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THE ROLE OF LIBRARY AND INFORMATION SERVICES IN DIGITAL ECONOMY

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ABSTRACT

This paper examines the role of library and Information services in Digital Economy. Currently, the revolutionary period of technological advancement of tools and gadgets for library and Information services characterized the 21st century and has brought prolific growth and novelty to improve information business. Employing descriptive methods, this paper explores concept of Digital Economy, the role of library and Information services using ICT for information business in Nigeria and challenges that affect the use of ICT for library and Information services in Digital Economy. Furthermore, it observes that available literature show that Digital Economy involves economic transactions that occur on the internet using digital and computing technologies to collect, store, analyze and share information that transforms social interactions and businesses. This study highlights online literatures, including research articles, conference papers, e-books downloaded from various databases such as Science Direct, Emerald, and Google Scholars on the role of library and information services in Digital Economy. It affirms that library and Information services are affected by lack of computer technologies skills to engage in digital activities, poor internet connectivity, and high cost of bandwidth, lack of power supply, information insecurity and privacy of Digital Economy. The conclusion reached is that digital technologies are integral part of library and Information services that empower librarians to communicate with library users through innovative services. Therefore, it was recommended among others that Government should provide infrastructure that would support application of ICT to Information services, librarians should also avail themselves with ICT skills in a digital economy and be aware of the information needs and search behaviour of clients to provide innovative services.

Key words: Digital Economy, Digitalization, Internet Economy, Information and Communication, Library and Information Services.

Introduction

The current trend in most libraries is deployment of computer technologies in rendering efficient and effective services to users. Thus, librarianship has passed through a radical change Libraries have changed and the role of librarians has substantially been affected. Consequently, librarians have assumed the position of educator to educate their users on ways to search for resources both in the library and electronically. Similarly, Public librarians have improved their roles by way of offering neighborhood community information through publicly assessable computing structures.

Some librarians are specialists on computer systems hardware and software. Others are concerned with how laptop technology can hold human cultural information of the past or ensure the preservation of print resources in computer files for future use. Librarian's position has moved beyond the library walls. They now work in information industries as salespeople, designers of latest records systems, researchers and records analysts. Librarians are also found in such fields as marketing and public relations and law firms, where staffs need rapid access to current information.

However, the advent of Information Communication Technology (ICT), digitalization and virtual economies are two sides of the same coin that has lead to the Fourth Industrial Revolution. Digital economy or digitalization is an umbrella term that refers to financial transactions in the internet. It is likewise referred to as the Web Economy or the Internet Economy. Digitalization is the usage of digital technology, which includes Information Communication Technologies (ICTs) to access and process reliable information quickly and accurately. These are associated with trade, commence, societal beliefs and practices that use web and digital communication technologies. This implied that organizational activities are conducted on the internet and World Wide Web (WWW). The virtual financial system is usually called the Internet Economy, New Economy or Web Economy that use virtual computing technology for monetary activities.

Digitalization is the use of digital technologies which include the internet, smart phones and social media to process and access information in a dependable, timely and accurate manner (Elkjaer & Damgaard, 2018). Digital economic system specializes in virtual technology such as digitalization, internet, cloud computing, cloud computing, big data, fintech, new digital and computing technologies to collect, store, analyze and share information digitally to transform social interactions and businesses. In this paper, the phrases "digital technology," "Digitalization", net," and verbal exchange technologies (ICTs)" are used interchangeably. ICT encompass computer systems, net, E-mail, mobile communication technology, Fax device, private digital assistants and other wi-fi communication gadgets. Kajogbola (2004) states that Information and Communication Technology (ICT) refers to numerous forms of information exchange between two or more

computers through several techniques of interconnections. These technologies provide speedy, inexpensive and convenient means of communication. The adoption of these technologies in libraries has direct positive impact on efficient information service delivery. Laudon & Laudon (2007) confirmed that ICT comprises all the technology that simplifies the processing, transfer and exchange of information and communication services. It links information technology and telecommunication networks (intranet and internet) to enable humans and computers co-exist and inter relate regardless of physical location. "Internet" implied rapid connectivity of computers and cheaper storage facilities to deliver information services. The internet contributes to efficiency and innovation of library and information services. Internet economy unites buyers and sellers to exchange information, products, services and payments in the market place electronically through telecommunication network where buyers, sellers and others are involved in business transaction with little or no physical presence. (Napier et. al, 2002).

The Role of Libraries in a Digital Economy

Libraries play an important role in digital economy by providing digital access to information resources; participating in electronic procurements, receipts, claims and payments, facilitating censorship, selection, access, dessimination and preservation for future generations. The advent of modern communication technologies has made librarians to be conversant with latest trends in information environments and this has brought about fundamental impetus for change in libraries services. Library users now have high expectations from librarians than before, the need to constantly access the right information and knowledge in the right format and at the right time is paramount (Jain, 2013). In the past, libraries had only one type of traditional users, who had no other choice than to physically visit the libraries but currently, Matthews (2011) grouped the twenty-first century library users into major three categories as explained in Figure (1):

Figure 1: Types of Customers in 21ˢᵗ Century

21st Century Customers

Digital Fugitive:	Digital Immigrant:	Digital Native:
Not a digital immigrant, 'patrons' to whom public libraries have virtually always catered.	Did not grow up with digital technology, but has learned to use it, and integrate it into their life as necessary.	Grew up learning digital technology, and has become dependant on it as an integral part of their life.
35 million + Great Generation, Silent Generation (66 and over)	45 million + GenX (47 and under), 60 million + Baby Boomers (65 and under)	75 million + Millennials (GenY) (29 and under) 25mill + Gen Z, I, Net (10 and under)

SOURCE: Matthews, S. (2011) Five challenges every librarian must face. Available   from World Wide Web:http://21stcenturylibrary.com/2011/10/12/five-challenges-every-librarian-must-face/

Figure 1 above depicts users from diverse background and how librarians satisfied their information needs in digital economy. Digital fugitive refers to the silent generation of internet users that grew up with easy access to digital information and communication technologies (Way, 2009). The digital immigrants are humans whose generational location or places of birth and developmental experiences are equipped with access to digital computing technologies for technological comfort and skills which surpasses digital fugitive (Roberts, 2010). The digital natives are people born in digital era and grew up with access to digital information with ability of navigating new communication technologies. Furthermore, Prensky (2001) states digital natives grew up using technology with internet and are comfortable with online digital environment. In contrast, digital immigrants embraced technology later in life, typically those of older generation. This implied that the categorization of internet users into natives and immigrants has led to the use of online electronic resources (Nicky, 2011).

Furthermore, the landscape of libraries and information services is globally experiencing changes as the world has turned into a global village; hence librarians are adjusting their services to accommodate these changes. Consequently, libraries are caught in a web of change which requires librarians to embrace the digital economy (Owabor, 2012). The developmental strides of information and communication technologies (ICTs) in the digital economy have transformed libraries from a physical book store that preserves resources in a building for users to a virtual library with increased visibility and users no longer required physical visit to libraries to access resources and services. Ogunsola (2011) described this as a cyclone that has enveloped the library and is taking it to unprecedented heights in knowledge acquisition, management and communication. Despite, these changes in the roles and functions of libraries, their cultural role has not changed. Libraries remained responsible for acquiring and providing access to books, periodicals and other resources to meet the educational, recreational and informational needs of users. Libraries are still custodians of business, legal; historical and religious records of any civilization. Libraries are places where toddlers hear their first story and scholars conduct researches. The new technologies in digital economy enhance accessibility to information and makes it easier for librarians to satisfy sophisticated information needs of users. Technological advances have also presented opportunities for automating traditional libraries services.

Besides, libraries worldwide have witnessed transformation in recent years both in collection development and service structure. Mulla (2006) noted a significant transformation in collection development policies and practices of libraries. As print resources are currently giving way to electronic materials. For instance, electronic journals are very prominent in digital libraries and online databases are also available on the web. Several digital library projects provide digital access to resources that already exist in traditional libraries in printed form. Acquisitions of

resources are done using computers with online selection, payment and subscription (Olaosun, 2007). These developmental strides have made library services to be less cumbersome in a digital economy. As a result, technology has made acquisition, processing, storage, indexing, retrieval and dissemination of information faster, cheaper and more efficient in a digital economy.

Currently, libraries are now technologically-driven. Akintunde (2004) asserts that the vocabulary of librarianship is changing: 'dissemination' is being replaced by 'communication' 'repository' by 'data', 'literature' by 'knowledge', 'search' by 'navigation', etc. This reflects current techniques of information packaging and the tools used for managing knowledge. It must be stated that modern library services are technologically driven and uses the principles of traditional library services to organize knowledge and communicate with users in a digital economy. Ogunsola (2011) found that in developed countries, traditional libraries exist alongside digital libraries because publications are both in print and electronic forms. Alasa & Kelechukwu (1998) stated that libraries are now situated in cyberspace while library services are no longer constrained by time of opening and closing hours. Library users can access services in libraries beyond their geographical location. Thus, the virtuality of information resources means that millions of users can access one resource at the same time universally. In supporting this view, Jain (2013) summaries the major impetus of change, key paradigm shifts, new roles, opportunities and challenges for academic librarians in Table 1 below:

Table 1: Traditional Versus 21st Century Academic Libraries

	In Traditional academic libraries	21st Century academic libraries
1.	Selection and acquisition of library information materials (books and journals) was from publisher catalogues	Selection is based on users' demands and dealing with issues of journals licensing and publishers' big deal offers for open access journals.
2.	Main collection included books and journals	There are institutional repositories, online databases, multi-media information resources
3.	Librarians work as collection specialists and management of information systems was limited to the four-walled physical library	Librarians work as faculty liaisons officers and availability of digital libraries, repositories and cloud information management system
4.	Information model is characterized by scarcity and limited access of information. Manual interlibrary loan system is highly dependence on print resources	There is information explosion in both quantity and formats of information Electronic interlibrary loan is highly dependence on e-resources and digital resources
5.	Availability of services only in library opening hours	Most services are available 24/7
6.	Use of card catalogues to retrieve Information	Use of Online Public Access Catalogue (OPAC) to retrieve information
7.	A traditional reference desk services	24/7 online and virtual reference services
8.	Traditional cataloguing	Resource Description and Access (RDA)
9.	The library is a quiet reading place	Information Makerspace knowledge/digital commons to facilitate learning.
10.	Library users have specific information needs	Library users have diverse information needs
11.	Use of library budget to purchase print resources	Library budget is used to acquire e-resources including hardware and software
12.	Librarians provide mediated searching	Librarians provide Web-based searching
13.	Librarians provide access to print journals	Access are provided for e-journal and open access journals
14.	Preservation of mainly books, serials and grey literature	Digital curation of resources
15.	Traditional broacher	Media marketing
16.	Traditional library users had no other choice but physically use libraries	Diverse library users had various options to virtually access information
17.	From MARC and circulation desk	To metadata and web information
19.	From book keeping	To support education

Source: Jain, P. (2013). A paradigm shift in the 21st century academic libraries and Librarians: prospectus and opportunities. *European Journal of Academic Research*, *1* (3), 133-147.

Table 1 above revealed that the twenty-first century academic libraries are transformed into a different information world that embrace the digital economy. These major changes affect selection/acquisition; cataloguing; archiving; reference desk; outreach programming; accessibility of resources; special collections; technology management (Kurt De, 2013). There is also an explosive advancement in the use of mobile devices such as Smart phones, iPads, and other telecommunication devices to meet user demands, expectations and facilitate library and information service delivery in the digital economy (Saxena &Yadav, 2013).

Challenges of library and information services in Digital Economy

Despites, the myriads of ICT contributions to information businesses, there are numerous challenges that affect library and information services in the digital economy. These include illiteracy, poor internet connectivity, soaring cost of running business, unawareness of opportunities in business sectors, lack of skilled librarians in the use of ICT for innovative library services, lack of power supply, information insecurity and privacy of ICT. Libraries are also affected by inadequate capital and obtaining external financing in an imperfect credit market (Kozmetsky, 1985). These challenges can further be classified into technological, legal and regulatory, behavioural and educational and miscellaneous challenges. The challenges affecting implementation of new technology include security issues, choice of Internet payment instrument and its inter-operability, inter-operability of technology and technological application, comparative buying capabilities, richness and depth of information available over the Internet, lack of reliable network infrastructure, lack of e-commerce standards, deployment of public key infrastructure to enable identity authentication, technical integration of new technology with existing applications and high cost of bandwidth. Challenges associated with legal and regulatory framework include difficulty in regulating and enforcing standards due to lack of consistent rules and policies; customs and taxation uncertainties and government interventions. Changes in

attitudes of consumers result in behavioral challenges to businesses. These challenges include lack of trust of customers and fear of intrusion of privacy which leads to reluctance involved in e-transactions. Addition, increase of fraudsters taking over the Internet and lack of awareness of customers about the availability of goods and services. Miscellaneous challenges include channel conflict, the problem of attracting and retaining customers, and the need to improve the order fulfillment process affects the successes of businesses in digital economy. (Technological Challenges Legal and Regulatory Challenges (2018).

Furthermore, Singh (2011) identifies the major challenge facing libraries in the digital economy to include: New generation of users, copyright; privacy/confidentiality, online/virtual crimes and security, technology challenges, manpower, collection of digital e-resources, organizational structure, preservation/archiving of digital resources and lack of clarity in vision. Although the advancement in digital economy implied library users do not have to physically visit the library building for information resources and services, most users still need help in locating information resources. In a traditional library, the catalogue is used to find traditional library materials, currently most information offered in the Internet cannot be found through one commonly-accepted tool or resources. The increased availability of electronic resources has led libraries and librarians to develop important relationships with computer centers in a digital economy. In some places, these centers are responsible for electronic resources while the library is responsible for print resources. In some educational institutions, librarians have assumed responsibility for both library collection and computer services in a digital economy.

Besides, library and information services in a digital economy is limited by availability of reliable and affordable information and communication technologies. It is restricted to those scholars and users who are affiliated to organizations that have the funds and skills to provide access. It is also

limited to those who are information literate with good command of major languages of commerce and scholarship. In addition, contractual and other bounds imposed by vendors exclude potential users from acquiring adequate infrastructure to access digital scholarly information. Al-Alawi & Kuzic (2008) summarized the challenges affecting library and information services in a digital economy **as follows:**

1). Loss in Employment: The advancement of digital economy may lead to loss of jobs due to automation of services that will reduce human resources in libraries.

2). Lack of Experts: Digital economy requires complex processes and technologies that require experts to build platforms, maintain and trained professionals which may not be available in most libraries

3). Capital intensive investment: Digital economy requires infrastructure, functional Internet, mobile networks and telecommunication. These are time consuming and require huge capital investment process. In Nigeria, development of infrastructure and network could be very slow and expensive

Similarly, Raval (2013) identifies three major problems that affect library and information services in a digital economy to include, technological, economical and attitudinal problems. Firstly, technological problems referred to hardware and software issues. Secondly, economical problems include cost involved in processing and maintenance of software and hardware. Thirdly, attitudinal problems include lack of knowledge of librarians on potentials and processes of digital economy. Oketunji (2011) found that lack of skilled and technical support staff on use of computer technologies for library and information service delivery. Adeyemi (2002) confirmed that mobility rate of system analysts employed in university libraries is very high due to poor remuneration. Another problem militating against library services in a digital economy is negative, laissez-faire attitude of library staff that slowed the progress of computer technology implementation (Popoola, 2002). Tiamiyu (2005) observed that automated services were inadequate, lack of funds, electricity supply and telecommunications connectivity as well as inadequate human resources to automated systems in a digital economy. Similarly, Okiy (2005) identified inadequate funding, electricity supply, shortage of competent manpower for operation and maintenance of computer technology,

lukewarm attitude of Nigerian government towards provision of these technologies and low level of computer literacy among Nigerians as militating against effective library services delivery in a digital economy. The above litanies of challenges affect application of ICT to library and information services delivery in a digital economy.

Conclusion

This paper discussed the role of library and Information services in Digital Economy. It must be stated that the use of *library and information communication technologies* are integral part of library processes that empower librarians to communicate with clients and business associates to provide innovative resources and services. Hence, the uses of these technologies are essential for the existence and survival of libraries to me*et the needs of* socio-economic sectors in a digital economy. This will enable librarians provide the right information at the right time in the right format to savvy information seekers; as Web-based and digital services have become the backbone of current and future library and information service delivery. Having examined the role of ICT in library and information service delivery; the paper highlighted that the *application of ICTs have also brought about a paradigm shift and visibility in librarianship from what used to be to what it is now, in other to satisfy users' demands and keep librarians relevant* in a digital economy. As well, the challenges affecting application of ICTs to library and information services include lack of computer skills, lack of adoption of web applications, databases, software applications; lack of skills to interact with suppliers; lack of skills to use internet for library and information service transactions, lack of privacy and insecurity, lack of finance and high cost of infrastructure for libraries. Therefore, digital literacy and training is a prerequisite for the use of ICTs for library and information services in digital economy. Hence, librarians must embrace the new information environment to provide customized services to users and cope with the current trends in a digital economy. The conclusion reached is that digital technologies are integral part of library and Information services that empower librarians to communicate with library users through innovative services. Therefore, librarians should be encouraged to leverage on the benefits of ICT to create new opportunities to access global markets and develop digital information business activities.

Recommendations

Sequel to the conclusion reached, the following recommendations are made:

1. Government should provide infrastructure and power supply to support application of ICT to Information services delivery in a digital economy.

2. Librarians should also avail themselves with ICT skills for information service delivery.

3. Librarians need to be abreast with the principles, harness benefits and operational processes of ICTs to promote information service delivery in a digital economy.

4. Librarians should be aware of the information needs and search behaviour of clients to provide innovative resources and services.

5. Government should initiate incentive schemes such as tax holidays, free computers and ICT devices to facilitate library and information service delivery.

References

Adeyemi, B.M. (2002) Problems and challenges of automating cataloguing process at Kenneth Dike Library, University of Ibadan, Nigeria. *African Journal of Libraries, Archives and Information Science* 12(2), 13 222.

Aina, L.O. (2004) Coping with the challenges of library and information services delivery: The need for institutionalized professional development. Paper delivered at the Nigerian Library Association 42nd National Conference and AGM at Akure, Nigeria June 20-25, 2004: 5.

Alasa, M. and Kelechukwu, I. (1998) Interent and Academic Library Services Development in Nigeria. *Nigerian Libraries* 33(1): 17 30

Al-Alawi, A. & Kuzic, J. (2008). Challenges of E-business in service industry. Proceedings of the International Conference on Information Technology Interfaces, ITI. 633 - 638. 10.1109/ITI.2008.4588484.

Akintunde S.A. (2004). Libraries as tools for ICT development. Paper delivered at the Nigerian Library Association 42nd National Conference and AGM at Akure, Nigeria June 20-25, 2004: 10.

Elkjaer, T. & Damgaard, J. (2018). How Digitalization and Globalization have Remapped the Global FDI Network. Paper presented at 16th Conference of IAOS OECD Headquarters, Paris, France,

Jain, P. (2013). A paradigm shift in the 21st century academic libraries and Librarians: prospectus and opportunities. *European Journal of Academic Research*, *1* (3), 133-147.

Kajogbola, D.O. (2004). The Impact of Information Technology on Nigerian Economy: A Study of Manufacturing and Services Sectors in South Western and South Eastern Zones of Nigeria Nairobi, Kenya: African Technology Policy Studies Network.

Kozmetsky, G. (1985) Transformational Management. Cambridge, MA: Ballinger Publishing Company.

Kurt, D. B. (2013). *Transformation of the Academic Library*. Paper presented at the Bibsys brukermøte, Trondheim. ttp://www.bibsys.no/norsk/bibliotekar/brukermoter/brukermote_2013/Presentasjoner/index.php

Napier, H. A., Judd, P., Rivers, O. N & Wagner, S. W. (2002). Creating a Winning E-business Course Technology, Australia.

Nicky, H. (2011). The digital generation. *ELT Journal*, 65(3),322-325, doi:10.1093/elt/ccr041 https://www.researchgate.net/publication/275133520

Matthews, S. (2011) *Five challenges every librarian must face.* Available from World Wide Web:http://21stcenturylibrary.com/2011/10/12/five-challenges-every-librarian-must-face/

Mulla, K.R. (2006). E-resources and services in engineering college libraries: A case study. *Electronic Journal of Academic and Special Librarianship* 7(1).

Ogunsola, L.A. (2011) The Next Step in Librarianship: Is The Traditional Library Dead? *Library Philosophy and Practice* **Available** http://unllib.unl.edu/LPP/

Okiy, R.B. (2005) Strengthening information provision in Nigerian university libraries through information communication technologies *The Electronic Library* 23(3), 311 318.

Olaosun, M.A. (2007). The librarian is dead, long live the librarian. A Valedictory Lecture by Michael Adebayo Olaosun at OAU Ile-Ife, Nigeria, Wednesday, 11 April, 2007: 1-14.

Owabor C. E. (2012). Current and Global Trends in Library and Information Services. Available: http://www.slideshare.net/etranex2/current-and-global-trends-in-library-and-information-services

Prensky, M. (2001). 'Digital Natives, Digital Immigrants'. On the Horizon 9/5. MCB University Press. Available at http://tinyurl.com/ypgvf.

Popoola, S.O. (2002) User's attitudes towards microcomputer use in agricultural research libraries in Nigeria. *Journal of Librarianship in Information Science in Africa 2(1),* 15 25.

Roberts, M. R. (2010).The Digital Generation and Web 2.0: E-Learning Concern or Media Myth? In Handbook of Research on Practices and Outcomes in E-Learning: Issues and Trends. pp23 Available at https://www.igi-global.com/dictionary/digital-generation/7631. DOI: 10.4018/978-1-60566-788-1.ch006

Technological Challenges Legal and Regulatory Challenges, (2018). Available at http//www. IBS Center for Management Research.

Tiamiyu, M.A.(2005) Evaluation of automated services in Nigerian universities *The Electronic Library* 23(3), 274 288.

Saxena, A & Yadav , P.D (2013) Impact Of Mobile Technology On Libraries: A Descriptive Study International Journal of Digital Library Services, Vol. 3(4),1-13

Singh, G. (2011) Digital Libraries and Digitization. India:Ess Ess publication p.14

Way, J. (2009). Emerging E-Pedagogy in Australian Primary Schools**.** *In* Handbook of Research on New Media Literacy at the K-12 Level: Issues and Challenges p19. Available at https://www.igi-global.com/dictionary/digital-generation/7631. DOI: 10.4018/978-1-60566-120-9.ch037