ICT for Good Governance and Socio-Economic Development in Nigeria

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ABSTRACT

Information and Communications Technology (ICT) has been regarded as the source for the social economic development of any country especially a developing country like Nigeria and has remained the reagent of growth for developed countries. Almost all government services could be initiated and delivered through ICT and since these tools are efficient and reliable, they are today functioning as catalyst of good governance in most countries. This paper gives the exposition at some ICT strategies that could help the country consolidate on good governance, e-government and realize her vision of becoming one of the top 20 global economies in the world by 2020. A desktop research approach was used to evaluate some technical details on the ICT tools in achieving good governance socio-economic development in Nigeria. In conclusion, appropriate policy suggestions were suggested for efficient use of ICT in promoting good governance in Nigeria.

Keywords: Information and Communication Technology (ICT), Good Governance, Socio-Economic and Nigeria

1. INTRODUCTION

Information and Communication Technology (ICT) is a term that covers all technical means for processing and communicating information. ICT finds expression in digital technology and all its uses and variants, including the computer, the Internet, mobile telephony, the different electronic applications (e-banking, e-governance, e-commerce, etc), digital media and broadband technology. ICTs are embedded in networks and services that affect the local and global accumulation and flows of public and private information. However, it is not uncommon to find definitions of ICTs that are synonymous with those of information technology (IT). Duncombe and Heeks (1999) defined IT as the group of technologies that is revolutionising the handling of information. It is taken to embody a convergence of interest between electronics, computing and communication. Chowdhury (2000) posited that ICTs encompass technologies that can process different kinds of information (audio, video, text, and data), and facilitate different forms of communications among human agents, and among information systems. Duncombe and Heeks (1999) simplify the definition by describing ICT as an "electronic means of capturing, processing, storing, and disseminating information".

ICT is the defining tool of the emerging information economy. The impact of ICTs is not a single, stable and predictable outcome, but a non-linear, ongoing process that changes and evolves over time as the actions of individuals and groups within an organization are not wholly determined by outside forces: people can and do react to, and shape, systems in different ways (Kimble and McLoughlin, 1995). 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. Moreover, this exercise encompass a variety of issues covering areas such as infrastructure, human challenges, technology, architecture, standards, administrative, information, security, financial, legal, privacy, quality of service etc. The enthusiasm for realizing the potential of ICTs is often dampened by the barriers to successful implementation.

ICT has revolutionised the global society as well as transformed countries and technological systems. It has made significant impact in government, the business world with its applications. Just like the developed countries, the developing countries such as Africa continent are not left out. Though, internet access and adoption have been described to be low (Neira et al., 2008; Banji and Kaushalesh, 2005). It was found in literature that Africa telephone density stood at 7.1 which is reported to be the lowest in the world (Olatokun, 2008). Today, that has changed as Nigeria tele-density is growing at an alarming rate since liberalisation of the telecoms industry in 2001 (Awoleye et al., 2008). For instance, Nigeria soared from a tele-density of 0.73 in 2001 to 92.42 as at April 2014, which is an upward of about 130 million active subscribers, compared to less than one million in 2001 (NCC, 2014). Nigeria, as at March 2014 as reported by Internet World Stats is rated first in internet usage in Africa with 67million users out of 268million in Africa. This represents 25% of the internet users in Africa, and has been rated first ahead of Egypt, Morocco and South Africa. It was also noted that the total internet users put together in these African countries listed put together are still far behind the mark for Nigeria alone. Nigeria has leverage on this new trend of technological change though a little. These have successfully aided the following sectors of

the Nigerian economy: the Industrial/Manufacturing, Education, Transportation, Tourism, Health, Banking, Commerce, Agriculture, Government Services, Defence, Sports, and Rural Development Ndukwe E., (2004). ICTs played vital roles in the enumeration of the 2006 population census in Nigeria, and the successful hosting of the 15th National Sports Festival, 2006. According to Akwani (2005), the fastest growing employer of labour in Nigeria today is the telecom industry (Specifically, the wireless telephone sector that provides services to individual customers using the GSM).

Though, rapid development, deployment and proliferation of the new and emerging information and communication technologies (ICTs) herald new opportunities for growth and development in countries around the world. However, without coordination and consistency in ICT and related activities, ICT may not make the required national impact. No country can survive without investing in ICT but strategic thinking and intervention are required. Poverty, lack of leadership, underdevelopment and the imbalance in the global economic structure result in unevenness in the exploitation and deployment of technologies.

Amid these benefits are some concerns, which culminated into the following research questions:

1. Do ICT sector in Nigeria have the adequate technical competence to accelerate socio-economic development?
2. How important is ICT at improving good governance in Nigeria?
3. Does the government have the necessary ICT policy intervention for development?

These and other research questions are premised on the fact that proper dissemination of ICT tools (computers, internet, mobile communication) has enabled society to achieve the necessary steps to make knowledge accessible to the masses, and to augment other sectors. It is in the context of these that the authors have put this paper together to identify some of the likely ICT tools needed for good governance and suggest policy directions that will foster global best practices for the science and technology ministry in Nigeria.

In this work, the major focus is to evaluate ICT for good governance and socio-economic development in Nigeria. The specific objective of this paper is to:

- enumerate the benefits of ICT sector for good governance;
- enumerate the ICT tools in accelerating socio-economic development in Nigeria; and
- recommend some useful policy directions for global best practices as it relates good governance and socio-economic development.

2. REVIEW OF LITERATURE

2. 1. Good Governance

Roumeen, Islam (2003) explored the link between information flows and governance through his study "Do More Transparent Governments Govern Better?" with the objective to examine how the availability of information may affect governance. Specifically, it looks at (a) how the availability of basic economic data affects governance and (b) how the legal framework governing access to information might affect the quality of governance. Empirical analysis showed that countries which have better information flows as measured by both indicators have better quality governance. Regions where the media have a greater reach were also the areas where voters were more informed about political choices and able to cast votes

accordingly. They need timely information on decisions related to various aspects of government activity, on how these decisions will be implemented, information on the consequences of these decisions and the process through which they are reached.

Richard Heeks (2001) studied the effect of new information and communication technologies and how it can make a significant contribution to the achievement of good governance goals through his study "Understanding e-Governance for Development". The paper outlines the three main contributions of e-governance: improving government processes (e-administration); connecting citizens (e-citizens and eservices); and building external interactions (e-society). Case studies are used to show that e-governance is a current, not just future, reality for developing countries. However, most e-governance initiatives fail. Countries therefore face two challenges. First, the strategic challenge of e-readiness: preparing six identified pre-conditions for e-governance i.e. Data Systems Infrastructure, Legal Infrastructure, Institutional Infrastructure Ready, Human Infrastructure, Technological Infrastructure, and Leadership and Strategic Thinking. Second, the tactical challenge of closing design-reality gaps: adopting best practice in e-governance projects in order to avoid failure and to achieve success.

2. 2. ICT for Improved Governance

Danish Dada, (2006) work on the failure of e-governance in developing countries. Drawing from extensive research on the topic conducted by Richard Heeks, the work suggests that there exists a wide gap between the current reality in developing countries and the future of e-governance systems. These gaps was classified into three types: a hard-soft gap, implying a gap between the technology and the social context in which it is applied; a private-public gap, suggesting that what works in the private sector may not work in the public sector; and a country context gap, that arises from the application of the same e-governance systems for both the developing and developed countries.

The study by David Coursey and Donald F. Norris (2008) presents empirical evidence from three surveys of local e-government in the United States to test whether the normative models are accurate or useful for understanding the actual development of e-government. Research into e-government is relatively new. Nevertheless much contemporary thinking and writing about e-government is driven by normative models that appeared less than a decade ago. The authors find that local e-government is mainly informational, with a few transactions but virtually no indication of the high-level functions predicted in the models. Thus, the models do not accurately describe or predict the development of e-government, at least among American local governments. These models, though intellectually interesting, are purely speculative, having been developed without linkage to the literature about information technology and government.

3. ICT, GOOD GOVERNANCE AND SOCIO-ECONOMIC DEVELOPMENT

3. 1. Information and Communications Technology in Nigeria

Deregulation of the telecommunications sector led to the introduction of major Global System of Mobile Communications (GSM), mobile phone providers starting with MTN Nigeria, Zain, Globacom and Mtel. Etisalat is the latest entrant. Developments in telecommunications since the advent of GSM technology has led to tremendous growth not

only in the telecom sector but massive employment generation through telecom enabled services in facets of society - highlighting the linkage between ICT and social and economic development and how ICT enables growth in non-ICT sectors.

Granting autonomy to the Telecommunications Regulator, the Nigerian Communications Commission (NCC) enabled the issuing of licenses by NCC to private telecoms companies providing a variety of telecom services to the Nigerian populace. Since the GSM launch, mobile telephony has rapidly become the most popular method of voice communication in Nigeria. The telecom sector has also become the largest generator of Foreign Direct Investment (FDI) after the Oil and Gas industry. According to the former Chief Executive of NCC, Engr. Ernest Ndukwe telecoms investment in Nigeria since 2001 had exceeded USD18 billion.

The GSM revolution changed the face of Information and Communications Technology in Nigeria. But the complete picture includes the Private Telephone Operators (PTOs) and other landmarks such as the licensing of Globacom as Nigeria's second national operator (SNO) as well as the licensing of fixed wireless operators all ensuring the availability of GSM, CDMA, VSAT (Very Small Aperture Satellite), telephony, Internet, data and fixed wireless services at national and regional levels.

3. 1. 1. ICT Enabled Applications

The improvement in the telecom situation in Nigeria has made significant impact in all sectors: commerce, social and educational. Reduction of Internet costs, for communication, online information gathering and research, e-learning, online transactions and e-banking have produced significant social and commercial benefits. Local e-payment initiatives have enabled the use of multi-channel payment solutions – cards, ATMs (Automatic Teller Machines), POS terminals, mobile phones, Internet, etc. The transformation of retail-banking business through ATMs has however been the most visible face of e-business in Nigeria. ATMs have grown tremendously from about 68 ATMs in the pre-consolidation era, compared to thousands in the present dispensation.

3. 1. 2. ICT in Rural Areas

Much of the ICT investment and efforts are concentrated in the urban areas. For commercial reasons, most operators focus on the high margin opportunities in the urban areas. The Universal Service Provision Fund (USPF) a special fund set up by the Federal Government under the National Communications Act 2003, has embarked on several interventions to close the digital gaps in underserved and unserved communities especially in the rural areas. The USPF has deployed IT and Internet facilities in schools and communities throughout the country. The interventions allow these excluded areas to link up and participate meaningfully in the information age.

3. 1. 3. Information Security

With increased awareness of ICT and its applications in society emerging threats and attacks – different forms of computer crime, misuse and fraud - highlight the need to protect consumers and other stakeholders involved in ICT activities in Nigeria. The information security environment in Nigeria has been enhanced to ensure that digital transactions and activities are secure and generate confidence in online transactions. There have been several

initiatives by organizations such as the African Information Security Association (AISA) to promote information security in Nigeria and Africa, the danger is that required legislation including the bill to Facilitate Electronic Transactions in Nigeria, the Computer Security and Protection bill, the bill for the establishment of the cyber security and Information Protection Agency, etc. are still waiting to be passed by the National Assembly of Nigeria despite presentations and advocacy from stakeholders.

3. 1. 4. Issues of Socio-Economic in Development

A challenge particularly in respect of human capacity building for both the users and administrators is one of the issues concerning socio economic development in Nigeria. Other challenges include change management, harmonization of government information, and citizen interaction. Government has introduced cross-sectorial initiatives to build capacity among users and support personnel. Government also place emphasis on 'cultural change to ensure users buy into the new technology driven processes, rather than manual ones that have been in place for many years. Consolidation of information and cross–sectorial collaboration is another understandable challenge. Finally, an ongoing challenge is the external dimension to the structured information that citizens require from their Government. Government has witnessed an aggressive drive from public sector interaction channels especially via web portals and call centres. This is designed to introduce and entrench the open government principle promoted as the model for which government and citizens should interact.

3. 2. Benefit of ICT to Good Governance

3. 2. 1. E-administration

- Cutting process costs: improving the input/output ratio by cutting financial costs and/or time costs.
- Managing process performance: planning, monitoring and controlling the performance of process resources (human, financial and other).
- Making strategic connections in government: connecting arms, agencies, levels and data stores of government to strengthen capacity to investigate, develop and implement the strategy and policy that guides government processes.
- Creating empowerment: transferring power, authority and resources for processes from their existing locus to new locations.

3. 2. 2 E-citizens and E-services

Such initiatives deal particularly with the relationship between government and citizens: either as voters/stakeholders from whom the public sector should derive its legitimacy, or as customers who consume public services

- Talking to citizens: providing citizens with details of public sector activities. This mainly relates to certain types of accountability: making public servants more accountable for their decisions and actions.
- Listening to citizens: increasing the input of citizens into public sector decisions and actions. This could be flagged as either democratisation or participation.
- Improving public services: improving the services delivered to members of the public along dimensions such as quality, convenience and cost.

3. 2. 3. E-society

Building external interactions with the society and these initiatives deal particularly with the relationship between public agencies and other institutions - other public agencies, private sector companies, non-profit and community organisations.

- Working better with business: improving the interaction between government and business. This includes digitizing regulation of, procurement from, and services to, business to improve quality, convenience and cost.
- Developing communities: building the social and economic capacities and capital of local communities.
- Building partnerships: creating organisational groupings to achieve economic and social objectives. The public sector is almost always one of the partners, though occasionally it acts only as a facilitator for others.

3. 2. 4. E-Governance and E-Government

E-government is a general term describing the use of technologies to facilitate the operation of government and the disbursement of government information and services. It could also mean the use of information and communication technology to enhance access to, and delivery of government services for the benefit of all. A common feature of e-government is the automation or computerization of existing paper-based procedures to enhance access to, and delivery of government services to the citizens. It aims to help strengthen government's drive towards effective governance and increased transparency for better management of resources, for growth and development. E-government also aims at integrating government ministries, departments and agencies in a manner that promotes their on-line interaction. In addition to the Internet, mobile phones etc e-government offer an even more convenient channel through which to distribute government information. By utilizing text-messaging, governments are able to send out region-wide and specific emergency warnings, provide up-to-the-minute information upon request, and in essence make government accessible to the people no matter where they may be, at any time. One area of e-government under much discussion and debate is finding a way to implement electronic voting on everything from public measures to the election of representatives. Security concerns and a lack of universal access to technology have slowed the implementation of e-voting, but many advocates hold that it is simply a matter of time before these concerns are sufficiently addressed and e-voting becomes a standard. Governance describes the process of decision-making and the process by which decisions are implemented. Thus, governance is the process whereby public institutions conduct public affairs, manage public resources and guarantee the realization of rights and services. Good governance accomplishes this in a manner essentially free of abuse and corruption, and with due regard for the rule of law. It provides a framework within which political, social and economic priorities are based on a broad consensus in society, and the voices of the poorest and most vulnerable are considered for the decision-making processes. In addition, Good Governance has major implications for equity, poverty and quality of life.

3. 3. ICT Tools for Socio-Economic Development

A computer network is one of the tools and this is a connection of two or more computers through a cable or wireless connection. Computer network enable computer users to share hardware, resources and information. Aside sharing information, the computer

network enables users to share internet access. Computer network is very important for every business, no matter how small a business may be. Computer network helps in sharing resources. With computer network, so many computers can share one printer, scanner and some other hardware, which might be expensive for a company to acquire for every computer user.

In addition to this, Computer network gives users the opportunity to use remote programs and remote databases either of the same organization or from other enterprises or public sources. The importance of having a computer networks are really numerous. Thus, it is a necessity for every organization or company. It makes effective communication possible and helps to eliminate unnecessary waste of time and duplication or resources.

- cost reduction by sharing hard- and software resources
- high reliability by having multiple sources of supply
- cost reduction by downsizing to microcomputer-based networks instead of using mainframes
- greater flexibility because of possibility to connect devices from various vendors

3. 3. 1. ICT Types

Application	Use
Standard Office Applications - Main Examples	
Word processing	E.g. Microsoft Word: Write letters, reports etc
Spreadsheets	E.g. Microsoft Excel; Analyse financial information; calculations; create forecasting models etc
Database software	E.g. Oracle, Microsoft SQL Server, Access; Managing data in many forms, from basic lists (e.g. customer contacts through to complex material (e.g. catalogue)
Presentation software	E.g. Microsoft PowerPoint; make presentations, either directly using a computer screen or data projector. Publish in digital format via email or over the Internet
Desktop publishing	E.g. Adobe Indesign, Quark Express, Microsoft Publisher; produce newsletters, magazines and other complex documents.
Graphics software	E.g Adobe Photoshop and Illustrator; Macromedia Freehand and Fireworks; create and edit images such as logos, drawings or pictures for use in DTP, web sites or other publications

Specialist Applications	
Accounting package	E.g. Sage, Oracle; Manage an organisation's accounts including revenues/sales, purchases, bank accounts etc. A wide range of systems is available ranging from basic packages suitable for small businesses through to sophisticated ones aimed at multinational companies.
Computer Aided Design	Computer Aided Design (CAD) is the use of computers to assist the design process. Specialised CAD programs exist for many types of design: architectural, engineering, electronics, roadways
Customer Relations Management (CRM)	Software that allows businesses to better understand their customers by collecting and analysing data on them such as their product preferences, buying habits etc. Often linked to software applications that run call centres and loyalty cards for example.

4. POLICY RECOMMENDATION

Sustainable development is probably the most daunting challenge that humanity has ever faced, and achieving it requires that the fundamental issues be addressed immediately at local, regional and global levels. At all scales, the role of science and technology is crucial; scientific knowledge and appropriate technologies are central to resolving the economic, social and environmental problems that make current development paths unsustainable. Bridging the development gap between the North and the South, and alleviating poverty to provide a more equitable and sustainable future for all, requires novel integrated approaches that fully incorporate existing and new scientific knowledge.

The Science and Technology (S&T) ministry of Nigeria can make a leading contribution to sustainable development by implementing necessary changes and developing appropriate partnerships. These changes include:

4. 1. 1. Policy on Relevant Science Research Development

A much greater share of research must integrate problem-oriented and interdisciplinary research that addresses the social, economic, and environmental pillars of sustainable development. Good science is essential for good governance. Without proactive policies ICT actually widens the gap between the digital haves and the digital have-nots". Globally the contradictions are even deeper. The great paradox is that with the amazing growth in computing and telecommunications – wireless technologies, mobile telephony, web services - the divide is still widening between the digital "haves" and the digital "have-nots". Poverty, lack of leadership and commitment, underdevelopment and the imbalance in the global economic structure result in unevenness in the exploitation and deployment of technologies. In the absence of well thought through policies, the prevailing situation widens the global digital divide between developed and developing countries.

Countries with better access to ICT and who apply ICT in a widespread, inclusive manner are able to seize the advantages of good governance and development. On the other hand those with inadequate ICT resources end up being the victims of globalization.

4. 1. 2. Broad-Based, Participatory Approaches

Traditional divides between the natural, social, economic, and engineering sciences and other major stakeholders must be bridged. Research agendas must be defined through broad-based, participatory approaches involving those in need of scientific information. The S&T community has the responsibility to improve cooperation with other parts of civil society, the private sector, governments, and intergovernmental bodies. ICTs should be exploited to participate meaningfully in the global digital enabled economy. Today information and knowledge are critical for social and economic growth. In particular ICT advances enable Nigeria to drive inclusive national development and growth by tapping into the benefits derivable from the exploitation and deployment of ICTs.

4. 1. 3. Promoting Gender Equality in Science

Historically women have been severely under-represented in science. The S&T community will actively promote gender equality in science and work with Women and organisations (e.g., Third World Organization for Women in Science) to eliminate existing barriers.

4. 1. 4. Investment in ICT

Nigeria need to develop national ICT policies involving public, private and social sectors aimed at developing knowledge based economies in order to overcome the challenges of economic growth and good governance and ensure that their peoples derive real social, economic and educational benefits from investments in ICT. ICT enables utilization of information in the workplace, in the provision of public services and in the performance of the private sector. Information, knowledge and opportunity epitomize the digital era. This is the age of information. The benefits have made ICT an essential requirement for survival and progress.

4. 1. 5. Investment in Human Capital/Public Goods

Nigeria still needs to improve further on its ICT services and telecommunications systems. Mobile telephony holds some promise for increasing access for marginalized sectors of the population and there has been an exponential growth in mobile subscriptions and all Nigerian states now have some form of mobile coverage, however, there are still millions of Nigerians with limited or no access to ICT services due to lack of network infrastructure. ICT infrastructure cannot work without a regular source of electrical power. More effort should be devoted to improving the country's epileptic power supply. The nation still needs to commit more resources into the development of its Human Capital, address the internal digital divide between the literate and illiterate citizens, while the nation's websites set up by government and private agencies should be integrated and reviewed to make them e-service.

4. 1. 6. Effective and Strategic Deployment of ICT

Effective and strategic deployment, development and exploitation of ICTs will lead to the development of a knowledge-based economy which in turn leads to development. ICT drives development in all sectors by addressing needs that include poverty eradication, improved healthcare, wealth creation, job creation and education. As a matter of fact growth and development cannot be sustained in today's knowledge society without the effective utilization of ICTs in all sectors.

4. 1. 7. E-government for all

E-government should reach all the people who need government services regardless of their location, age, status, language, or access to the Internet. The e-government global survey is a means by which governments can assess their level of preparedness for the provision of services to their citizens using modern ICT and telecommunication techniques. This can be achieved by the provision of adequate ICT infrastructure, improving online services and citizens' access to these services and dedicating itself to improving the country's literacy level.

4. 1. 8. Public and Private Cooperation/Partnership

The truth is that though ICTs provide efficiency gains, increased productivity and the opening up of new opportunities, national, overall gains are not automatic. For example, who makes the investments – the public or private sector? How will partnerships between the public and private sectors work? Without coordination and consistency in ICT and related activities, ICT may not make the required national impact. No country can survive without investing in ICT but strategic thinking and intervention are required. Otherwise how does Nigeria achieve its goals of social inclusion, rapid growth, wealth creation and overall prosperity? What are the roles of the public, private and social sectors? Inclusive multi stakeholder strategies and policies are a necessity to ensure countries benefit from ICT's phenomenal potential.

Public and private cooperation is essential to enhance global competitiveness, drive local content development and enable full participation by Nigerians in the information age. Program recommendations are focused on ensuring Nigeria becomes an information and knowledge society that enables Nigeria and its citizens to benefit in a sustainable, widespread and inclusive manner through the development of the private sector.

5. CONCLUSIONS

The main challenge of e-government implementation in any developing country is whether the intended objective of reaching the citizens is actually achieved. E-government should reach all the people who need government services regardless of their location, age, status, language, or access to the Internet. A country will benefit if it critically examines its present state and then identifies those areas that it needs to improve.

Having taken a cursory look at ICT, e-government and Nigeria's experiences, one can see Nigeria has a gold mine for investment in the Nigerian ICT market. The population of about 160 million people and the strategic position in the West African sub-region means that

any business that succeeds in Nigeria has automatically succeeded in West Africa. Nigeria needs to leverage better on ICT to jump-start growth and development. Enhancing security for life, property and information, improving infrastructure and creating the environment for viable private sector activity are essential for effective Public Private Participation in ICT for Development in Nigeria. Sustainable development is achieved when stakeholders share a common vision and agree on the same national interest. This requires close coordination, coherence and commitment for Nigeria to use ICT to drive social and economic development.

ICT for good governance and development in Nigeria should be aggressively prioritized and supported by mainstreaming policies into national development programs. It is time to realize the immense potential of the imaginative, resilient and industrious Nigerian people. The need for quality, committed leadership that understands and appreciates the role of ICT has never been greater. Lastly, since ICT development is multidimensional, the public sector must partner with the private sector in a creative and mutually beneficial manner. Ideas are not enough. Policies are not enough.

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