Digital Inclusion and Sustainable Development in Nigeria: The Role of Libraries

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Abstract— **Sustainable development has been defined as the development that meets the social, economic and technological needs of the present without compromising the ability of future generations to meet their own needs. To attain sustainable development, the roles of information and digital literacy cannot be ignored. Unfortunately, according to the National Bureau of Statistics, adult illiteracy rate in Nigeria stands at 56.9%, while 95% of Nigerians do not own a personal computer (PC). Considering that opportunities and access to information and communication technologies (which are key drivers of sustainable development) are predicated on literacy, the Nigerian situation is very disturbing. In this paper, we examine the concept of digital inclusion and its role in sustainable development. An assessment of the situation in Nigeria reveals that libraries at different levels have critical roles to play in surmounting the challenges of digital inclusion in the country. The paper concludes with a way forward for libraries and key actors in the Nigerian polity.**

Keywords— ***Sustainable Development, Digital Inclusion, Nigeria, Libraries, Digital Literacy.***

I. INTRODUCTION

Since the 1980s, the concept of sustainable development has been widely used. The term gained popularity when it became fashionable for experts to use it as a way of responding to global economic concerns, equity and distribution. In year 2000, 189 member countries of the United Nations adopted the Millennium Development Goals (MDGs) to address the issue of sustainability in development. In this regard, the United Nations outlined eight goals to be achieved in 2015.The motivations for the goals were to eradicate poverty and hunger; achieve universal primary education; promote gender equality and empower women; reduce child mortality; improve maternal health; combat HIV/AIDS, malaria and other diseases; ensure environmental sustainability and develop a global partnership for development. However, by 2015, many developing countries including Nigeria were far from achieving the MDGs. Coming to terms with the reality that the MDGs were far from being achieved in many developing countries, the United Nations member states at a summit in 2015 adopted a 2030 agenda for achievement of a set of 17 sustainable development goals to end poverty, fight inequality and injustice and tackle climate change.

Sustainable development maybe defined as development that meets the need of the present without hampering the ability of future generations to meet their needs. Sustainable development is efficient management of resources for human survival, taking into consideration both the present and future generations[1]. To achieve sustainable development, the world summit on sustainable development suggested that countries must ensure the full participation of their citizens in development programmes and strengthen the capacities of citizens to access and utilize timely information. The role of information and communication technologies (ICTs) in information generation, processing and use in the 21st century cannot be over emphasized. Global economy thrives on digital innovation which to a large extent leads to advancement in sustainable development. For instance, a former head of Nigerian Communications Commission was quoted as saying that 10 percent increase in broadband yields 1.13 percent to national gross domestic product[2]. Access to ICTs and digital literacy are very vital to knowledge empowerment and information generation and utilization. Thus, sustainable development remains a mirage in any country whose citizens cannot effectively and efficient deploy the use of ICTs to access and utilize quality information. It is in this regard that the concept of digital inclusion has evolved and the need for members of society to be 'digitally inclusive' has become a major discourse in literature. This paper examines the concept of digital inclusion in view of its role in sustainable development; it also discusses the challenges of digital inclusion in Nigeria and how libraries can help.

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II. THE CONCEPT OF DIGITAL INCLUSION

A. Digital Divide

Undoubtedly, information and communication technology (ICT) has affected every area of human life. Consequently, the level of deployment of ICT in a country can determine its level of development and placement among the comity of nations. Unfortunately, ICT has become a basis for disparity among nations. This disparity has been termed as digital divide.

Digital divide is inequality in access, distribution and use of information, communication and technologies between two or more populations[3]. Digital divide may also be viewed as a gap that exists between those who have access to computers and the internet and those that do not have access[4]. The United Nations posits that though digital divide is mainly a result of income gap, Government, Institutions and individuals must do everything possible to bridge the divide as ICTs are important factors of sustainable human development[5]. Consequently, Agustin & Clavero[6] proposed a concept known as digital inclusion which goes beyond the quantitative and technological aspects of the concept of digital divide.

B. Digital Inclusion

Digital inclusion is a set of public policies that relates to the installation, administration, expansion, creation and development of content on wired or wireless public networks in countries, regions and communities. This includes privacy and security, training and incentives to develop new tools[7].

To attain sustainable development, it is very important to take digital inclusion into cognizance because it helps to create an informed society. This can be achieved by transforming members of the society from the 'digitally excluded' to the 'digitally included'. GOV.UK[8] opined that digital inclusion is a facet of social inclusion and it provides the right access to the digital world for intellectual development and promotes spaces for significant cultural practice that allows individuals to be digitally literate. It further stated that digital inclusion does not only imply being technically capable of acting in the cyber space, but being capable of creating and producing meanings and feelings to it. GOV.UK also viewed digital inclusion as the ability to access, adapt and create new knowledge using ICT. Digital inclusion implies possessing both technical and operational capacity to navigate the world of ICTs[9]. Digital inclusion revolves round four types of resources[10]:

- Physical (computers and connectivity)
- Digital (digital materials available online)
- Human (literacy and education)
- Social (communication institution and society structures.)

If these resources are well harmonized, then the implementation and reality of digital inclusion is not farfetched. Digital inclusion process emanates from four types of capital[11]:

- Social (their identity and political power)
- Intellectual (individual competence)
- Cultural (memory of a society)
- Technical (power of action and communication)

Microsoft[12] opined that technology is a tool and it is the focal point for education, economic development and social well being. Consequently, Microsoft posited that digital inclusion goes beyond being connected or disconnected; it involves formulating and implementing strategies that would culminate in full participation in a digital society. In resonance with Microsoft, Damodaran and Olphert[13] suggested a hierarchical framework for progress as far as digital inclusion is concerned. The frame work comprise of the following:

- Technical infrastructure as the essential and fundamental foundation for inclusion
- Digital awareness programs and campaigns
- The know-how, understanding basic IT skills
- Digital opportunity
- Digital empowerment

III. BENCHMARKING DIGITAL INCLUSION

It is important to make comparisons of progress achieved towards digital inclusion. An analysis of a digital inclusion research conducted in 2005 categorized African countries into four[14]:

- Digital leap-froggers- these are countries with below average level of internet users but are making progress in catching up
- Digital pacesetters- countries that are both average in levels of internet use and above average in growth level
- Slow starters- countries with below average levels of internet use and growth rates
- Successful but slow- countries with above average level of internet use and growing less than average rate.

IV. NIGERIA AND DIGITAL INCLUSION

Nigeria, made up of 36 states and 774 local government council areas, with about 150 million people has ICT facilities that are limited to urban areas at exorbitant rates, affordable by the middle and upper classes of society, thus making many of the rural and suburban areas unable to fully participate in the emerging information economy. Digital inclusion revolves round three sequential classifications of the digital divide - opportunity (encompassing accessibility and affordability), infrastructure (network indicators and indices) and utilization (ICT usage and quality). Nigeria falls within the countries with low digital opportunity index scores. The digital opportunity index scores released by International Telecommunication Union revealed that Nigeria was ranked 31 in the African continent with very low score of 0.41, 0.03 and 0.01 for opportunity, infrastructure and utilization respectively[15]. In terms of ownership and access to personal computers (PCs), the National Bureau of Statistics[16] reported that only 4.5% of the Nigerian population has access to personal computers. Access implies those who either own a pc or can derive benefits from it. According to the report, only 0.9% of the population can claim ownership of a pc. However, access and usage of the internet have greatly increased among Nigerians in recent times largely due to mobile telephony technology and social media. A published reported revealed that about 70% of the Nigerian population uses the internet[17]. The same report also indicated that more than 98% of internet users in Nigeria gain access to the internet through mobile telephone networks. However, internet access and usage may not necessarily imply digital literacy. About 56.9 percent of Nigerians are illiterates[18]. It is access to ICTs and ability to find and utilize information from the ICT platforms that constitute digital inclusion. Going by these reports, a greater percentage of Nigerians maybe classified as non digital inclusive.

V. CHALLENGES OF DIGITAL INCLUSION IN NIGERIA

A number of factors have been outlined by various interest groups as reasons for Nigeria's dismal performance in global ICT (by extension digital inclusion) rankings compared to countries in the developed world. Some of these reasons are outlined below.

A. Affordability

A survey by Research ICT Africa[19] disclosed that 70% of non-internet users in Nigeria say affordability is the main reason for not using the internet. Majority of internet users in Nigeria access it exclusively using mobile devices. Smart phones and tablets have become very popular in Nigeria. Nevertheless, a mobile broadband cost is high for most people in a country like Nigeria where low per capita incomes subsist. World Bank reported that around 80% of Nigerians earned $2 or less a day, or $730 per year[20]. The cost of ICT services is a major barrier to increased internet and broadband usage. Nigeria cannot boast of free Wi-Fi to enable internet access; and internet speeds are particularly slow.

For Nigerians with low per capita incomes, the price of a mobile phone can represent a consequential barrier to access and even regular usage of the internet[21]. When respondents to a Research ICT Africa survey who did not use the internet were asked why they did not, almost 70% reported that the services were too expensive[22]. From that Survey, only 3.4% of households, or 747,025, have a fixed internet connection, and 62% of internet users depended solely on their mobile phone for online access.

B. Illitracy / Language Barrier

As noted earlier, 56.9 percent of Nigerians are not literate. Though the Nigerian government has made efforts to bridge the literacy gap by embarking at one time or the other, on programmes with various captions such as Education for all, Mass Literacy Campaign (MIC), one-third of the adult population still lack basic literacy. Nigeria is a multi-lingua state; some of her citizens can only write and speak in local languages other than English. Most, if not, all of the ICT facilities imported into Nigeria are configured in English Language. Consequently, these people are digitally excluded[23]

C. Disparities Between Urban and Rural Areas

Rural areas in Nigeria constitute about sixty percent of the country's habitable land space[24]. These parts of the country are adjudged economically underdeveloped as they are plagued with poor infrastructure hence the continuous migration of persons in the productive age bracket from rural to urban areas in Nigeria[25].Considering the development advantages that ICT offers, those who are on the disadvantaged side of the digital divide will remain digitally excluded and underdeveloped.

The level of information and computer illiteracy in the rural areas is alarmingly high. Apart from illiteracy, most people in these communities are low income earners and as such, the provision of ICT facilities remains a luxury.

It is commonly reported that internet access in rural communities is poor and almost nonexistent[26]. From a general household survey of 2011, it was reported that "84% of urban dwellers have access to mobile phones while only 58.5% of rural dwellers have access to mobile phones"[27]. Most owners of mobile phones in rural areas use them for making calls, rather than for accessing the internet to interact and search for important information. Correa and Pavez[28] corroborated this when they observed that in the rural communities there is a lack of telecommunications infrastructure, a lack of electricity and a reluctance on the part of internet services providers (ISPS), cybercafé operators and other stakeholders to extend their internet services.

D. Lack of Digital Literacy

Virtually every area of our lives is increasingly dominated by the internet and digitized services; individuals unable to access, interact and use digitized services are gradually excluded from enjoying basic benefits in the society. "Just as providing books to people who cannot read does not solve functional illiteracy, simply offering access to technology does not bridge the digital divide"[29].

Lack of basic digital literacy skill is a major threat to digital inclusion. Conventional education i.e. learning to read, write and communicate; can never be downplayed. However, literacy in information and communication technology (ICT) is a non negotiable standard in the 21st century[30]. Digital literacy is the ability to identify, search and utilize required information in multiple formats from a wide range of sources presented through information and communication technologies. CILIP postulates that digital literacy is one of the core skills required for digital inclusion[31]. It enables one to find, critically appraise and manage information that is useful for every area of life.

E. Internet Crime / Computer Phobia

Internet scam coded as '419' is very popular in Nigeria and has made the internet to appear unsafe. Incidents of hacking into persons and organizations' important files and exposure of confidential documents have not helped matters. These have left people vulnerable to online threats including identity theft, cybercrime and exposure to hate sites. Consequently, many people have become apprehensive when it comes to computer/internet access and usage. They would rather not have anything to do with such ICT facilities.

VI. DIGITAL INCLUSION AND LIBRARIES: WHAT ROLE?

Libraries are agents of social communication. They help to bridge the awareness and information gap among members of the society. Libraries and librarians as information/specialists and brokers have roles to play in bridging the digital divide and improving on digital inclusion for their clienteles. Libraries and their sphere of influence are defined by the type of community/clienteles they serve. Thus, school and academic libraries cater for students, teachers/lecturers and researchers/scholars. As the name implies, public libraries cater for members of the public. Their roles in digital inclusion follow the same pattern.

A. School and Academic Libraries

School libraries are libraries established to cater for the information and academic needs of students and teachers in the lower levels of education – primary, secondary and technical schools. Academic libraries are established to meet the information, academic and research needs of students and faculty/staff in higher institutions of learning – Colleges of Education, Mono/Polytechnics and Universities. They could play intervention roles in digital inclusion in the following ways.

B. Acquisition and Provision of Acess to Digital Content

We are in the era of digital media and e-books distributed via the Internet. While maintaining their role in collection and provision of print materials, libraries all over the world must have renewed determination to support access to digital content, technology and services[32]. To provide access to digital content, libraries must go beyond the level of acquisition to information and digital literacy, dissemination of information resources through various ICT media and training for students, teachers/lecturers and other users of the library.

To this end, school and academic libraries should:

- ✓ Offer classes in general computer skills and technology training either online or within the library.
- ✓ Provide designated spaces, equipped with smart devices for tutorials within the library.
- ✓ Accelerate digitization of library resources.
- ✓ Help students to enjoy learning by introducing them to the use of open content. This implies editing and combining various digital resources (including pictures and sound) to make learning interesting.
- ✓ Ensure that digital content is discoverable via any interface.
- ✓ Ensure provision of digital content via mobile devices, social media, virtual research environments.
- ✓ Support and encourage open publishing platforms, wikis, blogs, social media, citation tools, instructional technologies, data visualization tools, etc.
- ✓ Teach students and teachers how to navigate library catalogues and databases in order to search and find information.
- ✓ Teach users how to search and locate required information from internet platforms like search engines and databases. Students need to learn about search engines and Boolean logic; the need to define concepts and keywords. Library users need to be able to critically evaluate resources relevant for them.
- ✓ Students should be introduced to different types of digital resources and content
- ✓ There is need to teach students how to engage the social media sites such as twitter both for research and to consider ways in which they can share, network and even crowd source for information.
- ✓ Students should be taught ways to be up to date with research findings in their field by using journal TOCs (table of contents) which alerts you when issues of your followed journals are published,
- ✓ Introduce students to the advantages of referencing software.
- ✓ Digital inclusion can be encouraged when students are taught the beauty of creating blogs to discuss their research findings. This will help them to build confidence and enhance their digital identities.

Librarians in school and academic libraries can collaborate with teachers, and other stakeholders to train students and equip them with the required skills needed to be digitally included. They should also be equipped with computer and digital literacy skills necessary to help them drive digital inclusion among library users.

C. Public Libraries

As the local gateway to knowledge, public libraries provide resources for lifelong learning, independent decision making and cultural development of the individual and social groups[33]. In rural areas, public libraries are designed to provide information on agriculture, building, trade, health care and other aspects of human activities which are required mostly by the rural dwellers because they lack access to other sources of assistance. Rural communities in Nigeria are faced with low literacy rate and absence of information and communication technologies. Perhaps, one of the most important role public libraries can play in digital inclusion is provision of internet services to their users. A recent study of libraries as internet providers showed that library users tend to access more information about health, government, language and culture than people who access the internet from other public locations. Public library users also report a higher positive impact of the internet on their lives in areas such as health, education, time savings, income and financial savings[34].

Public libraries can also play the following roles in digital inclusion:

- ✓ Offer free classes on general internet use, teach specific access skills which should impact the economic, social, and cultural lifestyle of the people.
- ✓ Teach basic computer skills.
- ✓ Participate in programmes to combat illiteracy.
- ✓ Provide information resources in various formats and teach the proper use of the information resources.
- ✓ Offer free or subsidized internet access alongside support and training for users.
- ✓ Be vital part of any Digital Inclusion initiative. Public libraries should champion programs aimed at equipping people with digital skills which would meet their information needs and increase their chances of enjoying sustainable development.

The public libraries should carry out awareness campaigns on the need for people to acquire basic digital literacy skills as more essential services are gradually going to be online. Applying for admission, obtaining and verifying validity of driver's license, checking pension details and other essential services are going online.

VII. THE WAY FORWARD

A. Examples and Lessons from Developed Countries

Proposals made in this paper on the roles Nigerian libraries could play in digital inclusion are not mere theoretical insinuations. They are practicable as seen in the examples of libraries in other countries:

- ✓ In Chile, the National Digital Literacy Campaign was launched with the goal of training 500,000 Chileans in ICT by 2005, largely via a network of over 300 public libraries. So far thousands of Chileans have benefited from the program. The free training has helped Chileans launch businesses, navigate market information and develop technology skills to improve their job competitiveness[35].
- ✓ In Poland, Polish public libraries are able to offer their users free internet access.
- ✓ In Uganda, Hoima Public Library provides free internet access and training for health workers and the general public.
- ✓ In the United States, U.S. public libraries are providing e-book content to borrowers to ensure that all Americans continue to have access to commercially produced content through their local public libraries. In 2012, public libraries reported that they were the sole provider of free public access to computers and the internet in 62.1% of communities in the United States.
- ✓ In Malaysia, public libraries provide electronic corners in its libraries. The electronic libraries serve as one-stop sources of information and even entertainment.
- ✓ In South Africa, public libraries provide space for information kiosks and tele-centres.
- ✓ In Estonia, open access internet points have been established in public libraries.
- ✓ In Sunderland, England, the public library provides free access to PCs (personal computers) alongside training for adults and children users.

B. Conclusion

A cursory review of library services delivery system in Nigeria reveals that citizens are not accessing library services adequately. The poor state of public libraries in Nigeria is an issue that has been over flogged in literature. The need to consciously develop our public libraries to embrace technology is of prime importance.

Librarians should be empowered with modern technological tools to support learning. Library staff must have access to ICT training. Libraries should participate in local and national initiatives and discussions on internet policies, digital inclusion, broadband access and open data. Governments should include libraries in plans for broadening ICT and broadband reach to rural areas as well as reducing the cost of access for the low income earners.

Assistive technology should be provided in public libraries to improve access for people with disabilities. These technologies are often costly for physically challenged people who are usually among the lower socio-economic groups. People need to develop interest in acquiring digital literacy skills tailored towards sustainable development. Universal access is going to take a combined effort of different types of libraries, IT companies, governments, NGOs, and the international community to create an enabling environment void of digital exclusion. The digital era is not going to disappear anytime soon and so there is need for education to respond to the growing digital tide which is rapidly increasing. Librarians have a vital role to play in spreading digital literacy across Nigeria. Libraries should step in to help the citizenry to acquire 21st century digital skills they need to attain sustainable development.

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