

# Towards e-government in a Sub-Saharan African Country: Impediments and Initiatives in Nigeria

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## Biographical Notes

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## Introduction

According to the UNPAN (2005) e-government survey, almost all the governments in the world have embraced one form of e-government or another. However, many developed countries have incorporated sophisticated services whilst other nations are just beginning to understand the importance of such a concept in governance (Accenture, 2004). A majority of countries in Africa fall into the latter category. Clearly, advances in information and telecommunication technologies have accelerated the growth of e-government practices in both developed countries and developing countries (Cottrill, 2001; InfoDev, 2004; Accenture, 2004). A report states that “the most innovative uses of the Internet in governance are appearing in the developing world” (InfoDev, 2004; p8) despite the prevalence of chronic limiting factors in the developing parts of the world including Africa. Such limiting factors have resulted in poor e-government readiness rankings for countries in those disadvantaged regions (UNPAN, 2005). The UNPAN survey puts the average for African countries at 0.253 which is below the world’s average of 0.415. Nigeria has an e-government index ranking of 0.243 which is quite poor even in comparison to other developing nations (UNPAN 2005). However, studies have indicated that many African governments are not totally in the dark as to what the benefits of e-governments are and have since started to make efforts to “catch-up” (Lal, 1999; Kaaya, 2003; Thomas et al., 2004; UNECA, 2004; UNPAN, 2005). In brief, African governments are beginning to accept the fact that ICT use in governance could help hasten their socio-economic and political development (see, Heeks, 2002; Thomas et al., 2004; InfoDev, 2004). E-government literature tends to focus its attention mainly on issues relating to the implementation, adoption and effectiveness of e-government services from the perspective of the developed West with little or no attention being paid to Sub-Saharan African (SSA). This paper aims to add to the e-government discourse by reviewing the efforts of a developing country in the

Sub-Saharan region - Nigeria - as it creates a suitable environment for e-government to emerge. The current e-government initiatives are also highlighted.

E-government, as described by the World Bank, is the use of ICT to transform government by making it more accessible, effective, and accountable to its citizenry (InfoDev, 2004). E-government involves the utilization of technologies such as the Internet to improve the services, functions, and processes of governance (Cottrill, 2001; Heeks, 1999, 2001, 2002; Watson and Mundy, 2001; Moon, 2002). It involves more than establishing a Web server and hosting government sites (Sanchez et al., 2003). However, the Internet plays a vital role in establishing e-government initiatives (Golden et al., 2003; Sharma and Gupta, 2003). The World Bank (InfoDev, 2004) provides a guideline for developing countries regarding e-government initiatives. The body asserts that e-government initiatives should target the following:

- Promote civic engagement by enabling the public to interact with government officials and vice versa
- Promote accountable and transparent governments in which the opportunities for corruption are reduced
- Provide a greater access to government information and activities
- Provide development opportunities, especially the sorts that benefit rural and traditionally underserved communities

Likewise, the United Nations Division for Public Economics and Public Administration and the American Society for Public Administration (UNDPEPA/ASPA, 2003, p6) state “E-government is about opportunity...to provide cost effective services to the private sector...to enhance governance through improved access to accurate information and transparent, responsive, and democratic institutions.” Furthermore, e-government can be an emerging model involving both the citizenry and the state, where the importance of citizen input in policy formulation and implementation is recognized and valued (Breen, 2000; Navarra and Cornford, 2003). Wimmer and Traummuller (2001) contend that the main objectives of e-government should include the following: (i) restructuring administrative functions and processes; (ii) reducing and overcoming barriers to coordination and cooperation within the public administration; and (iii) the monitoring of government performance. Others view e-government as a sort of public service that operates in a “one-stop, non-stop” manner (Lawson, 1998). Heeks (2001) describes e-government as i-governance or integrated governance, which enables the integration of both the processing of information by people and the use of communication technologies in achieving the objectives of governance.

Importantly, there are several models of e-government. Bose (2004) classified the types into four broad citizen-centered groups. The first one is the government-to-citizen (G2C) service delivery that involves the building of web pages for one-stop services for citizens. Second, there is the government-to-business (G2B) model wherein governments cater to the needs of businesses/organisations. Third, there is the government-to-government (G2G) model that facilitates inter-governmental functioning. For example, data resources can be shared and integrated by the different government arms; i.e., federal, state and local. Fourth, there is the Intra-governmental service, which can also be described as the government-to-employee (G2E). This model focuses on improving the internal efficiency and effectiveness of government operations by reducing redundancies.

The remainder of this paper is organized as follows: We will next present the background information about Nigeria, including a summary of its socio-economic and political environments followed by the analytic framework of the constraints or problems facing the emergence of e-government initiatives in Nigeria as well as the initiatives on the ICT and e-government fronts. Finally, we will make the concluding remarks to the paper.

## Background information about Nigeria and the study framework

Nigeria is the most populous country in Africa, with a population of about 150 million (CIA: World Factbook, 2005). It is a Sub-Saharan African (SSA) country; and as such has the characteristics and statistics usually seen for countries the region. Table 1 compares a few indicators between two countries from SSA and Western Europe. Nigeria provides a relatively good indicator for SSA regarding its e-readiness, socio-economic, and political climates (see, Dutta et al., 2003; CIA: World Factbook, 2005; Ifinedo, 2005b), and we believe our discourse of the impediments and initiatives of e-government in the country might provide useful insight for the SSA region.

**Table 1.** Socio-economic indicators of selected countries/regions

Country	Region	Literacy % of population	Life Expectancy (years)	GDP per capita	Internet Users	Electric Production billion (kW)
Nigeria	SSA	68%	46.7	US\$1000	750,000 (2003)	19.85 (2002)
Senegal	SSA	40.2%	58.9	US\$1700	225,000 (2003)	1.74 (2002)
The UK	Western Europe	99%	78.4	US\$29,600	25million (2002)	395.9 billion (2003)
France	Western Europe	99%	79.6	US\$28,700	22million (2003)	528.6 billion (2002)

Source: CIA: World Factbook (2005)

Nigeria became an independent country in 1960, after years of colonization by the United Kingdom (the UK). Nigeria has had a long history of military coups – six were successful and there were several unsuccessful attempts (Idowu, 1999; CIA: World Factbook, 2005). Military coups in Nigeria, as is the case elsewhere in SSA are often motivated by greed and a desire to loot the resources of states that have poor institutional structures and accountability (Ifidon, 1996). Thus, in the recent past, political instability, corruption, and poor macroeconomic management (Ifidon, 1996; Idowu, 1998; Ifeka, 2000; CIA: World Factbook, 2005) hobbled Nigeria. The corruption has been so widespread that Nigeria is ranked among the most corrupt countries in the world (TICP, 2003). However, the country has been recreating its image since it became a democracy again in 1998 (CIA world, 2005; BBC news, 2005b), and the nation is touting e-government as a reformative tool for political, social, and economic re-engineering (Obasanjo, 2004; Ajakaye, 2004).



Source: CIA: World Factbook (2005)

**Figure 1:** The map of Nigeria

A culture of corruption and inefficiency is pervasive among functionaries in the country (TICP, 2003; Obasanjo, 2004; Ajakaye, 2004; BBC news, 2005a). The Nigerian civil service was established to be bipartisan (Iheme, 2003) and to run government services in the country, but the Nigerian civil service is partisan, inefficient and corrupt (BBC news, 2005a, b). Some Ministers and Heads of Service have been dismissed for bribing members of the Legislature (BBC news, 2005a). Nigerian officials have colluded with multinationals to defraud the state (Igbikiowubo 2005). With such deep-seated corruption taking place in the country, businesses and citizens bear the brunt of poor government services. For example, procuring an ordinary government form can be a difficult task in Nigeria because of requests for gratification from government functionaries. In an attempt to reduce bureaucracy, inefficiency, and corruption in the country the federal government of Nigeria is attempting to take governance (at least, the provision of some government services) online. In a speech delivered at the First Stakeholders Conference on National e-Government Strategies and Implementation for Nigeria, the Nigerian President said “it will no longer be business as usual” (Obasanjo, 2004). He added further:

*“The emphasis, style and programmes of this administration have always centred on reorientation of civil servants and public officers towards a change in the ways of doing government business in a transparent, efficient and effective manner. This was to be done through the eradication of corruption and enhancing efficiency and productivity through a synergy of private and public sector participations and service delivery. We have taken major steps, namely, privatisation, deregulation and monetisation towards accomplishing the goal of a compact, accountable and productive government. There is no going back to the old ways. However, the backroom engine, which will run good governance through due diligence, due process and transparency, actually needs to be formally strengthened and institutionalised for widespread effectiveness through computer assisted modern processes now commonly known as e-government” (Obasanjo, 2004).*

Similar messages have been echoed by other high-ranking ministers in the country. For example, the Minister of Science and Technology indicated Nigerians should be prepared for the change resulting from e-government when he stressed:

*“Nigeria is about to witness is a hurricane. ... That nobody, not even a President can stop. Can you see a President stopping a hurricane? He can't. No dictator, for instance, can tell you that you cannot send an e-mail.... One way to diminish [419] fraudsters is to have proper data and proper documentation which IT [introduces]” (Ajakaye, 2004).*

It has to be noted that there are different forces possibly contributing to the emergence of the notion of e-government in Nigeria. First, as would be expected for a society like Nigeria where those in authority are expected to lead (Hofstede, 2001; Straub et al., 2001; Anandarajan et al., 2002), the incumbent leadership seems to have realized that there should be a change in how it provides services to its citizens. The leadership believes e-government can help bring about such a change. Second, the former Head of the national IT policy agency alluded to the fact that Nigeria strives to abide by policy guidelines from external sources such as the e-Africa Commission and WSIS regarding the use of ICT products for socio-economic development. Third, pressure seems to be coming from established and influential businesses in Nigeria for e-government to be established. Fourth, the year-to-year percentage increase of internet hosts and users in Nigeria as well as the spread of Cybercafés in the country (ITU, 2005; Ndukwe, 2004; Ajakaye and Kanu, 2004) could be indicators that there is a growing constituent ready for e-government initiatives.

## Why e-government for Nigeria

Some have suggested that IT-related projects, including e-government initiatives, may not be suitable for societies in SSA where informality thrives (Ojo, 1996). However, e-government is gaining prominence across Africa (see, Heeks 2002; Kaaya, 2003; InfoDev, 2004). As previously noted, e-government is about

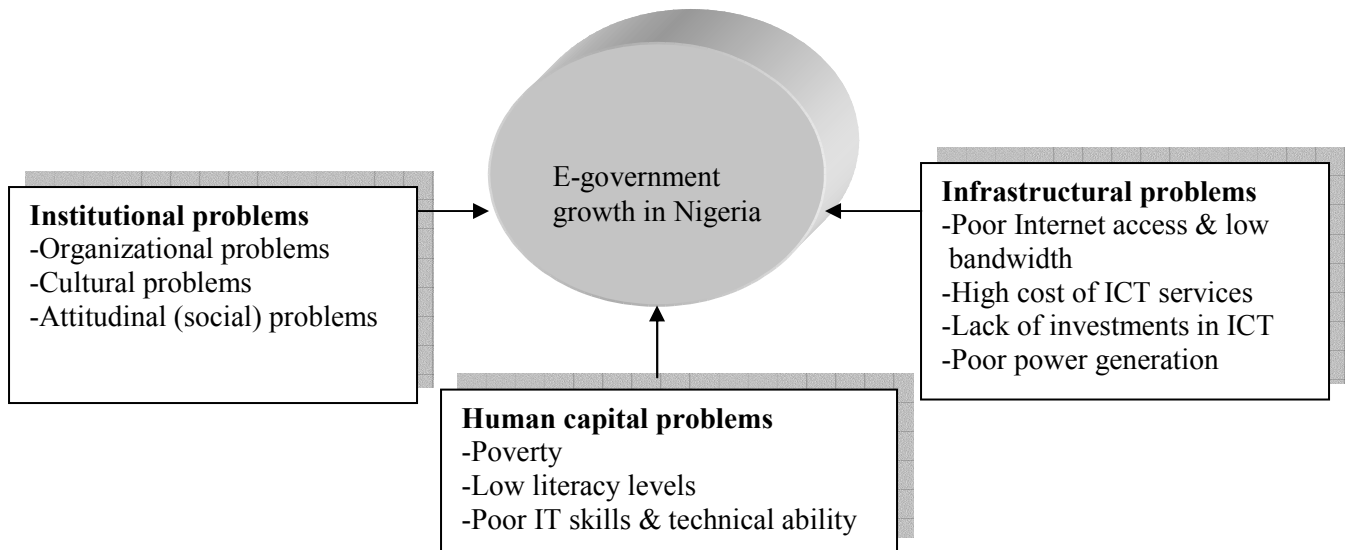
seizing the opportunity to enhance governance through improved access to government information using ICT. Nigeria might benefit from e-government initiatives (in its advanced forms) in many ways. The climate of political instability that has bedevilled the country could be checked through e-government endeavors. How? Inefficiency, poor accountability, and a lack of transparency are among the reasons why undemocratic leaders in SSA survive (see, e.g., Ifidon, 1996; Idowu, 1999; Ifeka, 2000). Properly implemented e-government initiatives could help improve a culture that upholds the lack of transparency, and accountability seen in Nigeria. For example, other countries (e.g., India) have used e-government initiatives in the fight against corruption (InfoDev, 2004). We argue that when government data resources are visible to several stakeholders in digital formats, the manipulation of these resources by unscrupulous functionaries may become less attractive. Furthermore, Wimmer and Traummuller (2001) contend that the main objectives of e-government include restructuring administrative functions and processes as well as monitoring government performance. The leadership in Nigeria hopes that e-government initiatives might help it improve its governance (see excerpts of the President's speech above). In Nigeria, anecdotal evidence suggests that poor monitoring by government officials can lead to inconveniences such as a service being administered to several parties simultaneously. For instance, a minister in Nigeria has publicly acknowledged that e-government would help check problems of multiple land allocation in the capital city of Nigeria (IFG.CC, 2005). In the same vein, others have suggested that e-government can help solve the problems with revenue collection in Nigeria (Ifinedo, 2005a). Some multinationals and their conniving government officials are exploiting inefficiency in government services to defraud the nation of valuable revenues (Igbikiowubo, 2005). An improved service, supported by digital facilities, could be helpful to both the government and business alike. For instance, Mauritius has reported a huge success through its online taxation systems (InfoDev, 2004).

E-government can reduce or overcome barriers of coordination and cooperation within the Nigerian public administration. Centralized databases and standards could become available to several government agencies. Interoperability between government agencies increase and duplication of services may decrease as G2G initiatives are considered. A poor country like Nigeria could benefit from such cost effectiveness in governance when common standards and timely data resources are shared. The improved services may enhance decision-making in governance through G2E efforts. E-government may also spawn other opportunities for the nation. For example, Nigerian society will be transformed when information technology and knowledge become widespread. It is important that Nigeria integrate into the changing world where information and knowledge increasingly become the differentiating criteria (Ifinedo, 2005b). Thus, new skills will be learned from the emergence of ICT use in governance that might better prepare the country for the changing world or help improve Nigeria's position in the globally networked world, which at the present leaves much to be desired (Ifinedo, 2005b). E-government and related projects in many countries around the world are known to be contributing, either directly or indirectly, towards the total transformation of those societies (Watson and Mundy, 2001; Accenture, 2004; UNPAN, 2005). Importantly, the Nigerian economy benefited immensely through the creation of new jobs following the introduction of mobile telephony in the country (Ifinedo, 2005a; Uwadia and Ifinedo, 2005). It is possible that similar benefits could emerge from e-government initiatives, going by the trend of Cybercafés' diffusion in Nigeria (Ajakaye and Kanu, 2004).

## **Impediments and initiatives of e-government in Nigeria**

The framework illustrated by Figure 2. will guide our discourse regarding the impediments and progressive initiatives in Nigeria in relation to providing an enabling environment for e-government to emerge. The framework draws upon developmental reports of notable bodies such as the G8 DOT Force (2001), UN ICT Task Force (2004), UNPAN (2005) and WSIS (2004) that have described the barriers to ICT use in developing societies. These reports identified three broad categories of factors believed to be hampering the efforts of developing societies in making the most of ICT products for social and economic development and transformations: 1) infrastructural problems, i.e. poor information and telecommunication technologies facilities; 2) institutional problems; and 3) human capital problems. For example, UNPAN (2005) listed

poverty, low levels of literacy, lack of adequate infrastructure, high cost of ICT services, lack of investments, poor institutional structures, absence of international cooperation, and lack of security (in that order) as barriers to achieving the information society for developing countries.



Source: (G8 DOT Force, 2001; UNPAN, 2005)

**Figure 2:** The problems facing e-government growth in Nigeria

## e-government growth in Nigeria: The impediments

### 1. Institutional problems

#### *Organizational problems*

Effective communication and organizational skills are needed to maintain the vision, values, and aspirations of all stakeholders in an e-government (Garnett, 1992; Sharma and Gupta, 2003). This calls the role of government functionaries in Nigeria into question. Would they be sincere in implementing and managing the values of e-government properly? Do they understand the prerequisites for e-government? Will these functionaries not use ICTs for their own ends? The reality is that government agencies and officials in developing countries might perceive e-government as a potential threat to their power and viability, and as such, may show reluctance in promoting the objectives of e-government (Heeks, 2002; Kaaya, 2003; Sanchez et al., 2003). Heeks (2002) recounts examples where e-government efforts in Africa totally or partially failed due to “people” factors. Due to a lack of organizational skills or commitment, Nigeria has previously witnessed failures with committees mandated with national ICT policies; in fact, one body is formed and then disbanded for another (Ifinedo, 2005a). Prior to NITDA (Nigerian IT Development Agency), the current body that administers the national ICT policy in Nigeria (NITDA, 2001); there was CCC (Central Computer Committee) in the 1970s as well as several other agencies with similar mandates. Even after the formation of NITDA in 2001, the former head of the body openly expressed disappointment in 2003, asking why the national ICT Bill had not been passed into law (Ajayi, 2003b). In many respects, this highlights the lack of organizational vision or commitment from the top.

#### *Cultural and attitudinal problems*

Regarding the cultural orientations of Nigerians, Ojo (1996) asserts that ICT and other technology-based disciplines will thrive better in cultures that have a mechanistic view of the world, unlike Africa where informality thrives. The impact of culture on ICT adoption in the developing countries has been a topic of interest in IT/IS literature (e.g., Straub et al., 2001; Anandarajan et al., 2002). Findings from Straub et al.’s

study indicate that socio-cultural factors are vitally important in ICT-related issues for developing societies. Further, the attitude or culture of self-motivation among government functionaries is rife in Nigeria (Ojo, 1996; Ifidon, 1996). This includes a tendency to over-politicize decision-making, indulge in shoddy practices, and institute complex bureaucratic procedures in order to gain personal advantages. Some of these shortcomings were cited as reasons why poor governance prevails in the SSA region (Ojo, 1996; Heeks, 2002; Uwadia and Ifinedo 2005). We can therefore imply that those with power or interests to protect in the SSA region, including Nigeria, might not see any benefits to e-government or might want to sabotage it. In fact, West (2004) argues that the cultural norms and patterns of individual behavior affect the manner in which technology is used by citizens and policy makers of a country.

## 2. *Human capital problems*

The economic situation is dire for both the country and its population. Nigeria is poor and indebted (World Bank Group, 2004). The Nigerian government might not have the resources to implement e-government services because many of the resources have been diverted to issues such as reducing poverty and the servicing of foreign loans (Ogwumike, 2002). Nigeria is a large country, with approximately 60% of the populace living in rural areas (CIA: World Factbook, 2005). Illiteracy is rife – it is at about 40% of the population (Dutta et al., 2003; Oyebisi and Agboola, 2003; CIA: World Factbook, 2005; Ifinedo, 2005b), and secondary education enrollment is low (Dutta et al., 2003; Ifinedo, 2005b). In addition to the generally low literacy level in the country, Nigeria also lacks qualified IT professionals (Odedra et al., 1993; Ojo, 1996; Oyebisi and Agboola, 2003; Dutta et al 2003). This might hamper e-government efforts, as skilled hands needed to develop such services are not readily available. Nigerian universities do not graduate enough skilled IT professionals to match its current ICT needs (Oyebisi and Agboola, 2003; Ifinedo, 2005a, b). Oyebisi and Agboola (2003) assert that the highest enrollment in the University for Science and Technology in Nigeria between 1991 and 1998 per 1000 inhabitants was 0.31, with only 0.05 per 1000 students earning a postgraduate degree during the same period.

## 3. *Infrastructural and technical Constraints*

As with the rest of SSA, Nigeria's internet access is poor (ITU 2005; Internet World Stats, 2004). There are about 3 million internet users in a country of 140 million inhabitants – this is less than 1% of the population! Access to the Internet is crucial for e-government services, but is of little help with insufficient bandwidth. Only recently did a few countries in Africa procure bandwidths greater than 10 million bps (Anonymous, 2002). Previously, many countries in Africa had bandwidths between 64,000 bps and 256,000 bps due to high international tariffs and lack of circuit capacity in the region (Anonymous, 2002; Internet World Stats, 2004). The investments - local and foreign - in such facilities are low on the African continent (Anonymous, 2002; ITU, 2005; Ifinedo, 2005b). The cost of a PC in Nigeria is six times the monthly wage of an average worker. The cost of subscribing to a telephone line or owning one is beyond the reach of an average citizen. The same is true with procuring internet access in Nigeria. Ordinary citizens cannot afford such services (Dutta et al., 2003; Ajakaye and Kanu, 2004). Computers and internet access are two vital facilities required for any e-government engagements, but when such facilities are lacking, as is the case with Nigeria, it remains to be seen how the people who need it can adopt e-government.

Under the military dictatorships in Nigeria, the country witnessed poor inflow of investments. The telecoms sector was adversely affected by that situation (Ndukwe, 2005), and was worsened because many states in Africa, including Nigeria, often provide telephone services to their citizens. Therefore, inefficiency and poor quality were often associated with such services. Another major infrastructural constraint in Nigeria is inadequate power generation and supply in the country (please see Table 1). Undoubtedly, constant supply of power is required to operate effective e-government services; it is sad to note that such is not the case in Nigeria where there are endless power outages. Government functionaries in the country now realize that any successful e-government initiative depends on a steady supply of electric power (Musari, 2004).

## Initiatives on the ICT and e-government fronts in Nigeria

Using the same framework (see Figure 2) with three broad categories -- institutional, infrastructural, and human resources we will also discuss the progressive initiatives on the ICT and e-government fronts in Nigeria.

### *1. Institutional and organizational initiatives*

The current Nigerian government has shown commitment towards promoting ICT and e-culture (NITDA, 2001; Ajayi, 2003b; Obasanjo, 2004). For example, a conference called eNigeria (<http://www.enigeria.org>) convenes annually to promote e-society awareness in the country. The forum brings together local academia, businesses, software multinationals, and IT professionals and their colleagues from the Diaspora. Policy issues relating to e-government are now entertained. Further, Nigeria has also sent top government delegations overseas to acquire specific e-government skills. For example, a fact-finding mission visited India to learn how the e-voting systems work there. The Nigerian President is the vanguard for the spread of e-society/e-government in Nigeria (Obasanjo, 2003; 2004). Today, Nigeria has a well-focused national ICT policy managed by technocrats (NITDA, 2001; Ajayi, 2003a, b). Based upon the country's leadership, Nigeria now strives to implement directives from the World Summit on the Information Society and e-Africa Commission (Ajayi, 2003a; Obasanjo, 2004; WSIS, 2004). Both bodies have guidelines to help developing countries in Africa and elsewhere achieve sustainable development through ICT. In particular, the new Nigerian national ICT policy pays attention to e-government aspects of those directives (NITDA, 2001; Ajayi, 2003a, b; Obasanjo, 2004).

NITDA has programs that provide IT education and awareness to top government functionaries, lawmakers, and other administrators. For example, NITDA has developed partnerships with private organizations like CISCO to train Nigerians in relevant IT areas (Ajayi, 2003b). The Enterprise Technology Centre (ETC) is a partnership between NITDA and two private companies to provide IT training for Nigerian civil servants. The head of the Nigerian civil service recently led all the Permanent Secretaries (Divisional Heads of Service) for a two-week IT training course. E-government basics were among the skills learned at these seminars (Ajayi, 2003a, b). These initiatives are vital because exposing top government functionaries to the workings of ICT products in governance (or e-government in general) might lower their resistance. With support from these officials, e-government endeavors may be successful for a variety of reasons, including ownership of the process by government officials (Heeks, 1999; 2002). Additionally, the Nigerian government is strengthening its legal and regulatory framework related to ICT, including Internet use (Ajakaye 2005). This might give confidence to prospective users of any emerging e-government initiative in a country that has gained notoriety for email fraudsters.

The federal government of Nigeria now has a web portal (<http://www.nigeria.gov.ng/>) and has ensured that the administration of its country Coded Top Level Domains, **.ng** is done locally (This Day Online, 2003). Some state governments (there are 36 states in Nigeria) operate their web portals as well (Ifinedo, 2005a). These web sites provide the public with government information and have some downloadable forms. Overall, the level of services provided by Nigerian e-government portals only facilitate "one-way service delivery," which is the second stage of a four-stage model developed by Layne and Lee (2001). Likewise, other e-government models identify Nigeria's e-government services as being only informational (UNPAN, 2005). Advanced stages of e-government include "two-way service delivery." However, the transition to the advanced stages of e-government has begun in Nigeria (Ajayi, 2003a; Ujah, 2003). The Vice President of Nigeria recently revealed plans to incorporate other advanced services into the Nigerian e-government effort by the year 2008 (Ujah, 2003). It is worth noting that a few states (e.g. Jigawa) have already started reaping the benefits of e-government initiatives. The state governor commented:

*“Within the government cycle, use of IT has helped in improving transparency, providing accurate and speedy information to both civil servants and the general public and has improved administrative efficiency and public service. Both horizontal and most importantly, vertical accessibility has tremendously increased among civil servants. This is vital for smooth operations. Inter-ministerial contacts and co-ordination has also received boost from IT application in Jigawa].*

*Processes involving two or more ministries and or parastatals [agencies] that hitherto take between 3- 5 days to get accomplished can now be finished in few hours online. The civil service sector has also been affected positively by the IT wind. Civil servants are now identified not only with names and ranks but also with code of ministries and a staff identification number and are centrally controlled from the Office of the Head of Service. Exit and entrance into the service are also monitored centrally and coordinated from a common pool. Retirement on the basis of either old age or length of service can now be known instantly from records which are constantly updated. Salary payment in Jigawa has now become much easier using a special program designed for that purpose. Paper vouchers have now started to become history. Salary vouchers from ministries can now be sent to the Treasury online” (Turaki, 2004).*

In an effort to enhance e-government in Nigeria, the National e-government Strategies Ltd (NeGSt) - <http://www.negst.com/> -- has been formed to oversee the national e-government project. It is a partnership between NITDA and the private sector, whose goal is to implement the backbone of the Nigerian e-government infrastructure. The private participants are in fact shareholders in the project. Essentially, the goal is to improve organizational performance, service delivery, and the participation of ordinary citizens in governance through ICT, and the shareholders provide the resources for the project. Zinox, a local IT organization, and multinational IT companies including Microsoft, Oracle, and Accenture provide technical expertise and infrastructure. Local banks, including The First Bank of Nigeria, provide funding for the project (Ikhemueh, 2004a).

## *2. Human capacity initiatives*

Given the dire economic climate in SSA, including Nigeria, improving the situation is a challenge for both the government and the wider international community. The recent debt relief extended to Nigeria is helpful (BBC News, 2005c). One might argue that as resources are no longer needed to service foreign debts, other pressing activities, such as the promotion of e-government (or the use of ICT in governance) might benefit. In essence, e-government has successfully emerged in societies where the population has the resources to buy ICT facilities and possess the relevant skills and knowledge to appreciate IT-related innovations (Accenture, 2004; UNPAN, 2005). Poverty and the lack of skills are major inhibitors of e-government in Nigeria. The Nigerian government has commenced projects to ameliorate these challenges. In addition to finding ways to alleviate poverty in the country (Ogwumike, 2002), the Nigerian government is also preparing its future generations for the reality of the modern world. The Nigerian government aims to bring down IT illiteracy rates in the country as it develops, implements, and supports several programs. One example is the SchoolNet Nigeria DigiNet project (DigiNet, 2005) which addresses the low IT literacy among Nigerian secondary school students and their teachers. The DigiNet project will be implemented in 185 schools nationwide during the first phase, with plans to extend the project to about 1000 schools nationwide. So far, 35 schools have benefited from the program. Another project is the Nigerian University Network (NUNet) which focuses on the development of human capacity within the academia of Nigeria. Designed to train the staff of 46 federal universities in relevant IT areas, these and similar projects will improve the level of IT use in the country. Similarly, Nigeria actively participates in the “Virtual Institute for Higher Education in Africa” project that aims to strengthen the capacity of teachers and other personnel in educational institutions in sub-Saharan Africa (VIHEAF, 2005). The country receives technical (and IT) training from a variety of sources, including NGOs, multinationals and foreign institutions (see, Ajayi, 2003a, b; WIDERNET, 2005; Nigeria Daily News, 2005). We previously discussed how NITDA is forming partnerships with IT companies to train Nigerian civil servants. Furthermore, Nigeria was selected as one of World Bank’s Education for All (EFA)

“fast track” countries. It is hoped that Nigeria will be able to reduce its adult illiteracy as assistance from bodies such as the World Bank bring education to the disadvantaged sector of the country (Patel, nd).

### 3. *Infrastructural support initiatives*

The telecommunication sector in Nigeria has been deregulated and liberalized (Obasanjo, 2004; Ndukwe, 2004). Nigeria now has 4 licensed mobile operators, 35 internet service providers, and 5 million mobile lines. It is worth noting that mobile telephony is the ICT product with the highest number of users and that it is steadily increasing (Ndukwe, 2004, 2005). Overall, internet access in the country is improving (Ajakaye and Kanu, 2004; Hamilton et al., 2004; Ndukwe, 2005; ITU, 2005). There were only 100,000 Internet users in Nigeria in 2002, but the situation is now much better with estimates of about 3 million users (Ifinedo, 2005a). The estimated number of internet hosts in Nigeria for the year 2004 is 1142 (CIA: World Factbook, 2005), and the country’s poor bandwidth is improving (ITU 2005; Internet World Stats, 2004). Further, Nigeria is improving its ICT sector with several new initiatives. For example, in 2003 the country launched its first data satellite, NigeriaSat-1 (BBC news, 2003), and contracts have been signed for the launching of another telecommunication satellite (Ndukwe, 2005; Ajakaye, 2005). NITEL (Nigerian Telecommunication Ltd.) has started installing optical fiber network links to major cities in the country. This initiative benefits from the US\$637 million fiber optic network (SAT-3/WASC/SAFE) along the coast of Africa (Ajayi, 2003a). With this progress, Nigeria is emerging as one of the best performing nations in terms of ICT products use and diffusion in SSA (Ajayi, 2003a, b; Hamilton et al, 2004; ITU, 2005). Apparently, the investment climate of the telecom sector is vibrant. The liberalized and deregulated policies have permitted foreign entities to participate in the sector. According to the Nigerian President, the telecommunication sector received foreign direct investments (FDI) of US\$4 billion in 2003 (see, Obasanjo, 2003; 2004).

Nigeria has recently seen the emergence of homemade computers (Ajayi, 2003b; Ifinedo, 2005a). Previously, all computers used in the country were imported. The chief executive officer of Zinox, a local computer manufacturer, estimated the market in Nigeria to be around 100,000 computer sales per year. He notes that “Zinox’s share is 25%, Omatech (another local manufacturer) is 5-7%, and Hewlett-Packard leads with 30% of the market share” (Odwumfo, 2004). These trends are encouraging, and the spread of computers in the country, particularly the availability of homemade computers sold at about half the price of imports, will help improve the availability of this primary facility for e-government. Also, the country seems to be addressing its poor electric power generation capacity. The Nigerian President suggested that within the first four years of his administration, electric power generation has gone up 250%, from 1400 mw to 4800 mw (Obasanjo, 2004). Furthermore, some specific e-government projects were commissioned in the country. The Nigerian federal government and some state governments have committed resources to improving government-to-government services. For example, the Public Service Network (PSNet) is a project that hopes to provide broadband Internet access to the State Secretariat and the agencies of state ministries in order to facilitate fast and efficient governance through ICT (Ajayi, 2003b; Ikhemuemhe, 2004b). This scheme aims to improve G2G and G2E in the country.

Similarly, the federal government has created public awareness for e-government with its mobile internet units (MIU). These are locally manufactured buses equipped with communication infrastructure such as VSAT, computer terminals, printers, etc. They travel from town-to-town disseminating e-government information to Nigerians (see Figure 3 and 4). The MIUs serve as both an awareness campaign and utility tools. Additionally, NITDA has been involved with the development of the Nigerian Keyboard. This is an adaptation of technology for local use, which is vital in the success of e-government initiatives (Gefen et al., 2002; InfoDev, 2004, WSIS, 2004). Illiteracy is reported to be high in Nigeria (CIA: World Factbook, 2004; Patel, nd), but a closer look at the phenomenon presents a different perspective. Many of these “illiterates” (in English) are literate in their native tongue, and in some cases (for those attending Koranic schools) read Arabic as well. The adapted keyboard provides an opportunity for many to participate in any emerging e-government. The Nigerian Keyboard project could ensure that all citizens become active in the mobilization of critical mass for e-government in Nigeria.



**Figure 3.** Mobile Internet Unit (MIU)



**Figure 4.** Inside the Mobile Internet Unit (MIU)

### Other issues related to e-government to consider in Nigeria

It is vitally important to stress that e-government (technology-enabled process) may not be able to change deep-rooted and longstanding practices in any society. Change can only come about when those concerned see the need for it. According to Blakemore and Dutton (2003, p. 1) “Change can be driven by technology [in this instance e-government], and technology also can be moulded by the need for change.” We have not argued that the emergence of e-government is the panacea for Nigeria as reports from elsewhere have shown that corrupt government functionaries do find ways of circumventing ICT facilities meant to provide efficient services (see, Lal, 1999). Rather, it is our belief that e-government in its advanced forms can sanitize an inefficient and ineffective system. In order to enhance success with e-government efforts in Nigeria, answers to the following questions need to be in hand: What measures are being done to ensure that when e-government finally emerges in Nigeria it will not reinforce existing power relations, namely giving access to those with the most resources? The participation of the private sector in the Nigerian e-Government project is welcoming, but are there mechanisms to ensure that the allegory of “he who pays the piper...” does not play out as the country enlists the services of these powerful stakeholders in a project meant for the nation as a whole? In other words, are there risks of over-reliance on the political and business classes leading the e-government project in Nigeria? To what extent can e-government be an enabler of democratic processes? One may argue that the best chance of success with e-government is enhanced when the foregoing questions and issues are seriously addressed. Furthermore, do ICT initiatives matter to a population that largely lacks access to ICT products, including the Internet and PCs? Interestingly, available data suggests that mobile telephony is the most pervasive ICT product in Nigeria, if the intent of the leadership in Nigeria is to use ICT products to serve its population efficiently and effectively, what is being done in relation to mobile government (mgovernment) as a tool for achieving such an objective? In Senegal, mobile technology is being used for socio-economic development purposes (BBC News, 2002); surely, Nigeria could explore this technology, given the relatively higher diffusion rate of this technology in the country.

### Conclusion

In this paper, we chose to focus on Nigeria to discuss some of the problems inhibiting the emergence of e-government in the SSA region. The main problems facing the emergence of e-government in Nigeria have their roots in socio-economic inadequacies that known to plague several countries in the SSA region. Some of the problems discussed include poor organizational skills, inadequate infrastructural support, and poor or unavailable human capital resources. Furthermore, we highlighted some of the progressive initiatives undertaken in Nigeria aimed at providing an enabling environment for the emergence of e-government. This discourse noted plans and projects in Nigeria such as the development of a national IT policy, liberalizing the telecommunication sector, and IT awareness campaigns with innovations such as mobile internet units (MIU) and the Public Service Network (PSNet). The latter schemes or projects are aimed at improving G2C, G2G

and G2E in the country. Despite these efforts, we indicated e-government practices in Nigeria are in their early stages – government web services currently provide one-way service delivery. However, efforts are underway to improve e-government services in the country. To that end, a partnership between the government and private stakeholders was formed. Importantly, we noticed that the leadership in Nigeria believes that e-government could become a useful tool to provide efficient and effective services. The Nigerian policy makers appear to believe accountability and transparency in governance can be enhanced through e-government. This paper discussed the prospects and benefits of e-government to the Nigerian society. We suggested ways in which e-government can transform public services by re-engineering the fundamental relationship between the Nigerian government and its citizens; in addition, we broached a few key issues that must be addressed as the country matches towards e-government.

This paper provides lessons for other developing countries in the SSA region. First, we noticed that the political will of the Nigerian leadership was vital in the creation of an enabling environment in that it allowed for favorable national ICT policies and the emergence of e-government initiatives. Second, the Nigerian government promoted a series of plans and initiatives aimed at preparing the citizenry for the changes that e-government might bring. These positive steps taken by the government are encouraging and may help to reduce future resistance, while simultaneously generating critical mass for e-government. Third, the Nigerian government followed the directives of various international bodies and formed necessary partnerships with other entities (UN ICT TASK Force, 2004; WSIS, 2004). The Nigerian government sought funding for its e-government project from local financial institutions and technical expertise from IT multinationals and other sources. Fourth, the Nigerian government adopted favorable reforms and economic policies such as the deregulation and liberalization of the telecommunication sector. As other nations in the region prepare for the emergence of e-government, they might consider some of the efforts undertaken in Nigeria. Finally, the revelations from Nigeria regarding e-government and ICT policy confirm that some cultures tend to follow or take initiatives from those who have power or leadership roles (Hofstede, 2001; Anandarajan et al., 2002). As discussed, progress occurred on the ICT and e-government fronts in Nigeria only when the President of Nigeria supported such causes. Other factors, including external influences, could also account for the changes in the country pertaining to these issues. Nonetheless, we would like to propose that e-government and other IT-related endeavors spread more favorably in the SSA when the region's leadership accepts the fact that their citizens expect them to take bold steps in these areas. In Nigeria, the current President championed the cause of new ICT policy changes and e-government. This is worthy of emulation in comparable nations in the region. Future study on e-government in Nigeria may add to this present discussion by investigating how commitments from state leadership can enhance e-government efforts. Particularly, research could investigate how the interests of the various stakeholders in the Nigerian e-government project are managed. Research efforts can be directed towards examining the perceptions of Nigerians regarding e-government plans and projects such as the PSNet and MIU. It is equally important to assess the readiness of the population on such issues.

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