

The Analysis of the Contributions of Information and Communication Technology to the Economic Development of Nigeria

Ezeagwu. C. O¹, Okorafor. C. I², Uchekukwu. E³ and Nweze. U. C¹

Electronics and Computer Engineering

Faculty of Engineering

Awka, Anambra

Nigeria

ABSTRACT

The information and communication technology (ICT) revolution has a role and prospect in national development of Nigeria. Over the past decade, new applications of ICT have improved service delivery, transparency, and public access in national development. This paper highlights some of the ways that ICT tools can be used in the sustainable economic development of the society. Effective integration of ICT into the community for information sharing can enable forces which lead to a sustainable economic development. The contributions of ICT in the area of the number of subscribers, employment in the sector and its contributions to the Gross Domestic Product(GDP) were also studied. It was discovered that the sector has contributed and still contributing in no small measure to the economic growth of Nigeria.

Key Words: Information and communication Technology, Gross Domestic Product, Economy, Nigeria.

1. INTRODUCTION

The development of any nation is usually measured by the degree and extent of the sociocultural, socioeconomic, and political improvement that are brought to bear through the enterprises of science, technology and mathematics. Sustainable development leads to fulfilment of societal ideals considered relevant to the needs and aspirations of the society. Factors, which influence such developments, are based on human ability to explore, invent, and utilize. Satisfaction of spiritual, physical and material needs and the mastery of the environment are parameters of development when applied to the human society. It has been stated by several authors and scholars that the development of any nation depends very much on the advancement and application of science and technology. The role of science in the development of modern societies is not in dispute more so now that the influence of modern technological innovations is far reaching in every sphere of man's life. If Nigeria is to build an organized, self-reliant, and technologically compliant society, much emphasis has to be continually made on science and technology [1].

Information and Communication Technology (ICT) is a vehicle with great potential to improve and accelerate the developmental process of any developing nation. ICT can be examined as a system within a specialized framework to achieve particular tasks or objectives. From the functional perspective, ICT can be set up to actualize the specific objective of collecting, storing, analysing, and presenting information in a systematic manner. Structurally, ICT is composed of vast interrelated components that include a combination of data, technical, and human or personnel resources. It can also be viewed as being made up of input, processing, and output sub-systems, all working according to a well-defined set of operational procedures [2]. ICT is one of the driving forces of globalization by fueling the rapid transformation of remote and isolated information units into global interconnected

superhighways. In addition, it is a transforming mechanism that can influence the way we live by converting our societies into truly knowledge-based ones thereby leading to society equity.

Information is a vital key to national development and is a sine qua non in all phases of development from birth to death. Today, the world's developing countries including Nigeria, have witnessed an info-technological revolution that has given birth to effective data communication, computer inter-connectivity and the ability to go beyond the national boundaries. All sectors of the economy (trading, manufacturing, services, culture, entertainment, education, medical, transportation etc.) have a lot to benefit from the existing ICT technologies such as personal computers, internet access, mobile phones, digital video conferencing, e-mail, multimedia among others. In the light of this, a central theme for national development is the effective convergence of developmental data through appropriate communication technologies in the society.

Invariably, people or nations that are technologically marginalized are consequently consigned to live in poverty and deprivation. Disparity between the availability and use of emerging data communication technologies have frequently been cited as a primary cause of exclusion from global markets and the economic disadvantages that comes with it. The world's least developed countries are poor because of their technological isolation, most especially in the area of information communication. Indeed, affordable and highly embraced ICT technologies can give developing countries, especially Nigeria; the privilege to leapfrog some of the long painful stages of development that developed countries had to go through.

In this paper, we look at some of the roles and prospects of information technology in national development in different sectors of the society. We start our work with a critical look at current state of ICT application in Nigeria in the next section followed by a discussion of the prospect of ICT in National Development and contribution of ICT in different sector of the economy before our conclusion on the contributions of this work. The growth rate of subscribers of mobile telecommunication service as well as that of data subscriber, numbers of employees in the sector and the contribution to the GDP of Nigeria were also discussed.

2. ICT DEVELOPMENT IN NIGERIA

The genesis of information and communication technology can be traced to the development of electromechanical calculators during the Second World War. Around 1970s, the first "processors on a chip" and magnetic disc were produced and this liberated the existence of ICT. The development of guidelines for a communication network among computers formed an interesting phase of ICT adoption in the world. The present internet access can be traced to this particular inter-computer connectivity, which most universities across the globe use for dissemination of information. Likewise, individuals that have access to computers started using it to disseminate information using technologies such as email and other web services. This transformed into what is known as "Internet Services" in Nigeria [3].

It is important to note that development of ICT in most African countries came into existence through mostly international research and educational institutions as well as international organizations including the World Bank, United Nations Development Programme (UNDP), United States Agency for International Development (USAID) and the World Health Organisation (WHO). This is based on the understanding that economic transformation or national development can best be driven by the development and diffusion of emerging ICT tools. This led the WHO to fund ICT development through the provision of personal computers to Aimaks in Mongolia in 1993 with the aim to support the health services in the country [4]. In Nigeria, the evolution of the use of internet in Nigerian tertiary institutions can be traced to the joint project handled by the International Centre for Theoretical Physics (ICTP), Trieste, Italy and Obafemi Awolowo University in 1999. The introduction of ICT during the 21st century was later adopted by other sectors including the transportation sector, Commerce, Manufacturing and Banking. ICT in Nigeria teaching hospitals came into being as a result of the INDEHELA project by the computing centre of the University of Kuopio, Finland and the Obafemi Awolowo University Teaching Hospital in the late 1980s [5]. ICT development in Nigeria focused mainly on print and electronic media. This was attributed to the lack of emphasis on ICT development in the existing policy, that is, the full awareness of the potentials of ICTs to liberate the country from the shackle of poverty was totally absent. Meanwhile, only the private sectors demonstrated ICT initiative [6]. However, the quality of the existing ICTs in the country in the last decades was unreliable, unsatisfactory most especially the telephone systems which were unreliably congested, expensive and customer unfriendly.

The wireless era of mobile phone formed another notable phase in development of ICT in Nigeria. Though initially big and bulky phones were used, these later transformed into small phones with so many functions (text messages, radio broadcasts, pictures, movies, music, etc.). In this phase of ICT development, Nigerians have only played the role of "users" of the finished products and thus participation in the advancement of the technology has been lacking [7]. The development in the telecommunications industry all over the world is rapid as innovations replace [one another] in a matter of days. In 2001, the National Information Technology Development Agency (NITDA) was established to develop a bureau for the implementation of national policy on information technology. This agency is aimed at the penetration of internet in all levels in Nigeria. The present and global use of the GSM came into existence in Nigeria in January 2001. Initially, the development involved international private organizations (MTN and

ECONET). But with the aim to totally liberate Nigeria from the information hidden corner, the local telecommunication company GlobaCom mobile came into being. Hence, Nigeria through the availability of GSM and the subsequent investment in new technologies have partially joined the ICT world leaders to effectively enhance the exchange of information vital for the development of the country.

2.1 Prospect of ICT in National Development

ICT is a unique tool capable of encouraging sustainable economic and social development in the society. Effective integration of ICT into a programme that envisions community or citizen participation and information sharing, becomes an enabling force for sustainable societal development. The field of “communication for development” possesses a long legacy of the critical and effective application of technologies, particularly information and communication technologies, for development. Whether the developing countries like it or not, the new ICT tools are rapidly finding their ways into different sectors of the society and thus creating a global village. Conventional wisdom holds that the application of information and communication technologies is a good drive both in rural and urban areas towards economic, social and cultural development. The potentials of ICT application can be viewed from the common terminologies that are used in almost every sector in the society. For instance, telemedicine, e-learning, tele-commuting, e-banking, are ICT applications that make it ultimately possible for developing countries to improve the quality of living, especially in the rural and remote areas. Thus, ICT application is a silent and a bitter truth for safety, security and governance.

Internet is the first communication tool that allows every user to be a sender, receiver, narrow caster and broadcaster in a global sphere [8]. It has however encapsulated the Nigerian environment as a form of flexible, decentralized, information sharing tool and developmental potential mechanism. It offers the possibility of initiating economic development for agriculture producers, research institutions, medical practitioners, financial organizations, media networks and small business enterprises. ICT applications go a long way to improving the well-being of man; they reduce transportation costs, improve availability of essential goods and contribute to improving living conditions and reduce pollution. They also contribute to saving of lives in case of man-made or natural disaster and thus, reduce the harmful consequences of such disasters. A major breakthrough in ICT application in Nigeria is that of the wireless telephone systems which come in form of fixed wireless telephone lines and the Global system of mobile communications (GSM) mobile phones. This has completely changed the tempo of the Nigerian businesses by creating countless opportunities for small and medium businesses in franchises, dealership, retailer-ships and value added services. Spontaneously, the development of wireless communication is directly or indirectly responsible for the employment explosion witnessed in the country at present. Over 91.6 million Nigerians now use the internet as a way of communication as of June 2017AD, which tactically have a positive effect on the developmental process of the country.

The term information system refers to information technology that is used by people to accomplish a specified organizational or individual objective. The technology may be used in the gathering, processing, storing, and/or dissemination of information and the users are trained in the use of that technology, as well as in the procedures to be followed in doing so. The specific technologies that collectively comprise information technology are computer technology and data communication technology. Computers provide most of the storage and processing capabilities, while data communications, specifically networks, provide the means for dissemination and remote access of information [9]. Clearly, developing countries which are unable to keep pace with the formidable development of ICT have not made much progress [10]. Their living conditions have in many cases deteriorated; at least partly due to difficulties in competing in the increasing global economy without access to ICT. It is pertinent to emphasize that investment in other infrastructures such as roads, railways, water supply and electrification is very important.

There is a potentially large market for advanced ICT tools needed by business, research institutions and public-services in developing countries [6]. Surprisingly, small enterprises and public institution in large cities in many developing countries are only vaguely aware of the possibilities offered by application of ICT and often considered themselves fortunate for having access to at least one ICT tool, mobile phone. Meanwhile, the efficiency of the inadequate public services (education, health care, security, transport and records processing and general statistics) could be greatly enhanced by improved access to ICT services. In particular, efficient mobility, banking, health and education which are crucial for development, depend heavily on the adoption of ICT tools.

According to Idowu [5], the use of ICT in Nigeria Teaching Hospitals will help all patients including the ones in life threatening situations based on the outcome of his study. Three ICT indicators namely: Personal Computers, Mobile phones, and internet facilities should be made available in Nigeria Teaching Hospitals. According to the study majority of the medical experts make use of public cybercafé and this was attributed to lack of connectivity in most teaching hospitals. Nevertheless, mobile phones have been playing a significant role in health delivery service. This is justifiable by its ability to access the communication gap between medical practitioners and patients as well as medical colleagues. Similarly, ICT can play a vital role in “e-commerce and freight distribution”. It has been suggested that ICT will reduce the number of vehicles on the road for non-work purposes as the

need to physically travel is reduced. It is however posed that the number of transaction using e-commerce will increase and generated extra good traffic.

Year in year out the people have been subscribing to the services of the GSM service providers and this has really led to a growth in the gross domestic product (GDP) of the nation. As at 2010, the communication sector had an impact of creating 5000 jobs directly and more than 400 000 indirectly. Its rapid growth has shown that by 2025 the ICT industry will become the highest contributor to the GDP of the country [12]. About 90% of Nigerians in 2013 leaves[=live?] within GSM signal range and the sector has attracted more than US\$70 billion, private capital. It is estimated that capital investments in mobile networks and operations since 2001 have accounted for 80% of total telecommunications foreign capital investments [13]. The objective of this work is to look at the impact of the contributions of telecommunications to the economic growth of Nigeria and the areas that needs improvement.

2.2 Challenges of ICT in Nigeria

They are myriad of problems and bottlenecks that have arisen in the provision of ICT especially in developing countries, especially Nigeria, they include low tele-density, insufficient ICT infrastructures leading to congestion, unreliable network design, poor interconnectivity, insufficient human resources development, poor maintenance culture, vandalism of facilities, and exorbitant / unjustifiable billings and poor recovery strategy. However, an important step for government to examine the challenges pose by ICT is to develop a policy that will facilitate the easy integration of ICT across the country [14].

3. MATERIALS AND METHOD

In this paper we are going to make use of published data from established regulatory bodies and drew inferences from these data. The parameters we are going to pay attention are growth rate of subscribers of telecommunications, numbers of employees in the sector and the contribution to GDP of Nigeria.

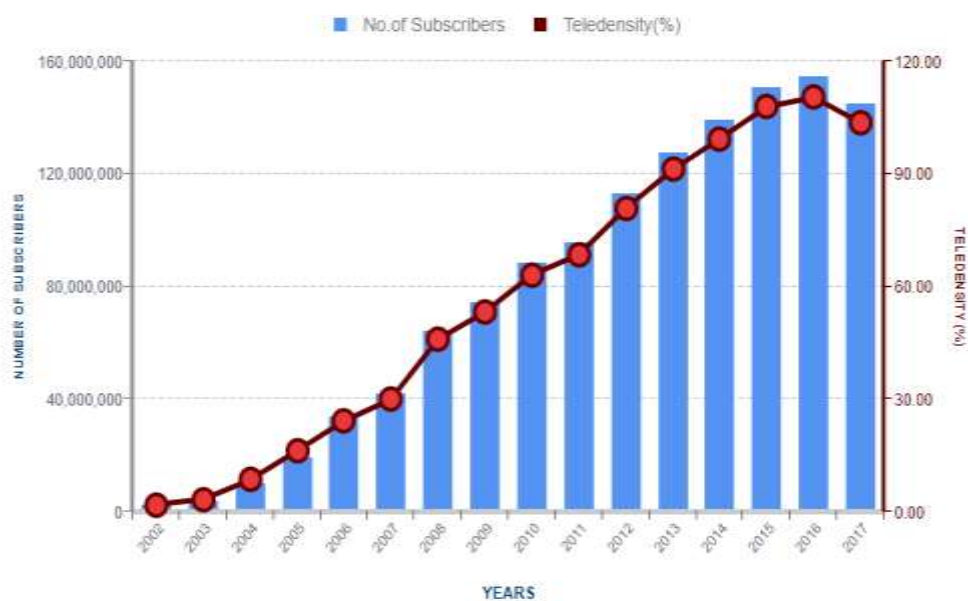


Fig. 1 Total number of connected phone lines Source: [15]

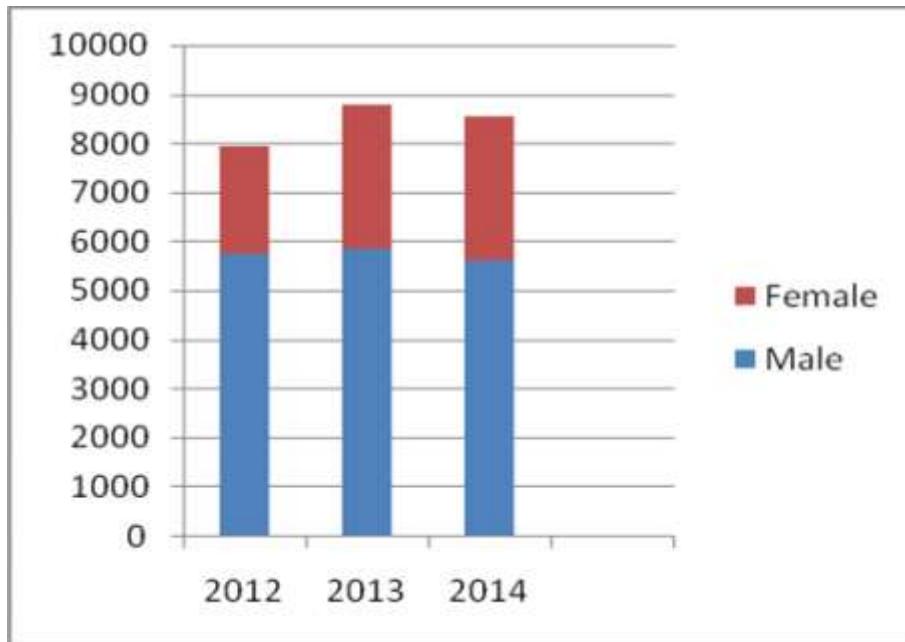


Fig. 2 Number of Employees in the Mobile Telecommunication Sector Source: [16]

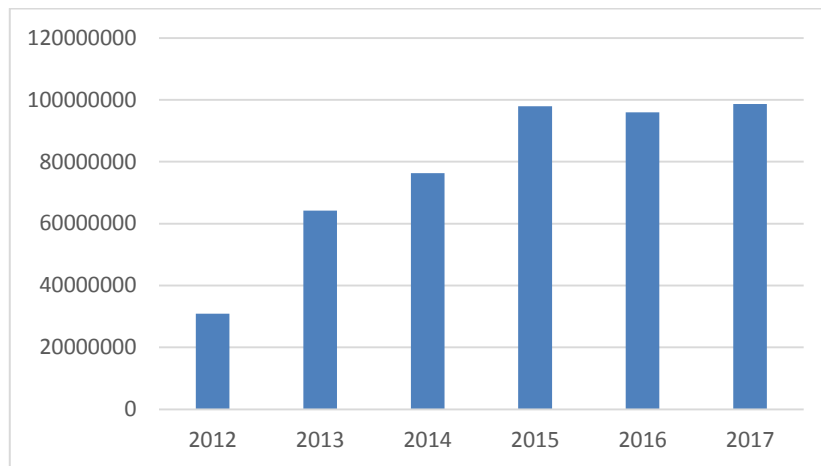


Fig. 3 Total number of Internet Subscriber Source: [15]

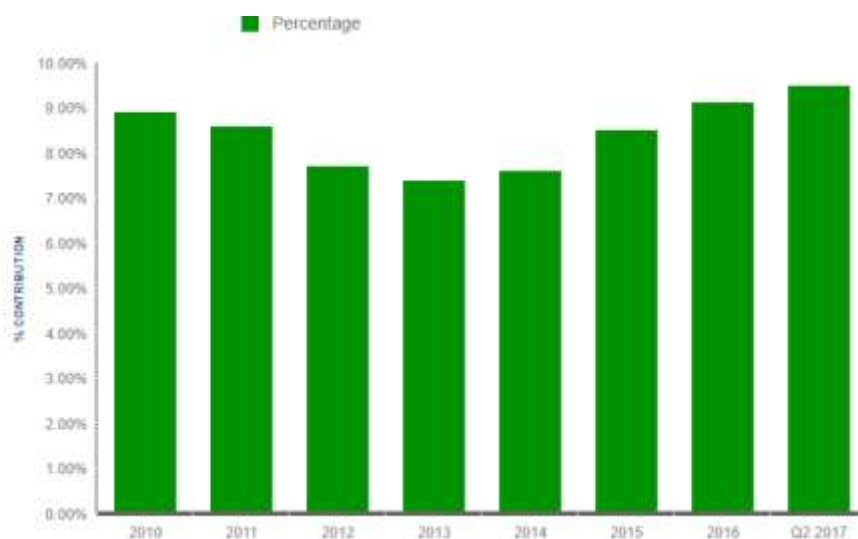


Fig 4 Percentage Contribution of Telecommunications Industry to GDP (2010 – June 2017) Source: [15]

It is evident from Fig. 1 that the number of subscribers to the mobile network has been growing steadily except the dip in the first quarter of 2017 due to recession from the time that the telecommunications sector was deregulated in Nigeria and thus from it we may conclude that there has been development in the nation.

Fig. 2 Shows the number of employees that are employed in the telecommunications sector which shows from the three-year review that quite a number of people are taken off the labour market by the telecommunications sector and as a result leading to the growth in the economy of the nation [16].

Fig. 3 Shows the total number of internet subscribers to the mobile (GSM and CDMA) network, Fixed(wired) and VoIP and it shows steady growth from 2012 to 2017 except the slight dip in 2016 due to recession even when there was a dip in the number of telecommunication subscriber, that is to show how much internet communication have been adopted in this country.

Fig. 4 show that the telecommunications sector has been contributing significantly to the GDP of the nation and invariably to the economic growth.

5. CONCLUSION

This study has shown very clearly that the ICT industry is a very important sector to the economic growth of Nigeria because it contributes in no small way to the GDP and leads to the development of the country. It is therefore, very important that the sector is not neglected. It is therefore recommended that very good investment be made in the area of ICT infrastructures because a maximum growth can only be experienced when the ICT infrastructures are adequate and good. It is also important that ICT be inculcated in the following sector of the economy i. human resource development, ii. electronic government, iii. infrastructure development, iv. education, v. health, vi. awareness, popularization and development, vii. agriculture, viii. private sector development, ix. governance and legislation framework, x. national security and law enforcement and xi. research and development.

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