

A Comparative Study of E-Government Evaluation of Nigeria and Singapore

Abdulkareem Abdulrazaq Kayode^{1*}

Bello Muhammed Lawan¹

Ishola Abdulrasaq Ajadi¹

Umar Abubakar Yaru¹

¹Department of Public Administration,
University of Ilorin,
Ilorin

^{*}abdulkayode@gmail.com

Abstract

The implementation of e-government in Nigerian was made possible with the ICT revolution which started in the early 2000s. The objective was to place government services online to enable efficiency, effectiveness, transparency and accountability. The Nigerian government has contributed significant investments in e-government in recent years; however, there has been inadequate substantive study into its evaluation. Therefore, the primary aim of this paper is to assess e-government condition in Nigeria with the aid of the United Nations e-government evaluation framework in contrast with the performance of the Republic of Singapore (2008 – 2016) which is a country that rose steadily in the e-government ranking to become one of the league leaders in e-government in the world at the moment. From the results generated, it can be deduced that Singapore has reached an advanced stage of e-government while Nigeria still lags behind. Significant gaps are evidenced in the Online Service Index and Telecommunication Infrastructure Index which is an indication that Nigeria must step up her ICT infrastructure most especially in the area of broadband. Also, create a sophisticated user friendly government websites to deliver seamless services to the people.

Keywords: E-government; Nigeria; Singapore; United Nations

Introduction

Due to the forces of globalization, e-government has brought a new paradigm in the manner of interaction to both the public and the private sector in their mode of service delivery to their respective clients. Generally, e-government commonly refers to the processes and structures pertinent to the use of Information and Communications Technology (ICT) for the delivery of government services to the public (Saxena, 2005). The basic functions of the public sector can be summarily categorized into three aspects, first is making of effective policies as instruments of collective choice, secondly, making political choices that protect the sovereignty of the state and thirdly, the delivering of services (Kirlin, 1996). The public sector has been faced with lots of challenges in the past which is largely occasioned by lean budgets, diverse citizens' social needs, economic pressure, income inequality and unequal access to services. In 2002, during the Joint Annual World Bank discussion held in Tokyo, World Bank President, Jim Yong Kim remarked that “there is an urgent need for a science of delivery in development” (Fourie &

Poggenpoel, 2016). This was an urgent call to remedy the failing public sector service delivery mechanism. Therefore, one main rationale for the public sector to venture into ICT for service delivery was born out of the need to create an efficient, effective and transparent mode of interaction between the public and the government. The use of e-government has been advanced as a tool for public service delivery reform as it possesses lots of potentials for the government and the citizens (Turban et al., 2018).

Conceptualization of E-government

Generally, e-government implies the use of technology in the operations of the Ministries, Department and Agencies (MDAs) and other governmental bodies in the delivery of public services. The private sector led the course in the use of ICT for the delivery of services which resulted in a huge turnaround in their operations and as well improved the mode of customer-client relationship. This level of change prompted the public sector to embrace the new paradigm in the delivery of efficient, effective and transparent services to the public (Alhabshi, 2011).

There is no single unified definition for e-Government as perspective of researchers have defined the way various researchers have attempted it in the past. Also, it a concept that is multidimensional; for some, it is a functional effect of the society (Nam, 2018; Peterson & Seifert, 2002) while for some, it a public sector reform tool (Kochanova, Hasnain, & Larson, 2017; Yildiz, 2007). Some scholars believe the difficulty attributed to its conceptualization is due to its broad meaning and understanding which is sometimes influenced by one or the combination of the following; context of the discussion, environment, the stakeholders involved and specific government policies in place (Ali, 2017; Heeks & Bailur, 2007). Mostly, within the context of e-government, the promotion of efficiency in the operations of government and the delivery of public services tends to highlight the hallmark of e-government, the following dimensions are always referred to as the core areas of interaction and change in relation to the stakeholders of e-government; Government to citizens (G2C), Government to Business (G2B) and Government to Government (G2G) (Iqbal, Nisha, & Rifat, 2018).

A careful examination of e-government researches in the past has revealed that e-government is often been accompanied by some interrelated attendant socio-economic objectives and benefits. E-government can be an instrument of enhanced public service delivery, high quality and cost-effective governance procedure, reduction in corruption, a means for engaging

citizens in democratic processes and promoting administrative and institutional reforms (O'Donnell & Turner, 2013).

E-government Development Evaluation

Measuring and assessing the progress of e-government is one of the key important activities in e-government in order to assess the results attained over the years. It is a set of activity that excites policymakers to discover the current state of e-government development in their country most especially when compared with other countries. It enables policy actors to ascertain milestones accomplished the strengths and weaknesses garnered over the years thus, generating new guidelines for future directions (Kunstelj & Vintar, 2004). Therefore, scholars and organizations have been developing models to be deployed in the bid to assess the growth and trend of e-government and assist different stakeholders to identify possible efforts in the right direction (Andersen & Henriksen, 2006; Jovanovska, 2016; Zoo, Lee, & Yoon, 2017). The results of these efforts have contributed largely to the development of literature on how to evaluate, measure and benchmark e-government progress (Helbig, Ramón Gil-García, & Ferro, 2009).

Various e-government progress assessment, evaluation and indicators have emerged in literature over the years and there is no unified model of assessment as many of these indicators have been carried out by scholars such as (Andersen, Medaglia, Vatrappu, Henriksen, & Gauld, 2011; Layne & Lee, 2001; Moon, 2002; Sangki, 2017); or by business consulting organizations such as United Nations and the World Bank. Broadly, there are two main ways of assessment; one is the e-readiness framework while the second is the stage or maturity model (Hatsu & Ngassam, 2017; Joseph, 2015). The e-readiness framework measures the national capacity or the extent to which organizations or countries are equipped and prepared to deliver public services online as well as utilize the online medium for re-engineering the internal organization to run effectively and efficiently (Al-Omari, 2006). The maturity model which emphasizes that assessment of countries' e-government progress goes through phases or stages before they are able to support seamless transformed service delivery (Adu, Patrick, Park, & Adjei, 2018; Afshar, Rakibul, & Khorshed, 2017; Andersen et al., 2011). E-government maturity has been defined as a continuous growth in the development in the level of e-government from a lower to a higher ICT development based on the ability of such system to deliver information content and services via official medium such as websites or mobile applications (Perkov, Panjkota, & Volić, 2017).

Therefore, as the development of e-government goes, technological and organizational complexities grow with it which suggests the lower level can be described as the position where websites is at its basic level which is just the display of basic information about the organization while that higher level of e-government is a position of transformation, full trust and seamlessness (David & F., 2008). The difference between these models is that e-readiness emphasizes the prerequisite preparedness of a country to implement e-government while maturity refers to the actual stage of progress attained overtime after implementation.

There is no agreement yet in the literature concerning the number of phases in which e-government should go through from its lower level to higher-level maturity, there can be two (Reddick, 2004), three (Chen, Yan, & Mingins, 2011; Cisco, 2007), four (Baum & Di Maio, 2000; Layne & Lee, 2001; West, 2004), five (Kim & Grant, 2010; Lee & Kwak, 2012) or more than six levels (Dolan, 2014; Irani, Al-Sebie, & Elliman, 2006). Apart from disagreement in the number of stages, there is also lack of uniformity on what the hierarchical nature of those stages depicts for example, (Layne & Lee, 2001) prescribed a four-stage model namely cataloguing, transaction, vertical integration and horizontal integration while Cisco (2007) also has a four-stage model is presence, interaction, transaction and transformation. However, it should be worthy of note that most of these models are similar in many regards. They all show a linear progression from basic to sophisticated features that support seamless transactions, full integration among the government agencies and levels of governments as well as a transformed mode of service delivery to e-government stakeholders. Therefore, due to this variance in the model and technique of e-government assessment, it is important to highlight here that varieties of results are generated for different countries based on different models which show inconsistencies in terms of their progress level. Organizations and countries have decided to venture into carrying out a parallel assessment of their websites based on their own developed model in order to solve the problem of inconsistencies in the assessment and get a true picture of their e-government progression level. For example, the Norwegian Consumer Council carried out an evaluation based on a different set of indicators and the result showed a huge difference from an earlier evaluation conducted by Norge.no (Jansen, 2005). Also, Alhabshi (2011) noted inconsistencies in the findings of ranking for Malaysia after examining the findings of e-government ranking for Malaysia by the United Nations, the Centre of Public Policy, Brown University and Waseda University Institute of e-government. The Malaysian Administrative

Management Planning Unit (MAMPU) has developed a list of criteria to assess e-government websites in Malaysia.

Various reviews of these evaluative measures suggest that some have been flagged for focusing solely on information technology or more inclined towards administrators concerns and not the broader interest of the e-government stakeholders (Dolan, 2014). Dolan (2014) Further observed after a close examination of some progress measures, that what is generally missing is a comprehensive development gauge that includes technical functionality in the areas known to be essential to effective e-Government website development. The perspective of the researcher or the assessor of the e-government plays a crucial role in benchmarking activity (Ostašius & Laukaitis, 2015). According to Jansen (2005); Yildiz (2007) after evaluating some of these frameworks, they question the use of a single mode assessment framework and therefore concludes that each nation with its government has its distinct governmental structure, departing it from its unique geography, history policies and culture. Also, the precondition for e-government depends largely on what is the most daring and important to such country (Ostašius & Laukaitis, 2015). Therefore, research on e-government of any particular country should be matched with the context of such country and its national goals.

United Nations E-Government Survey

The United Nations Department of Economic and Social Affairs (UNDESA) conduct surveys for e-government for member state countries since 2001. The benchmark assessment survey covers indicators for assessments like Online Service Presence, Human Capacity Development, and Telecommunication Infrastructure Index and recently it added Participation. The Survey measures e-government effectiveness in the delivery of basic economic and social services to people in five sectors, namely education, health, labour and employment, finance and social welfare (UNDESA, 2005). The survey tracks the progress of e-government development via the E-government development index (EGDI). The EGDI is the composite assessment index of e-government development of every country at the national level.

E-government in Singapore

In 1999, the launch of the eCitizen portal marked the beginning of e-government in Singapore (Li, Detenber, Lee, & Chia, 2005). This was followed with the launch of e-

government Action Plan I (2000- 2003) and e-government Action Plan II (2003 – 2005) to plan the direction of ICT deployment in five strategic thrusts and six programmes. The thrust are; reinventing the government, delivering integrated electronic services, being proactive and responsive, using ICT to build new capabilities and capacities, and innovating with ICT (Ke & Wei, 2004). While the programmes include; Knowledge based Workplace, Infocomm Education, Electronic Services Delivery, Technology Experimentation, Adaptive and Robust Infocomm Infrastructure, and Operational Efficiency Improvement (Ha & Coghill, 2008). The Action Plan I & II was followed by iGov 2010 centered around Whole of Government Integration and finally eGov 2015, a government-private value innovation and economic competitiveness.

Ever since the launch of e-government, the Singaporean government has relentlessly pushed for innovations in the delivery of public services and information delivery to citizens and businesses. For example, in 2011, the government launched the data.gov.sg as one of the steps taken to deliver information services to the people. This portal serves as the first-stop portal to search and access publicly available government data with over 5000 datasets from 50 government ministries and agencies (Yang & Kankanhalli, 2013). The success of e-government in Singapore has been related to clear vision and strong leadership (Amanbek, Balgayev, Batyrkhanov, & Tan, 2018).

E-government in Nigeria

The implementation of e-government in Nigerian was made possible with ICT revolution which started in the early 2001. The objective was to place government services online to enable efficiency, effectiveness, transparency and accountability. The implementation was kick started by the establishment of the National Information Development Agency (NITDA) to serve as the clearing house for all ICT related programmes and e-government in particular for Nigeria. Also, there was adoption of the National Information and Communication Policy to serve as the guiding principle for the implementation of e-government in Nigeria (Ajibade, Ibietan, & Ayelabola, 2017). Since its adoption, Ministries, Department and Agencies (MDAs) of the government most especially at the Federal level have ventured into it and using it to improve on their internal bureaucracy as well as service delivery to the external stakeholders i.e. citizens and businesses. ICT diffusion, usage and acceptance are growing phenomenon in Nigeria which signals the

potential of the country becoming an ICT hub within the Sub Saharan Africa in the nearest future (Oni, Gberevbie, & Oni, 2016). Some services of the government can now be accessed online such as application for e-passport, processing of driver's license, registration and conduct of National Examinations such as Joint Admission and Matriculations Board examinations, the filing of tax returns, registration for National Identity Cards etc.

Some empirical researches have remarked that the public sector, can benefit more from the positive impacts of the e-government, it does not only help in the reorganization of the internal bureaucracies but also ensure effectiveness, efficiency and equity in the delivery of services (Naz, 2009). Nigeria has a lot to gain from the potentials of e-government; however, the implementation has not reached optimum capacity to generate that multiplier effect in the public sector reform (Nchuchuwe & David, 2016). ICT development is growing and contributing to the economic growth of the country. According to the Nigerian Communication Commission (NCC), the teledensity of the country is growing at a tremendous rate (Ojebode et al., 2017). It was estimated to be above 110 per cent in 2017. However, the ripple effects of these performances have not trickled down to the citizens who are in dire need of a private sector replica of a seamless citizen-centric type of service delivery. Like other government projects, the growth of e-government has been affected by infrastructural gap, high cost of internet and other ICT equipment, limited ICT skilled personnel, change management, harmonization of information between citizens and government (Abdulkareem, 2015).

The Nigerian government is contributing significant investments to e-government; however, there have been inadequate substantive researches into its evaluation (Adepoju, Shehu, & Bake, 2016). Consequent upon this, it becomes imperative to tune research focus into the assessment of e-government development. In the last 18 years, several frameworks have been developed to assess e-government development (Machova & LNĚNIČKA, 2015) by different organizations which can be categorised into three: first, government (national or international such as United Nations and European Union), second, academic (researchers and universities like Waseda University and Brown University) and third is independent organizations (for example Deloitte and Accenture) (Siskos, Malafekas, Askounis, & Psarras, 2013). Although, e-government development benchmarking is not a new field of study, however, there are limited studies to countries perspective on this issue in developing countries most especially Nigeria as a case area (Nielsen, 2017).

Therefore, the primary aim of this paper is to assess e-government condition in Nigeria with the aid of the United Nations e-government evaluation framework in contrast with the performance of the Republic of Singapore (2008 – 2016) which is a country that rose steadily in the e-government ranking to become one of the league leaders in e-government in the world at the moment. The United Nations survey framework is chosen because of its wide coverage and consistency in the evaluation of e-government progress in different countries. It carries out evaluations biennially since 2001 and covers all the countries under the United Nations (Silva, 2017). The findings from this assessment primarily to help Nigeria to redirect her focus and improve her e-government sophistication.

Methodology

This study uses a qualitative research method in both data collection and analysis. (Patton, 2002) describes qualitative research as kind of research that seeks findings from real-life settings where the “phenomenon of interests unfolds naturally” ... and data can be sourced from either or combinations of an in-depth, open-ended interviews; direct observation; and/ or written documents. Primarily, the data collected for this study was sourced from the United Nations E-government survey report which started in 2001. However, for the purpose of this study, the reports from 2008 to 2016 only will be used for the two countries. The survey results from the reports were arranged in tabular form for easy comprehension. To successfully compare the two countries performances, it is important to carry out a gap analysis to compare the actual performance and desired performance of Nigeria using Singapore as benchmark.

Results and Discussion

Table 1: E-government Survey Result for Nigeria and Singapore (2008- 2010)

Year	2008		2010		2012		2014		2016	
Indices/ Country	Nig.	Sing.	Nig.	Sing	Nig.	Sing.	Nig.	Sing.	Nig	Sing.
E-Government Index	0.31	0.70	0.27	0.75	0.27	0.85	0.29	0.91	0.33	0.88
Online Service	0.22	0.61	0.10	0.69	0.22	1.00	0.31	0.99	0.4	0.97

Index									1	
Human Capital Index	0.65	0.91	0.66	0.92	0.45	0.85	0.38	0.85	0.38	0.84
Telecommunication Infrastructure Index	0.05	0.59	0.06	0.64	0.13	0.69	0.19	0.88	0.20	0.84

Source: United Nations E-Government Survey (2008 – 2016)

a. E-government Development Index (EGDI)

The methodology proposed by the United Nations for measuring E-government Development Index is comprehensive and showed the capacity to measure the progress of national governments willingness and the capacity to carryout functions both online and with mobile applications. EGDI is an aggregated sum of the one-third of Online Service Index (OSI), Telecommunication Infrastructure Index (TII) and Human Capital Index (HCI) given as $EGDI = 1/3((OSI) + (TII) + (HCI))$. From the survey reports, Nigeria's EGDI has been inconsistent over the years. The result of 2016 (0.33) produces the highest Nigeria has obtained within the studies period in contrast to Singapore that has been rising steadily through the years. Singapore rose from its lowest point in 2008 with a score of 0.70 to 0.88 in 2016.

b. Online Service Index (OSI)

The OSI of each country is assessed by analysing the national portal, e-services portal and e-participation portal, as well as the websites of the related ministries of education, labour, social services, health, finance and environment as applicable. The responses generated from the assessment were used to test if information about the site are easily accessible, usable and response rate of the sites. The result of the OSI indicates that Singapore progressed significantly over the years moving from 0.61 in 2008 to 0.97 in 2016 which represents 62 per cent increment over the years. Although, in the year 2012 it rose to 1.00 but declined in 2014 and 2016. While Nigeria has also progressed in the OSI between the years reported. Nigeria's OSI is in the middle region and one of the best in Africa just below Morocco, Kenya and Ethiopia (United Nations,

2016). However, it cannot be compared to Singapore that is within the very high region just below the Republic of South Korea. The high level of online service index is manifested in the higher level of public trust Singaporeans have in their government (Xia, 2017).

c. Human Capital Index (HCI)

The HCI assessment is a composite of four indices; (i) adult literacy rate; (ii) the combined primary, secondary and tertiary gross enrolment ratio; (iii) expected years of schooling; and (iv) average years of schooling. Within the years reported, the HCI of Singapore is higher compared to Nigeria. More so, the Singapore's HCI is higher than the Asia average of 0.65 in 2016, while Nigeria's HCI is lower than the Africa average of 0.44. Over the years, Singapore has maintained a high global Human Capital Development Index in terms of Education. The World Economic Forum in a survey in 2013 ranked Singapore 3rd globally in Overall Human Capital Index.

d. Telecommunication Infrastructure Index (TII)

This is another index in the component for the measurement of e-government development. Infrastructure is key to the development of e-government. TII is an arithmetic average composite of five indicators: (i) estimated internet users per 100 inhabitants; (ii) number of main fixed telephone lines per 100 inhabitants; (iii) number of mobile subscribers per 100 inhabitants; (iv) number of wireless broadband subscriptions per 100 inhabitants; and (v) number of fixed broadband subscriptions per 100 inhabitants. Again in this analysis, it shows that Singapore is far ahead of Nigeria in telecommunication infrastructure. However, it is worthy of mentioning that Nigeria has improved over the years in this aspect moving from 0.05 to 0.20 in 2016. This shows that more people are using the internet and other mobile applications for their businesses. Out of the five indicators measured in this index, three showed an upward trend while two showed downward trend. Estimated Internet Users, number of mobile subscribers, and number of wireless broadband all showed upward trend while fixed telephone lines and fixed broadband subscription both showed negative trend. This is a true depiction of what is happening in Nigeria. Majority of the citizens now access ICT through their mobile devices rather than through PCs and fixed telephone line (Jonathan, Ayo, & Misra, 2014).

Concluding Remark and Recommendations

E-government is the trending paradigm in the delivery of public services and information around the world. There are differentials in the level of implementation; some countries have gone to the advanced stage while some are still lagging behind. The United nations carry out a biennial survey to evaluate the level of progress for different countries using certain indicators in ICT namely; Online Service Index, Telecommunication Infrastructure Index and Human Capital Index. This study has demonstrated the e-government evaluation comparison between Nigeria and Singapore using the indices mentioned above between 2008 and 2016. From the result generated, it can be concluded that Singapore has reached an advanced stage of e-government while Nigeria still lags behind. Great gaps are evidenced in the Online Service Index and the level of infrastructure which is an indication that Nigeria must step up her ICT infrastructure most especially in the area of broadband. Also, create a sophisticated user-friendly government websites to deliver seamless services to the people.

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