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INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) AND GOVERNANCE IN NIGERIA: CHALLENGES AND PROSPECTS

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ABSTRACT

Information and communication technologies have permeated the different sectors of the Nigerian society, like they have done globally, gradually making the dependence on them an imperative for the effective and smooth functioning of the society. Especially, ICTs have contributed to e-governance in Nigeria and created more open spaces for citizen, organisation and interagency interaction with government and its representatives. E-governance is increasingly becoming the touchstone and facilitator of the delivery of social goods by national, state and local governments via ICTs to citizens, businesses and governmental agencies today. The increasing diffusion of e-governance practices globally has been underpinned by the Diffusion of Innovations Theory adopted in this study. However, in spite of the role of e-government in enabling the provision of relevant government information in electronic form to the citizens in a timely manner; better service delivery to citizens; empowerment of the people through access to information without red tape; improved productivity and cost savings in doing business with suppliers and customers of government; and participation in public policy decision-making, e-government practice is still faced with different challenges in Nigeria. Resolving issues such as legislative and regulatory barriers, limited budgetary allocations for development, the digital divide between urban and rural areas of the country and lack of basic infrastructure such as power, among others, must be hastened for a robust and effective e-governance practice to happen in Nigeria. In this study, valid recommendations have been made on the way forward.

Keywords: Information and Communication Technology, Internet, E-Governance, Government and Social Change

INTRODUCTION

The emergence of Information and Communications Technologies (ICTs) has provided the means for faster and better communication, efficient storage, retrieval and processing of data and exchange and utilisation of information to its users, be they individuals, groups, businesses, organisations or governments (Bhatnagar, 2004). What started as a faster, more accurate and sim-

pler means of word-processing has quickly lent itself to being used as a tool for processing and tabulating data as an aid in decision making. This process has been enabled by the growing computerisation and increasing internet connectivity, which have presently reached a stage where more and more users are motivated to modify their ways of doing things in order to leverage the advantages provided by ICT. Putting it differently, this

has led to the re-engineering of business processes. However, in the realm of governmental operations, the integration of computerisation and internet connectivity/web-enablement in association with process re-engineering, has resulted in a mode of faster and better processing of information leading to speedier and qualitatively better decision making, greater reach and accountability, better utilisation of resources and overall good governance especially in developed countries. For the citizens, e-government holds the promise of enhanced access to information and government agencies, efficient service delivery and transparency in dealings and interactions with government.

Therefore, with the increasing awareness among citizens about their rights and the resultant increase in expectations from the government to perform and deliver, the whole paradigm of governance is changing. Hence, government today is expected to be transparent in its dealings, accountable for its activities and faster in its responses. This makes the use of information and communication technologies imperative in the realisation of good governance. It has also led to the realisation that such technologies could be used to achieve a wide range of objectives and lead to faster and more equitable development with a wider reach. As Atkinson and Castro (2008) opined, the tools of modern technology such as Information and Communications Technology (ICT) should be used to transform the relationship of the government with its constituents, citizens and businesses, and also between its own agencies. They argued that recognising the potential of ICT in transforming and redefining processes and systems of governance is the logical next step in the use of ICT in systems of governance

in order to ensure wider participation and deeper involvement of citizens, institutions, civil society groups and the private sector in the decision making process of governance.

In a study carried out by the UN's 2010 bi-annual e-Government Readiness survey, no African country, including Nigeria, featured in the list of the top 50 countries that are efficiently and effectively utilising ICTs in the processes and activities of governance (UNDSA, 2010). The survey assessed the 191-member states of the UN according to a quantitative composite index of e-government readiness based on website assessment; telecommunication infrastructure and human resource endowment. This is a vote of no confidence on e-governance readiness in Africa and, by extension, Nigeria.

This study is therefore concerned with the role and application of information and communication technologies in engendering effectiveness and efficiency in government in Nigeria. Similarly, it seeks to examine the challenges militating against e-governance and the prospect of the adoption of ICTs in the running and management of government activities and processes in Nigeria.

ICT AND GOVERNANCE

What is ICT? Information and communication technology (ICT) is the technology that has made positive impact in information generation, storage, retrieval, transmission and communication. The whole concept of ICT encompasses all those technologies that enable the handling of information and facilitate different forms of communication among human actors between human beings and electronic system and among electronic systems (Adeyinka, 1999). ICT is also a term

used to describe technologies that enable the recording, storage, processing, retrieval, transmission and receiving of information. It is an amalgam of modern technology/tools such as computers, facsimile transmission, macro graphics telecommunication, macro electronics, office information and control engineering. Adeyinka argues that ICT carries out its communication activities via resources and services that affect the local or global accumulation and flow of public and private knowledge. Ughegbu (2001) defines information and communication technology as a group of technologies that is used to handle and manage information and records as well as in transmitting such information to whoever needs it. It embodies a convergence of functions between electronics, computing and telecommunications. In the words of Tusubira and Kyeyune (2001), information technology describes the hardware, software, the method and the know-how required in acquiring, storing, processing and displaying data and information. They also see communication technology as the hardware, programs and the methods used in ensuring that messages or information is transmitted correctly, efficiently and cost effectively. According to them, the convergence of these two technologies refers to information and communication technology i.e. a technology that allows for, benefits from and reinforces the interaction between information technology and communication technology.

Iwe (2005) sees ICT from the angle of globalisation, arguing that globalisation has greatly influenced the variety, complexity and use of information and communication technology. As ICT revolution has contributed immensely to shaping and accelerating globalisation, enriching its global perspec-

tive and goals, so also globalisation and ICT have combined to bring about changes in the integration of world affairs by encouraging a new vista of opportunities in the global economy.

Information and communication technology from the angle of the World Wide Web, made possible by the internet, is increasingly creating a new dimension in information transfer among individuals, corporate organisations, libraries and governments. The World Wide Web, representing the interconnected system of computers, is an open system of a complex interrelated structure of human technology and human information interaction aimed at information retrieval and sharing through computer network communication (Horton and Ilecheva, 1995; Ogunsheye, 2003).

In Nigeria today, one of the fastest growing sectors of the economy is the area of computer and telecommunication, reinforced by the introduction of digital technology. The dramatic acceleration in the development and use of ICT among Nigerians in the last few years has led to a better appreciation of information for national development. Just as ICT is revolutionising different sectors in the country, the application of ICTs in government could lead to many benefits for the public sector and governance in general.

The application of ICT to governance is what is popularly known as e-government. For Koh and Prybutok (2003), e-governance is "the use of technology to enhance the access to and delivery of government services to benefit citizens, business partners and employees." E-government is also seen as a generic term for web-based services from agencies of local, state and federal governments. In e-government, the government

uses information technology and particularly the Internet to support government operations, engage citizens, and provide government services. The interaction may be in the form of obtaining information, filings, or making payments and a host of other activities via the World Wide Web (Sharma & Gupta, 2003; Sharma, 2004; Sharma 2006).

According to UNESCO:

E-governance is the public sector's use of information and communication technologies with the aim of improving information and service delivery, encouraging citizen participation in the decision-making process and making government more accountable, transparent and effective. E-governance involves new styles of leadership, new ways of debating and deciding policy and investment, new ways of accessing education, new ways of listening to citizens and new ways of organising and delivering information and services. E-governance is generally considered as a wider concept than e-government, since it can bring about a change in the way citizens relate to governments and to each other. E-governance can bring forth new concepts of citizenship, both in terms of citizen needs and responsibilities. Its objective is to engage, enable and empower the citizen" (Palvia and Sharma, 2003).

E-governance or e-government also referred to by E-government (2010) as e-gov, digital government, online government, connected government or transformational government is creating a comfortable, transparent, and cheap interaction between gov-

ernment and citizens (G2C), government and business enterprises (G2B) and relationship between governments (G2G – inter-agency relationship). There are four domains of e-government, namely, governance, information and communication technology (ICT), business process re-engineering (BPR) and e-citizen. As Kaylor, Deshazo and Van (2001) observed, e-governance refers to processes in which Information and Communications Technology (ICT) play an active and significant role in the following ways:

- Improve the quality of governance products and services being currently provided
- Provide new governance services and products
- Enhance participation of people in choice and provision of governance products and services
- Bring new sections of society under the governance sphere (including those who are most likely to remain excluded - namely the poor, the illiterate, the disabled, indigenous people, migrants and displaced people)

In agreement with Kaylor, *et al.*, E-government (2010) affirms that ICT-enabled government is created to use ICTs, and particularly the internet, as a tool to achieve better government, apply information and communication technologies in all facets of the operations of a government organisation and optimise service delivery, constituency participation and governance by transforming internal and external relationships through technology, the Internet and the new media.

While the definitions on e-governance by various sources may vary widely, there is a common theme. E-governance involves using information technology, especially the

Internet, to improve the delivery of government services to citizens, businesses, and other government agencies, while through it, citizens are enabled to interact and receive services from the federal, state or local governments.

THEORETICAL BACKGROUND

The Diffusions of Innovation Theory is a theory of how, why, and at what rate new ideas and technology spread through cultures. The concept was first studied by the French sociologist Gabriel Tarde (1890) and by German and Austrian anthropologists such as Friedrich Ratzel and Leo Frobenius. The theory seeks to explain the spread of new ideas. First developed in the early 1950s using research in rural sociology, it continues to be widely used. Rogers (1995) proposed 4 main elements that influence the spread of a new idea: the innovation, communication channels, time, and a social system. According to him, diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system. Rogers also identifies 5 stages in the decision innovation process to include: knowledge, persuasion, decision, implementation, and confirmation. For him, the knowledge stage is that stage where the individual is first exposed to an innovation but lacks information about the innovation. During this stage of the process, the individual has not been inspired to find more information about the innovation. In the Persuasion stage, the individual is interested in the innovation and actively seeks information/details about it. In the Decision stage, the individual takes the concept of the innovation and weighs the advantages/disadvantages of using the innovation and decides whether to adopt or reject the inno-

vation. Due to the individualistic nature of this stage, Rogers notes that it is the most difficult stage to acquire empirical evidence. The implementation stage is that stage when the individual employs the innovation to a varying degree depending on the situation. During this stage the individual determines the usefulness of the innovation and may search for further information about it, while in the confirmation stage, the individual finalises their decision to continue using the innovation and may use the innovation to its fullest potential. An individual here includes an organisation or a government.

The interesting part of this theory, that is relevant to this discourse, is the aspect that clearly identifies the stages in the diffusion of innovation. Since information and communication technologies and e-governance models and practices are currently in use by developed advanced societies, their successful implementation compels less developing countries to adopt these technologies. Thus, e-governance, which is the process of adopting information and communication technologies in governance can help to iron out the governance challenges in Nigeria and other developing societies when these technologies are adopted and integrated into our governance systems and processes.

APPLICATION OF E-GOVERNANCE IN ADVANCED COUNTRIES

The use of ICTs in government processes, activities and interaction with citizens, civil society, organisations and agencies of government has become a firmly established practice in developed countries. As E-government (2010) noted, the entrenchment of e-governance in developed economies has resulted in significant social change and is reflected by the following:

i. E-democracy: E-governance in developed societies has led to greater citizen participation. Through the internet, blogging, chat rooms, interactive surveys and other internet-enabled facilities, citizens of these countries interact with politicians or public servants and make their voices heard. Chat rooms, for instance, can place citizens in real-time contact with elected officials, their offices or provide them with the means to replace them by interacting directly with public servants, allowing voters to have a direct impact and influence in their government. These technologies can create a more transparent government, allowing voters to immediately see how and why their representation in government is by voting the right people into leadership positions.

ii. Environmental bonuses: Through online government services, this lessens the need for hard copy forms. Due to recent pressures from environmentalist groups, the media, and the public, some governments and organisations have turned to the Internet to reduce their paper use like in the United States government, where a website, <http://www.forms.gov>, promotes internal government forms for federal employees and thus produces significant savings in paper.

iii. Speed, efficiency, and convenience: In developed societies, citizens interact with computers to achieve objectives at any time and any location without the need for a physical travel to government agents sitting behind desks and windows. As Satyanarayana (2004) discerned, this situation has led to improved accounting and record keeping through computerisation and information, and forms can be easily accessed, leading to quicker processing time.

iv. Public approval: Through the use of

ICTs, citizens participate in online discussions on political issues of interest with increasing frequency, and young people, who traditionally display minimal interest in government affairs, are drawn to e-voting procedures. Canada, the USA and many parts of Europe, have evolved ICT tools and applications to drive their e-governance objectives and to increase e-citizen, e-democracy, e-voting, e-office, e-organisation, e-administration and e-leadership activities with the goal to create an inclusive government responsive to the needs and yearnings of the citizens.

APPLICATION OF E-GOVERNANCE IN NIGERIA

Imhonopi (2009) stated that internet-based government is being applied in almost all the states in Nigeria particularly in Lagos, Cross River, Akwa-Ibom, Rivers, Ondo and Bayelsa states. For instance, Osuagwu (2009) confirmed that in Cross River state, the government is working with Galaxy Backbone, an internet service provider, to "provide connectivity between the central system and 164 remote stations for the implementation of the State's free healthcare programme for pregnant women and children under 5 years as well as the State's Conditional Cash Transfer programme for the poor...The remote stations are made up of 146 primary and post-primary health institutions across the state and 18 coordinators for the primary health information centres." Thus, Cross River state is to provide the connectivity between the central system and all the remote locations where the State Government's intervention is taking place, enabling the government to deliver its promises to its people. From the survey carried out by Moeletsi (2009), Delta State in Nigeria is also using elements of the SAP Enterprise Resource Planning (ERP) solution to move towards e-

government. Implementation of the financials and logistics modules of SAP ERP, running on the SAP NetWeaver business process platform, has enabled the state to centralise payment processes – gaining tighter control of government expenditure as well as improving planning and budgeting capabilities. The new system has also positioned the state government to move from an accruals-based to a cash-based accounting methodology - further enhancing insight into revenues and expenditure for the ministries of finance and economic planning. Although infrastructure was a concern at the outset – with electricity supply being particularly unreliable – the acquisition of two high capacity generators ensured that hardware ran optimally; in addition, a virtual private network link between Delta State and SAP in Germany ensures that remote support of the SAP system is always available. In spite of these vestiges of e-governance take-off in Nigeria, Uwadia believes that e-governance application and penetration in Nigeria is still a far cry from what it should be due to some drawbacks in Nigeria like lack of transparency, lack of stable energy supply and lack of political will (The Vanguard, 2010).

THE CHALLENGES OF E-GOVERNANCE IN NIGERIA

There are different challenges to effective e-governance in Nigeria. As Sequiera (2009) noted, these challenges include lack of a realistic needs analysis, unwillingness to re-define rules, and procedures, misconception about Information transparency, lack of inter/intra departmental collaboration for horizontal and vertical information sharing, security threats and legal Issues, lack of optimal utilisation of Infrastructure, problem of sustainability of change and the inability of governments to afford IT enabled solu-

tions.

Furthermore, OECD Policy Briefs (2003) considers the following barriers as factors that militate against the effective penetration and entrenchment of e-governance in Nigeria.

1. **Legislative and regulatory barriers can impede the uptake of e-government.** The cost of developing an e-government project can be prohibitive when legislative and regulatory processes and policies are not resolved. This includes the issues of privacy and security, which need to be ensured before online services can advance.
2. **Budgetary frameworks can restrict e-government initiatives.** Until ICT expenditure is seen as an investment and not a cost, e-governance efforts in Nigeria would be frustrated. Without cost-effective solutions put in place, e-governance projects, which are quite expensive in the short term, may be dumped for the status quo.
3. **The adoption of e-government solutions can lag behind technological change.** Uncertainty regarding technological change and developments which are moving very fast makes it difficult for government to anticipate future impacts in detail and this frustrates government's efforts to foster the development of e-government initiatives.
4. **The digital divide impedes the benefits of e-government.** The ruralisation of Nigerian communities and the absence of ICT infrastructure and networks in rural areas make it difficult for those dwelling in such communities to enjoy the benefits of e-government, while the available e-governance structures put in place in the cities are only

accessible by city dwellers.

The following are other reasons for the slow development of e-governance in Nigeria:

5. **Lack of Political Will.** This is another challenge facing the development of e-governance in Nigeria. The gerontocratic political matrix and culture in place favours the manualisation of public sector processes and administration and does not consider the need for the digitalisation of government business. This is another limitation for the growth of e-governance in Nigeria.
6. **Lack of Transparency and Accountability in Government.** Government officials and public officers are afraid of the impact of e-governance, hence resist genuine efforts made to engage ICTs in driving and managing government business.
7. **Corruption of Public Office Holders and Government Officials.** As a corollary to the above, public office holders to protect themselves from prosecution and sustain their corruptive and sharp practices, promote the retention of analog and manual system of government business and operations.
8. **Lack of Basic Infrastructure and Indigenous Technology.** The absence of constant energy supply as a result of lack of infrastructure and lack of indigenous technology are a drag on the development and entrenchment of e-governance in Nigeria.

GENERAL PROSPECTS AND BENEFITS OF E-GOVERNANCE IN NIGERIA

For Sequiera (2009), effective e-governance

in Nigeria will lead to many benefits/advantages. It will lead to increased transparency and accountability in government business, reduced corruption, higher penetration of government business, deliverables and impact on citizens due to automation, increased efficiency due to connectivity, increased and improved receipts/revenue through automation and blockage of loopholes, improved tourism and cultural integration, easy implementation of e-polling, tax filling, e-voting, vehicle registration and progress of government business. There are also many benefits that e-governance can give to Nigeria as listed by OECD Policy Briefs (2003). These are:

i. E-government can improve efficiency of government business. Internet-based applications can generate savings on data collection and transmission, provision of information and communication with citizens. Significant future efficiencies are likely to increase as a result of greater sharing of data within and between governments, and between governments, citizens and organisations.

ii. E-government can improve government service delivery. Successful services are built on an understanding of user requirements, and online services are no different. A customer focus approach to service delivery means that a user should not have to understand complex government structures and relationships before enjoying any of the services of government. Therefore, government delivery systems should be user-friendly. The Internet can help achieve this goal, by enabling Nigerian governments (at the federal, state and local levels) to appear as a unified organisation and provide seamless and user-friendly online services.

iii. E-government can help to achieve specific policy outcomes.

The Internet can help stakeholders share information and ideas and contribute to specific policy outcomes e.g. sharing of information between the Federal government and its constituent units can facilitate environmental policies. E-government contributes to other economic policy objectives by reducing government expenditures through more effective and efficient programmes, improving business productivity through administrative simplification and promoting the information society and ICT industry.

iv. E-government can be a major contributor to reforms.

ICTs can underpin reforms in the areas of globalisation, immigration, revenue generation, tax filing, e-polling, new fiscal demands, changing social structure and increasing citizen expectations.

v. E-government can help build trust between governments and citizens.

Building trust between governments and citizens is fundamental to good governance. ICT can help build trust by enabling citizen engagement in the policy process, promoting open and accountable government and helping to prevent corruption. Furthermore, it can help the voice of the citi-

zens to be heard in a broad debate, thus encouraging citizens to think constructively about public issues and at the same time helping to assess the impact of applying technology to open up the policy process and the political space.

RECOMMENDATIONS

Nigeria needs to entrench e-governance practices, structures and platforms for it to achieve its national and economic development agenda. However, as Sequiera (2009) observes, for this to happen, the country needs to have a vision of aligning ICT with Business Strategies to meet its e-governance objectives, prepare a strategic long-term action plan and a roadmap by setting priorities, adopt a systematic approach to requirements analysis, build project management teams with a top-down approach for monitoring and control of progress, adhere to quality conformance requirements around efficiency and effectiveness in all areas of its operations and develop a mechanism to measure performance and ways for continual improvement. She argues that the state of e-governance in Nigeria can be determined by looking at the table below.

Table 1: Result of E-governance Path to Change

S/N	E-GOVERNANCE PATH TO CHANGE				RESULT/EFFECT
1	Vision +	Skills +	Motivation +	Resources +	Action Plan = Change
2	Absence of vision +	Skills +	Motivation +	Resources +	Action Plan = Confusion
3	Vision +	Absence of Skills +	Motivation +	Resources +	Action Plan = Anxiety
4	Vision +	Skills +	Absence of Motivation +	Resources +	Action Plan = Gradual Change
5	Vision +	Skills +	Motivation +	Absence of Resources +	Action Plan = Frustration
6	Vision +	Skills +	Motivation +	Resources +	Absence of Action Plan = False Starts

Source: Sequiera, J. (2009)

According to Table 1 above, there is need for vision, skills, motivation, resources and an action plan for e-governance to bring about social change in the Nigerian society. The absence of any of these requirements will lead to an undesirable effect for the country.

OECD Policy Briefs (2003) proffers the following guiding principles as sacrosanct for effective e-governance in Nigeria.

Leadership and Commitment: There must be leadership and commitment, at both political and administrative levels, to manage e-governance demands in Nigeria. Committed leaders are required therefore to deal with disruptive change, to persevere when benefits take time to emerge, to respond when things go wrong, and to establish visions and plans for the future.

Integration: E-governance is an enabler, not an end in itself. Consequently, there is need for it to be integrated into broader policy and service delivery goals, broader public management reform processes and broader information society activity.

Inter-agency collaboration: E-governance is most effective when agencies work together in customer-focused groupings of agencies. Agency managers need to be able to operate within common frameworks to ensure interoperability, maximise implementation efficiency and avoid duplication. Shared infrastructure needs to be developed to provide a framework for individual agency initiatives. Incentives can help encourage this sort of collaboration.

Financing: ICT spending, where appropri-

ate, needs to be treated as an investment, with consideration of projected streams of returns. E-governance requires a level of certainty of future funding to provide sustainability to projects, avoid wasting resources and gain maximum benefit from given funding levels. A central funding programme could help foster innovation and allow for key demonstration of projects.

Access: The Nigerian government should pursue policies to improve access to its online services through infrastructure provision and modernisation of the rural areas. Many advantages of online government information and services are not replicable offline, so that those who lack access will be excluded unless action is taken.

Choice: Customers should have choice in the method of interacting with government, and the adoption of online services should not reduce choice. A principle of "no wrong door" to access should be adopted. Services should be driven by an understanding of customer needs.

Citizen engagement: E-governance information and services should be of high quality and engage citizens in the policy process. Information quality policies and feedback mechanisms will help maximise the usefulness of information provision and strengthen citizen participation.

Privacy: E-governance should not be delivered at the expense of established expectations of privacy protection, and should be approached with the goal of protecting individual privacy.

Accountability: E-governance can open up government and policy processes and enhance accountability. Accountability arrangements should ensure that it is clear who is responsible for shared projects and initiatives. Similarly, the use of private sector partnerships must not reduce accountability.

Monitoring and evaluation: Identifying the demands, costs, benefits and impacts of e-governance is crucial if momentum is to be sustained. E-governance implementers cannot expect support if they cannot articulate potential benefits.

CONCLUSION

From the foregoing, it becomes clear that a lot needs to be done for the implementation and penetration of e-governance in Nigeria. However, the benefits of e-governance practice as identified by Yusuf (2006) such as cost effectiveness in government and public operations and significant savings in areas such as public procurement, tax collection and customs operations; greater accountability and transparency in public decisions which reduces opportunities for corruption; greater access to government information and the empowerment of people to participate in the political processes that affect their lives; better and continuous contacts with citizens, especially those living in more remote or less densely populated areas and others show that investing in e-governance is in line with the national, economic and human development programmes of government.

Since, internet-based government has continued to provide convenient and cost-effective measures for businesses, and the public sector agencies and citizens benefit by getting easy access to the most current

information available without having to spend time, energy and money to get it, the Nigerian government, at the federal, state and local government levels, must begin to take the issue of investment in e-governance very seriously. There is therefore a significant relationship between a country's technological, political and bureaucratic advancement and a successful internet-based governance practice. To further recoup the gains of internet-driven governance and government in the country, the present poor state of social infrastructure (especially power supply and road network) in Nigeria needs to be addressed by government.

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