



Realising Sustainable Development Goal 4 in Nigeria: The Challenge of Digital Divide

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Abstract: The immense adoption of Information Communication Technology (ICT) in any country will play a pivotal role in suppressing the spread of the digital divide and ensuring sustainable development. This is the reason most developed countries are advanced in the implementation of ICT. This paper is developed from the researcher's interest in the effect or impact the digital divide has had on attaining sustainable development in Nigeria, specifically the actualisation of Sustainable Development Goals (SDGs) SDG4, which centers on the quality of education in Nigeria. An evaluation of Nigeria's educational sector reveals that the country's educational system is in substantial jeopardy of being outshined despite its role as a significant and active driver of economic recuperation in the short term and sustainable development and transformation in the longer term. This paper adopts an empirical review of how the digital divide can be mitigated and sustainable development, especially (SDGs) 4 in the country. The researcher, therefore, opines, among others, that the government should establish an empowering and developing program that will involve the citizens, especially those at the grassroots. Thereby educating them on e-literacy skills and the knowledge required to use, maintain, and improve as ICT advances.

Keywords: digital divide, information communication quality education, Nigeria, sustainable developmental goals (SDGs), technology.

Introduction

Information and communication technology (ICT) is vital to the sustainable development of any nation (Chavez, Szydelko, Kliks, and Foukalas, 2015). ICT is a device that plays an influential role in changing several facets of human lives worldwide (Lechman, 2015). Similarly, Richard (2016) asserts that the impacts of ICT in every sector of a country cannot be overstated. It plays a precise role in the country's educational, social, economic, and health sectors. ICT has intensely changed how people work, socialise, and spread information. In the same vein, Vincent (2016) established that ICTs have a universal influence that impinges on all countries, subdivisions, and everybody, regardless of whether an individual is vigorously involved or merely an observer in the digital revolution. Antonio, Samuel, Gustavo, and Alberto (2020) opine that ICT is closely linked to the digital divide. Despite the swift advancement of ICT, which helps in enhancing access to information and knowledge, its accessibility and usage are still very much far from being evenly distributed in various developing countries.

The digital divide is not a novel concept. It became more prominent due to the advancement in ICT in the mid- 1990s and has ever since been a problem (Van Dijk, 2006). The digital divide has gotten ample recognition from various researchers and policymakers. However, it retains its importance as an object of public policy deliberation that comprises social, economic, and political issues that affect humankind and the world (Steele, 2018). The digital divide is seen as a gap

between ICT users. It occurs at diverse socio-economic stages. It denotes the lacuna that exists among people's opportunities to the accessibility of ICT and their knowledge in utilising the internet for an extensive variety of activities (Graham and Straumann, 2015). Ugboma (2012) posit that as the diverse phases of ICT are surfacing, it is absorbing various forms and dimensions. Perhaps that necessitates Krich, Urvashi, Vidisha, Nozibele, and Jaja (2018) to establish that the digital divide goes beyond the lack of access to ICT services. Instead, it also entails the knowledge and technological know-how needed in maximising the full potentials of ICT.

The country's development is evaluated by the quality and scope of its socio-economic, socio-cultural, and political advancement through ICT adoption (Graham and Straumann, 2015). Indeed, ICT has penetrated every aspect of human life. Thus, the extent of adopting ICT in a nation ascertains its growth and position among the comity nations. Lechman (2015) posit that ICT is a device that enhances communication and information. It also aids the actualisation of sustainable development. Hence, it should be adopted by any country seeking to attain sustainable development at various levels. Rodhain and Fallery (2009) assert that the espousal of ICT in the different subdivision has a substantial influence on sustainable development. Invariably, a country battling the digital divide cannot obtain sustainable development (Wu et al., 2018).

One hundred eighty-nine (189) affiliate nations of the United Nations embraced the establishment of Millennium

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Development Goals (MDGs) in addressing sustainability development in 2000. However, by 2015, several emerging states, including Nigeria, had not actualised the MDGs. This necessitated Sustainable Development Goals (SDGs), a 2030 outline at a conference in 2015 by United Nations participant states (Ifijeh, James and Adebayo, 2016). Studies show that ICT plays a cogent part in achieving the SDGs, particularly SDG 4, which is to "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (Tjoa and Tjoa, 2016; Wu, Guo, Huang, Liu and Xiang, 2018).

The role of ICT in the attainment of SDG 4 cannot be overstated. This is because the world is adopting an e-learning mechanism. As such, for any country to claim to have achieved SDG 4, such a country must embrace the full potentials of e-learning platforms. Globally, education is crucial and essential in developing modern states (Abari and Orunbon, 2020). However, the presence of the digital divide can hinder the growth of ICT implementation in any country. The privilege of quality education in Nigeria is closely linked with salary level and the students' socio-economic backgrounds. Those individual whose families can afford to pay higher to access better learning resources are more likely to attend private schools; than persons from lower socio-economic homes who are more likely to participate in public schools. This, therefore, widens the digital divide and affects the attainment of SDG 4 in the country (Härmä, 2016; Obiakor and Adeniran, 2020; Rolleston and Adefeso- Olateju, 2014).

The world is turning out to be more interrelated due to cyberspace. The further linked we are, the more we can gain from individuals' knowledge and inputs universally. However, in Nigeria, over 200 million individuals have no access to technology; some who have access to it cannot maximise its full potentials (Richard, 2016). The spur of ICT in the educational sector in various evolving states is mainly related to the One Laptop Per Child (OLPC) initiative. This entails providing laptops and access to cyberspace to every child. This will give every child an equal opportunity to enhance their technological skills and groom them for the digitalised world (Warschauer and Ames, 2010). The adoption of this initiative in Nigeria will aid in bridging the digital divide that has affected the attainment of SDG 4. Most students from financially stable homes and urban areas have seized the opportunity of quality distance learning. In contrast, those that come from low-income families and rural communities are deprived of the privilege to receive quality education (TEP Centre, 2020). This paper, therefore, seeks to draw attention to the digital divide and its effect on attaining sustainable development goals, especially SDG 4 in Nigeria, amidst other challenges facing the actualisation of SDG4.

Literature Review

ICT has a profound influence on the growth and progress of human civilisation. The tools employed in ICT consist of processor programs, communication links, artificial intelligence, analysis and design

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methods, programming languages, databases, knowledge stations, etc. ICT has an established effect on virtually all aspects of human endeavour (Kamba, 2009). The influence of ICT is massive and universal. ICT has led to several merging of content, telecommunications, computation, and broadcasting since the end of the 20th century. Expanding the ability of ICT has additionally been encouraged by the growth of a universal grid of computer networks identified as the internet (Guliat, 2008). ICT has affected how business is carried out, enabled education and knowledge distribution, emboldened citizens and societies in aspects that have redefined governance, and established substantial wealth and economic development in a universal information community (Tamilselvan, Sivakumar and Sevukan, 2012). ICT has the possibility of initiating significant economic and employment growth for individuals that can utilise ICTs efficiently and adopt the novel methods of processing expected.

The part Information and Communication Technologies (ICTs) plays in the 21st-century education system is very crucial. It has greatly influenced the education sector worldwide. This is seen from the creation of numerous platforms such as Google meet, Zoom etc. (Agbetuyi and Oluwatayo, 2012). The value and extent of teaching, learning and research in the institutions has been impacted by ICT (Kwacha, 2007). According to Ololube, Ubogu and Egbezor (2007), ICT usage, integration, and diffusion have initiated a new age and has drastically transformed the old style of conveying information and provide a distinctive learning

experience for both instructors and learners. ICT has the power to quicken, improve, inspire, involve students in learning and develop skills (cited by Agbetuyi and Oluwatayo, 2012).

The digital divide is the gap present between industrialised and emerging countries concerning access to ICT. Antonio et al. (2020) offer a more comprehensive insight into the digital divide as the disparity between persons with access, competencies, skills, knowledge, and the method to utilise innovative ICT tools and persons who do not have them. The digital divide occurs between those residing in rural areas and those living in cities, the well-read and unschooled, economic classes, the male and female, elderly and young and the physically challenged, etc. (Nwegbu, Osadebe and Asadu, 2011).

According to Mutula (2008), there are four categories of the digital divide, namely:

- Social divide: This may be viewed from the cultural aspect that upshot variations in access and operative usage of several digital technologies among states.
- Economic divide: This links to factors like poverty and financial restraints, making it further probable for some societies to have access and make good use of digital technologies than others.
- Linguistic divide: This arises when the linguistic of digital technology or its contents is foreign to explicit societies,

whereas it is conversant with other metropolises.

- Content divide: This denotes the gap between people due to the unsuitable knowledge confined or emerging through digital technologies that a specific populace cannot adopt because it is fashioned without their needs.

According to Nielsen (2006), these are the following stages of the digital divide:

- Economic divide: This is mainly referred to as the digital divide. It is the notion that specific individuals have the funds to acquire a computer and access the internet, whereas some cannot. This divide mainly emphasises economic classes, the gap between the rich and the poor in the country.
- Usability divide: Usability is referred to the fact that technology is improving, which makes it tricky. Hence, many individuals would not be able to utilise a computer even if given for free. Even individuals who have the means of purchasing ICT equipment or conversant with a computer still find it hard to access all the benefits attached to having the technology. Examples of people in this category are those with low literacy, elderly or older staff, etc.
- Empowerment divide: This is the most complex to solve because it deals with technology usage in empowering ourselves. Few

users frankly comprehend the power that comes with digital technologies. According to Nielsen, research indicates that only a few users add content to the internet, utilise the advanced search, and differentiate paid search ads from organic search results. Several individuals constrain what they can do online by agreeing with their computer's rudimentary default settings without trying to comprehend how technology can truly empower them.

Sustainable development is a progressively general concept that can gratify current generations' needs without jeopardising future generations (Hilty and Ruddy, 2010). The policy decisions made by those in power are, in most cases, at variance with public aspirations. Hence, these decisions merely handle the present demands at the expense of future aspirations (Oni, Oni, Ibietan, and Deinde-Adededeji, 2020). Gberevbie, Ayo, Iyoha, Duruji, and Abasilim (2018) opine that public policies made by the leadership of a country without factoring in for the next generation will fail to reflect public demands and affect the sustainable development of any country.

Sustainable development is mainly measured in a three-way. For a country to be said to have attained it, sustainable development must therefore manifest on the environmental, social, and economic aspects of the nation's life (Kanayo, Kizito, and Udefuna, 2013).

- Social Sustainability: This mainly entails labour rights, civil rights, and corporate governance.

The notion that upcoming generations would have equal or better social resources opportunities as the present generation. Simultaneously, there ought to be even access to social resources within the current generation. Social resources comprise philosophies as broad as other cultures and vital civil rights. Similarly, Sustainable Human Development is a growth that fosters the capacities of present-day individuals without jeopardising the capabilities of upcoming generations (Richard, 2016).

- **Economic Sustainability:** Economy means preserving resources. This term describes and elucidates the present value of resources and their probable value in the future. Their worth can be obtained through pointers like savings, assets, debts, added value, patents, and intangible assets. Economic sustainability is a vital aspect of sustainability. It emphasises protecting and sustaining human and material resources to produce long-term sustainable worth by optimum utilisation, retrieval, and reprocessing. In other words, we must safeguard limited natural resources now so that the upcoming generation can also provide for their needs (Wu et al., 2018).
- **Environmental Sustainability:** This is a way of ensuring that

current processes of contact with the environment are engaged in with the notion of retaining the environment as original as logically probable built on ideal-seeking actions. It entails conserving the integrity of diverse ecological media and systems to guarantee that their functions and practical uses are sustained for present-day and upcoming generations. (Kanayo et al., 2013).

Methodology

This study adopts a qualitative research design to gain insight into the extent to which the digital divide has affected the sustainable development of Nigeria, especially SDG 4. The researchers used descriptive analysis to examine the issues of the digital divide and sustainable development in Nigeria. This theoretical study draws its argument mainly from multiple secondary sources. This secondary data includes journal publications, textbooks and internet sources.

Findings and Discussions

The attainment of SDG 4, which is to guarantee comprehensive and impartial quality education and enhance enduring learning opportunities for all, plays a dominant function in creating sustainable, inclusive and hardy societies. It seeks to lift the bar and make education a channel for broader transformation toward sustainable development. A close connection is seen between ICT and all sustainable development goals, especially SDG 4. The adverse effect of the digital divide has been felt in the Nigerian educational system. Over the

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years, many wealthy families have sent their children to private schools due to the inadequate resources and facilities in public colleges. These children might experience little interruption to their studying because their private schools are well furnished with ICT infrastructures, and they can afford distance learning. However, learners from susceptible and deprived societies will be left struggling without access to computers and other gadgets outside school. In most cases, these children live in communities with low or absent cyberspace connectivity and epileptic electricity (Hussain, 2020). Indeed, this digital divide will aggravate learning inequalities between these children, thereby limiting SDG 4 in the country.

In Nigeria, most of the populace with cyberspace access are from wealthier socio-economic and city families who have the means for private school education. This gives their children a learning advantage over public school (Obiakor & Adeniran, 2020). Children from low socio-economic families tend to have limited access to cyberspace connectivity, computers, mobile phones, practical ICT skills. Also, they live in rural parts where local languages are prevalent and could reduce the advancement of ICT learning. The unfairness in access to ICT-based education negatively deepens the inequalities in learning outcomes along socio-economic and geographic (urban-rural) lines (United Nations, 2020; Rubagiza, Were and Sutherland, 2011; Furuholt, and Kristiansen, 2007). Children in rural and poor societies in Nigeria are left behind as they are not prepared to acclimatise or change to new

learning mechanism (Amorighoye, 2020). According to Ifijeh (2016), the relationship between the digital divide and sustainable development in Nigeria is seen from the fact that many Nigerians are ICT illiterate. Despite the efforts made by the government to bridge the literacy gap through numerous programmes such as Universal Basic Education (UBE), Education for All (EFA) and Mass Literacy Campaign (MIC). Still, one-third of the adult population lack basic ICT literacy.

The availability and use of ICT tools can positively influence Nigeria's economy and generate innovative employment bases. Richard (2016) opines that the absence of skills and ICT is rising in primarily rural areas. The skills to search, choose and process ICT information are unevenly distributed among communities in Nigeria. Socio-economic factors like poverty, ignorance, erratic employment and the absence of education perpetuate social inequality, thereby giving space for the digital divide to undermine sustainable development in the country (Antonio et al., 2020). Quality education is crucial for building the knowledge base needed to combat critical issues like climate change and assist the youths in preparing for employment. It is also a foundation for peaceful societies, effective institutions, and important sustainable development (SDGs, 2019).

ICT plays a significant part in the course of achieving quality education and lifelong learning potentials as articulated in SDG 4. Diverse platforms, such as Numerous Open Online Courses (e.g. Coursera, Udacity, edX, iVersity, Khan Academy) which are accessible for free

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through the Cyberspace shows how (even specialized) information can be made obtainable to a large public. Additionally, online social webs and Web 2.0 avenues (like YouTube) are extensively adopted in spreading knowledge thru the internet in order to enable lifelong learning. The free-of-cost online Encyclopedia which is obtained through the knowledge of the society is another avenue use in providing information and education to everybody. Open Access publications, like Springer Open, are getting popular and are supporting the availability of scientific participations. Also, research social grids, such as Research Gate, create the interchange among scholars and researchers all over the world. Open Source products (e.g. Linux, LibreOffice, Eclipse) and initiatives create substitutes to costly software suites and lessen disparities in education (Tjoa and Tjoa, 2016).

The accessibility and usage of ICT have been linked to academic achievement and robust research pursuits as it is easier for users to make references. The insufficiency in adopting ICT equipment in the country's educational sector has made the present weak educational system even more inefficient, thereby slowing the attainment of SDG 4 in the country (Steele, 2018). The situation of Nigeria shows that the three levels of the digital divide are prevalent in the country. Most students have been deprived of the opportunity of e-learning, which, if adopted, would have helped in resolving specific problems like the scantiness of teachers and lack of a conducive environment at all stages of the educational spectrum (Lechman, 2015). According Azubuiké et al. (2021),

internet infiltration in Nigeria stands at 42%, indicating that more than half of the inhabitants are not linked to cyberspace. Though blessed with vast natural resources, Nigeria faces the digital divide problem, like all emerging democracies.

Nigeria, over time, has been unlucky on the set of leaders who have overseen the affairs of the country for more than half its life since independence. There are always various issues ranging from embezzlement, corruption and misappropriation of government funds. This has affected its implementation of ICT in the educational sector (Kamba, 2009). Even in scenarios where the infrastructures are present in the country, there are no sufficient skilled individuals to handle and organise e-learning. The simple observation carried out by Abari and Orunbon (2020) on Nigerian Institutions of higher learning shows that some of the academicians are ICT illiterate and as such cannot impart ICT skills on the students.

Another challenge facing the digital divide is that, while towns in Nigeria can, to an extent, boast of electricity, only a few rural communities can do that. However, most ICT equipment is power-based and cannot operate in places where there is no electricity. Sporadic power supply has been an age-long predicament that has affected virtually every part of Nigeria economy, with no exclusion to the educational section. This wobbly, inadequate power supply has caused a significant delay in the technological advancement of many universities in Nigeria. A steady power supply enhances e-learning. Regrettably, the availability of electricity has been a considerable

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restraint confronting Nigeria in realising its developmental goals, of which quality education is one (Adeoye, Adanikin and Adanikin, 2020). One of the goals of e-learning is to make learning obtainable to interested persons 24/7 every day at any place and time most suitable to them. However, the problematic power supply has made this goal unrealisable (Ogunsola and Okusaga, 2006).

Although internet cafes are increasing in urban areas, they are almost absent in rural areas due to poor telecommunication. Some rural areas in Nigeria are not even linked to the national grid (Gulati, 2008). Poverty is another challenge. Nigeria, which is the most populated country in Africa, is contending with self-induced poverty. Most of its resources that could have been used in advancing its technological base are geared towards poverty reduction programs.

Additionally, due to poverty, the Nigerian government and its citizens cannot sustain the pace of technology change. According to Chair and De Lannoy's (2018) study of Nigeria, Rwanda and Tanzania show that young individuals, specifically in rural communities, are robbed of cyberspace resources due to poor education, low income, and digital skills. Also, the fee of cyberspace data services needed to link up to e-learning platforms is costly and cannot be afforded by everyone (Hagen, 2007).

Low monetary allocation and corruption contribute to the increase of the digital divide in Nigeria. The work of Adeoye, Adanikin and Adanikin (2020), which entails a ten year (2010-2019) monetary allocation to the Nigerian educational

sector, reveals that it has been disgraceful and beneath the 15 to 20 percent suggested by UNESCO for emerging countries like Nigeria. With low monetary allocations like these comes insufficiencies that do not allow the increase of e-learning and generate challenges when institutions try to adopt e-learning.

Conclusion and Recommendation

In Nigeria, where the circulation of wealth is uneven, access to ICT tools and the skill needed to operate the internet to maximise its potential have been unbalanced. People with ICT tools and skills have become more productive through the power of information, while people without them are uninformed and isolated from the world's happenings. The digital divide has affected every sector of the country and has impeded the pursuit of sustainable development. As the general standard of education continues to decrease and the disparity keeps widening, there is a need to look inward to improve the learning system in Nigeria. Hence, it is everyone's responsibility, especially the government, to ensure that adequate measures are taken in combating the digital divide to enhance sustainable development in the country, especially SDG4. Also, the country's citizens have to be responsive to the programs initiated by the government to minimise the digital divide in the country.

It is therefore imperative to note that, in attaining sustainable development in Nigeria, the government should firstly formulate a policy that will tackle the individuals' needs and communities in general. This policy should involve

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access to the internet and the obtainability of software, digital content and services, hardware, and digital literacy skills needed to use ICT tools efficiently. Secondly, the government must not exact its effort solely to provide infrastructures, recruit well-trained technical staff, subsidise ICT tools' fees, and increase access to the internet. Instead, the government (Federal, State, and Local) should combine effort and establish an empowering and developing program that will involve the citizens, especially those at the grassroots. Thereby educating them on e-literacy skills and the knowledge required to use, maintain, and improve as technology advances. And lastly, it is expedient that the government establishes a body equipped with the necessary means of coordinating and overseeing ICT tools and skills in the country.

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