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Addressing digital technology gap challenges: The Nigerian experience

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ABSTRACT

The purpose of this is to understand the concept of the digital divide and examine the ways in which the divide can be bridged in Nigeria. A qualitative research approach was used to generate data and the technique of content analysis was used to change them to information for analysis. The world is saturated with information and communication technologies that have changed the way people work and connect to one another. These technologies play a great role in people's interactions, their pursuit of education, and certain careers in life. For some scholars in the developed world, the era of the digital revolution is over; it is now the post-digital era. However, for a developing country like Nigeria, though digitalization is seen as a necessity, there are still many challenges hindering its progress. Digital technologies are perceived as a double-edged sword with positive and negative impacts. Apart from the digital divide, some of these technologies have been abused or misused. According to the findings, the digital gap in Nigeria is caused by infrastructural inequalities and deficit and intentional institutional and political phenomenon. The threats posed by the digital divide call for an all-inclusive approach that should result in improved economic development. It is recommended that closing the digital divide in Nigeria is critical to making socio-economic growth in Nigeria more equitable and sustainable.

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1. INTRODUCTION

Global technology evolution, no doubt, has exposed Nigeria's deficiency in the area of information and communications technology (ICT) infrastructure development. While developed countries of the world are coming up with new technologies that will drive the digital age, Nigeria and other developing countries are trying to play the catch-up owing to lack of adequate ICT infrastructure. In Nigeria, in rural communities, the individuals are still residing in the state of backwardness and are overwhelmed by the conditions of poverty, illiteracy and unawareness. It is necessary for the development of rural communities, to generate awareness among individuals in terms of digitalization and use of technologies. Most of the conversation in the broadband industry in Nigeria today is about the 5G; its advantages and when it is going to be fully deployed. The global COVID-19 outbreak has also not helped the popularity of this mobile technology especially as public concerns about its health implications grow. According to Mba(2020), there are rounds of beliefs that COVID-19 is caused by radiation emitted from 5G masts. These beliefs might be unavoidable due to the overwhelming description of how much 5G would transform a lot of processes in the world. Potential use cases of 5G such as vehicles communicating with each other, telemedicine and precision surgery are very mind-boggling and one can only imagine that these kinds of futuristic living can only come at a cost. However, relying on the fact that neither the World Health Organisation, WHO nor any research linked the coronavirus to any telecom technologies such as 5G, it is worth it to continue to broadcast the socio-economic benefit of the technology. Each generation of networks brought with it a significant milestone in the development of mobile communication. The main advantage of 5G is that it will deliver blazing fast and clear internet and call connections with very low power consumption. Imagine the following; using your Android phone to browse for up to a week on a single charge, being able to download a 2Gb movie in less than 2 minutes.

The speed and low power will also enable the internet of things technology where sensors and smart devices will communicate with each other or where all the devices in your home can be controlled with just a single remote control. With 5G, cities and other municipalities will operate more efficiently. Imagine being sent an alert on your mobile phone about huge traffic on your usual road to work, with also descriptions of alternatives routes to take to avoid the traffic. All these will work efficiently on 5G.

Presently, internet services in Nigeria are currently provided on 2G, 3G, and increasingly 4G mobile networks. Investors have shifted from the deployment of 2G coverage, which currently stands at 89%, towards 3G and increasingly 4G coverage at 74% and 37% respectively (National Bureau of Statistics, 2018b; Nigerian Communications Commission, 2019).

Currently, the broadband penetration rate of Nigeria is about 39 percent as measured in terms of 3G and 4G connections divided by the total population. Although this rate indicates that the primary objective of the first National Broadband plan was achieved by increasing broadband penetration from the 6% rate in 2012 by a multiple of 5, the penetration is very deficient in fixed connection(World Bank, Nigeria Digital Economy Diagnostic Report, 2019) . Mobile broadband connections which are high-speed internet access delivered over a mobile phone network such as CDMA, GSM or 3G, 3.5G or 4G LTE account for approximately 99.8% of the broadband base while fixed connections that deliver broadband from the backbone of the internet by using base stations to transfer the signal from building to building, like a satellite are at 0.2%. Also, based on the services available online and usage patterns today, the current broadband speed definition of 1.5 Mbps in rural areas and 3Mbps in urban areas in Nigeria is inadequate to meet the robust 4G requirements now and 5G broadband technologies, going forward. In comparison with other countries with similar income levels as Nigeria, the current download speed of Nigeria lags behind. At a download speed of 1.5Mbps, Nigeria's download speed lags behind Kenya and South-Africa by 6.12 and 6.9Mbp respectively. Thus, speed, quality of service, access available via public institutions through fixed connections i.e. schools, hospitals, and MDAs has made the end-user adoption of broadband technology not to reflect the increased penetration of the technology. This calls for more investment in fixed broadband infrastructure because they are far more reliable, less likely to be strangled by slow speeds and data usage caps. Fixed infrastructure will also be required to support the 4th Industrial Revolution applications including Smart City, IoT, Artificial Intelligence, Autonomous vehicles and other advanced technologies that would rely on the advent of 5G (World Bank, Nigeria Digital Economy Diagnostic Report, 2019). Experts and government officials, including Vice President Yemi Osinbajo have said that Nigeria needs a whopping $25 billion annually over the next 10 years to build and develop the necessary infrastructure to take the nation to the next level. The World Bank has projected that Nigeria will surpass the United States in population by 2050 and most likely become the third largest population by 2050 after China and India with a population of about 460 million people. These statistics signify the population that investors consider when they decide to invest in Nigeria (Okonji, 2017). Fundamentally, our inability to deploy; technology infrastructure, internet connectivity and computers constitute technological divide. The main objective of this research paper is to understand the meaning and challenges of digitalization gap and how it could be addressed in Nigeria.

1.1 Contextualizing Technology | Digital Gap

The term "technology gap" also known as "digital divide" describes the disparity between individuals, households, businesses, and geographical areas with varying socioeconomic levels in terms of their access to information and communication technologies (ICTs) and their use of the Internet for a number of purposes (Akanbi & Akanbi, 2012). A good technology is one that has the potential to bridge the technological gap, which is defined as the difference between what has been done (or is understood) today and what is required to implement a future mission (Crandall, 2001). Between people who have access to the internet and dependable equipment and those who don't, there is a technology gap. The technology gap is the line dividing people with access to computers, the accompanying skills, and Internet use from those without either of those resources (Ani, Uchendu & Atseye, 2007). The phrase "technology gap" is increasingly used to describe the social effects of some community segments' unequal access to information and communications technology and to the acquisition of relevant skills (Cronin, 2002). For full involvement in economic, political, and social life, access to computers, the Internet, and the ability to efficiently use this technology are becoming increasingly crucial. A necessity for guaranteeing equity in access to the information economy, enabling governments to meet their goals for electronic service delivery, and enabling people to take advantage of the prospects for economic growth presented by the information age is having access to online technologies (Cronin, 2002). The gap between those who have access to various information and communication technologies and those who do not is typically understood to be the digital divide. Computers and the Internet dominate these forms. Cellphones, especially smart phones, and other digital gear and software are occasionally also included. The idea is discussed in discussions about informational and social inequality. In this regard, common concepts include inclusion and exclusion within specific social units.

According to Compaine (2001), the term "technology gap" is more broadly defined as the gap between those who have access to and the resources to use new information and communication tools, such as the internet, and those who do not. It also refers to the gap between those who have the knowledge, expertise, and abilities to use the technologies and those who do not. The technology gap can exist between people who live in urban and rural areas, between educated and illiterate people, between different socioeconomic levels, and globally between countries with more and less industrialized economies. Dawood et al. (2019) identified nine types of the technology gap, which are as follows:

Infrastructural divide; access divide; literacy divide; language divide; information and knowledge divide; job divide; healthcare divide; entertainment divide and; demographic divide

Finally, Eke-Okpala, (2011) stated that the factors leading to technology gap are disparities in Internet access: availability; affordability; and quality of service.

1.2 Digitalization Gap in Nigeria: The Problematic and Consequences

In Nigeria, more than 70 percent of the population resides in rural communities. For leading to progression of individuals, communities and nation, there is a need to make efforts that are dedicated towards promoting development of rural communities. The Government of Nigeria has made considerable efforts, such as the Digital Nigeria Campaign, which was initiated in 2000s. The main objective of this campaign is to cause reduction in the digital Nigeria divide and Information and Communications Technologies (ICT) has proven to be a tool that has led to its successful implementation (ADB, 2004; World Bank, 2019). Digital Nigeria is a national program, which focuses upon providing universal digital literacy and universal accessibility of all digital resources to the citizens. The vision is focused upon three main aspects, i.e. creation of digital infrastructure, delivery of governance and services on demand and digital empowerment of citizens. Digital Nigeria program focuses upon restructuring of several existing schemes to lead to transformation (World Bank, 2019). The vision of the program has led to transformation of the country into a digitally-empowered society and knowledge economy through infrastructural reforms, such as, high speed internet, lifelong digital identification for all citizens, mobile banking for all, accessibility to Common Service Centres (CSC), shareable private spaces on an easily accessible public cloud and cyber security. The program will also ensure that all government services and information will be available anytime, anywhere and on any device that is easy to use, available on a major scale and is safe. It is one of the major steps that have been initiated by the Government to motivate and connect the Nigerian economy. The program symbolizes the vision of the Government of Nigeria to establish connection between citizens of Nigeria and promote empowerment opportunities among them.

In the present existence, there have been formulations of measures and programs that are promoting digitalization of rural communities. Furthermore, the rural individuals have generated awareness in terms of the fact that when they will recognize the significance of education and learn to make use of technologies, they will be able to bring about improvements in their lives. Through digitalization of rural communities, there have been improvements in governance and management, education, health care facilities, transportation, agriculture, farming practices, infrastructure and so forth. Furthermore, the individuals are able to make improvements in their livelihoods opportunities. The main concepts that have been taken into account in this research paper include, concept of digitalization in rural areas, benefits of digital Nigeria program, digital Nigeria and empowerment of rural communities, estimated impact of digital Nigeria by 2030 and problems and challenges. The establishments of vision to create a digital economy have enabled the individuals to bring about improvements in various areas and promote transformations (Gebremicheal & Jackson, 2006). In the last 20 years, the global Internet usage has experienced a quantum leap. There are currently about 4.39 billion Internet users in the world, this is an increase of 366 million (9%) from 2018 levels (Global Web Index, 2019). Interestingly, Nigeria has been a part of this remarkable trend. The overall Internet users in Nigeria increased to 111.6 million in 2018 from 98.6 million in 2017 (Nigerian Communications Commission 2019). In Africa, Nigeria is the leading country in Internet usage (Statista, 2019). According to Adeleke(2021) who posited that the end of the twentieth century, digital divide was conceptualized mainly in terms of the division between those with and without telephone access. After the late 1990s, there was a change in the conceptualization to describe the split between those with and without Internet access. This split or divide has been attributed to economic and social inequalities between individuals, businesses, households or geographic areas (Dawood, Ghazali, and Samat, 2019). This spit is known as digital divide. The digital divide is a term used to describe the disadvantage in access to information which people without access to ICT suffer (Cullen, 2001).

Nigeria's digital divide refers to the inequality of Nigerian individuals, groups, or organizations with regard to access to ICT infrastructure or to the internet for daily activities. The digital divide has been attributed to many factors among which is the high cost of computer equipment, lack of ICT skill and poor knowledge of available search engines (Omolara, 2016). Lack of access to ICT makes it difficult for people to access information. The benefits of having access to ICT are numerous. ICT has the potential to promote other sectors of the economy such as agriculture, education, health, bank, defence etc. In times of emergency, ICT becomes an indispensable tool for overcoming the barriers of time and distance (Wikipedia, 2023) Education, lack of electrical infrastructure, income, urban drift and a variety of other social and political factors contribute to Nigeria's growing digital divide (Nwegbu, 2017). Efforts are currently being made to reduce the digital divide in Nigeria including collaboration between government agencies and technology corporations like Google, Cchub, Andela, StarBridge Africa, Microsoft and Intel. Intel Corporation (2007) using libraries as E- Learning Theory facilities, and proposing governmental policies such as salary enhancement and social security (Cullen, 2017). Other methods of minimizing the digital divide include setting up more computer centres (cybercafes), expansion of the existing infrastructure, training on computer use and low tariff charges as ways of minimizing the digital divide in Nigeria (Omolara, 2016).

Speaking at the graduation lecture of Course 29, at the National Defence College Abuja on 'Enhancing Digital Technology in the Oil and Gas Sector of Nigeria for National Development', the former minister of state for petroleum resources, Timipre Sylva, insisted that investment in digital technology in the petroleum industry is critical for Nigeria's

economic growth. As Sylva rightly noted COVID-19 disrupted economic activities especially the oil industry, leading to a near shutdown of production causing oil prices to fall drastically. He said it accentuated the need for digitalisation, as oil producing countries sought more efficient production techniques (Umuteme, 2021).

In this way, according to Sylva, technology is helping countries and companies to crack the issues of efficiency through multi-functional tools, such as Artificial Intelligence (AI) and Automation; Big Data and Data Analytics; Internet of Things and Electronic Monitoring; and 3D Virtual Modelling and Drone Technology. With proven natural gas reserves of 206.53 trillion cubic feet; and average production of about 7, 575 million standard cubic feet per day (MMSCFD) which reflects in the sectors contribution of about 10 per cent to Nigeria's Gross Domestic Product (GDP), just as crude oil exports represent about 86 per cent of total export earnings; and about 40 per cent of government revenue. In Nigeria's oil and gas industry, digital technology is gradually converting the traditional processes of exploration, exploitation, and production by delivering the most significant openings in invention. Being tech-savvy is making many oil companies more flexible, adaptive and competent in an increasingly competitive world. This has led to increased investment in technology as oil companies seek to be more efficient while trying to drastically cut down on manual processes which is the major cause of high production costs. Through the deployment of Artificial Intelligence and automation, the Nigerian oil and gas industry have enjoyed huge application in a variety of areas, covering surveying, monitoring, planning, forecasting, and safety, in the exploration and production of hydrocarbons. The information can be mechanically harmonised with an active database linked to maintenance scopes and schedules accessed through a 3D representation of the platform or a production facility, which can be freely retrieved remotely by operators.

Technology gap has a lot of consequences. According to Repsol (2013), access issues with ICTs make diverse groups more unequal since they prohibit some people from taking use of the opportunities they present. For instance, during the lockdown, when many students were required to complete their lessons online, some students were unable to continue their academics as usual due to a lack of a reliable connection and the necessary devices. The same thing applied to working from home: adults without the necessary equipment and knowledge had trouble carrying out their regular jobs. The consequences of technology gap according to Foster& Pushak(2011) include:

Social isolation, especially as a result of the pandemic, has increased among people who do not have access to the Internet. Additionally, people living in rural areas without reception are virtually cut off from communication services.

Difficulty in accessing education: the lack of access to ICTs makes it difficult for both children and adults to access education. According to a report by the International Telecommunication Union (ITU), published together with UNICEF, 63% of young people between 15 and 24 years of age do not have an internet connection at home.

A barrier to accessing work: people face greater difficulties in finding a job, not only because digital know-how is increasingly necessary but also because they are unable to check online job websites where these offers are published.

Social differences are another. The obstacles to connecting to the digital world make the differences between groups more evident. Geographical differences are also intensified between regions and countries, which directly affects their possibilities for growth. Dependence and vulnerability is another. Technological discrimination means that some people have less independence in performing certain tasks, which in turn makes them more vulnerable (e.g., digital crime).

2. CONCLUSION

When it comes to national integration, information and communication technologies (ICTs) are critical instruments since they allow for increased access to health and education services while also creating economic possibilities for under-served populations groups. Closing the digital gap is crucial to making socioeconomic progress equitable and sustainable across the globe. However, providing the technological infrastructure tends to be halted by many challenges, which may be as the result of poor infrastructure and access to basic amenities like road and electricity. Despite these, there is rapid growth in mobile and internet penetration; there are also clear interdependencies between telecommunications services and economic development. Data for the analyses were gotten from documentary sources from World Bank Development Indicator Database, Central Bank of Nigeria (CBN) statistical bulletin and Nigeria Communication Commission (NCC) publications. The results of this work provided evidence to support the earlier work that digital divide in a polity has negative consequences and needs to be addressed quickly by Nigerian Government. Thus, there is need to create a conducive competitive climate for the growth of the industry in order to allow more private investment. Also, considering the relevance of the telecommunication industry to economic growth and development policy makers should ensure that telecommunication policies are transparent and stable. Policies and regulations should be made to promote a conducive and competitive climate for foreign investment so that the capital required for building telecom infrastructure can be met.

2.1 Recommendations

In view of the above findings and analysis on the challenges of digitalization divide in an infrastructure deficit polity, the following recommendations provide the way forward :

2.2 Government role and collaborative efforts

As Nigeria seeks to diversify her economy and make it less dependent on oil, experts believe there is need for government to proactively support initiatives aimed at deploying infrastructure to connect more people and businesses online via collaboration, scalable business solutions, and capacity development programmes. The federal government should, as a matter of necessity work steadfastly towards closing the infrastructure deficit in the nation's information and communications technology industry by expediting and deepening the implementation of the National Broadband Plan, which seeks to grow broadband penetration by 30 per cent in 2018.

2.2.1 Closing ICT infrastructure deficit

More than any other sector, poor infrastructure has been the bane of ICT development in the country and a leading cause of deficiencies in quality of telecommunications services, from broadband penetration to reliability of mobile network services. This infrastructure deficit is preventing many Nigerians from gaining affordable and reliable access to ICT services. These challenges notwithstanding, the private sector is striving to deepen ICT infrastructure in Nigeria to enable the country deliver better quality of service at lower prices to its teeming population. The critical issues and challenges in the sector are begging for attention and government must work earnestly to find ways to resolve them. Government and the private sector must therefore rise to address the country's infrastructure deficit in ICT in order to boost speedy development in the digital age. One of the companies that have made investments in good quality infrastructure facilities to close the digital deficit gap is MainOne. Despite the challenging economic environment in the country, MainOne has defied the odds and is making a mark in broadband penetration in West Africa and Nigeria in particular. MainOne continues to invest significantly in growing and covering the broadband ecosystem in West Africa and growing its leadership position in the industry. From initial investments of over $240 million to deploy a world-class submarine cable system, followed by investments in a next generation IP NGN network, a growing regional and metro terrestrial fiber optics network and a Tier III Data Centre, MainOne intends investing over $100 million within the next five years as a sign of its commitment to improving broadband services in West Africa(Okonji, 2017).

2.2.2 Improved Strategy and Techno-Business Ecosystem

To drive this growth, Nigeria needs a combination of increased access to faster and better quality Internet connectivity infrastructure, an upskilled tech talent pool, a vibrant start-up ecosystem, access to investment and partnership opportunities both regionally and internationally. By developing strategy and policy to provide an enabling environment that would support the private sector to bridge the digital divide is significant. For instance, The minister for Digital Economy recently appreciated the UK government for support to the country's digital sector including the development of the national broadband plan which he noted had led to 10 per cent increase in broadband penetration in Nigeria since it was launched. He said, "The ICT sector growth rate of 14.70 per cent in 2020 has helped Nigeria pull out of recession(O'Peters, 2021).

2.2.3 Improved and Sustained Investment

Nigeria digital skills have to be secured and improved upon by encouraging the youths in technology through good policies that create enabling environment. This will make the country develop its technology and grow its digital economy to an enviable level. With the world tilting to a knowledge-based economy driven by Artificial Intelligence (AI), Internet of Things (IoT), and big data, an AI education platform technology firms, scholars and other stakeholders, have emphasized the need for Nigeria to invest in technology to address the dearth of skills amongst Nigerian youths.

3. REFERENCES

African Development Bank Group, (2014), An Infrastructure Action Plan For Nigeria, Tunis Belvedere: African Development Bank Group.

Akanbi, B. E., & Akanbi, C. O. (2012), Bridging the digital divide and the impact on poverty in Nigeria. Computing Information Systems & Development Informatics, 3(4), 81–87. https://doi.org/10.22624/AIMS/CISDI/V3N4P2x

Ani O. E., Uchendu, C., & Atseye, E. U. (2007). Bridging the digital divide in Nigeria: A study of Internet use in Calabar Metropolis, Nigeria, Library Management, 28(6/7), 355–365. https://doi.org/10.1108/01435120710774495

Compaine, B. M. (Ed.). (2001).The digital divide: Facing a crisis or creating a myth? Massachusetts: The MIT Press. Crandall, R. W. (2001). Universal service, equal access, and the digital divide. In R. G. Noll (Ed.), Bridging the digital divide (pp. 29–37). California Council on Science and Technology. https://ccst.us/wp-content/uploads/2001Digital.pdf

Cronin, B. (2002). The digital divide. *Library Journal 127* (3); 48-59

Cullen, Rowena. "67th IFLA Council and General Conference August 16-25, 2001"

Dawood, S. R. H., S. Ghazali, and N. Samat. 2019. "Digital Divide and Poverty Eradication in the Rural Region of Northern Peninsular Malaysia." Indonesian Journal of Geography 51 (2): 67–77.

economy-policy-and-strategy/file

Eke-Okpala, H. N. (2011). Digitizing resources for University of Nigeria repository: Process and challenges. Webology, 8(1),Article 85. http://www.webology.org/2011/v8n1/a85.html

Foster, V. & Pushak, N., 2011. Nigeria's Infrastructure: A Continental Perspective. Africa Infrastructure Country Diagnostic (AIC) Country Report, Washington: World Bank.

Gebremicheal, M. D., & Jackson, J. W. (2006). Bridging the gap in sub-Saharan Africa: A Holistic look at information poverty,The Journal for Development of Communication and the region's digital divide. Government Information Quarterly, 23(2), 267–280. https://doi.org/10.1016/j.giq.2006.02.011

Global Web Index. 2019. "Digital 2019: Global Internet Use Accelerates." https://wearesocial.com/blog/2019/01/digital-2019-global-internet-use-accelerates.

Law Insider (2021). *Technology gap definition.* Retrieved on November 13, 2022 from https://www.lawinsider.com/dictionary/technology-gap

National Bureau of Statistics. 2018b. "Telecoms Data." https://nigerianstat.gov.ng/elibrary?queries[search]=intern.

Nigerian Communications Commission(2020),Available at https://www.ncc.gov.ng/docman-main/industry-statistics/policies-reports/883-national-digital-

Nigerian Communications Commission. 2019. "Industry Statistics." ttps://www.ncc.gov.ng/stakeholder/statisticsreports/industry-overview.

O" Peters, T. (2023),UK, Nigeria partner to bridge technological gap, https://punchng.com/uk-nigeria-partner-to-bridge-technological-gap/ 16th March 2021

Okonji, E(2017), Bridging Nigeria's ICT Infrastructure Gap
https://www.thisdaylive.com/index.php/2016/11/24/bridging-nigerias-ict-infrastructure-gap/

Omolara, Tayo (2016). "Impact of the digital divide on computer use and internet access on the poor in Nigeria" (PDF). Journal of education and learning. 5 (1).

Onaleye, T., (2020) NBS Report: ICT Contribution to Nigeria's GDP Rises to 17.8% even as Real GDP Drops to N15.89 Trillion in Q2 2020. [Online], Available at: https://technext.ng/2020/08/24/nbs-report-ict- contribution-to-nigerias-gdp-rises-to-17-8-even-as-real-gdp-drops-to-n15-89-trillion-in q22020/#:~:text=The%20contribution%20of%20the%20Informati on,Bureau%20of%20Statistics%20(NBS).&text=Reports%20show%20that[Accessed 16 April 2023].

Richard Adeleke (2020): Digital divide in Nigeria: The role of regional differentials, African Journal of Science, Technology, Innovation and Development, https://doi.org/10.1080/20421338.2020.1748335, Pp1-16.

Statista, (2020),Which brand or type of smartphone do you have?. [Online]Available at: https://www.statista.com/statistics/387227/market-share-of-smartphone-manufacturers-in-the-uk/[Accessed 23 April 2023].

Statista. 2019. "Number of Internet Users in Selected Countries in Africa." https://www.statista.com/statistics/505883/number-of-internet-users-in-african-countries/.

Steele C. (2019). *What is the Digital Divide?*Retrieved on November 13, 2022 from http://www.digitaldividecouncil.com/what-is-the-digital-divide/

Umuteme, B. (2021). Investment in technology: Make or break for Nigeria's oil, gas industry, Blueprint

World Bank, (2019),World Bank Statistical Database.[Online] Available at: https://www.worldbank.org/en/country/nigeria/overview [Accessed 9 October 2019].

World Bank, (2020), Nigerian Economic Outlook. [Online]Available at: https://www.worldbank.org/en/country/nigeria/overview[Accessed 17 March 2020].

World Bank, (2020), World Bank Development Indicator. [Online]Available at:https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=NG-GB[Accessed 11 March 2020].