain patronage.

ICT Competencies for Modern Day Librarians

There is no gainsaying that ICT plays significant roles in shaping and revamping delivery of libraries in every society. The effectiveness of library services in the 21st century does not depend on the availability of information and communication technology (ICT) infrastructure alone, but also on the competencies of Library and Information Science (LIS) professionals whose jobs it is to operate the system. Competencies are demonstrable skills that are required to successfully perform certain tasks or execute a piece of work. Oyewunmi, Akanbi and Laaro (2018) stressed that competency is a set of predefined skills that provide a structured yardstick against which proficiency of an individual performance in carrying out a given task is measured and evaluated. Every field of endeavour establishes or sets out its own identifiable competencies required of practitioners or members to be able to perform essential tasks successfully.

In Library and Information Science (LIS) profession, the new environment brought about by information and communication technology (ICT) is characterised by numerous complexities which rather seems to present challenges than opportunities to librarians, thereby making ICT skills a prerequisite to function. This means that librarians need to acquire core ICT competencies and skills that will make them overcome the threat of becoming obsolete in the face of competition in modern day information society. Based on this, librarians are urged to embrace ICT by acquiring necessary skills expected of them in today's digital world.

Competencies can be measured in various ways such as through knowledge, skills, abilities and attitudes that are acquired through education and training. It can also be used to measure librarians' level of professionalism. In other words, ICT competencies of librarians are a way of measuring their capacity to make appropriate use of ICT resources in performing their core duties which include information selection, acquisition, organisation and information storage, retrieval and dissemination. There are two type of competencies required of professional librarians. The first are professional proficiencies which have to do with adequate knowledge of information resources, information technology, leadership and managerial skills, likewise research skills (Gulati and Raina, 2000); while the other competencies relate to necessary skills, attitude and value that emphasise continuous learning process in which librarians develop their career as well as the ability to cope with changes.

According to APLEN (2008), ICT competency of LIS professionals includes the combination of skills, knowledge, and behaviors related to library technologies which are important to the success of parent institutions, personal performances and capacity building. Put succinctly, application of ICT in libraries requires that those who are going to operate the digital technologies possess a certain level of knowledge and skill to be effective in the expectation of what ICT application has to offer. Itseko and James (2012) observed that the continuous change in the role of LIS professionals not only in users' preference for web based services but also in job requirements due to ICT evolution, demands practical skills for the position of a librarian. Therefore, ICT competencies of library personnel could be said to mean those practical skills and knowledge which library personnel are expected to acquire in order to fully tap into the opportunities of IT system in managing library resources, as well as handling users' information needs.

Gulati and Raina (2000) identified various ICT competencies necessities for modern day librarians to include knowledge of print and electronic information resources. Literature reveals that for librarians in Nigeria to be at par with world standard, ICT needs to be included in their school curriculum and in the LIS professional trainings. Contributing to this, Minish –Manjaja (2007) argued that librarians in developing countries need to have necessary ICT competencies that will make them more relevant in the information age. This implies that librarians need to be

knowledgeable about ICT and have the skills that will assist them in handling users' information needs while also having necessary skills to manage information resources in the library.

Additionally, Ocholla (2003) highlighted necessary competencies for modern day librarians to include adequate knowledge of computers, computer literacy skills word processing, spreadsheet, database management, library automation and web design, among others.

The advent of computer has catapulted the world into information driven society which librarians must catch up with (Salisu, 2002). Owolabi and Tella (2013) argued that using ICT for library operations makes information accessible and available to the users and at the same time saves the time of the users. They went further to say that necessary computer skills have made the work of librarians more relevant in this knowledge-driven society. It can therefore be said that ICT competencies is very important for librarians in Nigeria and other developing countries who are still lagging behind in the world of ICT compared with their counterparts in the developed countries.

It is imperative to identify various ways in which librarians can acquire and develop their ICT competencies. In view of this, Babu (2007) highlighted some of the ways to include through formal trainings; informal training such as distance education; learning from friends and colleagues; self-study and through conferences and workshop.

Challenges Facing Libraries Adoption and Use of Information and Communication Technology (ICT)

Notwithstanding the benefits of using information and communication technology for library services, libraries especially in developing countries and Nigeria in particular, face a lot of challenges in their journey to full digitalisation. According to Adebayo, Ahmed and Adeniran (2018), the challenges facing libraries use of ICT are enormous, prominent among which include inadequate funding; high cost of ICT software and/or operation; poor maintenance culture of ICT equipment in libraries; unstable power supply; dearth of ICT policies; lack of technical ICT skills and competencies among library personnel; technophobia; insufficient bandwidth and copyright and intellectual property management problems.

Conclusions

The advent of Information and Communication Technology (ICT) in the information society has significantly improved means of communication and better library services for the people. Libraries play important roles in providing access to accurate and timely information for human and national development. Extant literature indicates that libraries are very essential for maintaining functional democratic societies. This may be due to the fact that information has become a powerful commodity that every nation needs to attain the peak of innovation; hence, libraries have become indispensable partners. A nation can only be regarded economically developed when its people have the right information and have impacted standard of living.

In the library setting, application of ICT has made librarians more interactive; encourage collaboration and provide better access to information for various information users, since information services is now provided to people irrespective of distance or physical boundaries. There is a close relationship between ICT use and economic growth in developing countries such as Nigeria. In other words, ICT contributes to growth of every economy. Consequently, effective library use in Nigeria requires functional and adequate ICT facilities in place in every library in the country. However, despite the fact that ICT is a necessary tool for improving library services in the information society, it has been observed that ICT environment in Nigerian libraries are inadequate and the adoption level is still very poor among librarians and libraries in the country.

This paper therefore recommends a review of ICT policy for libraries to enable them tap into the opportunities of the modern web-based services. In addition, adequate funding should be made available for library management to acquire various ICT equipment for use by library users. Library users should be encouraged to use the ICT resources in the library through regular awareness programmes. If need be, they may be required to pay a token in order to have access to ICT tools in the library.

With regard to public libraries, considering their importance in society and Nigerian in particular, there is need for relevant stakeholders such as government, corporate bodies, library users and community heads to collaborate with public libraries management to improve their services to users by adopting ICT in its operations. Also, in recognition of the importance of ICT in academic library services in relations to effective and efficient service provision, government

should increase the budgetary allocations to academic institutions in Nigeria in order to provide more ICT facilities to various academic libraries in the country.

In this paper the importance of ICT in library operations has been identified. Based on this, there is need for a political, economic, social and technological will on the ground that to improve ICT access to library services in order for the users to have more values for library use in Nigeria. The effective usage of ICT in the libraries need a political support from government in term of having policy document that will guild the ICT usage in the society and in library services. The policy document needs to focus on the interest of the users concerning the ICT usage in the library services and the staff particularly the librarians. Government needs to provide interventions for the ICT in library. Likewise, political stability is very necessary in supporting the effective implementation and use of ICT in library services in every society. Governments at all levels should create enabling environment for ICT adoption and application in the library and society at large. The contributions of this work can be considered from the point of view of literature, practice and policy.

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