Emerging Mobile and Web 2.0 Technologies for Connected E-Government

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Chapter 4

Web 2.0, ICT Infrastructure, and Training Provision for E–Government Readiness in Nigeria

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ABSTRACT

This chapter presents a discussion on e-readiness, Web 2.0, social media, mobile/wireless technologies, and other Information and Communication Technologies (ICTs) that can help to facilitate the attainment and sustenance of an e-ready environment necessary to enhance e-governance in Nigeria. The chapter aims to clearly articulate the necessary steps to be taken to provide all stakeholders with a blueprint of areas and factors on which to focus. An assessment of how e-ready the Nigerian government and its citizens currently are and the requirements necessary for further steps to be taken (such as policies, programmes, and processes to be put in place, infrastructures to be acquired, and training provisions to equip Nigerian citizens and government officials with the capacity to benefit from and sustain the use of acquired e-technologies) are also presented. Specific ways by which Nigeria can harness the various emerging technologies (social media, Web 2.0, and mobile/wireless technologies) are highlighted. If employed appropriately, these technologies can help to provide improved processes, increased efficiency, improved transparency, and citizen's effective participation and involvement in governance to further improve the lives of Nigerian citizens.

INTRODUCTION

In today's world, we cannot overemphasize the need to pass on relevant information (in a timely and accurate manner irrespective of distance) from those who have it to those who need it. This could be between members of legislative, judicial and executive arms of government, government to government, government and their citizens, patients and their doctors, business executives and their labour force, parents and their children, religious leaders and their followers, salespersons

and buyers, students and their teachers, etc. The numerous e-application platforms have the potential to readily and efficiently facilitate the process of information transfer among these groups if underlying technologies are properly harnessed and employed. It is therefore necessary that nations take pragmatic steps towards achieving an e-ready feat if they wish to be well positioned to benefit from the e-platform and relevant emerging technologies including the social media and mobile technologies.

According to Oghogho and Ezomo (2013), the emergence of several e-application platforms such as e-governance, e-business, e-science and engineering, e-health, e-learning, e-agricultural, e-procurement, e-banking, e-justice, etc. has changed the way communication activities is being carried out around the word. These digital platforms use digital technologies to deliver several e-services by making it easy and possible for those who have information to pass them on to those who need them. The result is that decisions are made quickly and efficiently based on up-to-date information, business deals are quickly concluded, learning from home is easier, etc. Every aspect of our modern day life has been influenced by several emerging e-technological applications. Improved productivity and efficiency can now be delivered by using these e-platforms as tools or means to achieve the desired end. The emergence and growth of the various e-technologies and their applications is leading the world towards a global society were physical land boundaries are no longer sufficient to separate people who are from different societies with different cultures, ideologies and beliefs.

Sharma and Vaisla (2011) did a review of e-governance applications in public health care (a vital responsibility of the government) for rural areas of Uttarakhand province in India through ICT applications at National levels. They presented facts on tele-medicine, tele-referal services and health information dissemination using videoconferencing, mobile phones and other ICTs. Oghogho

and Ezomo (2013) presented specific examples of the use of ICTs in health, governance, business and education stating their potential to enhance national development when properly harnessed.

Newer emerging e-technologies are now presenting the world with better ways of harnessing ICTs. The World Wide Web (WWW) has entered a new era called Web 2.0 with features such as social media or networks, blogs, wikis, etc. which allow people to effectively connect, create and share live streaming or recorded audio, video, text, pictures, etc. information or knowledge. The emergence of several mobile/wireless technologies is presently at the fore front in providing and enhancing the enabling environment for harnessing Web 2.0 features. Today we have several widespread emerging mobile and wireless devices such as Laptops, Notebooks, Ipods, Ipads, Iphones, Palmtops, PDAs, etc. equipped with numerous features and specifications necessary for accessing the WWW for information transfer (Carmel & Gabriela, 2011). These enhanced features range from touch and sliding screen, video capturing, recording, editing and sharing, bluetooth, 3G and 4G capabilities, radio FM and AM, Music player/MP3, e-mail applications, HTML browsers, Internet connections, etc. These enhanced features enable users to access (download or view online) other's information and send (upload or comment online) their own information thus enhancing the information sharing and the diffusion process.

As our world becomes increasingly digital or electronic, all organs of government cannot continue to resist the adoption and sustained use of electronic technologies to deliver government information and services to citizens. This is evident from the experiences of countries like Republic of Korea, Seychelles and Kenya where, e-governance has made governance processes and service delivery faster, cheaper, more effective, transparent and accountable (UNDESA, 2012; Nigeria Intel, 2013). E-governance refers to the provision of public services to the citizens via electronic platforms (especially the worldwide

Web or the Internet) while enabling proactive and active participation of citizens in governance, consultation, knowledge policy, service delivery, etc. Hong and Nadler (2012) in their investigation of which candidates the public discusses online in an election campaign, found out (from their analysis) that on the average, a 10% increase in the number of traditional media mentions for a politician is associated with a 4 to 6% increase in the number of Twitter mentions. Governments must therefore take a step ahead of those being governed in harnessing and creating a favourable e-ready environment in order to keep being in charge.

A common feature of e-governance is the automation or computerization of existing paper-based procedures to enhance access to, and delivery of government services to the citizens (Akunyili, 2010). According to Rosa et al. (2013), e-justice is presently being deployed in many countries all over the world despite the risk factors associated with this deployment. Any country's institutions of governance exert primordial influences on the economic growth and prosperity, societal stability and wellbeing of the citizens. The beliefs and confidence of the people on the fairness and justness of their governing institutions will to a large extent, determine the long term stability of such societies and their governments. The Author believes that the e-platform (enhanced by the use of social media, web2.0 and other mobile/wireless technologies) will enable governments to secure this confidence from the citizens because the citizens will be able to easily access relevant government information and can readily participate in governance. Achieving an e-ready feat is therefore one of the numerous vital steps for any government that wants to have economic prosperity, societal stability and the wellbeing of their citizens.

This chapter discusses the concept of e-readiness, ICTs, Web2.0 and Mobile/Wireless technologies as well as Nigeria's state of e-readiness. It also discusses some necessary steps to be taken

to achieve an *e-ready feat* in Nigeria. Some ways by which Nigeria can attain and benefit from the e-ready feat, through harnessing the various emerging e-technologies (social media, Web 2.0 and mobile/wireless technologies) for enhancement, better efficiency, transparency, citizen's participation or involvement in governance and improvement on the lives of the citizens, are also highlighted.

THE CONCEPT OF E-READINESS

E-readiness is about acquiring and putting the necessary technologies and infrastructures in place, pursuing policies that empower the citizens to have the economic capacity to own ICT equipment (mobile phones, computers, scanners, etc.), training the citizens to become acquainted with and able to use such ICTs and creating the enabling environment so that the information diffusion process using these technologies will be sustained. When any Nation becomes e-ready, harnessing and processing information (so as to make timely, accurate and well informed decisions) using several innovative digital application platforms (e-government, e-business, telemedicine or e-health, e-learning, e-democracy, e-agriculture, e-procurement, e-banking, etc.) to improve the lives of citizens, accelerate the growth of business organizations and to improve transparency and efficiency of governance will be readily facilitated.

Information and Communication Technology (ICT) is a broad term that covers the various technical means by which information is processed and transferred from a sender to a receiver. The term ICT emerged from the convergence of information technology (IT) and telecommunications technology. According to Oghogho and Ezomo (2013) ICT is an umbrella term that includes any communication device or application, encompassing: radio, television, mobile and fixed phones, computer and network hardware and software, satellite systems, surveillance systems, and so on,

(as well as the various services and applications associated with them, such as videoconferencing, social media, distance learning, etc.) necessary for the delivery of information in the form of audio, data, video, image etc. from Point A to Point B.

The Internet and other established and emerging e-technologies that will facilitate processes of e-governance must be in place and the citizens must have access to them and able to use such technologies before any nation can be said to be e-ready. Apart from the general Internet (which is a mega network made up of smaller networks such as Wireless Local area Networks (WLANs or Wifi), Wide Area Networks (WAN), WIMAX, Long Term Evolution (LTE) networks), the other technologies involved in the e-process include: web2.0 and mobile/wireless technologies, broadband technologies, fixed line telephones and fax machines, surveillance systems, television (analogue and digital), FM and AM radios, tracking systems etc. Before a nation is said to be e-ready, there has to be a willingness on the part of the government to both use and make these technologies available for e-governance processes, ensure they are accepted for usage by the generality of the citizens who must also be trained and equipped with the capacity and economic power to access and use them.

E-READINESS, WEB 2.0 AND MOBILE/WIRELESS TECHNOLOGIES

Achieving an e-ready feat is indeed a huge task for any developing nation. However the use of emerging e-technologies and their applications such as social media, Web2.0 and mobile/wireless technologies will readily enhance and facilitate the provision of an e-ready environment for e-governance in any nation. We cannot really talk about having an e-ready environment if these technologies are not already being used by the citizens on a large scale. According to Wright et al. (2009), all Web 2.0 systems must be delivered

on the Web, allow each user who can access the system the ability to participate in the discussion and development of contents as well as impose only a minimal amount of authority or editorial control. Web 2.0 (sometimes considered more as a movement or philosophy than a precise technology) facilitates online communities, free and open sharing, interactivity and collaboration (Wright et al., 2009). Web2.0 and other emerging mobile technologies have been found to be very effective in enhancing information creation and sharing in education (Nulgultham, 2012, Smith & Peck, 2010, Holotescu & Grosseck, 2011, Baltaci-Goktalay & Ozdilek, 2010, Daud & Zakaria, 2011), in health (Wright et el., 2009) and in governance (Bonsón, et al., 2012, Fedotova, et al., 2012).

Howe (2006) lists four general types of processes that reflect ways of interaction within Web 2.0 as: for sharing contributed content by user ("where you make it"), for large sets of contributed content by user ("where you name it"), for the development of content collections by the community of users ("where you work on it") and for finding objects, trends and overviews of contributions ("where you find it"). Using Social media, Web 2.0 and mobile/wireless technologies allow users to share and access information or knowledge anywhere and anytime irrespective of location. There is flexibility, a wider audience is reached and personal messages are received entirely while creating a long-lasting interaction for multiple purposes. According to Wright et al. (2009), Web 2.0 applications share some common principles and policies, namely: (i) Using the Web as an application and content deployment platform, (ii) Leveraging the Web as a participatory and not merely as a publishing platform, (iii) Providing valuable content in addition to simply offering useful tools, (iv) Treating users as co-developers, and lastly (v) Supporting syndication of services and content, as opposed to central control.

Web 2.0 is still under debate, because a lot of concepts have been causing confusion and ambiguity about the term when compared with

Web 1.0. There is the argument that Web 2.0 is not technically different from Web 1.0 since they both use the same protocol (Hypertext control protocol (HTTP)) and the same make up format (Hypertext Makeup Language (HTML) (Wright, 2009). Several authors have differentiated Web 2.0 from Web 1.0 in the following ways (Sandoval-Almazan, 2011):

- Web 2.0 facilitates flexible design, creative reuse and updating;
- Offers the user an enriched and interactive interface;
- Facilitates collaboration for creating and modifying content;
- Allows new applications to be created by reusing and combining data and sources;
- Establishes social networks between people who have the same interests; and
- Supports cooperation in gathering collective intelligence.

Social media, Web 2.0 and mobile/wireless technologies are vital among other requirements to enhancing the achievement of an e-ready feat necessary for a successful implementation of e-governance in any country because they provide an innovative platform that applies Internet technology in a way that users are enabled to be more creative, more involved, and readily able to relate with each other anywhere, anytime and on the move. They provide a more active, interactive, participatory and collaborative environment suitable for e-governance anywhere anytime. Social networks, social bookmaking, Instant messaging, Wikis, Internet telephony using VoIP, Audio or video conferencing (NetMeeting) and blogs can be easily created to discuss governance issues to harness solutions, ideas and innovations on how to proceed with plans, goals and objectives in various aspects of governance. This means important government decisions can still be made without delays while the chief executive is away on any official trip. He can append his signature

electronically and give instructions as well as receive feedback on them in real time using social media. Also citizens are more readily able to participate in the governance process as they can easily have access to them and are enabled to participate through several social media, Web2.0 and mobile/wireless technologies now available at quite affordable prices in the market.

Although, Web 2.0 is an attractive technology, it also comes with some limitations (Holotescu, 2011) e.g.:

- Most of the mobile functions are underexploited by a large percentage of the community of users.
- There is difficulty in content development, hence; only few members actually make useful contributions.
- Technology might not function for the purpose or aim for which it was targeted or it may be difficult to respond to the learning needs of the user community
- Additional training is always required for it to be successfully deployed to achieve its aim.

Despite these challenges, Social media, Web 2.0 and mobile/wireless technologies have generally been affirmed as having the potential to provide any nation with the tools to create and sustain the desired e-ready environment necessary for enhancing e-governance.

E-READINESS IN NIGERIA

Use of social media, Web2.0 and mobile/wireless technologies will not have a significant impact in enhancing e-governance in Nigeria if the "backbone" necessary to provide an e-ready environment is not put in place. In Nigeria today, several governance processes have been digitized showing the will of Nigerian governments to pursue an e-ready feat. However, can we say that

Nigeria is e-ready, considering the fact that the Federal Government and several states of the federation are yet to make a firm commitment towards providing governance majorly through the e-platform? Provision of telecommunications infrastructure, easy and low cost access to the various e-technologies and training provision for Nigerians to enable them use them are the major hurdles to overcome. Many Nigerians do not have access to the necessary e-technologies; lack the economic power to acquire them and the skills to utilize them. Web 2.0 technologies are not widely deployed in Nigeria. The number of blogs, wikis, Social networks, social bookmaking, Instant messaging, Internet telephony using VoIP, Audio or video conferencing (NetMeeting), etc. created and managed by Nigerians are grossly infinitesimal compared with the rest part of the world.

According to Internetworldstatistics.com (2013), Nigeria leads in the total number of people using the Internet in Africa as 28.9% of the total population of African Internet users are in Nigeria. Nigeria however has an Internet penetration rate of 28% (which is lower than that of Morocco (51%) and Tunisia (39.1%) as at June 2012. Table1 shows the Internet penetration rate

of Nigeria and selected countries of the world as at June 2012 while Table 2 shows Nigeria's e-government development index placed side by side with that of selected countries of the world.

Table1, that represents data extracted from Internetworldstats.com (2013), clearly shows that Nigeria's Internet penetration (percentage population) is still very low when compared with the selected nations of the world. According to a report on the global e-discussion organized by the World Bank Institute's Business, Competitiveness, and Development Team and the Research and Innovation for Organizations and Societies (RiOS) Institute, developed nations on the average reported more than 300 secure Internet servers per 1 million people but developing nations reported less than 2 (Braund, et al., 2006).

From Table 2, that represents data extracted from United Nations E-government Survey (2012), it is clear that Nigeria and the other African countries listed are very far behind in e-government development when compared with the rest part of the world. The same survey gave Nigeria's Telecommunication infrastructure index and its components as follows: Index value (0.1270), Estimated Internet users per 100 users (28.43),

Table1. Internet usage of selected countries

S/N	Country	Continent	Population	Internet Users	Internet Penetration (% Population)
1	Nigeria	Africa	170,123,740	48,366,179	28.4
2	Morocco	Africa	32,309,239	16,477,712	51
3	Tunisia	Africa	10,732,900	4,196,564	39.1
4	Argentina	The Americas	42,192,494	28,000,000	66.4
5	Brazil	The Americas	193,946,886	88,494,756	45.6
6	United States	The Americas	313,847,465	245,203,319	78.1
7	Japan	Asia	127,368,088	101,228,736	79.5
8	South Korea	Asia	48,860,500	40,329,660	82.5
9	Philippines	Asia	103,775,002	33,600,000	32.4
10	France	Europe	65,630,692	52,228,905	79.6
11	Germany	Europe	81,305,856	67,483,860	83
12	United Kingdom	Europe	63,047,162	52,731,209	83.6

Table 2. E-Government development Index for selected Countries in the world

S/N	Country	Continent	Rank	Index Value	Online service Component	Telecommunication Infrastructure Component	Human Capital Component
1	Nigeria	Africa	162	0.2676	0.2222	0.1270	0.4535
2	Morocco	Africa	120	0.4209	0.5425	0.2772	0.4430
3	Tunisia	Africa	103	0.4833	0.4771	0.2886	0.6841
4	Seychelles	Africa	84	0.5192	0.3333	0.4037	0.8204
5	Argentina	The Americas	56	0.6228	0.5294	0.4352	0.9038
6	Brazil	The Americas	59	0.6167	0.6732	0.3568	0.8202
7	United States	The Americas	5	0.8687	1.0000	0.6860	0.9202
8	Japan	Asia	18	0.8019	0.8627	0.6460	0.8969
9	Republic of South Korea	Asia	1	0.9283	1.0000	0.8356	0.9494
10	Philippines	Asia	88	0.5130	0.4967	0.2082	0.8341
11	France	Europe	6	0.8635	0.8758	0.7902	0.9244
12	Germany	Europe	17	0.8079	0.7516	0.7750	0.8971
13	United Kingdom	Europe	3	0.8960	0.9739	0.8135	0.9007

Main fixed phone lines per 100 inhabitants (0.66), Mobile subscribers per 100 inhabitants (55.10), Fixed Internet subscriptions per 100 inhabitants (0.12) and Fixed broad band per 100 inhabitants (0.06). These values are far lower than that of many countries in the world.

Despite these short falls, Nigerian Internet users grew between the year 2000 and 2012 with 24,083.1% which is far higher than that of many countries in Africa and in the rest part of the world (Internetworldstatistics.com, 2013). This growth was a direct result of the deregulation of the telecommunications sector in 1992 and issuance of licences to mobile operators. The Minister of Communication Technology, Mrs Omobola Johnson, recently decried low rate of adoption of ICTs by Nigerians and added that 0.9 per cent of households owned a PC, 3.6 per cent had access to one and 3.1 per cent accessed the Internet (NAN 2, 2013). According to her, Nigeria has an average Internet download speed of 1.38Mbps and most Nigerians are excluded from the growth and development that can be aided by information and communication technology (Aregbesola, 2012).

She said the Federal Government through its TIAP project had established connectivity in 17 Universities and their Teaching hospitals using fibre optics technology (NAN 1, 2013). Also, about 204 Institutions have joined the project, (with 74 institutions in 2012 alone) since the beginning of the programme implementation.

In another programme called the School Access Project (SAP), (which provides classmate PCs, with e-learning content and accessories, solar power solutions, high speed Internet connectivity and wireless network deployment to government public schools), over 823 schools have benefited between 2010 and 2013 (NAN 1, 2013). Another initiative (Students Computer Ownership Scheme) which allows students to purchase laptops using a low interest facility with a monthly repayment plan of less than $32 has also been flagged off by the ministry with several Federal and State Universities participating in the scheme.

In April 2013, an IT Incubation Centre was launched in Lagos by the Federal Ministry of Communication Technology with another to be launched in July in Cross-River (NAN 2, 2013).

This will no doubt follow the Chinese model of creating Technology parks which will catalyse the ICT industry by helping Nigerian government and entrepreneurs to create successful processes and businesses supported by ICTs.

After the Nigerian Telecommunications sector was de-regulated in 1992, the sector did not experience a boom until the Federal government under the leadership of President Olusegun Obasanjo took the bold step to auction GSM licenses in 2001. This led to a massive growth in the sector from less than 500,000 fixed telephone lines to about 110 million mobile cellular active subscribers by the end of 2012 (BuddeCom, 2013). The growth of mobile users in Nigeria had an accelerated pace due to lower prices resulting from competition between the mobile service providers and a growing demand for mobile broadband services. Today, Nigeria, with a market penetration of about 70% as at early 2013, is Africa's largest mobile market (BuddeCom, 2013).

The rapid growth of the mobile users came with its own problems: network congestion and poor quality of service which is a big setback to the e-ready feat. The influx, diffusion and usage of cheap and affordable 3G and 4G mobile phones from China, (having numerous functions including Web access capabilities), has the potential to aid and make the e-governance process in Nigeria a success. However, the challenge of overcoming network congestion and providing sufficient bandwidth must be tackled to create an enabling environment for the e-technologies to become acceptable to the citizens who will have to use them in the e-governance processes.

Large parts of Africa gained access to international fibre bandwidth for the first time via submarine cables in 2009 and 2010 (Oghogho and Ezomo, 2013, Akunyili, 2010). In order to complement the fiber connectivity and provide more bandwidth for the nation, Nigeria has successfully launched NigConSat-1R satellite on 19th December 2011 (Aregbesola, 2012). NigComSat-1R is a hybrid satellite for broadcast telecommunications and navigational services, with footprints in over 35 African countries, parts of Europe and parts of Asia. Apart from Sat-3, which is jointly owned by some African countries, Main One and Globacom are the first indigenous companies to bring in submarine fiber optic cables to Africa from Europe. Additional base stations are also being added to existing mobile base stations (making a total number of over 20,000 cells) to support the ever increasing demand for bandwidth (BuddeCom, 2013).

Although, Web 2.0 technologies have been identified as having the potential to facilitate and enhance an e-ready feat for e-governance, they have not been wide diffused and used in Nigeria for governance. Mobile and wireless technologies have however gained some grounds in the country. Taleb and Sohrabi (2012) in their study of student's viewpoint about the educational use of mobile phones to support their learning process affirmed the fact that e-inclusion is made more possible through use of mobile phones for information downloads or for learning purposes. These steps need to be intensified and pursued to have these technologies fully accepted, affordable and diffused so that a large percentage of the citizens can afford, access and use them in the e-governance process. In line with this, the government of Nigeria in 2006 established a public corporation known as Galaxy Backbone to provide the technological platform for e-governance, and is working on a comprehensive broadband policy and vision document which will provide broadband definition, performance indicators, incentives for investment, macroeconomic targets, deployment guidelines and citizens charter (Akunyili, 2010). Galaxy Backbone is presently supporting technology services to Federal Ministries, Departments and Agencies (MDAs), building ICT infrastructure to boost the sophistication and effectiveness of the Nigerian government to tackle security challenges and improve connectivity to modern technology in the country (Adeniyi, 2012). The technology company in the year 2012 received

One hundred million dollars ($100million) for an ICT infrastructure rollout of public priority projects underway (Adeniyi, 2012).

Radio and Television services (both digital and analogue) are also presently serving as a platform for participation of Nigerian citizens in governance as there are regular programmes hosted by the government, the Civil society, the media houses, etc. which provide government information to the public and make provision for them to respond and say their views. These types of forums have helped to shape the opinion of the Citizens by making them aware of relevant government information and able to participate in the overall decision being made. Digital satellite television (DSTV) has made transfer of local and international information to many rural communities (where there are no Internet access and availability of mobile and fixed telephone networks) possible. DSTV however has the challenge of high purchase and installation cost and monthly charges as well as the unavailability of electrical power in several rural communities coupled with the epileptic supply in areas where electric power is available. The use of Radio and television services to enable Nigerian Citizens participate in governance was clearly demonstrated in the 2011 elections where live coverage of the events, and the use of other e-technologies such as social media, Web 2.0, mobile phones, electronic voting machines, the Internet, etc. made the process more transparent with easy monitoring of results and increased confidence of the electorates in the process, hence the international observers generally agreed that the elections were free and fair (Oghogho and Ezomo, 2013).

Despite some progress made so far, the author believes Nigeria is still not e-ready and cannot fully deploy e-governance without facing severe bottleneck challenges. The basis of evaluation of e-governance according to United Nation Public Administration Network Global e-Governance Readiness Index are: the state of e-government readiness based website assessment, telecom-munications infrastructure and human development as well as the state of e-participation of the citizens (UN e-government survey, 2012). Nigeria was ranked 150th in the world with an E-governance development index of 0.2687 in 2010 but dropped to 162nd position with an E-governance development index of 0.2676 in 2012. No African country made the first 83 among the world ranking. Seychelles which ranked first in Africa with an E-governance development index of 0.5192 ranked 84th in the world.

Nigeria's Internet penetration (percentage population) has to be improved from 28.4% to at least 70%. Also our available bandwidth is far from being sufficient considering the population of the country assuming everyone were to possess the capacity to access the Internet so as to participate in the e-governance process using social media and Web 2.0 technologies. Broad band access to the Internet is very low (Aregbesola, 2012). The present cost of bandwidth is also very high considering the low per capita (PPP) income of the average Nigerian. Most Nigerians cannot afford to spend their income on bandwidth to access the Internet when they have not taken care of their other basic needs like food, clothing and shelter. According to Adenike and Oyesoji, (2010), the high level of illiteracy, poverty and low socio-economic status coupled with high rate of paternal and maternal deprivation of student academic needs, which was necessitated by poor socio-economic situation of the country has thrown many parents into untold financial problems such as poverty, lack of money to purchase necessary textbooks and working materials for their kids.

Also, we do not presently have an efficient and reliable central electronic data base from which government information are stored and retrieved. Other important electronic systems such as GPS systems, Closed circuit television (CCTV) systems in our roads and public buildings, National digital ID cards, etc. are not yet fully deployed, diffused and in widespread use across the country. Electronic banking, e-payments and other e-

transaction processes are still at their elementary stages of development. The steps taken by the Nigerian government towards having a cashless society has not yet yielded much results due to numerous issues ranging from unwillingness to accept the change, lack of trust of Nigerians in the process and the unavailability of the required facilities, equipment, skilled manpower, logistics, etc. needed to make it work.

The power supply available to Nigerian citizens is epileptic and insufficient. This is a challenge because the e-technologies need power supply to function. Other back up power sources such as generators increase the overall cost of using these e-technologies which can be a source of discouragement in their usage. The awareness of Nigerian citizens of the benefits of e-governance and their confidence that their input into the overall government processes will count is still very low. A large percentage of Nigerians do not presently possess the economic power to own ICT infrastructures and the skills to use.

The use of social media, Web 2.0 and mobile/wireless technologies in governance is still at its infancy in Nigeria even though these technologies have been identified as having the potential to provide the desired e-ready environment necessary to enhance e-governance in any nation. According to Sandoval-Almazan et al. (2011), communication that arises from the interaction between government and citizens can take place in different ways:

- Information stage where government sites only display information on the activities of public administration.
- Interaction stage which deploy applications that allow interactions between governments and citizens such as forms for asking questions and making enquiries, forums, or automated applications such as virtual public servers.
- The transaction stage which focuses on interchange of services and application

processes with a well defined cycle and in many cases the payment of fees. The transaction stage is an extension of the interaction stage with a focus on e-commerce.
- Integration Stage which make reference to the capability of the site to present itself as a single window for providing services to the citizens and transparently making known which agency or agencies are in charge of delivering the services or information.
- Participation Stage which offer citizens the ability to socialize and in this way obtain full interaction. At this stage, communication is most extensive, taking place between government and citizen, between dependencies, between citizens and providing feedback.

Social media, Web 2.0 and mobile/wireless technologies have the potential to enhance the interaction, transaction, integration and participation stages. These technologies share certain characteristics, such as the generation and classification of information and content in a collective manner, the integration of communities, and the production and consumption of socially distributed knowledge (Sandoval-Almazan et al., 2011).

Using Social media and Web 2.0 tools and applications on electronic government sites is just the first step because there is the need to put in place strategies and clear approaches detailing what these tools and applications are expected to achieve. According to Sandoval-Almazan et al. (2011), Government 2.0 has great potential to transform and improve relations between governments, citizens, companies and other interest groups, but these tools must be combined with a clear vision and effective strategies if their effects are to be valuable and meaningful to governments and citizens alike, as well as to society as a whole.

There is still much to do if Nigeria must begin and sustain the e-governance process and reap its numerous benefits.

FACILITATING THE E-READY PROCESS

The author highlights four stages that will help Nigeria facilitate and sustain the e-ready feat as:

- E-awareness and sustainable e-policy formulation.
- ICT infrastructure acquisition.
- Development of e-governance processes and procedures.
- Training provisions for Nigerian Citizens.

E-Awareness and Sustainable E-Policy Formulation

Availability of sufficient bandwidth to facilitate fast and easy access to the Internet at affordable costs (a feat that can be achieved by acquisition of more ICT infrastructure) has already been identified in this paper as one of the major hurdles to be overcome to facilitate the e-ready feat in Nigeria. However, before proceeding with infrastructure acquisition, there is the need to embark on an enlightenment campaign alongside the acquisition of ICT infrastructure which will be followed by a training program that outlines the benefits of e-governance so as to sensitize all Nigerians on the need to embark on the e-governance project. This is necessary because awareness of the numerous benefits of e-governance and the role of the citizens in the process will be vital to its success. Nigerian Citizens, who are the consumers, need to appreciate the need to invest their hard earned resources in acquiring access to the Internet to use social media, Web 2.0 tools and applications and other e-technologies because of the huge returns they will get from them which comes in the form of knowledge empowerment, enhanced productivity in business, easy communications with friends and family, involvement or participation in e-governance, etc.

The first step to take to achieve an e-ready feat is to begin creating the awareness of the various e-platforms, the various e-technologies (e.g. Web 2.0) and their potential benefits when properly harnessed. People are always resistant to change and may perceive the efforts to have a paradigm shift towards e-governance by the government as a waste of their time and resources if they do not fully appreciate the benefits it will present to them. This awareness campaign should identify and consider barriers to ICT adoption and diffusion (concerns about the privacy of data or security issues, the need for face-to-face interaction in some transactions and processes, present non usage of the various e-technologies by the citizens, finding support staff for the various e-platforms, cost of implementing e-governance, the challenge of making the necessary organizational changes, the inadequacy of legal protection for Internet purchase, overcoming challenges in the use of social media and Web2.0 technologies in governance, etc.) and make strategic efforts during the campaign to point out pragmatic steps to be taken to overcome or at least tackle a large percentage of these issues. This is necessary because the citizens may still refuse to accept the change even after seeing the benefits, if they do not see and appreciate the commitment of the government to tackle such challenges. The media (both print and electronic) will play a vital role in this campaign process.

The awareness campaign should begin with the setting up of a unit in the Ministry of Information and Communications saddled with the responsibility to develop the e-awareness message, collaborate with all stakeholders and reach Nigerians with the message using various media. It is now ever more essential that governments exploit all possible delivery channels in order to reach out to as many people as possible, no matter how poor, illiterate or isolated (United Nations E-Government Survey 2012: Executive Summary). The e-awareness message should be developed in audio, video and graphic (picture) formats which will be transmitted to the Citizens using various print and electronic media. Today mobile phones have reached about 80% of the populace (Iroko, 2012). Mobile/wireless technologies should also

be used to diffuse the awareness message because the wide campaign and continuous expansion of the telecommunications industry in Nigeria has provided wider coverage even in several rural communities (Onwuemele, 2011), hence they can easily be used to deliver relevant, innovative and useful information to Nigerians at much reduced costs.

Social media and Web 2.0 platforms such as online forums (Social network Sites), wikis, blogs, etc. should also be used to diffuse the awareness message because most Nigerians who already are using the Internet (especially the youths) are registered in and visit one social network, blog or wiki forum regularly. Traditional and Religious Institutions should also be involved in the information diffusion process because the people have respect for them and will easily accept the message and perceive it to be of value if they are told about it directly by these Institutions. The e-awareness message should also be entrenched in our education curriculum at all levels so that the up-coming generations are informed of its potential as they grow up into adulthood. With the diffusion and acceptance of the e-governance message, the huge investment in ICT infrastructure will be easily harnessed and put to use so that it reflects quickly in National development.

An e-policy that provides a legal regulatory framework for the e-governance processes should be developed and signed into law. The regulatory e-policy is necessary because in a World Bank study in 2006, inadequate legal protection and concerns about privacy issues were seen to be among the top obstacles of ICT diffusion and usage (Braund et al., 2006). The Citizens need to be assured that their information is safe and kept confidential as much as possible and will not get into wrong hands. In the regulatory legal frame work, the various e-crimes and the punishments should be captured. Judicial independence, independent regulatory authorities, fair administration of justice, personal security and private property protection, and protection of financial assets,

should be emphasized. Transparency in financial transactions in government budget, central bank, the treasury, public enterprises, civil service and the public sector, pricing systems, exchange and trade regimes, banking systems, etc. should be contained in the regulatory legal e-policy. The regulatory e-policy laws have to be implemented in a transparent, consistent and effective manner to guarantee sustainable development both on the long and short run. The e-policy should also capture ways of harnessing the potential of using social media, Web 2.0 and wireless/mobile technologies in enhancing e-governance.

ICT Infrastructure Acquisition

Having a solid ICT infrastructure backbone is vital to having a successful e-governance plan in Nigeria. According to Obiozo, W.E (2013), the African continent has a lot to worry about, especially on the invention, adoption, development, training, availability and application of ICT resources and tools in different sectors of the African economy. Many African nations are lagging behind in ICT development and adoption in their urban areas, not to mention the rural community settings. Investing massively in Telecommunication infrastructure is the bedrock of achieving a solid ICT infrastructure backbone for Nigeria. Telecommunications infrastructure covers the transmission media and processes, the access facilities, the distribution loops, the network interconnectivity, network interoperability, the trunk backbone, etc.

The Nigerian government has made some progress in this direction through the deregulation of the sector but more steps should be taken to make the service provided by the various telecommunication companies become more reliable and efficient by improving the quality of service delivery. This should be done through a combined public and private initiative. ICT growth does not only depend on the large scale deployment of telecommunications infrastructure but also on the availability of mobile phone, use of social

media and Web 2.0 technologies, fixed telephones, computers and their networks (wireless and wired), printers, scanners, video recorders, surveillance devices (e.g. CCTV, GPS systems, etc.), television, radio, digital cameras, fax machines, etc. The amount of ICT usage by the Citizens to access government information and participate in governance is also very vital and relevant to the success of the e-governance process.

It is necessary that Nigeria develops a plan to acquire necessary ICT infrastructures in phases as we drive towards the e-ready feat. This requires huge investments but following a laid down plan will help the nation to progress steadily. The annual budgets should reflect the commitment of government to pursue the plan and their implementation should be closely monitored.

The plan should focus more on providing equipment and technologies that provide access to the Internet (in both rural and urban communities), reliable and efficient National and regional data banks and servers, etc. A centralized approach which allows different government institutions to be interlinked should be deployed except in cases where this is unreasonable due to factors such as security issues. Infrastructure acquisition should be pursued in such a way that social equity and inclusion are enhanced by eliminating institutional barriers to citizen inclusion. There should be an equitable distribution of Citizen's opportunities for participation in governance through ICTs; else the aim of achieving an all-inclusive national development using e-governance will be defeated as the digital divide between the citizens of the same nation will become even greater. Web 2.0 and Mobile/ Wireless technologies should also be given some priority because they have become the most rapidly adapted technologies to provide e-services both in Urban and rural communities with the potential to readily facilitate e-inclusion and participation in governance.

Appropriate policies to encourage private participation in the infrastructure acquisition process should also be developed as government alone cannot bear the overall burden of providing the ICT infrastructures necessary for achieving the e-ready feat in a reasonable time. Electric power infrastructure must be improved to provide a sustainable platform for the large scale rollout of telecommunications infrastructure. Costs of providing telecommunication services have been increased due to unavailability of stable power supply in the country which has led to installation of generators by the service providers, a situation which reduces the economic power of the citizens to afford and use ICTs.

Nigeria can also incorporate the provision of free access to e-governance services by providing free public Internet services where the Citizens can access government information and can participate in governance. However procedures have to be put in place to avoid the wrong usage of such infrastructures for purposes other than that for which they were established.

Development of E-Governance Processes and Procedures

Governance involves several processes and procedures which vary from very simple to very complex. Some of these processes require face to face communication while others require paper work, telephone calls, emails, etc. E-governance aims to minimise (if not completely eliminate) the use of face to face communication and paper work by developing e-solutions that efficiently and reliably replaces them. There is therefore the need for appropriate e-governance processes and procedures to be developed so as to facilitate a smooth transition from using normal processes to e-processes in governance. In line with this, Galaxy Backbone has already been contracted by the Nigerian government to help in developing technology service solutions to Federal Ministries Departments and Agencies (MDAs). The question however is whether they have the capacity, technical expertise and manpower as a single company to perform this task alone without the government also bringing in established giants in the e-service solution business?

There is also the need for all government (public) and private Institutions to have well equipped ICT units having highly skilled technical personnel saddled with the responsibility to move the establishments towards e-readiness by developing innovative e-processes and procedural solutions that will replace the existing processes and procedures. Equivalent e-processes and procedures to replace normal paper and face to face communications should be developed and tested and subsequently fully deployed. An effective approach to developing these e-solutions is to consider the numerous telecommunications infrastructures available, the possibility for the citizens to possess and use them as well as the present governance structure and the various procedures used in governance transactions. Integrating the large scale use of social media and Web 2.0 technologies in the e-governance processes should be given priority.

E-solutions which will focus to provide a platform for equality in the participation of the Citizens will have to be developed for health, education, administration, finance, democracy, business, agriculture, banking, etc. The solutions should as much as possible provide the possibility of participation using a wide variety of channels (equipment and technologies) so that Citizens who have limited access to some equipment and technologies can still participate in governance without being marginalized. Special focus should be given to creating processes and procedures that allow the use of social media, Web 2.0 and mobile/wireless technologies in participating in governance. Citizens have diverse needs and demands for services; therefore it is no longer sustainable for governments to utilize one preferred way of service provision over the other, hence it is now more essential that governments exploit all possible delivery channels in order to reach out to as many people as possible, no matter how poor, illiterate or isolated (United Nations E-Government Survey 2012: Executive Summary). The e-solutions should also be designed not considering only the supplier (government) perspective but also the consumer (Citizen) demands and needs.

All government Institutions must establish a sustained online presence with at least basic services so as to build the Citizen's trust in e-governance. They should have official social media pages and may even create their websites where citizens can register and interact with government officials and other citizens either using tweets or instant messages. This is necessary because Citizens will become frustrated and may develop a negative attitude towards e-governance if they experience delays or are unable to access government services whenever they desire. According to Al-Hujran et al. (2011) perceived usefulness, perceived ease of use and attitude are significant indicators of citizens' intention to use state government services online.

The e-solutions should also provide a structurally integrated and united purpose government providing collaboration between Nigeria and other nations, between Federal, State and Local governments and between Public Institutions, Private sector and Civil societies.

Training Provision for Nigerian Citizens

Apart from the inadequate infrastructure available, the differences in skills and the lack of large scale Citizen's capacity to access information is presently playing a major role in enlarging the digital divide between the developed world and the developing nations. Provision of relevant training to Citizens without any bias or discrimination is therefore a necessary tool towards achieving a successful e-governance process. The Nigerian people are the most important resource available, hence empowering the Citizens to possess the capacity to use ICTs while eliminating barriers to this process should be a matter of national priority.

ICT training should be entrenched into our education curriculum at all levels. We need necessary training to provide skilled technical personnel, who are able to develop, deploy, maintain and sustain ICT infrastructures all over the country (both in rural and urban communities). There is also the need to provide the training platform for Citizens

to be able to use the basic ICTs infrastructures and equipment to access the Internet. There will also be the need to provide training on the various e-solutions and applications developed through which e-governance processes and procedures will be carried out. Programmes and strategies that encourage the sustained use of ICTs as well as strengthen the capacities of the Public, Civil and Private organizations for effective exploitation of ICTs to address their needs should be designed and implemented. They should be focused on strengthening the competitiveness of stakeholders in the Public and private sectors as well as empower them to enable optimal contribution to building a better and more sustainable society. Appropriate capacity building programmes are designed to get the most out of people and organizations while contributing towards establishing a more inclusive and prosperous knowledge based society (Jidaw, 2013).

There should be customized training programmes, including those based on globally recognized and accepted certification standards. The training should create a platform to encourage female participation so as to overcome ICT training diffusion inequality due to the present trend of gender bias in the country. Training provisions should evolve from a long-term vision and an IT management programme which should be aligned with the overall e-governance strategy and technical integration of ICT systems.

Free ICT Training centres run by government, Non-Governmental Organizations (NGOs) and other Private organizations should also be established to aid the training of Nigerians. One way to do this is to set up ICT Academy Research Centres (ICTARC) to boost Nigeria's ICT technical capacity so as to facilitate the replacement of expatriate expertise with highly skilled Nigerians. Training of Nigerians in ICT capacity should not be limited to usage but also in creating and adding to already existing technologies hence; nanotechnologies, microelectronics and embedded systems technologies design and development

training centres which form a bed rock for ICT infrastructure design should be pursued. This will be an expensive venture in the short run but on the long run, it will help Nigeria to develop the capacity to create ICT solutions that suites our needs.

EXAMPLES OF WAYS NIGERIA CAN BENEFIT FROM THE E-READY FEAT

There are several ways that Nigeria can benefit from the e-ready feat if properly pursued. Some specific examples are cited as follows:

Core Governance Processes

ICTs are making several government functions easier, cheaper, faster and more reliable. VoIP and intercom technologies are helping to cut down communication costs in several private and government institutions (Oghogho, et al., 2012). ICTs are being used in facilitating operation of the Judicial, Executive and Legislative arms of government, acquisition of National data bank, Personnel verification schemes, Pension schemes, Salary and wage payments, Tax collection and clearance, Training, regulatory functions, security provision, Administration, etc. Transactions and money transfers can easily be traced due to e-banking procedure now being used in governance, a situation that can help government and the civil society to easily trace and deal with corrupt practices.

Electoral Processes

The use of ICTs in electoral processes makes the entire process more transparent and inclusive. This was clearly demonstrated in the just concluded 2011 elections in Nigeria where more Nigerians where able to trust the process and decided to participate by casting their votes. However, ICTs should be more involved in both the planning and execution stages for the next election so as to

correct the short comings experienced in 2011. Social media and Web 2.0 technologies can be deployed before, during and after elections to both monitor and harness the feelings of the public on such matters. President Goodluck Jonathan used his Facebook page to gather support from Nigerians while campaigning for the 2011 elections. The youths were glad to be able to talk directly with their President. During elections, social media especially tweets can be used to identify and monitor the progress of elections in different parts of the country.

Education

The use of ICTs in education has become common place because it has facilitated easy and cheaper access to all forms of information both within the same institution of learning and their outside linkages. Several education processes ranging from payment of fees, submission of assignments, downloading of notes, search for information online, receiving lectures online, etc. are now possible using ICTs. Social media and Web 2.0 technologies are now at the forefront in enhancing learning and knowledge creation and sharing. Wikis, blogs microblogs, etc. are presently helping to generate a large volume of data and making them available to a large audience. Since the Joint admission and matriculation board (JAMB) exam was handled using ICTs, students can now access their results online in less than two weeks after writing the exams and do not need to worry about their results being lost in transit after they have been posted to them by JAMB. ICTs should however not be left in Computer laboratories but should be part of classrooms to facilitate blended learning.

Business and Banking Services

Today, several business and banking procedures which offer more convenience will be impossible if there were no ICT platforms to support their execution. Banking transactions have become easier or more convenient and faster. ATM machines, electronic transfer of funds, etc. are making banking procedures faster and more convenient. Business deals and contractual agreements can be struck and executed without seeing the other person with whom you are doing business. Production processes are being automated by incorporating telecommunications systems which help to transfer information which are useful in the entire control processes. However, for Nigeria to attain a sustained successful e-business environment, the cashless society agenda of the Nigerian government should be pursued by putting in place necessary policies, infrastructures, trainings and processes that will make it work.

Health Services

ICTs have helped to enhance choices in medical care practices. Use of the Internet, social media and Web 2.0 technologies are now being used to aid provision of improved health care as family members can easily find health information and relate it to their relatives who need them. Also identification and monitoring health epidemic situations can be faster using social media and Web 2.0 technologies. Video conferencing makes operation, therapy, diagnosis and training sessions possible with the input of consultants who are several kilometres away. Transportation cost and travel risks are all eliminated. Human Capacity is developed and enhanced while facilitating efficient use of available resources. Information about recent breakthroughs in health practice and how to access them are easily available due to ICT's wide deployment and usage. It is easier to monitor public health treat in a timely and more efficient manner.

Oghogho and Ezomo (2013) gave some more specific examples of ICT usage in enhancing national development. These and many more are what Nigeria stands to enjoy with an achieved e-ready feat.

USING SOCIAL MEDIA, WEB 2.0 AND MOBILE/WIRELESS TECHNOLOGIES TO ENHANCE E-GOVERNANCE IN NIGERIA

Today, social media, Web 2.0 and several online services with user-generated content have made a staggering amount of information (and misinformation) available (Kavanaugh, et al., 2012). Proliferation and widespread diffusion and usage of mobile and wireless devices have increased the potential for citizens and government officials to be able to access the Internet anywhere and anytime (even when on the go) hence, they are able to use social media and Web 2.0 technologies to access and contribute to generating a staggering amount of information anytime, anywhere and on the go as long as there is an Internet connection. This means that government officials are presented with the potential to enhance governance if they can make sense out of the large volume of data generated using these technologies. This directly infers that social media, Web 2.0 and mobile and wireless technologies have the potential to create and sustain the desired enabling e-environment necessary for enhancing e-governance. Kavanaugh et al. (2012) in their exploratory study came up with three main findings:

- Local government uses social media without knowing its costs and benefits, or who their actual audience is, who in their organization should monitor communications, how and when they should be responding, and what effect their social media communications have on the public.
- New tools are needed to help government and citizens make sense of the overwhelming amount of data that is being generated, to model the flow of information, and to identify patterns over time.

- Digital libraries are needed to archive and curate generated content, especially for crisis and social convergence situations, but also for analyses that cover longer time frames.

These findings raise the issue that the uses of social media, mobile/wireless and Web 2.0 technologies have to be properly planned for governments to have useful dividends from them. It is not just enough to use these tools, but using them in ways that make their data useful for making real time and efficient decisions for more effective management of emergency situations, improvement on public safety, etc. is what matters. Despite the high volume of noise associated with data collected using social media, mobile/wireless and Web 2.0 technologies, critical events of interest can be identified as spikes in the social media volume (Kavanaugh et al., 2012). In this section, the Author presents some specific ways through which the Nigerian government are already using and can use social media, Web 2.0 and mobile and wireless technologies for enhancing government functions.

Identifying, Monitoring, and Responding to Emergencies in Real Time

Social media, Web 2.0 and mobile/wireless technologies have the potential to enable any government to identify, monitor and respond to several emergency issues in real time. These technologies can be used to identify, monitor and respond to critical events like earthquakes, floods, hurricanes, landslides and mudslides, tornadoes, tsunamis, volcanoes, terrorism, large scale food poisoning, thunder storm, water pollution, winter storm, extreme heat, flash mop gatherings, protests, fire outbreak or wildfires, chemical exposures, etc. These events of interest

can be identified as spikes in the large volume of social media data traffic. The major advantage that these technologies have over traditional methods with respect to emergency management is their real time potential to reach a large population at much reduced cost while providing a large window of opportunity for influencing or mitigating emergency events as they occur. According to Yi et al. (2013) social media are must-have tools for Government 2.0 hence, both the U.S. and the South Korean governments look to social media for various functions, which may include, but are not limited to, communication/announcement on current events for the public, such as disease or disaster alerts and weather reporting.

Thousands of Nigerians joined and used Twitter and Facebook during and after the removal of fuel subsidy protest of 2012 (Admin, 2012, Orimisan, 2012). The massive mobilization of Nigerian citizens using social media, Web2.0, mobile/wireless technologies forced the government to reduce the earlier announced price. Social media helped to sustain the intensity of the protest all over the country hence, the government as well as citizens were well informed of events as they unfolded all over the country. Facebook is the easiest way to plan an upcoming event like a party or a rally, but Twitter is an invaluable resource if you want to follow the news in real time.

Governments have to position themselves (before the emergencies occur) to be able to use these technologies to identify, monitor and respond to emergencies in real time. Elected government officials, Public officials as well as other workers in government institutions providing services to the citizens will have to be registered and be ready users of blogs, microblogs, and other services with user-generated content. This will enable them to be able to identify spikes in the data volume when they do occur and hence will position them to respond accordingly. A good step in this direction is the recently established Public Complaints Commission (PCC) of the Federal Capital Territory (FCT) Abuja which embraced social media to receive complaints and interact

with people. Any visitor to the PCC website or social media page can type in what they want to ask the commissioner, and can receive a feedback in real time.

Several natural disasters have occurred in Nigeria and the general trend has been a slow response to saving lives and alleviating the pains of Nigerians (Disaster-Report, 2012, Disaster-Report, 2013). Thousands of Nigerians have been displaced while others have been killed due to slow or no response to these emergencies. This slow response is partly due to non or late availability of information to the government response agencies saddled with the responsibility to respond to these disasters in near real time as they occur. Social media, Web2.0, mobile/wireless technologies can be used to identify these emergencies as spikes in the large data volume traffic so that the required government agencies can be directly informed using these technologies and able to respond in real time to these emergencies as they occur.

Although, we often talk about the positive potential of the use of these technologies, there is also the downside as citizens (especially youths) may be more interested in reporting an accident or a potential crime using social media and Web 2.0 technologies than reaching out to help the victims. According to Chukwuebuka (2013) youths in Nigeria on arriving at an accident scene only care about taking pictures or recording the disaster and the victims with their phones after which they gladly upload the images to YouTube, Facebook or other social media forum rather than coming to their rescue. This fact is evident in the aftermath of the June 2012 Dana Airline crash in Iju-Ishaga, Lagos, Nigeria, when thousands of young people residing in the area rushed to the scene and began using their phones to take images of the dying plane crash victims instead of rescuing the people in the plane. A similar thing occurred when almost a hundred people were burnt to death after an oil tanker caught fire in Rivers State, Nigeria.

These negative attitudes of the youths can however be channelled to yield productive results

if governments can put up structures through various institutions that will be visibly present in several social media forums such that they are ready to identify, monitor and respond to these emergencies in real time as they occur.

Identifying, Monitoring and Responding to Civic-Related Situations

Social media, Web 2.0 and mobile/wireless technologies can also be used to enable governments and citizens identify, monitor and respond to civic related situations such as traffic jam, car crash, potential crime, downed power lines, etc. For example, a structure can be set up such that traffic conditions on different roads can be easily accessed by citizens and alternative routes to ease the traffic congestion can be suggested in such forums. By simply connecting to and accessing different posts on the official page of the concerned government agency in the social media forum, citizens can in real time, access information about different roads and the alternative routes. The Federal Road Safety Commission of Nigeria (FRSC) can monitor and coordinate this process along with the traffic arm of the Nigerian Police Force (NPF).

Similarly, using social media and Web 2.0 technologies, the Nigerian Police Force and other Force agencies can identify, monitor and respond to potential crimes in real time. However care must be taken to put in place a structure to filter out spam and deceptive alerts before necessary response actions are carried out. Social media and Web 2.0 technologies can be used to quickly identify militant groups and other security attacks and respond quickly to them if appropriate structures are put in place. The NPF and other armed forces can have visible presence in some social media sites and will encourage citizens to send tweets or instant messages to their official page when they notice the potential occurrence of security threats both to lives and property.

The Nigerian government established agencies or institutions responsible for environmental sanitation can also set up websites where residents can sign up to be tweeted the night before garbage and recycling collection is done in their area. These agencies can also use other social media forums for broadcasting such information on their official page and to receive feedbacks. The official pages of these sanitation agencies should be broken down into small zones such as wards or Local governments so that people living in that area will be able to easily access information about their assigned days in their area and also be able to make comments and complains back to the agencies.

The Nigerian Customs service has taken steps in this direction by setting up "The trade hub" which has various tools to help both Nigerian citizens and foreigners get the right information about their choice import or export business in Nigeria. This absolutely free service has a 24/7 customer service live chat, where people can ask an officer for any information that is not found on the portal. The trade hub provides information about all the Nigerian regulatory agencies such as National Agency for Food and Drug Administration and Control (NAFDAC), CUSTOMS, Nigerian Communications Commission (NCC), National Drug Law Enforcement Agency (NDLEA), Standard Organization of Nigeria (SON), Corporate Affairs Commission (CAC), Central Bank of Nigeria (CBN) and others along with their contact details, processes, documents, fees and processing time that an importer and exporter will need to liase with to obtain the necessary and important permits, documents and certificates required to ensure compliance (Hamzat, 2013). The Nigeria Customs also created a Facebook account for the trade-hub where it supplies daily useful information that would be helpful to business men and women doing import and export, information like the new trade and bilateral agreement between Nigeria and other countries, reduction of export dues in certain countries and so on.

Identifying, Monitoring and Responding to Citizen's Feelings on Changes to Government Policies

One way to identify, monitor and respond to the feelings of the citizens about a new policy or a modification in an old one is the use of social media and Web 2.0 technologies. Although I do not presently live in my native state (Edo state), I get much information about some new policies there from friends who make comments on such policies while I am on social media sites. I learned for the first time about the ban placed on riding motorbikes in Edo state from a friend (who was complaining bitterly of the inconveniences the ban was causing her) in a social media site.

Governments can through the use of the social media engage the citizens by creating interactive social media forums where such policies can be discussed and citizens are allowed to express their views through comments. Governments should however put up a position that they are willing to make some adjustments depending on the suggestions made by the citizens so as to encourage them to be willing to comment freely since they will have the feeling that their opinion will count. President Goodluck Ebele Jonathan operates a Facebook page where he allows Nigerians to speak out on several government policies and issues and he has responded positively to general opinion a few times by changing some earlier decisions made. For example he changed the decision to withdraw the Super Eagles of Nigeria from all International competitions for two years due to numerous appeals on his Facebook page by Nigerians (BBC News Africa, 2010). He had banned the team for two years after their poor World Cup campaign but had to change the decision due to social media influence. Indeed this clearly suggests that any sincere government can harness the feelings of her people using social media and Web 2.0 technologies if the proper structure is put in place.

FUTURE CONCERNS OF E-GOVERNANCE

Although, e-governance has numerous advantages, there are several issues that have been raised which have become national and international concerns. Cyber security issues, loss of privacy of Citizens and possibility of government to manipulate the information on their sites to suite their selfish gains are a few issues presently being considered as nations drive towards full deployment of e-governance. How do we protect sensitive information from unauthorized disclosure or intelligible interception and eavesdropping? How do we ensure the integrity of the process by preserving the accuracy and completeness of information and software and protecting data from unauthorized, unanticipated or unintentional modification? How do we ensure availability such that information and vital infrastructural services are available when required? How do we filter out the large volume of unwanted data generated by social media and Web 2.0 technologies so as to make sense of the data collected? How do we prevent citizens, government officials and employees from inappropriate and unethical uses of social media and Web 2.0 technologies? Once the trend encouraged by social media platforms where people maliciously accuse others without proof becomes established and remains unchecked, it can lead to government officials being blackmailed and accused of bribery or corruption, married men and women being accused of adultery, young unmarried singles being accused of prostitution, others will be accused of theft, murder, etc. Once it is on the social media, you are tried, convicted and sentenced even without going to court.

These and many more are questions that will have to be answered to facilitate widespread diffusion and usage of social media, Web 2.0 and wireless/mobile technologies and other ICTs for attaining a sustained e-ready environment necessary for enhancing e-governance in any country.

CONCLUSION

Efficiently implementing e-governance has the potential to create more informed citizens who are not only prepared to participate in democratic processes, but are also excited about their contribution to governance so as to achieve and sustain national developmental goals and objectives. Through a strong e-governance system, Nigeria can become a nation that thrives as it will provide a greater level of performance with convenience (both for governments and citizens), better management of time and resources, savings in cost, revenue growth, etc. The process of accessing government information by Citizens and that of Government collecting information from Citizens are greatly simplified which could translate into a decrease in corruption because public information would be available to all citizens and there would be less possibility of manipulation. Governance processes and procedures will become more transparent and all inclusive.

This chapter has considered the concept of E-readiness and the various Information and communication technologies (both established and emerging) that can facilitate the e-ready process in Nigeria as well as the necessary steps to be taken to provide all stake holders with a blue print of areas on which to focus. Necessary processes have to be put in place, infrastructures have to be acquired and trainings have to be provided to equip Nigerians with the capacity to both use and sustain the e-application platforms. After acquiring the backbone infrastructures, social media, Web 2.0 and wireless/mobile technologies were identified with relevant examples as necessary technologies that will facilitate the attainment and sustenance of the e-ready environment necessary to enhance e-governance in Nigeria. As our world becomes increasingly digital, Nigeria and other developing countries in the world need to take pragmatic steps towards bridging the digital divide while striving towards achieve an e-ready feat so as to provide the needed platform for e-governance to thrive.

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KEY TERMS AND DEFINITIONS

Bandwidth: Determines the efficiency and speed of a user's Internet access and describes the rate at which data can be transferred to a computer or other device from a website or Internet service within a specific time. It is a term that includes a broad range of technologies which provide higher data rate access to the Internet.

E-Governance: Is the delivery of government information and services to the public using ICTs.

E-Readiness: Refers to a situation where a nation has put in place the necessary ICT infrastructures, technologies and equipment and has empowered the citizens with the economic power and relevant trainings to be able to both possess and use these technologies for accessing several e-services.

ICT: An acronym for Information and communications technology is an umbrella term that includes any communication device or application, encompassing: radio, television, mobile and fixed phones, computer and network hardware and software, satellite systems, surveillance systems, and so on, (as well as the various services and applications associated with them, such as video-conferencing, distance learning, etc.) necessary for the delivery of information in the form of audio, data, video, image, etc. from Point a sender to a receiver or receivers.

Infrastructure: In telecommunications, refers to the physical hardware and software used to interconnect computers, mobile phones, fax machines, etc. and users as well as the transmission media and equipment such as telephone lines, cable television lines, satellites, antennas, the routers, aggregators, repeaters, and other devices that control transmission paths.

Internet: Is a global system that consists of millions of people that could be private, public, academic, business, government, etc. who are linked or interconnected through electronic equipment, infrastructures, etc. based on various electronic technologies (wireless, optical or wired computer networks, mobile phones, broadband, etc.) and are able to transmit and receive information (data, voice, video, etc.) to and from each other.

Social Media: Are applications based on the Internet which are designed to facilitate social interaction and for using, developing and diffusing information through society by building on many of the same concepts and technologies of Web 2.0, with special focus on the creation and exchange of user generated content.

Telecommunications: Refer to the exchange of information by electronic and electrical means over a significant distance using devices such as telephones, telegraph, radio, microwave communication arrangements, fibre optics, satellites the Internet, etc.

Web 2.0: Is an Internet technology that supports features such as Social networks, Social bookmaking, Instant messaging, Wikis, Internet telephony (VoIP), Audio or video conferencing (NetMeeting), blogs, etc. which allow people to effectively and actively connect, participate, interact, collaborate and create and share live streaming or recorded audio, video, text, pictures, etc. information or knowledge.