CHAPTER TWELVE

ICT AND ITS IMPACT ON NATIONAL DEVELOPMENT IN NIGERIA

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Abstract
This paper exploits the growth benefits that ICT sector has provided and its impact on the Nigerian economy. It also shows the growth rate as an engine to the development of economies of developing countries like Nigeria in this 21st century. ICT services have help in the improvement of the markets, reduction in transaction costs and increase productivity through better management in both public and private sectors. The various impacts of ICT in the four major sectors of our economy were discussed overtly, citing the new opportunities of wireless platform in promoting economic and social impact for the populace.

Introduction

The information and Communication Technology (ICT) sector has been a pioneer and a powerful catalyst in addressing the needs and interests of low-income communities in developing countries like Nigeria. Although, it was only in the last fifteen years that the consciousness of the appreciation for the ICT sector's role in expanding economic opportunity was appreciated. Much has changed in the recent technologically. In the 1980`s "Universal access" was a goal, but not the reality of "Post, Telephone, and Telegraph" services (PTTs). The PTTs comprising much of the ICT sector of their days were land-line based, and to a large extent, government-owned and merged services were expensive, and in most parts of the world they had deteriorated to the point where the quality could be described as atrocious- if it had ever been good. Data network capability was non-existent, technological innovation, in the business arena, was slow especially during the PPT period days. However, ICT has been recognized as the engine for growth and a source of energy for the social and economic empowerment of any country, especially a third world country. These countries are empowering masses through IT as it can prove to be effective short-cut to higher levels of equity in the emerging Global Digital Networked Information Economy. Technological innovation has really improved in Nigeria recently. For example, Nigeria's digital mobile network has grown significantly since the three

companies; awarded the Global System for Mobile Communications (GSM) operating license were issued in January 2001, while their operations commenced in August the same year. Even though, mobile cellular services made their debut on the Nigeria market in 1993 with a "National" service operated by NITEL and a smaller Lagos service operated by Mobile Telecommunication Services (MTS). The two companies, with a joint subscriber base of 12,500 offer voice services over an analogue network, as well as value-added services such as voicemail, and paging, from three switches (in Lagos, Enugu, and Abuja). In 1995, MTS closed its operations due to failure to pay interconnection charges to NITEL. Over the past few years, Nigeria has the fastest growing telephone subscription in Africa and among the World most populous nations as evidenced in the Figure 1 below; voice, data and graphics form part of transmission over the GSM culminating into high level impact.

*engineering-and-technology-***subscribers**

Figure 1: Subscribers data from 2002 - 2016 (Source: Nigeria Communication Commission NCC).

The Fundamental Roles of ICT

Unbound from the structures of the PTT days, ICT has become the foundation of every section of every economy in the world including Nigeria. Explicitly inferred that Information and communication technologies: (ICT) has been able to:

- Reduce transaction costs and thereby improve productivity.
- Offer immediate connectivity–voice data, visual- improving efficiency, transparency, and accuracy.
- Substitute for other, more expensive means of communicating and transacting such as physical travel.
- Increase choice in the market place and provide access to otherwise unavailable goods and services.
- Widen the geographic scope of potential markets.
- Channel knowledge and information of all kinds.

At the level of the firm, World Bank surveys of approximately 50 developing countries suggest that "firm using ICT see faster sales growth, higher productivity, and faster employment growth". Table 1 and Figure 2 relate the access Nigerians have to some subset of ICTs.

Table 1. Access to Information Communication Technology by Nigerians .

S/N	Indicator	Percentage
1	Individual access to Mobile telephones	63.9%
2	Individual ownership of mobile handsets	43.6%
3	Household Ownership of mobile telephones	59%
4	Access to fixed Telephony	0.4%
5	Access to computers	4.5%
6	Television access	67.6%
7	Radio access	41.2%
8	Ownership of radio	41.2%
9	Internet access	6.5%
10	Broadband penetration	6.1%

Engineering-and-Technology-Nigerians

Figure 2: Access to ICT sources by Nigerians

The attributes listed above are also critical in expanding individual economic opportunity, enabling people to enhance their knowledge and skills; identify, apply and qualify for better-paying jobs; use their disposable income wisely; manage their own businesses efficiently; and tap into broader markets for their goods and services.

Sectoral Impacts of ICT

The importance of ICT to different sectors of the Nigerian economy cannot be overstressed. Sectoral impacts in governance, education, legal system and business arena are discussed under this segment.

Governance Sector

Governance in the management area can be seen as the process of showing accountability for consistent and cohesive policies. From the Figure 3, the infusion of ICT into public administration enhances efficiency in the delivery of services to the people. Heber in his own view maintains that ICT helps in taking high quality decisions and at the same time saves time. It is in line with this laudable role that the federal government of Nigeria formulated e-government policy in Nigeria for sustainable democracy through ICT [3].

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Engineering-And-Technology-Initiatives

Figure 3: Impact of E-government Initiatives (source: NITDA ICT strategic Action Plan Implementation).

The increasing impact of Information and Communication Technology (ICT) in all public and private Organizations through the internet to enhance interaction with the citizen had brought a new channel of communication also between the people and government in the country. In Nigeria, the emergence of ICT transformed socio-economic and democratic governance shortly after Nigeria returned to democratic rule in 1999. The Government at the centre introduced some policies that enhance the smooth adoption of e-government in the state's administration. In realizing this noble objectives, the civilian regime of Chief Obasanjo mandated the then Ministry of Science and Technology to develop an appropriate programmers that can facilitate the build-up of a reliable and cost effective infrastructure that will encourage the efficient utilization of internet services in Nigeria through wide spread of ICT devices in order to leverage ICT to drive the effective and efficient public service delivery to the citizen in Nigeria.

In view of this development, ICT is a strategic tool for democratic governance in Nigeria, to identify key sectors of governance which has contributed to socio-economic livelihood of Nigerians and also, as means of human engagement under democratic regime. Countries that have adopted and applied electronic services (ICT) to their operations have witnessed dramatic improvement in their developmental efforts. For countries such as Singapore, United States, Canada, Japan and most European nations, ICT is a strong tool for sustainable development and improving governance, widening democratic space, increasing productivity, administrative effectiveness and cost savings [5-7]. It is not surprising therefore that the application of ICT in governance is engendering much concern in many countries of the world.

Education Sector

In effect it can be suggested here that any approach to ICT adoption at the higher education level that stressed only instructional applications and ignores research applications, will be grossly inadequate in meeting the needs of both students and teachers. The indispensability of ICT in education research in particular includes:

- Learning how to optimize the creativity of African Scientists through participation in international networks and working with data sets.
- Accessing various kinds of research information, which would necessitate a link to the libraries group.

- Learning new methods for disseminating knowledge produced in Africa and using them.

It is imperative that, ICT applications run through the entire gamut of the educational research process [6]. The advocacy for the indispensability of ICT in educational research can be further strengthened by the following argument that tends to underscore the values derivable from applying ICT in educational research, viz:

i. It reduced time and cost of conducting educational investigation.
ii. Data sets and library resources can be shared by institutions in different locations.
iii. Educational researchers have easy access to current literature materials.
iv. Data sets, irrespective of size can be stored and retrieved when needed [6].
v. Researchers in different locations can collaborate more easily, etc.

New instructional techniques that use ICTs provide a different modality of instruments. For the student, ICT use allows for increased individualization of learning. ICT application and use has proven beneficial in improving Nigeria's educational system and giving students a better education [7-10].

Legal System Sector

Through ICT, lawyers and students can have access to current court proceedings/cases and law reports anywhere, any time and in any form in the country. Indeed, ICT has far reaching effect in the learning and practice of law. They have become useful tools, allowing the use of massive legal information retrieval systems, and are of increasing benefit to lawyers in the context of the preparation of documents, administration, accounting, and conveyance in terms of decision support. Law students, lawyers, and Judges now use internet and its multimedia component, the World Wide Web to access materials from all over the world. There are search engines containing the addresses and details of websites; e.g. Yahoo, Google, and Microsoft Network search.

Business Management Sector

Information and Communication Technology (ICT) is an essential part of national infrastructure and factors greatly in both public and private sector business enterprises. It creates business opportunities, especially for companies located far from urban centres, and improves links among firms, suppliers and clients. When used well, ICT can also make management and operation more efficient. Some service industries such as finance, insurance, and real estate industries could not operate without information systems. The Introduction of the cashless policy and

other payment initiatives has seen many Nigerians utilizing digital payment methods for their transactions. Figure 4 highlights the steady growth in the value of mobile payment transactions. While the value of mobile, POS and internet transactions combined has traditionally been much less than the value of cheque transactions, Figure 5 indicates that cheque transactions are falling in value, while ATM and other payment transactions are rising in value. Again this highlights a growing preference for electronic payment transactions [8].

Engineering-and-Technology-Transactions

Figure 4: Digital cashless transactions (Source: Central Bank of Nigeria CBN Statistics NITDA2015).

Engineering-and-Technology-Payment

Figure 5: Value of Payment Transactions (Source: Central Bank of Nigeria (CBN) Statistics NITDA 2015).

Information technology and systems have revolutionized firms and industries, becoming the largest component of capital investment in many industrialized societies. Information systems are transforming business and the visible results of this include the increased use of the results vary depending on how performance and ICT payoffs are measured and analyzed [11-13]. For example, one empirical study finds positive impacts of ICT investments on productivity, but not on profits. Another study did not find positive effects of ICT capital on productivity, while ICT labour positively contributed to output and profitability. An analysis of the profitability of ICT investments in an empirical study that explicitly considered the competitive dynamics in a market showed that the profits of non-adopters of ICT are reduced as other firms adopt new ICT.

Conclusion

It has been commonly accepted and proven that information and communication technology (ICT) is the engine of the 21st century and beyond; as it will chart the economic, religious, cultural, legal and social life of nations, particularly that of developing countries. ICT has impacted on different sectors of the Nigerian economy. The application of ICT has emerged as the most radical development of the 21st century. ICT provides economic opportunities to both urban and rural populations. One common contribution is that it increases productivity and makes the market work more efficiently, although the magnitude of the impact on economic growth is likely to be different. The fact that virtually all new mobile

customers in the coming years will be in developing countries, and more specifically in rural areas, means that the ICT platform is reaching population with low levels of income and literacy. As a result, ICT is becoming the largest distribution platform of providing public and private services to millions of people in rural and poor areas. Market information, financial services, education and health services had largely been unavailable in those areas in the past due to lack of connectivity of any kind.

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