An Assessment of Ghana's global E-government UN ranking

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ABSTRACT

E-Government (Electronic government) can be defined as the use of information and communication technologies to enable citizens and businesses to interact and conduct business with government agencies via various electronic media like telephone touch pad, fax, smart cards, self-service kiosks, e-mail / the Internet, and Electronic Data Interchange.

E-government is now being adopted by many countries and governments around the world including the Sub-Saharan country of Ghana in West Africa for the purpose of providing services to citizens and government agencies, businesses, employees and other agencies that are nongovernmental. A prominent African economic expert projects that the economy in Ghana will rise by 8.7 percent in 2017, the fastest among the 54 ranked countries on the continent. Ghana initiated its e-government strategy in the year 2005 and is the fastest growing telecommunications, Information, and Communications Technology (ICT) market in Africa. Despite this significant progress, Ghana is still being ranked relatively low in e-government provision to its citizen by the UN.

The objective of this paper is to assess Ghana's global e-government ranking, review the objectives and procedures that were applied by the UN in the ranking, review Ghana's performance in global e-government surveys, review some causes of the low e-service delivery ranking, and recommend solutions to improving future rankings.

Keywords: E-government, information and communications technology (ICT), ranking, Ghana.

INTRODUCTION

Government service offices are the locations of government agencies, departments, or other branches of government for the administration of any of the various services for the benefit of the citizenry, businesses, and other government agencies.

Although there is no universally agreed definition of E-government, it could be defined in different ways based on the different perspectives they represent. E-government (Electronic government) can be defined as the "use of information and communication technologies (ICTs) to enable citizens and businesses to interact and conduct business with government agencies via various electronic media like telephone touch pad, fax, smart cards, self-service kiosks, e-mail / Internet, and Electronic Data Interchange (EDI)" (Almarabeh and AbuAli, 2010: 30). As a result, e-government can be seen as "the administration, rules, regulations, and frameworks organized by a government for the delivery of services and to communicate, coordinate and integrate processes within itself "(Almarabeh and AbuAli, 2010).

With the growth of ICTs, governments worldwide, including developed and developing countries, have increasingly adopted ICTs to deliver cost-effective and efficient public services to stakeholders. The majority of developing countries have been initiating E-Government strategies and projects typically with support from donor organizations such as the World Bank or bilateral donor organizations (Schuppan, 2009).

The literature shows that many governments have come to realize the benefits of e-government and how its utilization could improve service delivery to its citizenry (OECD, 2003). Service delivery refers to level and quality, capacity, service continuity, availability, general management and financial management. Service delivery generally describes the method and the degree at which customer requirements are satisfied. Bringing citizens and businesses closer to their governments is one of the most important features of e-government.

Ghana is a developing country in Africa with Accra as the capital and largest city. A foremost African economic expert expects Ghana to have an 8.7 percent rise in economic growth in 2017, the fastest of 54 countries ranked on the continent (WestAfricawire, 2016). According to Frempong (2012), Ghana is also among the fastest growing telecommunications and ICT market in Africa.

Ghana has, therefore, come to realize the fact that with the growing economy, it is an imperative to continue to integrate ICTs with its expansion strategy and thus, has applied technology intended at improving her economic growth.

The Government realized the need to empower the citizens by taking an interest in becoming a digital society and adopting ICT in 2003. As a result, Ghana ICT for Accelerated Development (ICT4AD) policy was designed by the government and received parliamentary approval in 2004. This policy (Ghana ICT4AD,2003), is established in the framework document: "An Integrated ICT-led Socioeconomic Development Policy and Plan Development Framework for Ghana". A nation-wide consultative process involving stakeholders in the public, private sector and civil society of Ghana was adopted when developing this policy.

In July 2006, a $40 Million loan was approved by the World Bank for the Government of Ghana through the Ministry of Communications, with the objective of assisting the government of Ghana in producing development and employment by leveraging Information and Communications Technology (ICT) and public-private partnerships to; 1. Grow the IT Enabled Services industry, and 2. Add to enhanced efficiency and transparency of designated government

functions via e-government applications (NITA, Ghana. 2017). The entire project consisted of four components and was completed by the end of December 2014.

Ghana currently has 23 ministries (www.ghana.gov.gh). Each ministry has agencies and departments that carry out various functions in 10 administrative regions. Each region has a metropolitan, municipal and district administrations. There are 216 administrative districts in Ghana (www.ghana.gov.gh).

Over the decade, Ghana has increasingly used internet technologies to provide various public services to her citizenry. Despite all these developments and progress, Ghana's e-government provision to its citizen is still ranked low compared to some other African Countries. (UN survey, 2016).

Low productive capability and structural challenges, like inadequate ICT infrastructure and inadequate access to ICTs and related knowledge, remain as a challenge to e-government progress in the LDCs and Ghana in particular (United Nations, 2011).

The primary objective of this paper is to assess Ghana's global e-government ranking, review the concept of e-government and to examine the United Nations (UN) model of e-government implementation used for the ranking of the 193 UN member nations in its global e-government surveys. Furthermore, it examines the basis and methodology applied by the UN global surveys.

The remainder of this paper is arranged as follows. A brief summary of e-government and models are presented first. Second, a literature review of related research is presented. Third, the research methodology is presented. In the fourth section, the UN e-government survey indicators are reviewed. The fifth part is data analysis and discussions. Finally, the summary, findings, and recommendations conclude the research.

A BRIEF E-GOVERNMENT OVERVIEW

Various definitions of e-government exist but resulting with the same meaning and focus. One such definition is "the use of technology to enhance the access to and delivery of government services to citizens, business partners and employees" (Silcock, 2001). E-government can also be defined as the "use of information and communication technologies (ICTs) to provide citizens and businesses the chance to work together and transact business with government by utilizing various electronic media like telephone touch pad, fax, smart cards, self-service kiosks, e-mail / Internet, and EDI" (Almarabeh and AbuAli, 2010: 30).

The three main domains of e-government are as indicated in Figure 1(Appendix) (Ntiro, S., 2000). 1. Improving government processes: e-Administration, 2. Connecting citizens: e-Citizens and e-Services, and 3. Building external interactions: e-Society.

E-Administration is a part of e-Government which deals with internal administration within the government as opposed to citizens and businesses. The European Commission (2007) defines e-administration as the application of ICTs to support back-office administrative tasks. Sánchez (2006) stated that e-administration is the application of communication technology to support the flow of information within or outside the public authority. According to Heeks (2010), e-Administration covers G2G relation to improve administrative processes in the hierarchical organization.

E-Citizen is an electronic service delivery system for the participation of the citizen in decision-making. It facilitates rapid and user-friendly online access to the organizations within the area of administration Government. It permits an applicant to track the progress of

applications; to obtain responses electronically in a central manner; to participate in public talks and surveys, and to enter petitions. A citizen may take part in any public discussions and opinion surveys introduced by the Government. Upon the conclusion of a public discussion or survey, the public may verify the results from the portal as to whether or not citizens' suggestions had any impact on the specific decisions taken (E.Citizen, 2015).

e-Society consists of one or more e-Communities involving the areas from e-Government, e-Democracy, e-Commerce, E-Networking to e-Learning and e-Health, that use ICT to achieve common interests and goals (Wikipedia 2016).

E-Governments Models

E-government is not a one-step process but it is rather evolutionary and comprising of various phases of application (Jayashree and Marthandan, 2010). Several models have been established to designate the phases of e-government application. Some of these are overlapping in phases, and others vary.

Models may be classified as either a three-phase, four-phase or a five-phase in the development of e-government . Some of the established and consistent models are: the World Bank's three-phase model (Jayashree and Marthandan, 2010), Gartner's four-phase model (Baum and Di Maio, 2000), the four-phase model by Layne and Lee (Layne and Lee, 2001), The United Nation's five-phase model (UNASPA, 2001) and the five-phase Model by Jayashree and Marthandan's (Jayashree and Marthandan, 2010). The UN's model was adopted in several e-government reports (UN e-government survey, 2012, 2014, and 2016).

The e-government growth phases are classified as (Adeyemo, 2011):

Phase 1 – An Emerging Presence: In this phase, a government prepares its online existence by creating an official website that comprises of ministries or departments webpage links. Communication with citizens rarely occur and information bank does not exist.

Phase 2 – An Enhanced Presence: Delivery of additional information on public policy and governance is made by the government with easy access for citizens. Links are created for recording information items like newsletters, reports, documents, laws etc.

Phase 3 – An Interactive presence: In this phase, Governments provides online services like downloadable online application form, and an interactive portal with services that is easily understandable and fit for use by citizens.

Phase 4 – A Transactional presence: In this phase, there is a creation of two-way interaction between citizen and government. The ability to pay taxes, apply for identification cards or passports and many other functions like G2C exchanges.

Phase 5 – A Networked or also known as fully integrated presence: The maximum and sophisticated stage of e-government application is called the networked process. It involves the integration of all e-government service extents that ranges from Government to Government (G2G), Government to Citizens (G2C) and Government to Business (G2B) models. This is the phase where government applies technology, turns proactive in joining with and responding to citizens' needs.

E-government Delivery Models

The government identifies and drives implementation of eight types of E-government delivery models which may result in Government, citizens, business, employees and other nonprofit organizations and political and social organizations substantially benefitting. E-Government types are summarized and classified into eight categories, are as follows (Fang, 2002), and (Sindue, 2013):

1. The Government to Citizens (G2C) model provides the momentum for placing public services online via the delivery of electronic service to offer citizens information and communications.

2. The Government to Businesses (G2B) model pushes E-transactions initiatives like electronic marketplace e-procurement development for government purchases. It also performs Government procurement tenders via electronic means for information and commodities exchange;

3. The Government to Employees (G2E) model works on initiatives that facilitate civil service and internal communication management with the employee in government for the purpose of making e-career applications and system processing paperless in E-office.

4. The Government to Governments (G2G) model delivers the departments in Government or agencies

cooperation and communication online base on a very large database of government resulting in efficiency and effectiveness. It also comprises of internal exchange of information and commodities.

5. The Citizens to Governments (C2G) model describes as digital interactions between a citizen and his or her government .

6. The Nonprofit-to-Government (N2G) model exchanges information and communication among government and nonprofit organizations, political parties and social groups, legislature, etc.

7. The Government-to-Nonprofit (G2N) model is the provision of information and

communication by the government to nonprofit organizations, political parties, and social groups, legislature, etc.

8. The Business-to-Government (B2G) model aggressively drives E-transactions initiatives like e-procurement and the development of an electronic marketplace for government purchases, and fulfillment government procurement tenders via electronic tool for the sale of goods and services

A Brief Profile of Electronic-Government in Ghana

The potential of ICT in empowering the Ghanaian citizens especially youths, women and disables, and the need to taking an interest in becoming a digitized society was recognized by the government. In order to achieve this, ICT was seen as a national priority, ensuring an Information Technology policy formulation in 2001.

The growth of technological trends in Africa remains relatively slow and uneven across the continent (United Nations, 2014). The Ministry of Communications in Ghana has the primary mission of developing projects that would enable effective and clear policy through the integration of ICTs and government information (Ghana NICH, 2000), and like (Ghana NICH, 2000), and as many other African countries has implemented various policies and projects with the goal of advancing e-government. Ghana initiated its e-government project in 2005 and

launched officially launched the Eastern Corridor fiber optic project to support the e-government network.

The Ghana Government, in collaboration with the Danish International Development Agency (DANIDA) and Alcatel-Lucent, facilitated the development of a fiber-optic backbone infrastructure on the country's Eastern Corridor to support the deployment of the national e-Government Network (Biztech Africa, 2012).

Ghana launched her official government web portal in 2012 for the dissemination of information and provision of online services, which includes Government-to-Citizens (G2C), Government-to-Business (G2B), and Government-to-Government (G2G).

Evidence from recent United Nations (UN) survey shows that the growth of technological trends in Africa is relatively slow and uneven across the continent (United Nations, 2016).

The UN E-Government Survey is created biennially by the UN Department of Economic and Social Affairs. The assessment of the 193 UN member nations e-government growth status is made possible by this survey. It helps with the recognition of areas of strength and challenges in e-government development and assists in the direction of e-government policies and strategies. Ghana occupies the 120th position out of the 193 countries surveyed.

The UN e-government 2016 evaluation measures how well ICT is used to reform and develop the public sector in the states, by enhancing performance, effectiveness, transparency, accountability, and accessibility to public services. It also measures the participation of the populations in each member country of the UN, in all developmental levels.

In Ghana, the commitment of past governments resulted in the improvement and development of ICT and telecommunication infrastructure. In their survey, the United Nations (2016) groups countries into four categories: Very High e-government development (index > 0.75), High e-government development (index of 0.5–0.75), Middle e-government development (index of 0.25–0.5) and Low e-government development (index< 0.25). Ghana is categorized as having middle e-government development with an index of 0.42 below several African countries.

Ghana has performed well on the E-government Development Index (EGDI) for 2016. Ghana improved on her ranking from 123 in 2014 to 120 in 2016 (UN, 2016). The nation previously ranked 123 in 2014, 145 in 2012, 147 in 2010, and 138 in 2008 (UN, 2016). The dramatic jump in rankings indicates some level of improvement in the performance of Ghana on the EGDI. Ghana launched her official government web portal in 2012 for the dissemination of information and provision of online services, which includes Government-to-Citizens (G2C), Government-to-Business (G2B), and Government-to-Government (G2G).

It is fundamental to be aware that this index of 0.4922, is below the benchmark index of the world (UN e-government survey, 2016). In a developing country like Ghana, the merit of e-government implementation comprises of among others, the improvement of efficiency, more convenient and quicker access to services from government, better transparency, the responsibility of government officials, reduction in administrative services costs, and improvement in democracy (Kamar and Ongo'ndo, 2007).

LITERATURE REVIEW

Due to the increased development of ICTs worldwide, e-government is now being adopted by governments in developing countries for the improvement of communication, more

efficiency in the delivery of service and to enhance transparency and accountability. Several types of research with reference to E-Government implementation in Africa have been discussed and presented in the literature. Some discussed the challenges of E-Government implementation or elaborated on the reasons for failure in E-Government implementation. Others addressed the effective implementation of E-Government various countries to enhance information and service delivery. This section of the paper examines similar studies of E-Government applications in Ghana.

Asorwoe and Yankson (2015) examined the readiness of Government of Ghana websites towards the implementation of e-government in public sector institutions on the five-stage e-government model. They discovered that the public administration in Ghana is at the lower stages of the e-government model (interactive presence – stage III).

Oni, A., Okunoye, A., and Mbarika (2016) examined the degree to which the present position of Nigeria's e-government employment agrees with the IT policy of the nation. They scrutinized how state-level governmental institutions have reacted to the policy of National information technology policy strategy that aims at the application of technology to make people closer to the government, transparency promotion, stronger democracy, and accountability. The research further evaluated the requirements on the portals of state governments' websites for the purposing of achieving the objectives of e-government. Proposals were offered to improve the accomplishment Nigeria's e-government objectives.

Mensah (2016) examined the empirical evidence of government of Ghana's adoption and implementation of e-government and its usage within the ministries, Departments and its agencies as well as in other public services to the general public.

By utilizing the local government system in Ghana and applicable literature, Torgby and Asabere (2014) outlined and addressed the cultural and different institutional contexts which are taken into account when implementing E-Government in Ghana. The research further examines some pivotal research challenges and open issues involving E-Government implementation in Ghana.

A study of the e-government key ICT indicators was conducted by Isaac Mensah Mensah, I. K. (2016b). The study presented the key ICT indicators and their role in assisting nations worldwide on how to formulate and strategize their e-government policies. It further identified poor infrastructure as the leading cause of e-government development failure.

RESEARCH METHODOLOGY

This section describes the method of information gathering for this paper. The study was prepared from data that was gathered from secondary sources such as government policy documents, published reports from national and international published arena, journal articles, and online. The primary data were obtained from the 2016 UN E-government survey. A basic qualitative approach was used to conduct the study.

UN E-GOVERNMENT SURVEY INDICATORS

There is a rising worldwide appreciation that Increase in the efficiency of government and improvement in the delivery of government services for organizations and individuals in the public sectors for effective governance would require the use of ICT. In order to measure and compare the occurrence of e-government, a group of realistic, pertinent and related indicators is

required. These indicators will be useful inputs for policy and strategy formulation for an effective government (UNECA, 2014). I assessing e-government, international organizations, academic institutions, and countries have developed individual indicators and composite indices. The range of interest comprises of single countries, regional and global measurements. A few studies assess the general usage of ICT while others measure the satisfaction of customer usage of e-government services which vary from simple services to more sophisticated issues like privacy and e-voting. The approaches may range from the survey of country-level of government organizations to high and complex web-based surveys. An absolute model of the complex web-based surveys is the UN's e-Government Survey, which constitutes all of the UNs member States and is handled by the Division for Public Administration and Development Management of DESA (UNECA, 2014)**.**

UN E-Government Development Index (EGDI)

Biennially, the United Nations Department of Economic and Social Affairs (UNDESA) publishes the UN E-Government Survey via its Division of Public Administration and Development Management (DPADM). The Survey delivers the comparative e-government development rankings of all United Nations member states (Knoema, 2014).

The relative performance rankings of countries in the Survey offers pertinent information to policy-makers to shape their e-government programs for development. As a composite indicator, the EGDI measures the willingness and capacities of national administrations to utilize ICTs deliver public services. This is a valuable index for all including policymakers, government officials, researchers and representatives of civil society and the private sector. It enhances their ability to gain a thorough knowledge of the relative benchmarking and the comparative position of a country in adopting e-government to deliver services that inclusive, accountable and citizen-centric.

The EGDI is created from an assessment of experts who survey the online presence the 193 United Nations Member States. It assesses national websites and the application of e-government policies and strategies in general and in specific sectors of government for delivery of essential services. It rates the e-government performance of countries relative to each other rather than being an absolute measurement.

The EGDI is derived from the weighted average of standardized scores on the three maximum dimensions of e-government. These dimensions follow: 1. The scope and quality of online services which is otherwise known as the Online Service Index, OSI, 2. The status of telecommunication infrastructure development, also known as the Telecommunication Infrastructure Index, TII, and 3. The inherent human capital, which is referred to as the Human Capital Index, HCI. These sets of indices, each is in itself represents a composite measure that is extractable and can be analyzed independently (UN 2016).

The descriptions of each parameter that constitute the index as documented in the UN e-government survey (2016) are listed here.

Human Capital Index The data for the Human Capital Index relies on the UNDP 'education index' which comprises of the adult literacy rate and the joint primary, secondary and tertiary gross enrollment ratio with two third weight allocated to adult literacy and one third to gross enrollment ratio.

The Telecommunications Infrastructure Index is a composite weighted average index of six primary measures of a country's ICT infrastructure capacity. These are: PCs/1000 persons;

Internet users/1000 persons; Telephone Lines/1000 persons; online population; Mobile phones/1000 persons; and TV's/1000 persons.

The Online Service Index (OSI) assesses the national online presence and service delivery level of all 193 United Nations Member States. It is basically the use of digital technologies like mobile phones, internet, and several tools for the collection, storing, analyzing, and sharing of information digitally.

E-Participation Index (EPI)

Although e-participation is still in the evolving phase, immense evidence exists that e-participation technologies increase prospects for civic engagement, as well as better potentials for people to take part in the decision-making processes and the delivery of service which makes societies more inclusive. E-participation helps citizens to connect with their elected officials and with one another (UN 2016; Macintosh, 2006). E-participation is defined as the practice of citizens involvement through ICTs in decision-making, policy, and the design of service and delivery for the purpose of making it participatory, inclusive, and deliberative (UNDESA, 2013).

In the 2016 UN survey of E-Participation Index (EPI), it classified e-participation by a three-level model of participation comprising of : (i) e-information – the delivery of information online, (ii) e-consultation – establishing consultations for the public online, and (iii) e-decision-making – having citizens directly involved in decision-making processes. The e-participation tools' availability for each of the above uses on national government portals is assessed by the survey (UN 2016).

DATA ANALYSIS AND DISCUSSION

This section presents an analysis of Ghana's scores on UN E-government indicators of the past severals years and comparison to other top African countries.

The United Nations commenced the assessment of the global e-government development via the "Benchmarking E-government initiative : Assessing the United Nations Member States" in 2001. During the period of fifteen years, it has become evident that due to public policy creation and application, e-government, among other things, has effectively enabled the advancement of national development worldwide. Over this period, the UN's E-Government Survey has received extensive recognition as a globally respected measure of the provision of electronic and mobile public services by public administrations . The two-yearly version of the U N's E-Government Survey objective is to show successful e-government strategies, original practices with a vision in the direction of administrative modification and sustainable growth (UN 2014).

The survey indicates that a sharp rise has been seen in the number of countries that use e-government for the provision of public services online via one-stop-platform, making it easier to access public services. Additional countries are employing e-government to guarantee the inclusion, effectiveness, accountability, and transparency of public institutions (UN Survey, 2016).

The 2016 e-government survey by the UN laid emphasis on the improvement of services that are people-driven and reflect people's needs as one of the most crucial innovative trends. (UN Survey, 2016).

E-Government adoption and implementation are not without challenges. Ghana and other developed and developing countries continue to face challenges. Poor ICT infrastructure has been identified as a major challenge in implementing in e-government initiatives in Ghana. Next are human resources, legal structure, internet access, and connectivity, language, illiteracy, awareness and the digital divide. For Ghana, the challenges could be categorized into six main factors; financial, organizational, political, socioeconomic, human and infrastructural factors (Mensah, 2016a).

However, the benefits of e-government implementation in a developing country like Ghana cannot be overemphasized. They include among others, improved efficiency, cost-effectiveness in administrative services, a suitable and better access to government services, government accountability, more transparency, and improved democracy (Kamar and Ongo'ndo, 2007).

E-government Indicators (Ghana)

As indicated in Table1 (Appendix), the data for the combined E-government UN survey indicators for Ghana from 2003 to 2016 are displayed. The table displays Ghana's performance for each indicator over from 2003 to 2016. The graphical display for each indicator is discussed in the paragraphs that follow.

The E-participation index for Ghana for the years 2003 through 2016 is as indicated in Figure 2(Appendix). Overall, it shows a steady growth in e-participation over the last decade. The participation index is 0.46 for 2016. The country was also ranked 98 in the e-Participation index which is an improvement of 70 points up from 168 in 2012. It is the second best performance behind Cape Verde in the West African region.

The 2016 E-government development ranking for Ghana showed an upward improvement by 25 points. As indicated in Figure 3 (Appendix), Ghana rose from 145 in 2014 to 120 in 2016 out of 193 countries rated in the UN Global e-government Development Index for 2016. The nation previously ranked 147 in 2010, 138 in 2008, 133 in 2005, and 143 in 2004 (UN, 2014). The dramatic rise of Ghana in the 2016 ranking is impressive and could be an indication that progress is being made in the efforts of the Government through the Ministry of Communication Technology to enable it to promote e-governance.

Ghana has performed well on the E-government Development Index (EGDI) for 2016. Ghana improved from 0.374 in 2014 to an EGDI of 0.42 in 2016 (UN, 2016). The rankings indicate some level of improvement in the performance of Ghana on the EGDI. The EDGI index growth from 2003 to 2016 is as indicated in Figure 4 (Appendix).

The Online Service Index for Ghana from 2003 to 2016 is as indicated in Figure 5 (Appendix). The graph indicates a steady but dramatic improvement over the years. The index jumped from 0.315 in 2014 to 0.45 in 2016 which is close to the global average of 0.4623. Ghana is ranked 98 globally in the 2016 UN survey.

As indicated in Figure 6 (Appendix), Ghana's Telecommunication Infrastructure Index score in 2016 is 0.26 compared to the global average of 0.3711. It shows a dramatic improvement from 0.111 in 2012 to 0.26 in 2016. Although this score relatively, the graph shows a remarkable increase over the last decade when the index was as low as 0.021. Ghana is ranked 114 in 2016. The index although improving, hampers the ability of governments to actualize e-government programs and e-services as well as the adoption of any online services by citizens, even if available.

As indicated in Figure 7 (Appendix), it is clear that Ghana's Human Capital Index has been declining over the years from the highest point of 0.65 in 2005 to 0.55 in 2016. The global average is currently 0.6433. Ghana ranked 135 globally in Human Capital Index in 2016 but is ranked second best to Mauritius in Sub-Saharan Africa. Although the data used for computing these metrics are from International agencies, they show that the government needs to increase its efforts in developing education to improve the index. This is the only area among all indicators that are not showing improvement but rather declining over the years.

Comparative e-readiness

The e-readiness profile of the top eleven nations in Africa based on the UN e-Government surveys from 2003 to 2016 is as indicated in Table 2 (Appendix). The ranking shows that country of Mauritius has the highest e-readiness score on the list, with Ghana appearing as the least ready in 2016.

As indicated in Table 3 (Appendix), is the Top Eleven EGDI Index ranking in Africa with Ghana at the bottom of the list. Ghana ranks second to Cape Verde in West Africa.

SUMMARY, FINDINGS, AND RECOMMENDATIONS

The research presented an assessment of Ghana's global e-government rankings over the years from the UN surveys. It reviewed the concept of e-government and examined the United Nations (UN) model of e-government implementation used for the ranking of the 193 UN member nations in its global e-government surveys.

Judging from the indicators and rankings, Ghana has improved her basic online existence, mainly restricting it to the provision of a restricted volume of information and links online; nevertheless, progress is being made to more progressive phases of e-government improvement, comprising the delivery of e-services, e-participation, and open government data.

Whereas progress is being made in Ghana toward e-participation activities, additional resources, technologies, capabilities, and healthy national policies that encourage the use of public engagement e-tools are needed to accelerate progress (UN 2016). Even though infrastructure has been identified as the major bottleneck for e-government development in a developing nation like Ghana, governments must not forget the significance of educational investment and ICT literacy programs in her citizens , as well as improving their presence online by creating better-quality online services. In the absence of major changes, a country's e-government growth, the gap of e-government progress between her and other nations worldwide will further increase. As Ghana continues to face numerous stark socio-economic challenges, seemingly e-government may not be at the top the list of the agenda for national development. In the absence of sufficient infrastructural investments, and long-standing e-government preparation, Ghana may miss out on the important benefits of e-government. These benefits comprise of cost-effective public administration, efficiency, citizen-centered, transparency and accountability, which in turn may result in poverty eradication and stimulating sustainable development.

In Ghana, the government needs the integration of e-government into her comprehensive policy objectives, service delivery goals, and wider public engagement with citizens, and information society related activities. It is important not to overlook the fact that Information is

a substantial element of public administration and the requirement for e-government for the promotion of democratic values and effective public services in necessary.

Together with increasing ICT infrastructure, it is crucial to increase access to information and technologies and construct the connected capacities in the nation. This was acknowledged in the Addis Ababa Action Agenda (UN DESA, 2015c) and in the Istanbul Declaration and the Program of Action for the Least Developed Countries for the Decade 2011-2020.

It is important for the country to take necessary measures to establish mid and long-term e-government strategies and to improve her infrastructure. The unwavering commitment through partnership and knowledge sharing by the international community would be beneficial in this endeavor.

Besides effective planning and deployment of e-services, Ghana may consider enhancing the degree of human capital, comprising the enhancement of the citizen's ICT literacy, and the adoption of the recent technologies thereby realizing the complete advantages of online and mobile services. This should go together with the development of capacity, e-government leadership, and public servants as enablers of online public services.

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APPENDIX

Figure1: Focal Domains for e-Government Initiatives

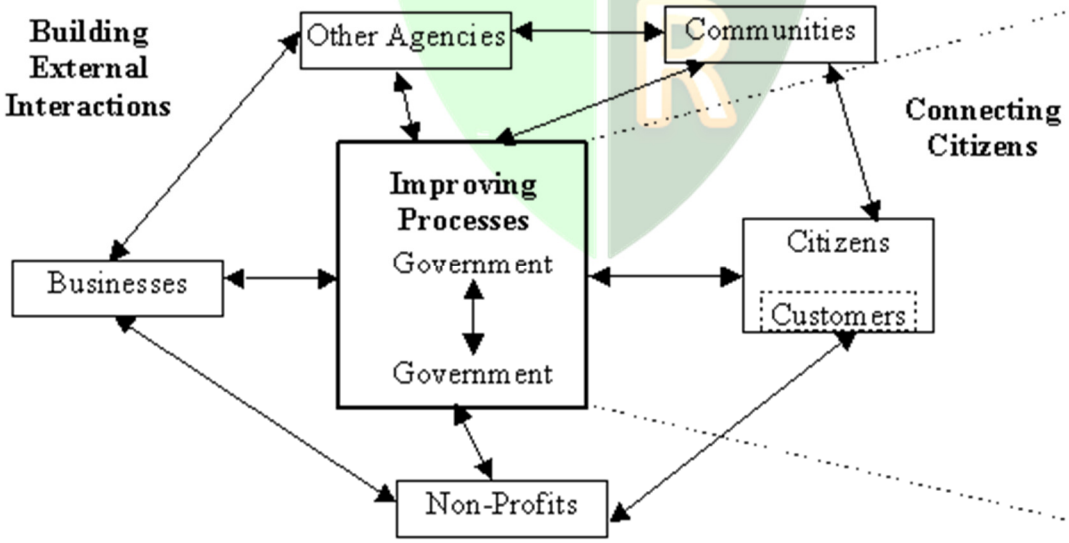

Figure 2. E-Participation Index

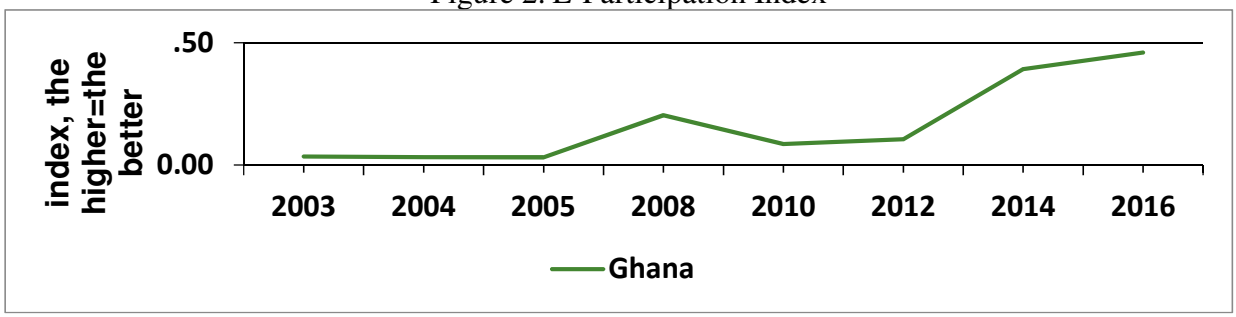

Figure 3. UN E-Government Rankings

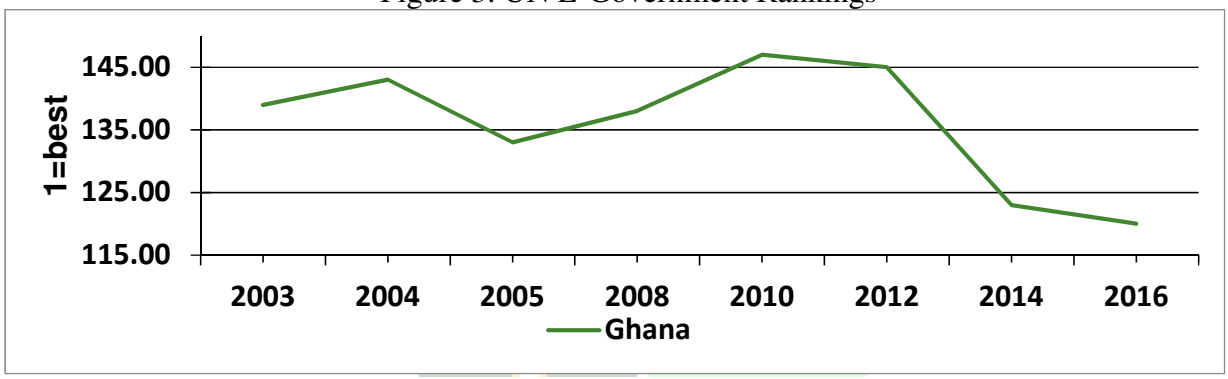

Figure 4. E-Government Index

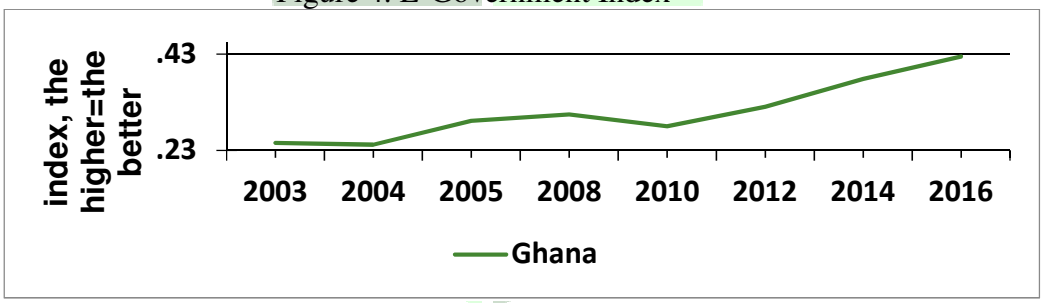

Figure 5. Online Service Index

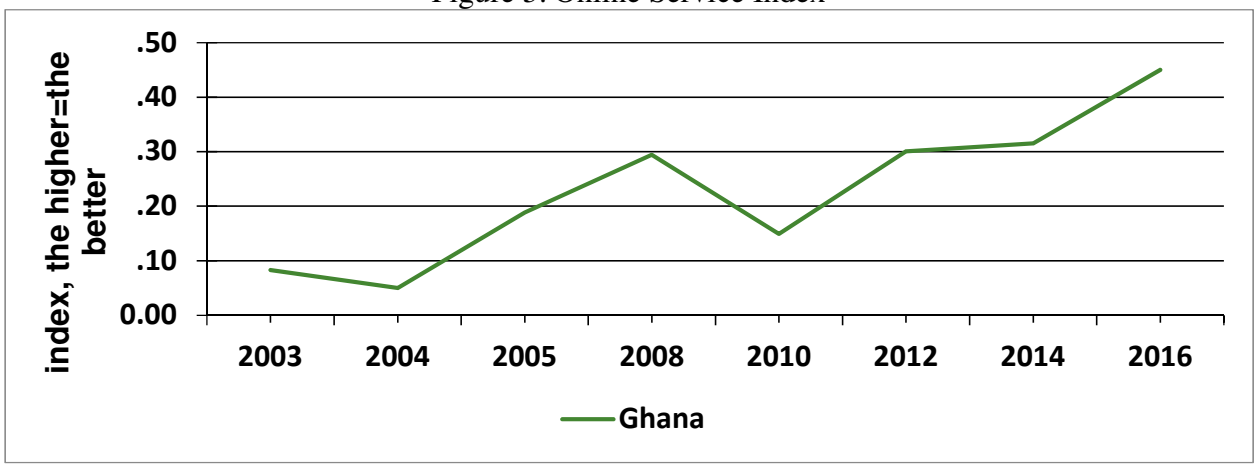

Figure 6. Telecommunication Infrastructure Index

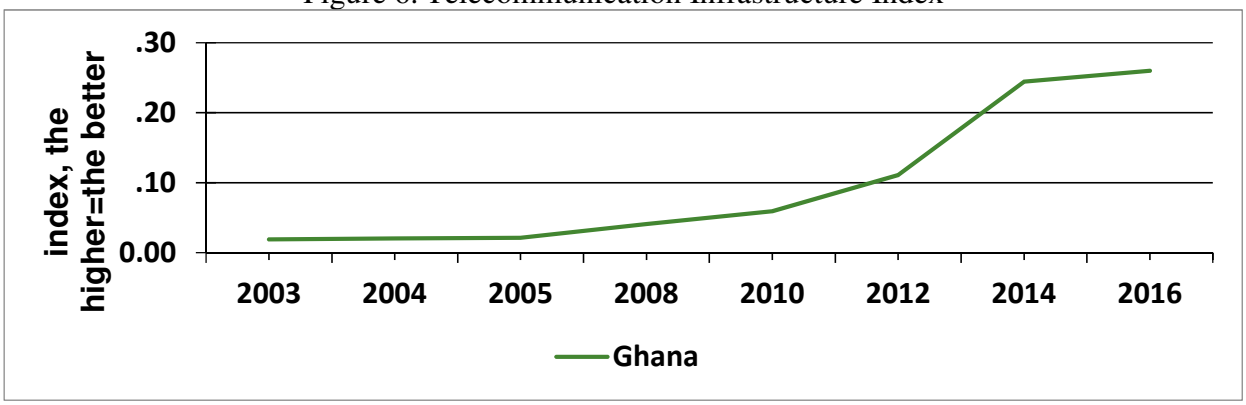

Figure 7. Human Capital Index

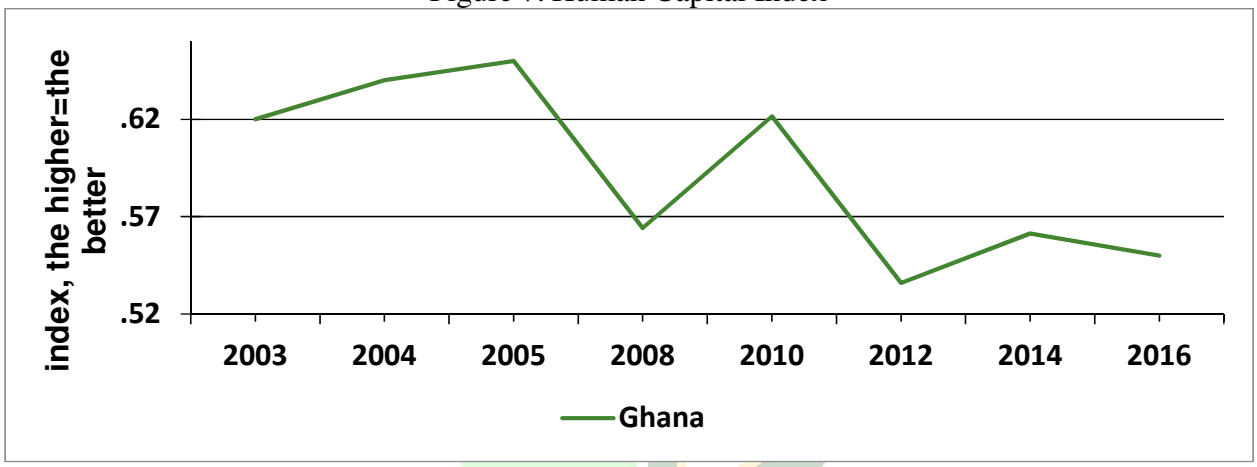

Table1. UN E-government Indicators.

Indicator	Units	Scale	2003	2004	2005	2008	2010	2012	2014	2016
E-Government Rank	1=best	units	139.000	143.000	133.000	138.000	147.000	145.000	123.000	120.000
E-Government Index	index, the higher=the better	units	0.241	0.237	0.287	0.300	0.275	0.316	0.374	0.420
E-Participation Index	index, the higher=the better	units	0.035	0.033	0.032	0.205	0.086	0.105	0.392	0.460
Online Service Index	index, the higher=the better	units	0.083	0.050	0.188	0.294	0.149	0.301	0.315	0.450
Human Capital Index	index, the higher=the better	units	0.620	0.640	0.650	0.564	0.622	0.536	0.561	0.550
Telecommunication Infrastructure Index	index, the higher=the better	units	0.019	0.021	0.021	0.041	0.059	0.111	0.244	0.260

Ghana (2003 – 2016)

Table 2. Top Eleven UN E-Government ranking in Africa (2003-2016)

Country	Units	Scale	2003	2004	2005	2008	2010	2012	2014	2016
Mauritius	1=best	units	52	51	52	63	77	93	76	58
Tunisia	1=best	units	108	120	121	124	66	103	75	72
South Africa	1=best	units	45	55	58	61	97	101	93	76
Morocco	1=best	units	131	138	138	140	126	120	82	85
Seychelles	1=best	units	73	70	63	69	104	84	81	86
Cape Verde	1=best	units	113	107	116	104	108	118	127	103
Egypt	1=best	units	140	136	99	79	86	107	80	108
Botswana	1=best	units	101	91	90	118	117	121	112	113
Libya	1=best	units	174	179	180	120	114	191	121	118
Kenya	1=best	units	118	126	122	122	124	119	119	119
Ghana	1=best	units	139	143	133	138	147	145	123	120

Table 3. Top Eleven E-Government Development Index (EGDI) by region – AFRICA (2016)

Rank	Country	Sub-region	EGDI	Online Service Component	Telecomm. Infrastructure Component	Human Capital Component
58	Mauritius	Eastern Africa	0.6231	0.7029	0.4596	0.7067
72	Tunisia	Northern Africa	0.5682	0.7174	0.3476	0.6397
76	South Africa	Southern Africa	0.5546	0.5580	0.3807	0.7253
85	Morocco	Northern Africa	0.5186	0.7391	0.3429	0.4737
86	Seychelles	Eastern Africa	0.5181	0.4058	0.4624	0.6861
103	Cape Verde	West Africa	0.4742	0.4565	0.3629	0.6031
108	Egypt	Northern Africa	0.4594	0.4710	0.3025	0.6048
113	Botswana	Southern Africa	0.4531	0.2826	0.4215	0.6553
118	Libya	Northern Africa	0.4322	0.1087	0.4291	0.7588
119	Kenya	Eastern Africa	0.4186	0.5580	0.1808	0.5169
120	Ghana	West Africa	0.4181	0.4493	0.2594	0.5458

Source: UN Survey 2016