# Information and Communications Technology (ICT) and Digital Economic Development in Nigeria

**Omeni-Pius, Raymond Onyedikachukwu, Ph.D**

**Department of Peace Studies and Conflict Resolutions, University of Agriculture and Environmental Sciences Umuagwo**

**DOI: https://dx.doi.org/10.47772/IJRISS.2025.905000359**

**Received: 16 May 2025; Accepted: 20 May 2025; Published: 17 June 2025**

## ABSTRACT

Nigeria has been hard hit with poverty and crisis leading to an immense effect on the quality of social, cultural and political lives of the citizenry. This in a number of ways has led to a slow economic developmental growth of a nation that is adjudged the giant of the continent. The role played by ICT in supporting economic development may be considered as an alternative path to economic development in Nigeria. Economic drivers of most developed and developing nations are believed to be anchored on their population growth, GDP per capita, inflation rate and most importantly ICT. This study examines the Information and Communications Technology (ICT) and digital economic development in Nigeria. Considering the fact that, Nigeria as a nation has so many qualified ICT personnel, ICT based training institutions and ICT based industries which is enough to form a backbone of an economy that is ICT driven. This study, therefore, seeks to provide analysis of the ICT revolution, challenges of ICT in Nigeria, and some of the strategies for achieving ICT as a tool for economic development in Nigeria which include; establishing ICT academies, establishing software development centers, making internet accessible and affordable, among others. It also discusses a brief history of Nigeria Economy. It employs secondary data sources in achieving this objective. The study proffers recommendations that the Federal Government of Nigeria can adopt to enhance ICT in Nigeria for its economic development which include enhanced funding and the development of an ICT masterplan for the Nigerian State.

**Keywords:** Information and Communications Technology (ICT), Backbone, Strategies, Economic Development

## INTRODUCTION

Information Communication Technologies (ICT) can be described as an electronic means of capturing, processing, storing and communicating information. ICT may be computer hardware, software, networks and includes intermediate technologies like radio and television, literate technologies like books and newspapers and organic technologies based on human body like brain and sound waves.[1] In addition, ICT could be referred to as Information Technology (IT) that lays emphasis on the function of the role of unified communications and the harmonization telecommunications, which include computers telephone lines and wireless signals, as well as necessary applications software, storage, and audio-visual systems, which enable users to process information.[2] Studies carried out, and still ongoing suggest that innovation and technology are the main indicators of improved economic growth realization in developed countries and there is a relationship between productivity growth and technological progress.[3] The significance of ICTs in economic growth and development resulted from the fast growth of these technologies and their market in the nineties. The world's developed and developing countries started immensely to harness ICT for economic growth and sustainable development.[4] Recently, ICT is believed to foster sustainable long-term growth as a production technology through carefully designed ICT systems. The principal function of ICT is in enabling humans, governments and organizations to transform information into knowledge as a strong driver in evolving lasting change in the economy and society.

### Brief History of Nigeria Economy

The Nigerian economy has had a truncated history. In the period 1960-1970, the Gross Domestic Product (GDP) recorded 3.1 per cent growth annually. During the oil boom era, roughly 1970-78, GDP grew positively by 6.2

per cent annually - a remarkable growth. However, in the 1980s, GDP had negative growth rates. In the period 1988-1997 which constitutes the period of structural adjustment and economic liberalization, the GDP responded to economic adjustment policies and grew at a positive rate of 4.0. In the years after independence, industry and manufacturing sectors had positive growth rates except for the period 1980-1988 where industry and manufacturing grew negatively by - 3.2 per cent and - 2.9 percent respectively. The growth of agriculture for the periods 1960-70 and 1970-78 was unsatisfactory. In the early 1960s, the agricultural sector suffered from low commodity prices while the oil boom contributed to the negative growth of agriculture in the 1970s. The boom in the oil sector lured labor away from the rural sector to urban centers.

The contribution of agriculture to GDP, which was 63 percent in 1960, declined to 34 percent in 1988, not because the industrial sector increased its share but due to neglect of the agricultural sector. It was therefore not surprising that by 1975, the economy had become a net importer of basic food items. The apparent increase in industry and manufacturing from 1978 to 1988 was due to activities in the mining sub-sector, especially petroleum. Capital formation in the economy has not been satisfactory. Gross domestic investment as a percentage of GDP, which was 16.3 per cent and 22.8 per cent in the periods 1965-73 and 1973-80 respectively, decreased to almost 14 per cent in 1980-88 and increased to 18.2 per cent in 1991 -98. Gross National Saving has been low and consists mostly of public savings especially during the period 1973-1980. The current account balances before official transfers are negative for 1965-1973,1980-1988 and 1991-1998.

The economy never experienced double-digit inflation during the 1960s. By 1976, however, the inflation rate stood at 23 per cent. It decreased to 11.8 per cent in 1979 and jumped to 41 percent and 72.8 per cent in 1989 and 1995, respectively. By 1998, the inflation rate had, however, reduced to 9.5 per cent from 29.0 per cent in 1996.

Unemployment rates averaged almost 5 percent for the period 1976-1998. However, the statistics especially on unemployment, must be interpreted with caution. Most job seekers do not use the labour exchanges, apart from the inherent distortions in the country's labour market. Based on some basic indicators, it appears that the economy performed well during the years immediately after independence and into the oil boom years.[6] However, in the 1980s the economy was in a recession. The on-going economic reform programme is an attempt to put the economy on a recovery path with minimal inflation.

The over dependence on oil by the country for its economic sustenance has actually led to the neglect of some other viable sectors such as ICT, Agriculture and so on.

**The ICT Revolution**

Information and communications technologies (ICTs) is an umbrella term which is currently used to refer to a wide range of services (telephony, fax, internet), applications (such as distance education and management information systems), and technologies (anything from ‘old technologies’ such as television to ‘new technologies’ such as cellular phones), using various types of equipment and software, often running over telecoms networks.

The ICT (or information, or communications, or microprocessor) revolution is radically affecting the way we share information about development issues; and governments, NGOs, businesses, institutions, and individuals have jumped on the bandwagon to make ICTs part of their day-to-day organizational processes. Moreover, the revolution brings leverage in the two essential commodities of time and distance, which in business terms translate into efficiency and cost. The issue of transparency is easier to manage with ICTs, which may result in monetary savings in addition to stakeholder confidence in development processes and systems. However, it is also true that if care is not taken to ensure that ICT provision and use is tailored to the specific needs of the groups that really need them, there is a danger that existing alienation and marginalization will be reinforced and increase.[7] There is general agreement that ensuring access to the fundamental tools of the digital society is one of the most significant investments the world can make for the future. But the world’s most valuable resource is its people. Thus, the significance of ICTs is not in the technologies as such, but in the possibilities, they open up for access to knowledge, information, and communications, elements of ever-increasing importance in present day economic and social interaction. While some of the issues surrounding ICTs have similarities with those in

other areas of infrastructure, such as roads, postal services, and railways, others are of course different and highly specific, with the potential to produce differential development of local and global cultures.[8]

**Information and Communication Technology (ICT) In Nigeria**

Computing and Telecommunications (and also such areas as broadcasting and publishing) used to be quite distinct industries, involving distinct technologies. Now they have covered around certain key activities such as use of the Internet. The pace of adoption of new IT has been very speedy: it is markedly more rapid than that of earlier revolutionary technologies such as the steam engine or electric motor. But in Nigeria, information technology is rather a recent phenomenon. Telecommunications, the oldest element, had a modest beginning with the first trunk telephone service between two towns in1923.[9] It was not until the 1950s that substantial expansion began with the introduction of VHF radio systems, 116 manual and five automatic telephone exchanges. In other to enhance the quality of telecommunications services in Nigeria, the telecommunications arm of the Post and Telegraph Department and the Nigerian External Telecommunications Limited, which previously managed the domestic and external services respectively, were merged in 1984 to single profit-oriented limited liability company called NITEL. Under NITEL, the number of automatic switching centers in Nigeria grew to 227 in July 1986. The national telex network grew also to a total capacity of 12,800 lines with only one international exchange having 1,500 trunks. By this time, the transmission media for toll and trunks included terrestrial microwave, coaxial cable, and domestic satellite.[10] But it must be realized that more attention was paid to communication with the outside world than the development and enhancement of the internal telecommunications system. The Lanlate Satellite Earth Station, Nigeria's first international satellite telecommunication gateway, became operational in March 1971 with one antenna (Lanlate I) tracking the Indian Ocean INTELSTAT satellite. A second antenna called Lanlate II was added in December 1975. This one operates with the Atlantic Ocean satellite. By the end of 1986, the two antennas provided a total 417 circuits, namely 248 in the Atlantic Ocean Region and 169 in the Indian Ocean Region. Another international earth station has been built at Kujama in Kaduna State. With these facilities, most of Nigeria's external telecommunications, including telephone, telex, facsimile, and television, has been by satellite.

The Nigeria Domestic Satellite System was established in 1975 with a network of six 11-metre earth stations operating on a leased INTELSAT satellite transponder. The network was subsequently expanded to comprise three leased transponders each of 36 MHz, 20 earth stations, a network monitor and control station, and backhaul radio links between the DOMSAT earth stations and NITEL as well as stations of Nigerian Television Authority.[11] The first transponder was allocated for television transmission, while the other two were reserved for telecommunication services. But it must be realized that the history of the development of telecommunications in Nigeria is characterized by unfulfilled objectives. Achievements have been consistently short of demand for services. It must be noted that the present analogue system on which the national telecommunications network is based is outdated and this has been a serious limitation to the efficiency of the telecommunications network in this country. But there are, however some indications that telecommunications in Nigeria may improve in future. NITEL is still following up its plans for a digital network though progress has been very slow. Recently, it was reported that the nation's digitalized earth station, expected to facilitate telecommunications link between Nigeria and other parts of the world, was ready for use.[12] This will be the third gateway after Lanlate in Oyo State and Kujama in Kaduna State. The first phase of the digital project at Abuja was commissioned in 1990, while work is in progress on several other projects.

Some organizations have ventured out developing their own networks. The greatest achievements are those of the Nigerian National Petroleum Corporation (NNPC), which in 1990, installed a digital communications network regarded as the largest in Africa. It is a hybrid network of fibre optics and coaxial cable. The turnkey system interconnects all the vital sites and offices of the NNPC, and provides facilities for automatic voice dialing, teleconferencing, and transmission of data, facsimile and telex. Nevertheless, a truly national network is most desirable solution, but this is not yet in sight. Nigeria also had a late start in the use of computers, but a start haven been made, the growth in use has been quite remarkable. A tremendous impetus was given to the computer market by the growing interest in microcomputers in the past decade. The computer installations are widely distributed in universities, government departments and agencies, banks, commercial establishments, and industries. It must be realized that the private sector has, however, risen to a position of dominance in the use of computers.

**The following are Some of the challenges of ICT in Nigeria**

Inadequate ICT policy enforcing the use/adoption of ICT driven services- there are no adequate rules in place to ensure the safe use/adoption of ICT services in the Nigerian State, while sectors like the banking sector fully adopt ICT in the execution of its services, other sectors are yet to fully adopt the use of ICT services in its service e.g. education and tourism sectors.

High Cost of ICTs Equipment in Nigeria- the exorbitant cost of ICT equipment in Nigeria is a major challenge of ICT growth in Nigeria. The Federal Government of Nigeria (FGN) should have adequately protected the ICT sector through price control and the ensuring the standardization of important ICT goods/services.

Inadequate funding of the ICT sector- According to ITU (2018), the amount of money been spent on ICT (Research and Development) in Nigeria is on the low side, therefore for the pursuance of economic growth through ICT, the FGN needs to urgently increase the amount spent on ICT to foster economic growth.

Low ICT Literacy Level and Lack of trained ICT Personnel- The low ICT literacy level of personnel in the country has slowed down economic growth, FGN needs to introduce the practical use of ICT services in Nigeria by establishing ICT internet driven centers with trained Personnel in every state of the Federation and the practical use of ICT in primary to tertiary institutions. This will encourage persons who cannot afford internet services the opportunity to enhance his/her skills in such area.

User Acceptance- since people have not been enlightened on the need to drive ICT with services, they find it difficult to accept ICT because of the fear of losing their jobs, so they frustrate whatever services that ICT can drive.

Inadequate synergy between Nigeria and other ICT driven developed Nations on the transfer/adoption of ICT knowledge to Nigeria- there is no cooperation between Nigeria and other ICT developed economies, this has led to poor transfer of ICT knowledge, without this transfer of ideas, Nigeria cannot enhance her ICT skills/knowledge.[13]

**ICT as a tool for achieving Economic Development in Nigeria**

Economic Development in Nigeria is actually achievable through ICT based on the fact that, when fully implemented its results are great. this section highlights some of the issues that needed be looked into, such includes the following;

**Establishing ICT Academies**

ICT academies are place or institutions where people can be trained on various available certification programs, such as Oracle and Cisco. When people are fully trained or retrained and are equipped with various certifications then the country can be exporting these certified personnel to countries where their services are required, hence the said personnel become source of earning foreign exchange. These ICT Academies are to be established in all the Local governments in the country.

**Establishing Software Development centers**

The need to establish software development centers across the nation should be encouraged; this may be through our tertiary institutions or the training institutes, where training on modern software development techniques will be taught and the developed software are made to international standard. A standard of this nature will place Nigeria on the same pedestals like India a country that has become software development giant. Development of software can also be outsourced to Nigeria by the developed nation where cost of software development if very high.

**Making Internet accessible and affordable**

The cost of internet in the country as at present is high and not affordable to the underprivileged. If this can be provided at a cost that is affordable to all the citizenry then various advantages of the internet like e-business and e-payment can be fully explored. Businessmen will not need to travel abroad to transact business since this can be done online with ease. This process will really lead to the conserving of man hours and foreign exchange that will be expended on travelling and payment of hotel bills.

**Production of vibrant Computer and Network Engineers**

Computer and Network Engineers are the nerve of the great economies like US, Japan and China. In our quest to be among the great economies by year 2040 we should aim at producing vibrant Computer and Network Engineers throughout Polytechnics and Universities. The curriculum of these tertiary institutions should be reviewed regularly to meet international requirements and also give relevant industrial exposure to their students and lectures.

**Encouragement of locally developed software and personal Computers**

Development of local software, personal computers and its components should be encouraged by eradicating the importation the same and given enabling environment to their local production. This will be one of the ways of conserving our economy and foreign exchange.

## CONCLUSION

It is possible to assert outright that the means that will give the system of education and training its new face in line with the expectations of the new millennium are those that are drawn from the new Information and Communication Technologies. Higher education institutions in Nigeria now face the challenge of globalization and information age for the transformation of the academic system from traditional role of teaching, learning, research and development methodologies to those driven by the information technology, which is the latest revolution changing all aspects of human endeavour. Infrastructural, institutional as well as human capital capacities must be developed in other to face this challenge. In this regard, as pointed out by the tool of computer science must be perceived and considered as a 21st century universal language.[14]

With this consideration, its introduction in the educational system and other aspects of national economy must and will be increasingly early and its use will tend to be generalized. This revolution will bring about vast development in the national educational advancement and economic systems. The use of this revolution will give knowledge a universal character by increasing access and ensuring the effectiveness of education throughout the country. Trainers must also be taught during training programmes to be able to master the use of the technologies but also to enable them to develop especially teaching aids and materials that go with these new technologies. By referring to the UNESCO plan of action for strengthening inter university cooperation and academic mobility; we will begin by recalling that “institutions of higher education play a major role in the creation, transfer and application of knowledge, in the training of cadres, technicians and managers, in the building of cultural identity and in the creation of democratic processes”. Developing countries in particular cannot expect to control and apply the most recent discoveries let alone, make important contributions to academic and scientific progress if they do not have institutions of higher education and research that meet the highest standards. It is only by developing their talents and skills, that they will succeed in bridging the gap between them and industrialized countries and be less dependent on permanent technical assistance. If colleges and universities in Nigeria are to become contemporary and effective organizations, their strategic academic technology agenda should be focused on the production of intelligence rather than on the storage and recall of random and quickly molded information. Universities are complex cultures that create, order and manage information and are constituted as dense information networks held together by ideological and technological strands.

The use of ICT as a strategic management and cognitive tools is critically important if Nigerian universities wish to be run efficiently, access information through worldwide networks and be globally competitive. These new

technologies by giving access to data-bases, libraries, information sources and Web Sites, offer the universities very promising means for the improvement of education and access to information.

In other to actualize these it is necessary to:

Strengthen the higher education institutions potential in competent human resources and equipment of the new information and communication technologies.

Promote the establishment of centres of excellence in this networking area. - Develop the culture and practice of new technologies within the society.

Set up a highly profitable inter-university Internet network to facilitate the exchanges, the video-conferences and the distance education.

The lack of modern equipment in university laboratories and libraries can be compensated, to some extent, by creating networks of training centres and certified consultants by leading ICT companies in Nigeria. Nigerian private companies in the ICT sector should be able to deliver courses through their training centres, which would successfully complement traditional education. The scope of this training will extend beyond the purely academic community and this will address many specific sectors. Several hundred students will be able to take part in these courses offered by the academics and training centres of private ICT companies.

## ENDNOTES

1. R. Heeks, (2001). Understanding E-Governance for Development. Government Working Paper Series, Paper No 11, Manchester Institute for Development Policy and management. University of Manchester.
2. P. Walter, (2015). Information and Communication Technology (ICT) In Education in Sub-Saharan Africa: A Comparative Analysis of Basic E-Readiness in School. Available at http:// http://www.uis.unesco.org
3. L. E. Villa, (2005) The Outcomes of Investment in Education and People's Well-being. European Journal of Education. Volume 40, Issue 1, 30-31.
4. R. Hodrab, M. Maitah, and S. Luboš, (2016). The Effect of Information and Communication Technology on Economic Growth: Arab World Case. International Journal of Economics and Financial Issues, 2016, 6(2), 765-775.
5. D. Lyon, (2013). The Information Society: Issues and Illusions. New York: John Wiley & Sons, 56.
6. V. Zwass, (2003), Electronic commerce and organizational innovation: Aspects and opportunities. International Journal of Electronic Commerce, 7(3), 7-37.
7. 'Information and communications technology and social exclusion www.student.city.ac.uk/~dt758/PrIssuesGroupCoursework.
8. O. N. Ofulue, (1980). "Telecommunications Services in Nigeria in the Seventies: An Overview". Paper presented at Nigerian Society of Engineers National Engineering Conference, Enugu, Nigeria, 4-6 December. Proceedings.
9. P. C. Unchidiuno, (1986). "Dedicated Satellite Communications System and NITEL Services". Paper presented at the International Seminar on Satellite Communication Systems for Nigeria, 21st- 23rd July.
10. E. Ikurionan, and I. Eribenna, (1991). "NITEL's Digital System now ready". Daily Times, Thursday October, pp.2.
11. The Dube Tradeport Cyberport: ICT and logistics integration for economic development, (E/ESCWA/ICTD/2004/ WG.1/5).
12. N. A. Lamine. (2001). "African Universities and the Challenge of Knowledge Creation and Application in the New Century". Association of African Universities 10th General Conference. Proceedings. Nairobi, 80.
13. ITU, (2018). Internet Users. Available at https://www.itu.int/. Accessed at 27th October, 2018.
14. P. Walter, (2015). Information and Communication Technology (ICT) In Education in Sub-Saharan Africa: A Comparative Analysis of Basic E-Readiness in School. Available at http:// http://www.uis.unesco.org