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## E-Inclusions and Information Technology Policy: Transformative Frameworks For The 21st Century Professionals In Nigeria

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# E-Inclusions and Information Technology Policy: Transformative Frameworks For The 21st Century Professionals In Nigeria

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## ABSTRACT

The overbearing impact of ICT on other professions the world over needs no emphasis in repositioning, re-organizing, re-inventing and re-engineering the traditional systems of operations in Nigeria' public and private entities as it relates to globalization. The contributions of ICT to governance, commerce, education, research, medicine and in making life easier for mankind are germane to the present study. The paper reviews the relevance of ICT tremendous influence and contributions to accomplishment in various organizations and businesses. It also suggested relevant recommendations to government, corporate entities and stakeholders on why ICT could no longer be ignored but should be fully embraced, deployed implemented. The need to enforce IT policies in Nigeria is also emphasized.

**Key words:** e-inclusions, IT policy, professions, ICT, Framework, globalization.

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## 1. INTRODUCTION

Today, it is not an overstatement to describe ICT as a technological convergence in the world of technology driven society, owing to its influential and leading position among other professions and in all human endeavours in the 21st century. Bamgbade (2011) posited that "the great impacts, contributions to knowledge, importance and economy achievement that have emerged from the fields of computer science (Information Science) and electronic engineering in the 21<sup>st</sup> century are revolutionary and mind boggling."

According to Clement (2010), he reasoned that "Information Communication Technologies (ICTs) cuts across a variety of technologies including: computers, micro-electronics/microprocessor-based technologies, multimedia and other information processing technologies and systems, telecommunications technologies and infrastructure (fixed line, wireless, satellite based and mobile infrastructure); and communication network technologies and infrastructure (including local and wide area communications and computer networks for (voice, data and video). Information, knowledge and technology are increasingly becoming the key-drivers for socio-economic development world-wide. A nation's capability and ability to accelerate its socio-economic development process and gain competitive advantages depend very much on the extent to which it can develop, use and sell, information, knowledge and technology in one form or another".

Information and Communication Technology (ICT) can also be defined as any equipment that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of information. It can also be defined as the use of computer system and telecommunication equipment to convert, store, protect, process, transmit and retrieve information (Alabede, 2010).

Akintunde (2011) emphasized that the revolution in information and communication technology is said to facilitate the rapid production and dissemination of information, idea, etc, across the globe through satellite systems, television stations and internet.

Through the internet, information is transmitted within seconds or minutes across the world. ICT is believed to be one of the key drivers of globalization. It has opened up a huge potential for improving educational standards, its efficiency and the speedy delivery of information anywhere in the world at any time.

## 2. E-INCLUSION AS A BRIDGING GAP TO DIGITAL DIVIDE

**Digital divide** could mean the evident gap (visible or invisible) that exists in information technology between classes of people (the rich and the poor), Nations (the developed and the developing countries), Age (the young and the old), advantaged and less advantaged, literate and illiterate etc., for different reasons. Thomas (2006) identified digital divide as a core disparity that most of the times creates marginal challenges between countries of Africa in attempting to reach the pinnacle of technological excellence.

There are wide disparities in the extent to which different developing countries and socio-economic groups within countries, benefits from ICT. He further defined digital divide to mean the gap between those with access of ICT and those without; however, many factors beside physical access such as lack of appropriate products, cost, education, language, human resources and lack of robust regulatory framework for ICT contribute significantly in the disparities that exists between countries.

However, **E-inclusions** is an all embracing and all encompassing framework aids to achieve that “no one is left behind” in enjoying the benefits of ICT. Information Society European Commission expressively defined e-inclusions to mean “Both inclusive ICT and the use of ICT to achieve wider inclusion objectives. It focuses on participation of all individuals and communities in all aspects of information society.

E-inclusion aims at reducing the gap in ICT usage and promoting the use of ICT to overcome exclusion and improve economic performance, employment opportunities, quality of life, social participation and cohesion” (What is .com, 2005).



Fig. 1: Using E-Inclusion to Bridge Digital Gaps

### 3. INFORMATION TECHNOLOGY (IT) POLICY IN NIGERIA

The first Information and Communication Technology (ICT) initiative in Nigeria started in the 1950s with focus on print and electronic media. No major policy or other outcome was achieved because of strict government control. The full awareness of the importance of ICT was absent. (Chiemeké & Longe, 2007). However, the story has changed since about a decade ago when it dawned on the government that the digital divide would only continue to widen except the issue of developing IT in the country was given the priority attention is deserved. (Ajayi, 2005). The national IT policy was approved by the Federal Government of Nigeria in March 2001. This led to the establishment of National Information Technology Development Agency (NITDA) in April 2001 for implementation of the policy (Ajayi, 2003).

Nigeria government having realized the import of ICT to economic development of the nation, have embarked on major projects that have led to revolution through ICT. Sequel to this realization, a workshop on policy was set up in March 2000 and it involved major IT stakeholders in the country. National Information Technology Development (NITDA) was established to implement the policy. The vision of the policy centers on making Nigeria a IT capable country in Africa and a key player in the Information Society by the year 2005, with the engine for sustainable development and global competitiveness.

The Mission Statement dwells on the use of IT for education, creation, poverty eradication, job creation and global competitiveness. The widespread acceptance and deployment of IT is not restricted to national level but both public and private sectors, such as, education, health service industries and individuals are also beneficiaries of IT integration into their operation or activities. It is worth saying that despite some challenges, Africa generally and Nigeria particularly are not lagging behind in deployment of IT as attested to by the African Union (AU) Director of Infrastructure and Energy, Mr. Abubakar Baba-Moussa, thus: “ICT is one of the sectors where private sectors investment is increasing. Current assessment showed clearly that most of the countries in Africa are doing a lot in terms of the implementation...” (African Press Agency, APA, 2010).

Policy was defined as “a set of principles or broad courses of actions that guides the behaviour of governments, Corporations and Individual” (Kate Wild, 2004). Also, Aluko et al, (2004) defined it in terms of operations as “a means to an end and not an end in itself; in general terms, as an instrument of management tool for solving socio-economic and political problems in human, public and industrial organizations”. Policy is further defined by Aluko as “a comprehensive, purposeful or goal oriented web decisions that are geared towards achieving a given objective or set goals.

Policy could be promulgated by government or organizational and corporate authority as distinct pronouncements addressing issues in different areas". IT policy is also referred to a subset of information, communication and technology, policy issues made and derived from a plan for the development and optimal utilization of IT, data resources and allied services (Olatokun, 2002).

**4. THE ROLE AND RELEVANCY OF ICT OVER THE TRADITIONAL SYSTEM OF OPERATIONS IN THE 21ST CENTURY**

**4.1 Health Care Delivery Services**

The World Health Organization (WHO) defined health "as not merely the absence of disease but the attainment of a state of physical, mental, emotional and social well being". Recent studies have shown that adverse events and preventable errors that cause patient harm and death are common place in health care. These errors are most often not the fault of individual, but of a system that fails to provide safe and care. However, ICT has helped in bridging the distances and providing access to clinical knowledge, specialized expertise and health services thus saving lives and costs. ICT provides access to clinical information, telemedicine, online discussion groups and other tools (Omotosho et al. 2011).

Traditional healthcare institutions offer treatment mainly on the basis of disease. This approach is associated with high costs and reduced quality of life for patients. Evidence suggests that every year hundreds of thousands of death worldwide are attributed to medical accidents, adverse drug effects and preventable injuries. The majority of these deaths are due to communication difficulties in the healthcare process and lack of information on patients' medical history, Omotosho et al. (2011). However, e-health is the use of ICT for health (WHO, 2008). E-health is a relatively new term in health care practice and of the most rapidly growing areas in health and ICT today.

The World Health Organization further defines e-health as "the cost-effective and secure use of information and communication technologies (ICT) in support of health and health related fields including health-care services, health surveillance, health literature and health education, knowledge and research". Healthcare has benefited immensely from ICT. A good example is found in imaging techniques such as computer tomography (CT) and Magnetic Resonance Imaging (MRI). These are based on computer reconstruction of images from management data (Greenes, Brinkley, 2001). Thus, CT images provide a precise mapping of the internal structures of the body in 3 dimensional places which was not possible with standard radiography. The functional MRI (fMRI) is a breakthrough in neuroradiology.

**4.2 Role of ICT in Deforestation and Climate Change Mitigation**

Current assessment has revealed that ICT has taken a giant leap in the reduction of paper transaction in circulation within the government and corporate entities as a result of online system of operations such as e-registration, e-governance, e-mail, text messages etc. This, in a way, has minimized the rate at which the consumption on forest trees used for manufacturing papers.



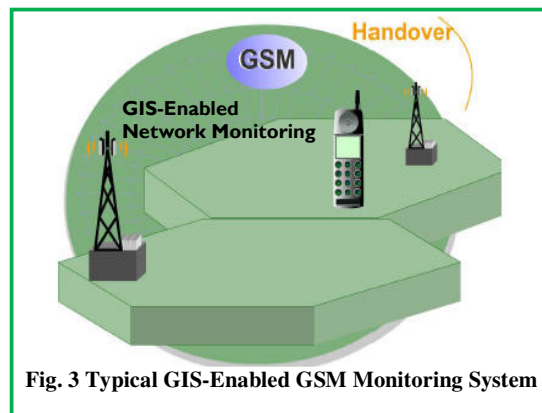
**Fig. 2: Deforestation in Africa**

Hence, deforestation cum climate change mitigation has been affected positively in this respect, world wide.

**4.3 Geographical Information System (GIS) in Monitoring GSM Communication Network**

One of the most embraced modern IT applications in Nigeria is GSM. And since about 12 years of deregulating or liberalizing the telecommunication sector by the Federal government of Nigeria, there have been a noticeable paradigm shift from an operator in the sector providing just coverage to quality services. Current monitoring techniques are based on the traditional row/column format that combines digital and analog switches to obtain data on network functioning. The data obtains at this level, is insufficient to provide the point within the network at which such faults have occurred and without any guidance but can only provide information and analysis on what is happening per time, fault.

Using traditional monitoring techniques, network monitoring and problem detention are done at cell, Base Switching Center (BSC) and Mobile Switching Center (MSC) levels to have both local and global view. Different events are counted and collected by a subsystem called the Statistics and Traffic Measurement Subsystem (STS). The Non-GIS based systems have a lot of limitation as the site engineers still depend heavily on their knowledge of the geographical area of network to answer "where?" They are usually at a loss when it comes to associating network parameters with geographic places. However, modern network monitoring requires tools that address the issue of 'where' without trading off details (Kaka, et al. 2011).



**Fig. 3 Typical GIS-Enabled GSM Monitoring System**

Based on the foregoing, the most important question that a monitoring/optimization engineer wants answered is 'what is happening where?' GIS is the best technology for making faster, informed technical decisions, especially if such decisions are spatial, as in this case (Optimal V.3.4, 2002). GIS is applied to different areas where spatial data has to be gathered, stored, and processed to assist decision making organs. It is the technology that deals with the acquisition, storage processing, presentation and dissemination of spatial information. It is a computer-based tool for mapping and analysis that integrate common database operations such as query and statistical analysis with unique visualization and geographic analysis benefits offered by maps (Anthony & Francis, 2002).

### 5. CONCLUDING REMARKS

The roles and relevancies of Information Communication Technologies (ICTs) as related to all other professions and business operations are evident in every facet of life, from the public to private sectors, owing to the tremendous benefits and global technological transformation it commands in terms of socio-economic advancement and value added services and objectives. The impacts of ICT in all human endeavours are limitless, ranging from e-health, e-governance, e library, e-banking (ATM), Biometrics Authentication (Multi and Mono Biometric Systems), e-voting (mobile voting system) e-agriculture, social networks, e-learning and so on.

Sequel to the above facts, it is imperative that ICT should be given its rightful place and attention within and outside the Nigerian government purview, so as to reap from its enormous 'revenue' inform of National income, employment opportunities, improvement on national security systems, curbing and exposing corrupt practices(Ghost workers) and so on.

- Government should allocate more funds to ICT education nation wide, so as to make adequate provision for ICT resources and training opportunities for rural and urban dwellers. Steady power supply is cardinal in this respect.
- To achieve millennium development's health related goals in Nigeria, adequate attentions are to be given by the government at all levels to the deployment of modern day ICT devices in the remote and urban communities hospitals.
- Governments should see to the enforcement of IT policy in the public and private sector so that Nigeria can fully reap from the enormous benefits of ICT as it is in the developed countries.
- IT policy should be reviewed as at when due owing to the emerging and constant transformative nature of the Sector.
- Government should fully harness the potentials of ICT in Nigeria. This is capable of changing the mono-economic system of the country to multi-economic systems.

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