



## **Information and Communication Technology as a Tool for Economic Development: A Critical Review.**

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### **Abstract**

Nigeria has been in search of adequate measures to improve on the effectiveness, performance and efficiency of the different sectors of her economy towards attaining national development. Accordingly, this paper explains the concept of development and ICT and its positive impact on health, governance, employment opportunities, business and services in Nigeria, Education, economic development, national security and productivity in Nigeria etc. National Development is seen to be enhanced through ICT with recommendations that visible challenges be addressed. Social change theory was used as a scientific basis for this paper. Technology determinism theory states that media technology shapes how we as individuals in a society think, feel, act, and how society operates as we move from one technological age to another. Technology is seen as one of the necessities of social change to produce latest forms of life where excellence is inevitable. The paper concludes that ICT is the only avenue of changing politics, administration, security, businesses, education and employment in Nigeria from their non-performing state to a more performing stage towards overall development. It is recommended among others that there should be an institutional framework for ICT, reflecting in all sectors of the Nigerian economy.

**Keywords: Development, Information Communication Technology (ICT), Politics, Education and Employment Opportunities.**

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## **Introduction**

The development of technology, especially Information and Communication Technology (hereinafter: ICT), has had significant effects on the economy and other aspects of human life in recent decades. It is impossible to imagine the effective functioning of an individual, an economy, and a whole society without the use of ICT. These effects are especially noticeable in the period of dramatic changes associated with the COVID-19 pandemic, when ICT allowed the “new normal” (Minska-Struzik and Jankowska 2021; Huateng et al. 2021) to function. Educational institutions, the health system, enterprises, households, and the entire world economy depend on ICT. In the 1980s, in endogenous growth theories, scientists claimed that technological changes were the foundation of economic growth and stressed the importance of investing in human capital (Romer, 2006; Lucas, 2008; Grossman and Helpman, 2011). In addition, according to the human development theory, income is only one of the elements that lead to the fulfilment of human needs; ICT is considered to have significant effects on the fulfilment of human needs, even greater than monetary income, because it improves the overall quality of life. ICT provides individuals with access to information, enables social interaction, facilitates access to education and healthcare, and creates new business opportunities. Thus, ICTs can have both direct and indirect effects on the quality of human life. Furthermore, according to the European Parliament (2001) study, ICT offers remarkable opportunities to adequately address poverty in developing countries. ICT can assist the poor in business development or promote self-determination. From an equality perspective, ICT can also facilitate access to education and health, ensuring inclusion. Sen (2010) claims that information technology is responsible for the expansion of human freedoms and that it leads to better efficiency in various human activities. ICT is expected to have an even greater impact in the future.

This impact is widely seen as positive, especially at the macro level as mentioned above, but at the micro level there are also possible negative consequences. From a psychological point of view, ICT also causes stress and anxiety, leading to modern diseases in developed countries. Developed countries are also expected to reach a steady state with respect to ICT, while developing countries are not; thus, ICT may have a greater impact in these countries. Therefore, ICT is an important topic in academic literature and public discourse.

This paper confirms previous findings of the importance of ICT in economic development in developing countries. This paper highlights the important role of ICT in sectors of the economies of developing countries and present ICT as one of the factors of economic development. On the other hand, the study shows that ICT use is not significant in developed countries and would be required to help lift developing countries into growth and integration into the global world. Hence, ICT development in developing countries can serve as a tool for human and economic development, policies and actions Developing countries could integrate more easily into the current economic environment if they made the most of the opportunities offered by new technologies. The people living in these countries could also have easy access to new knowledge and information, health, job opportunities, etc. Hence, the thrust of this study.

## **Literature Review**

### **Concept of Development**

The world development in the realm of scholarship is viewed from two perspectives, geared by the argument on what development entails (Ekpe and Okereke, 2010). Accordingly, some scholars use the word “growth and change” interchangeably with the word “development”. It is noteworthy that both words have different meanings from development. While growth is seen as an element in development, it cannot on its own be development. The first perspective of development is obviously tied to economic domain, where it is seen as maximization of growth in the Gross National Product (GDP) through capital accumulation and industrialization (Merer, 1989). It is the growth in Gross National Product (GNP) that is used as an economic parameter in measuring growth in this sense. Contrary to the foregoing, the second perspective on development is drawn from the assumptions of the Marxist/Radical school of thought, which considers development from general improvement in the wellbeing and living conditions of people in a given society. The Marxist sees development from the angle of reality on ground and view liberalists as being too abstract. The concern of Marxist is man and his wellbeing and not micro-economic variables (Ekpe and Okereke, 2010). Consequently, development therefore implies that greater majority of citizens of a nation have access to quality education, employment, health services and other infrastructural facilities. When required infrastructures are instituted for good living conditions of citizens across the country, there is then national development (Onyeka, 2016)

## **Concept of Information and Communication Technology (ICT)**

Information and Communication Technology (ICT) is a term employed worldwide including but not restricted to both the hardware and software of computers, communications gadgets like mobile phones as well as SMS applications, e-voting mechanisms, internet appliances and sensors proficient in citizens biometric data (Ed UNDF 2021) ICT is of different stages consisting of Facebook, Instagram, twitter, WhatsApp, Zoom, YouTube and internet etc. which help in facilitating most effective and efficient dealings across the globe. It is recorded of recent that ICT has geared up productivity in critical sectors of global economy and has impacted positively on many lives that depend on it for survival. Prominent achievements are said to have been recorded in the deepening of democracy in several countries through ICT. Business security and education sectors are pointed to have as well received noticeable impacts from ICT. This paper is hinged on critical appraisal of ICT role in the development of aforementioned sectors in Nigeria towards overall national growth.

## **Theoretical Framework**

### **Technology Determinism Theory**

The term is believed to have been propounded by Marshall McLuhan in 1962. Herbert Marshall McLuhan CC (July 21, 1911 - December 31, 1980) was a Canadian educator, philosopher, and scholar – a professor of English literature, a literary critic, and a communications theorist. According to the theory, humans do not have much free will at all. Whatever society as a whole is using to communicate, they too will use to communicate. Therefore they will adapt to the medium they are using so that they can send and receive messages like everyone else.

We know that there is one truth by observing what has happened over time. As the medium changes so does society's way of communicating. People can only use the medium for which it was created (phone for talking over lines or electronic mail for talking via computer). If the medium is impersonal (television) then the message too is impersonal. This theory is objective in that everyone will act and feel the same no matter what the medium they are using provided that they are using the same medium. Values are not involved because evidence is seen strictly through observation.

Hence, we learn and feel and think the way we do because of the messages we receive through the current technology that is available. The radio required us to only listen and develop our sense of hearing. On the other hand, television engages both our hearing and visual senses. We then transfer those developed senses into our everyday lives and we want to use them again. The medium is then our message.

### **Impact Areas of ICT on the Nigerian Economy**

Nigeria, like the rest of the world recognized the globalization and significance of information and communication technology (ICT) to meet the growing demands of work, business, production and services in different sectors of the economy. Such ICT tools include computers, multimedia equipment, assistive technology devices for exceptional individuals and other technological gadgets (Obiozor, 2011). Some of the advantages/merits of ICT to the Nigeria Economy include the following:

#### **i. E-Health and M-Health (ICT Health)**

ICT in Healthcare is powerful in monitoring the outbreak and spread of disease, disseminating health information about health-promoting and disease-preventing, training and long distance support to health care practitioners. E-Health is defined as the use of ICT in provision of health care services. This means ICT can be used in various health care functions such as clinical, educational, research and administrative regardless of geographical settings (Abolade&Durosinmi, 2018). M-Health (Mobile Health) extends the efficiency and accuracy of the already available health systems through the use of electronic devices such as PDAs and mobile telephone networks to improve functions (such as reporting procedure) of the health systems.

#### **ii. Electronic Governance**

The questions that usually come to mind are: what is the role of Information Communication Technology in governance? Is government doing enough to empower her people through ICT? In Nigeria, many government agencies are now using websites to provide information on the activities of government. Today people of Nigeria can go to the internet and get any information they want. Jobs, contracts, and government activities are posted to websites for public

knowledge. This has greatly improved productivity, thereby making the economy of Nigeria high. Nigerians can now ask questions about public issues and make their views known to government. Therefore E-Government must be customer driven and services oriented, meeting the needs of citizens and improving the quality of life while the government should understand ICT and their implication to government and society at large (Isizoh et al, 2013).

The role of ICT in politics is manifested in Election Administration all over the world. Election is a critical component of democracy and the only acceptable channel of leadership recruitment and selection for democratically recognised government (Ayeni, 2018). Given this quantum of importance, elections are expected to be free, fair, credible and transparent in all ramifications, so as to reflect the ‘will’ of the people. The importance of election transparency is key, for reasons that the outcome of every election determines the quality of leadership provided for the country. The quality of leadership in turn determines the nature of governance.

Consequently, Good governance where the yearnings and aspirations of the masses are met through provision of needed infrastructures; is dependent on election processes (Ayeni, 2018). This is because credible leaders with good and right sense of accountability are elected by the electorates when the process is transparent, while bad leaders with selfish interests are elected through rigging and faulty electoral process. When right choices are made through transparent process, development of the nation becomes inevitable as needed infrastructures are provided for the good of all. Arising from the foregoing, Nigerian Electoral Management body (INEC) has over the years intensified efforts in achieving transparent process for credible elections in Nigeria. This is evidenced in a paradigm shift from Manual Voter’s Register to technologically advanced mechanisms such as biometric register, (Electronic Voter Register), Automated Fingerprint System (AFIS), Smart Card Reader (SCR) and e-collation support platform (e-CSP).

These ICT platforms are over the years adopted as sure-way to institute electoral transparency by many developed countries of the world like USA, and recently developing countries such as Zimbabwe, Somaliland, Togo and Mali etc. (Piccolino, 2015). Notably, the aforementioned ICT channels have made significant improvement on Nigerian electoral process that evidently remove a sitting president (GoodluckEbele Jonathan) in 2015 and enthrone the then opposition APC when president MuhammaduBuhari was declared Winner by AtahiruJiga, INEC chairman then (Ayeni, 2018).

Indisputably, the identification, accreditation and subsequent e-collation system are the function of ICT to make rigging and manipulation of results difficult for our greedy politicians. Though politicians tried the much they could to abuse these channels and have their ways; tremendous improvements are made in our electoral process. Manifestingly, inflation of figures, multiple voting, impersonation etc. are the outstanding features that have been strengthened in the process of Nigerian elections towards choosing good leaders that will engineer development of the country. This is why our National Assembly Members who are greedy and are afraid of ICT Transparency in the electoral process, voted against e-collation support system(e-csp)which would have certainly enable electorates to vote them out in 2023. Notably, many politicians now use social media for publicity of their aspirations and campaigns(Isizoh et al, 2013). ICT in this sense, can permit electoral activities including voting in critical times as lockdown during covid-19. With enabling legislation, people can exercise their franchise through ICT(online voting) without necessarily moving from one point to another.

Therefore, ICT role in electoral process among other gains include:

- i. Reducing incidence of double registration.
- ii. Checking incidence of multiple voting.
- iii. Checks figure alteration or manipulation.
- iv. Ensures efficiency in electoral activities.
- v. Enhance effectiveness of electoral processes.

### **iii. Employment Opportunities**

Also, the use of ICT to bring new employment for youths and migrant workers has also given opportunity to develop new ideas in the technology via the education system, training facilities and affordable access to computers. In this way, youths have an opportunity to be self-employed, and they are exposed to entrepreneurship through the use of information and communication technology. The demand of technology is seen to be a reality in creating employment opportunity for young people, where the youths will show their interest and creativity in software applications, bioengineering, digital media, and mobile applications, which will attract young

people's creativity. Social interactions through the use of information and communication technology will help reliable and creative business ideas in the next one to three years, so that they can respond more effectively in all aspects of learning needed, and to document the best information and communication technology practices among the youths for future benefit (Abolade&Durosinmi, 2019).

#### **iv. E-Business and Services in Nigeria**

Doing business online has emerged as a practice in Nigeria. Though the industry is in nascent stage but has shown tremendous potential over the last few years especially after competitive growth in the banking sector. The growing young, educated and technology friendly population has contributed largely in growing trends of e-business in the country (Abolade&Durosinmi, 2018).

Popular E-Commerce models Business to Business (B2B), Business to Customer (B2C) and Customer to Customer (C2C) are adopted by many Small and Medium Enterprises (SMEs) as a growth strategy for their business. Similarly, public service innovations are also driven by Government to Government (G2G), Government to Citizen (G2C) and Government to Business (G2B) models (Piccolino, 2015).

#### **v. ICT in Education (E-Learning)**

ICT is a potentially powerful tool for extending educational opportunities, both formal and non-formal, to previously underserved constituencies, scattered and rural populations, groups traditionally excluded from education due to cultural or social reasons such as ethnic minorities, girls and women, persons with disabilities, and the elderly, as well as all others who for reasons of cost or because of time constraints are unable to enroll on campus (Uyanah, Uweh and Okon, 2021).

Education is considered as a key index of national development through human capacity. Many scholars have agreed to the fact that formal or informal education improves productivity, health and reduces negative features of life such as Child Labour (Uyanah, Uweh and Okon, 2021). It has the strength and prospects to produce an excellent Human Capital for economic growth of a nation. Uyanah et al (2021) sees education as a powerful weapon for the development of man



and the society at large. Given this importance, many countries of the world have improved on their education sector through ICT. Some of the importance of E-learning to the country is:

- Access to Remote Learning Resources
- Evaluative Learning
- Active Learning
- Creative Learning
- Collaborative Learning
- Integrative Learning
- Evaluative Learning

**vi. ICT in Economic Development**

The economic growth of any nation is tied to its ability to expand productivity. ICTs have the capacity to increase productivity, that is, to create more cost-effective output with the same or less input. Wealth generation is increasingly closely tied to the capacity to add value using ICT products and services. The value of information and accumulated knowledge within developing countries is an important aspect of their future growth potential. Only a very few developing countries have succeeded in narrowing the development 'gap' by harnessing the production or use of ICTs to their development goals. These technologies do not offer a magic potion that can be expected to provide a cure for the sick, to prevent environmental degradation, or to create jobs. However, if these technologies can be combined with domestic and external human resources, they can be instrumental in achieving major changes in the organization of industrial activity and the conduct of everyday life (Uyanah, Uweh and Okon, 2021).

**vii. ICT and National Security**

The use of ICT in combating crime and terrorism cannot be undermined. Under the leadership of Governor Siriake Dickson of Bayelsa State, Nigeria, the state signed a Memorandum of Understanding (MOU) with Huawei Chinese Company to install CCTV (Closed Circuit Television) in the whole of the State capital, Yenegoa, this helped to keep surveillance on the State capital and it will also go a long way in reducing crime in the state (Isizoh et al., 2013).

Also on the leadership of Governor Akinwunmi Ambode of Lagos State, a replica of that was done in key areas in the state capital and some part of the state to reduce the occurrence of theft and crime activities in the state. Car trackers, demobilizers, timers, etc also made vehicle theft a thing of the past. Remote sensing and the use of Global Positioning Systems (GPS) have helped

in tracking heavy duty vehicles and locating specific positions on the earth surface, foiling of terrorism and ensuring safe delivery of goods and properties. These and more are few gains of ICT in the Nigerian economic growth and development.

#### **viii. ICT and Productivity**

The use of ICT can be associated with productivity gains. Their application makes it possible to substitute new production arrangements for old ones. Their impact is often at the organizational level. Improvements can be made more rapidly to organizational routines that reflect the learning effects achieved from their use. The direct effects represent the new jobs produced and delivery of new products and services as much as the old jobs being replaced by new ICT equipment. The indirect effects occur as the result of the re-deployment of labour and the reconfiguration of market demand throughout the economy. Productivity growth depends on using existing physical inputs more efficiently. This is often largely a question of co-ordination. One of the significant factors in using ICTs is that they can improve co-ordination by radically lowering costs. This happens both in terms of existing forms of co-ordination as well as by creating completely new possibilities of doing business, for example, electronic commerce using the Internet (Isizoh et al., 2013).

There is a huge problem in measuring the impacts of ICTs on productivity by means of more efficient co-ordination. The major economic impact of ICTs is felt primarily indirectly in their use as inputs in the production of other products and services, rather than in the production of ICTs. As such, ICTs are adding value to the inputs and thus help to create economic growth.

#### **Methodology**

The study utilized the library research technique to gather data for the work. Most of the information sources were drawn from previous literature. Thus, secondary sources were used to gather data. The data were gathered from journals, periodicals, textbooks and online materials. In addition, critical observations by the researchers were also utilized to analyze events relating to the phenomenon.

#### **Conclusion**

In order for Nigeria to be economically competitive, politically stable, and socially secured, there is need to utilize ICT in making advances in health, politics, education, business, agriculture, national security and poverty reduction. The country needs to focus its attention on the positive development, access and implementation of ICT both in the rural areas where majority of the poor people reside and in the urban areas. With ICT becoming the third largest contributor to Nigeria's GDP as well as the largest provider of employment second only to government coupled with general improvements in the living standards of the people, Nigeria's socio-economic development can indeed be improved.

### **Recommendations**

It is therefore recommended that, if Nigeria is to achieve her Vision 20:2020 set objectives, as a matter of necessity she must invest massively in Information and Communication Technology (ICT) Sector so as to compete with other great countries in the world.

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