

NIGERIA'S INFORMATION INFRASTRUCTURE POLICY: IMPLICATIONS FOR E-GOVERNMENT

Babalola, Yemisi T. (Ph.D)

*Department of Information Resources Management
Babcock University, Ilishan-Remo, Ogun State, Nigeria*

Abstract

Participating in the emerging information society is contingent upon availability of adequate information infrastructure therefore; developing countries like Nigeria are making efforts towards building their national information infrastructure with the aim of enhancing their global participation and competitiveness. This paper assesses Nigeria's information infrastructure policies and how they are being implemented. The paper further discusses the effect of ethical issues like digital divide, privacy infringement and cybercrime on adoption of electronic governance in the country and made recommendations for policy implementation.

Keywords: Information infrastructure, Information policy, Electronic government, Digital Divide, Information and Communication Technologies, Cybercrime.

INTRODUCTION

There is no doubt that we are in the information age. The ever increasing volume of information generated daily in different formats and accessible from different electronic media gives credence to this assertion. Our world is gradually but steadily transforming into an information society; a world where information is the essential element of production and wealth creation. The World Summit on Information Society [1] described an information society as one in which there is equitable access to information and highly-developed Information and Communication Technologies (ICTs) that can improve the quality of life and opportunities for all people. Participating in the information society is however contingent upon access to information infrastructure.

Infrastructure generally refers to the basic installations and facilities on which the continuance and growth of a community or state depends. Social facilities like roads, railways, telecommunication networks, electricity supply system and water supply system are all described as infrastructure. Infrastructural facilities have supporting and enabling functions and are shared by a large community of users. Recently, the term has also been used along with information to denote the information resources, networks, computers, software, developers, and producers which support the creation, transport, storage and use of information [2]. Information infrastructure denotes socio-technical systems composed of hardware, software, information content, human experts and network standards that facilitate information creation and exchange. Each of these elements constitutes a critical component which can be easily misused if not properly managed hence, the need for information infrastructure policy.

Policies are directives that shape decisions and actions of individuals, organizations, and government agencies [3]; they are usually based on past experiences and give guidelines on present and future endeavors. A national information policy is a series of decisions taken by a national government, which are designed to encourage a better information infrastructure [3]. The United State of America and other developed countries are far ahead of the developing economies in formulating and implementing information policies [4] The purpose of information policies is to develop and govern available technological, legal and human infrastructure so that they can deliver both economic and social benefits for individuals and for the society as a whole Case (2010). Information policies related to technological infrastructure focus on developing markets and diffusion of the technologies; those related to legal infrastructure focus on protecting the use of information resources with legal provisions such as privacy and intellectual property right while the policies that focus on human infrastructure aim to provide training and encourage consumption. This paper examines Nigeria's information policies from these perspectives.

i. Computing and Telecommunication Technology

In Nigeria as in most African countries, decades of military dictatorship and political instability had stifled all initiatives for technology because the military rulers saw information and communication technology as a security threat rather than a national opportunity (Ajayi, 2003). Therefore, the national ICT policy was not operational until transition to democratic rule in 1999 when the federal government under President Olusegun Obasanjo began to take giant strides towards developing the National Information Infrastructure (NII) backbone. The aim was to take advantage of telecommunications and computer technologies such as the VSAT and fiber optic networks to enhance access to quality education, eradicate poverty, create jobs and investment opportunities and enhance the nation's capacity to compete globally. In line with the stated objectives, the federal government approved the National Policy for Information Technology in 2001.

Also, the National Information Technology Development Agency (NITDA) was established as the agency to implement the national ICT policy in collaboration with the Nigerian Communications Commission (NCC). NITDA is to develop and regulate the Information Technology sector in Nigeria, develop a critical mass of IT proficient and globally competitive manpower, ensure that every Nigerian is empowered with information technologies and ensure that IT resources are readily available to promote national development. Ajayi (2003) and Olatokun (2006) outlined some of the projects that NITDA undertook in order to fulfill its mandate:

- a. Public Service Network- The goal of this project is to provide an ICT infrastructure that will enhance Internet access in the country. The core of the infrastructure is a Very Small Aperture Terminal (VSAT) sited in the Federal Capital city. The VSAT is to provide internet access to the State Capital as well as other sites around the country through Broadband Wireless Access (BWA) while the various locations are connected to each other with the Virtual Private Network.
- b. Mobile Internet Units (MIUs)- These are buses that are equipped with computer systems, printers, scanners, digital cameras etc. and connected to the internet and converted into a mobile training and cyber center. The MIUs were constructed to serve as mobile telecenters for carrying ICT education and Internet awareness to the rural communities in the six geopolitical zones of the country.
- c. Government Assisted PC Purchase Program (GAPP) – this is part of the Government of Nigeria's efforts to encourage ICT penetration through ownership of personal

computers. It involves partnering with private computer manufacturing and distribution companies like Zinox, Omatek and VIA Technologies to make computer hardware available at affordable prices. Among such initiatives were the Computer for All Nigerians Initiative (CANI), PC-1 Initiative and Computerize Nigeria (Umoetteh, 2007).

Telecommunication is the transmission of signals over a distance for the purpose of sharing information. Telecommunication is an essential information infrastructure because it promotes the development of other sectors such as agriculture, education, industry, health, banking, defense, transportation and tourism (Arzika, 2000). The goal of the telecommunication policy was modernization and rapid expansion of the telecommunications network and services in Nigeria at large. Nigerian Communications Commission (NCC) set up in 1992 as the independent national regulatory authority to regulate the telecommunication industry was charged with the responsibility of issuing licenses to all telecommunications operators, allocating scarce resources like frequency spectrum and enforcing regulations that ensure fair and equitable competitive practices among all the telecommunications operators.

The federal government also embarked on liberalization of the telecommunications industry. This singular effort injected life into the hitherto dormant telecommunication sector as private investors and operators obtained license to operate the Global System for mobile communication. Prior to this time, the telecommunication sector had been completely dominated by NITEL and the service had been grossly inadequate. The competitive operating environment has resulted in exponential growth in the Nigerian telecommunication industry and improvement in the quality and variety of products and services available to Nigerians (Ajayi, 2000).

ii. Human Infrastructure

Development of human resources in Information Technology is a pivotal goal of NITDA. To this end, the agency initiated various programs targeted at people in different groups and sectors such the youths, professionals, civil servants etc. Some of these initiatives were executed in partnership with private and multilateral organizations such as UNESCO, International Centre for Theoretical Physics (ICTP) and Cisco Systems. The Digital Bridge Institute established by NCC in 2004 also made remarkable efforts in terms of human IT capacity development. IT capacity development has been strengthened through the various training programs initiated by NITDA especially in the public service as part of preparation towards e-government. Furthermore, the MIUs have helped in ICT awareness and training especially in the rural areas.

iii. Legal Infrastructure

In addition to ensuring the integrity and preservation of data and information, information policies also help to protect individuals and organizations that create or use information. The need for such legal framework has become critical with increase in electronic transactions such as e-banking, e-commerce and e-business and the corresponding rise in cybercrime. Cybercrime constitute a global challenge and nations and multinational organizations are formulating policies and enacting laws to combat the menace. The Nigerian information technology policy clearly states the nation's commitment to protection of individual privacy

as well as data protection. In line with this statement, the first draft of the Computer Security and Critical Information Infrastructure bill was produced in 2005 (Akinsuyi, 2010).

The bill addresses cybercrimes like unlawful access to computer, unauthorized disclosure of access code, fraudulent electronic mail messages, data forgery, computer fraud, system interference, misuse of devices, denial of service, identity theft and impersonation, records retention and data protection, unlawful Interception, cybersquatting, cyber-terrorism, violation of intellectual property rights with the use of a computer, using the computer for unlawful sexual purposes, conspiracy and abetment. The second draft titled 'Cybersecurity and Information Protection Agency Bill' was produced in 2008. This has however been criticized as being inadequate especially in relation to data protection. According to Akinsuyi (2010), the bill does not specify how personal data is to be handled and how long such data could be retained.

Electronic Government in Nigeria

E-government has been defined as 'the government owned or operated systems of information and communication technologies that transforms relation with citizens, the private sector and/or other government agencies so as to promote citizens' empowerment, improve service delivery, strengthen accountability, increase transparency or improve government efficiency' (World Bank, 2001). Akunyili (2010) described it as the use of information and communication technology to enhance access to government services for the benefit of all. E-government might involve delivering services via the Internet, telephone, community centers, mobile devices, wireless applications or other communications systems. E-Governance is a related term that is often used interchangeably with e-government. Otubu (2009) however argues that e-governance is a broader concept that encompasses all interactions and exchanges between the government and the governed and includes e-voting, e-democracy and e-representation whereas, e-government relates to the use of ICTs to transform and support government services to the citizens resulting in ICT based services such as e-tax, e-transportation or e-health.

The federal government of Nigeria expressed its commitment to e governance and e-government in the National Information Technology document. The policy indicates that government will establish Government Wide Information System (GWIS) at the national, state and local government levels. The goal of e-government is to foster participation in decision-making and government to enhance citizens to government interaction as a way of ensuring transparency and accountability. According to Akunyili (2010), e-government is currently being implemented in Nigeria on two platforms- Government to Citizens (G2C) and Government to Employees (G2E).

1. Government to Citizens (G2C)- this refers to services rendered to the public by government agencies. Instances of this include online registration for the national matriculation examination, electronic verification of vehicles being piloted in Abuja, electronic tax in Lagos state and online payment for new passport and other services at the Nigerian Immigration.
2. Government to Employees (G2E)- Electronic payment of public workers' salary.

Although e-government has a lot of benefits, it is important that the government prepares to tackle the problems associated with the use of ICTs especially those related to digital divide, privacy, and universal access.

Digital Divide

Digital divide refers to the marked disparity between people who have access to ICTs and those who do not (Wilhelm, Carmen, & Reynolds, 2002). Disparity in access to ICT facilities could be as a result of differences in age, gender, income, educational level, race, ethnicity, disability etc even in developed nations. The concept of 'information rich' and 'information poor' which is the direct offshoot of digital divide is not just a geographical issue but also exist within each country or community. However, the majority of the information poor are in developing countries due to political, economic, educational, cultural and infrastructural problems that seem to be endemic in these countries (Charbonneau, 2008; Muir and Oppenheim, 2002).

While developed countries have been able to take advantage of ICTs to build formidable National Information Infrastructure to increase their international competitiveness and economic dominance, developing countries are still struggling to join the bandwagon. In spite of the impressive report of the United Nations Conference on Trade and Development that access to the internet and other ICTs such as mobile telephone has significantly increased globally, many people still lack access to ICTs (Muir and Oppenheim, 2002). This is particularly true of Africa where almost all the countries apart from South Africa are grossly deficient of infrastructural facilities.

In the case of Nigeria, unstable and inadequate electricity, mass illiteracy, poor telecommunication infrastructure, lack of political will, inadequate fund and concentration of social and information infrastructure in the urban areas are some of the factors that have aggravated increased the digital divide in the country. Digital divide will be a major barrier to successful implementation of e-government. Thus, instead of increasing economic and political participation and ensuring access to government services, e-government will only widen the gap between the government and the governed and further exclude the disadvantaged from opportunities that could enhance their quality of life. Therefore, the government needs to take decisive steps to bridge the digital divide.

Privacy

Adopting e-government implies that government and government agencies will routinely collect, store and exchange confidential and personal information with individuals and business organizations. The fact that such information can be easily accessed and shared without authorization and even used to the detriment of the owners, calls for effective policies and measures to protect data and the privacy of individuals. Also absence of legal and regulatory infrastructure is a disincentive to both local and foreign investors.

Universal Access

A major objective of having a national information policy is to ensure equal access to information for all. However, several factors ranging from lack of relevant information to lack of physical infrastructure, lack of skill and mental ability to identify, access and use information, distance, financial resources or disabilities can hinder access to essential information. Discussion of universal access today, often emphasize access to digital information through ICTs. This is pertinent because more than ever, information is now

accessible in electronic form. Universal access therefore will mean access to ICTs by everyone, including the physically challenged. The physically challenged constitute up to 25% of the Nigerian population and have equal right to information and enabling technologies and services as any other member of the society. Although the federal government initiated discussions with efforts manufacturers of ICT products and telecommunication service providers to deliberate on the possibility of producing adaptable and affordable ICT products and services for the physically challenged (Ndukwe, 2009); these efforts need to be accelerated to ensure that these people are not excluded from participating in the emerging information society.

The Role of Libraries and Librarians in Building Nigeria's Information Infrastructure

Libraries and librarians have key roles to play in ensuring effective implementation of Nigeria's information infrastructure policies. First, in order to help bridge the digital divide, libraries, especially the public libraries could serve as community access points for ICTs. Second, librarians could provide ICT training for people and help them take advantage of the numerous online information services for their personal development. Third, in order to make government information easily accessible to the people, librarians can help to classify and catalogue such information. Fourth, they can also develop databases on different fields of study, including job databases.

Conclusion and Recommendations

Nigeria has made remarkable efforts towards developing an information infrastructure through which the nation can be mainstreamed into the information society. These efforts have started yielding dividends in the area of human capacity development, ICT diffusion and universal access to information. However, there is still a lot to be done in bridging the digital divide and providing adequate legal protection that can encourage Nigerians to use ICTs so that the e-government and e-governance goals of the government can be realized. Therefore, this paper suggests that the Nigerian government should:

1. Encourage more private sector involvement in ICT capacity development and ICT provision in the country.
2. Involve information professionals in formulation of information policies.
3. Expedite actions on passing the data protection bill into law.
4. Collaborate with other countries within and outside the African continent to formulate information policy that can guide regional and international exchanges and transactions.

References

- [1] World Summit on Information Society (2003). World Summit on the Information Society: Draft Declaration of Principles. Geneva. Available at: <http://www.wsis-pct-org/prepcom2-declaration.html>
- [2] Marcum, D. (2003). National Information Infrastructure: Agenda for Action 1993. Research Questions for the Digital Era. *Library Trends* 51(4).
- [3] McClure, C. R. & Jaeger, P. T. (2008). Government information policy Research: Importance, Approaches, and realities. *Library & Information Science Research* (30) pp. 257-264.
- [4] Oppenheim, C. (1994) Are National Information Plans Useful? *Alexandria* 6 (2) pp. 133-43.
- [5] Ogunsola, L. A. (2005). Nigerian University Libraries and the Challenges of Globalization: The Way Forward. *Journal of Social Science* 10 (3) pp. 199-205.
- [6] Case, D.O. (2010). A Framework for Information Policies with Examples from the United States. *Library philosophy and Practice* (2010). Accessed from <http://unllib.uni.edu/LPP/case.htm>
- [7] Ajayi, G. O. (2003). NITDA and ICT in Nigeria. A Paper Presented at the 2003 Round Table on Developing Countries Access to Scientific Knowledge, The Abdus Salam ICTP, Trieste, Italy.
- [8] Olatokun, W.M. (2006). National Information Technology Policy in Nigeria: Prospects, challenges and Framework for Implementation. *African Journal of Library, Archival & Information Science* 16 (1) pp. 9-18.
- [9] Umoetteh, J. (2007) Overview of ICT in Education http://www.ciitconsulting.com/edesk/publicfolder/us_survey.pdf Accessed October, 2011
- [10] Arzika, M. (2000): National Policy on Telecommunications. Available at: <http://www.ncc.gov.ng/NationalTelecomsPolicy/National%20Policy%20on%20Telecommunications.pdf> Accessed: September 2011.
- [11] Ajayi, G. O. (2000). Challenges to Nigeria of Globalization and the Information Age. Keynote address at workshop on national information communication infrastructure policy, plans and strategies for implementation. NUCAuditorium, Aguiyi Ironsi Street, Maitama, Abuja. March 28-30.
- [12] Akinsuyi, F.F. (2010). Nigerian Cyber Crime and Privacy Legislation, Time For Review. Available at <http://ssrn.com/abstract=1663633>. Accessed November, 2012.
- [13] World Bank (2001). *Building Capacity to Deliver Distance Education in Nigeria's Federal University System*. Vancouver: COL International.

- [14] Akunyili, D.(2010). ICT and E-Government in Nigeria :Opportunities and Challenges. An Address by the Hon. Minister of Information and Communication, Prof. Dora, at the World Congress on Information Technology, Amsterdam, The Netherlands, 25th-27th May 2010.
- [15]]Otubu, A.K. (2009). E-government and land administration in Nigeria: A recipe for Lagos state. Available at: Charbonneau (2008) *Global information inequalities: Bridging the information gap*. Oxford: Chandos Publishing, Chandos House, 5 & 6 Steadys Lane, Stanton Harcourt, Oxford, OX295RL,
- [16] Wilhelm, T., Carmen, D., & Reynolds, M. (2002). Connecting Kids to Technology: Challenges and Opportunities. Baltimore, MD: Annie E. Casey Foundation http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1405363&download=yes
- [17] Charbonneau (2008) *Global Information Inequalities: Bridging the Information Gap*. Oxford: Chandos Publishing, Chandos House, 5 & 6 Steadys Lane, Stanton Harcourt, Oxford, OX295RL.
- [18] Muir, A. & Oppenheim, C. (2002). National Information Policy Developments Worldwide II: Universal Access - Addressing the Digital Divide. *Journal of Information Science* 28 (263) DOI: 10.1177/016555150202800401.
- [19] Ndukwe, E. (2009) ICTs and Accessibility for Persons with Special Needs and The Elderly. A keynote address presented at the national summit on ICTs and accessibility for persons with special needs and the elderly, Shehu Musa Yar'Adua Conference Centre, Abuja, November 4, 2009.