

ACADEMIC PAPER

E-government and public service quality in Ghana

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This article contributes to the growing discourse on the potential of e-government to transform the operations of public sector institutions, thereby improving public services. It does so by conceptualizing public service quality into efficiency, economy (cost reduction), customer satisfaction, and service accessibility and draws on qualitative data from the Ghanaian narrative for illustration. As previous studies have demonstrated, this study also affirms the potential of e-government in improving public services delivery by increasing efficiency, reducing the cost of operations, expanding access to services, and achieving customer satisfaction.

Yet, there remains a repertoire of challenges such as weak ICT infrastructure especially in towns and villages, incessant power outages and illiteracy, which are drawbacks to fully harnessing the benefits of e-government in Ghana. The study recommends that these challenges should feature prominently in e-government policies to increase the chances of solving them.

KEYWORDS

e-government, Ghana, public service quality

1 | BACKGROUND

Weber's (1947) bureaucratic theory was a paradigm shift in public administration theory and practice, as it rationalized administrative structures and procedures towards efficient public services delivery. Yet, this paradigm is flawed for being less-effective and hopelessly out of touch with modern organizational realities (Bennis, 1972); over-formalization of policy formulation, implementation, and evaluation systems (Raadschelders, 2014); and non-performing (West, 1995). These 'disappointments' with Weber's theory spearheaded the adoption of the New Public Management (NPM) in public sector organizations as it promised speed, flexibility, innovation, economy, and efficiency in public management (Dunleavy & Hood, 1994; Hood, 1991, 1995; Minogue, Polidano, & Hulme, 2000; Osborne & Gaebler, 1992). Nevertheless, many public administration systems, especially in developing countries, remain weak, inefficient, and less-innovative (Turner & Hulme, 1997). The advent of computer and Internet technology heralded the dawn of a new era where public administration systems were expected to improve customer satisfaction, increase efficiency, reduce operational cost, and enhance effectiveness (Heeks, 2002; Layne & Lee, 2001; Margetts, 2003). International agencies such as the United Nations and the United Nations Conference on Trade and Development encouraged countries to adopt Internet technology to propel development (Holiday, 2006). Consequently, electronic government (e-government) arrived as governments established their

presence online, using Internet to provide services to citizens and businesses (Layne & Lee, 2001). The adoption of Internet and computer technology in the operations of state bureaucracies has been termed as e-government (Asogwa, 2013; Heeks, 2002; Kaisara & Pather, 2011; Schuppan, 2009). It comprises public sector use of information and communication technology (ICT), including the Internet to boost information dissemination, enhance service delivery, and facilitate citizen participation (Holiday, 2006).

Ghana adopted e-government through the ICT4AD (ICT for Accelerated Development Program) in 2003; followed by the e-government strategy in 2005 and GeGov project in 2008. These efforts have received significant financial support from international agencies such as the World Bank and the United Nations Development Program (UNDP). For instance, the World Bank in 2006 provided a US\$ 40 million facility to strengthen institutional capacity and build an enabling environment towards the e-Ghana project. Also, the government recently, received a US\$ 38 million facility for the Eastern Corridor Fibre Optic Backbone Infrastructure Project from the Danish Government.¹ The adoption and implementation of e-government was expected to improve the quality of public service in Ghana. Yet, anecdotal and empirical evidence on the state of public service quality suggest that poor service quality remains a daily experience of people accessing various services from government ministries, department,

¹See Daily Graphic, May 19th, 2015, p. 32.

and agencies in Ghana (Ohemeng & Aye, 2016). The expectation that e-government would enhance instrumental outcomes such as efficiency, better customer satisfaction, and economy in public services delivery triggered a wave of research interests (Yang & Rho, 2007). Focusing on the African and Ghanaian public management milieu, scholars such as Torgby and Asabere (2014), Oppong-Tawiah and Boateng (2011), Rorissa and Demissie (2010), Mutula (2004), and Heeks (2002) have examined challenges affecting e-government implementation in Africa.

Of particular interest to this study, within the broader research interest on e-government in Africa and Ghana, is how e-government is contributing to improving public service quality in Ghana. An exploratory analysis of the impact of e-government on public service quality deserves more attention given that the Ghanaian narrative has not featured prominently in the literature, leading to the dearth of scientific knowledge about it. Such a study is needed to contribute to policymaking about ongoing public sector reforms towards improving the quality of public services in Ghana. This study uses exploratory methods in qualitative inquiry to gauge the impact of e-government on public service quality in Ghana focusing on service accessibility, efficiency, customer satisfaction, and economy. In attempting to answer the research question: what is the impact of e-government on public service quality in Ghana? The paper proceeds as follows: the following section presents the context of the study and literature review in section two. This is followed by methodology in section three. In section four, I present findings and discuss results. Section five is the conclusion.

2 | EVOLUTION OF E-GOVERNMENT IN GHANA

The e-government Odyssey in Ghana commenced in the late 90s, with initial focus on computerization of existing government business processes followed by integration. During this period, many interactional and transactional operations such as ports services, salary systems, and business registration systems were manual. The Structural Adjustment Program (SAP) drove Ghana's initial steps towards e-government leading to the launch of Ghana's human resource management automations system. This system involved integration of payroll and personnel functions into a single database as well as provision for storage and retrieval of personnel records of Ghana's Civil Service employees (Cain, 1999). This initiative, however, failed on grounds of budgetary constraints, inadequate technical competence, and lack of commitment. The lessons and experiences learnt subsequently prepared the ground for building the technological infrastructure for e-government services in Ghana.

In 2000, the then Ministry of Communications and Technology was established to champion the e-government revolution in Ghana, by developing a robust telecommunications infrastructure and providing e-government services. The ministry's immediate concern was to reform its administrative systems to serve as a database for a national clearinghouse, aimed at providing better coordination of the information facilities developed in government and private institutions

(Backus, 2001). A series of challenges, including inadequate investment, lack of technical and managerial core competencies (World Bank, 2004), choked these attempts.

Following the failed attempts, the third major interactive e-government project known as the Ghana Community Network (GCNet) system was launched in 2000. This was part of Government of Ghana's ambition to develop the country as a transit hub for landlocked countries in West Africa. The system provides several benefits including systematic monitoring and tracking of shipment from the port to their final destination (World Bank, 2004). Other benefits include quick clearance of goods from 2 to 3 weeks to a maximum of 6 hours and reduction in the cost of imports and exports as well as increased government revenue (Domfeh, 2004; Schuppan, 2009). The implementation of the GCNet system paved the way for other e-government services delivery channels such as the Computerized School Selection and Placement System (CSSPS) in 2005. Given the weaknesses of school placement under the manual system such as high administrative costs, human errors, delays, and malpractices, the CSSPS injected efficiency, transparency, simplicity, and speed in school selection and placement from Junior High School to Senior High School.

In 2006, all e-government efforts were merged under the e-Ghana project. The project supported local ICT businesses and IT-enabled services and promoted the development of e-government applications and government communications (World Bank, 2004). The project also focused on three components: creating an overall enabling environment; attracting IT-enabled services, such as Business Process Outsourcing, promoting the development of local ICT business; achieving greater efficiency, transparency, and accountability in selected government ministries, department, and agencies. To streamline implementation of e-government projects, government established the Ghana Information, Communication and Technological Directorate, which metamorphosed into the National Information Technology Agency in 2009, as the national e-government implementation and coordination body. Following this, government established its web presence through ministries, department and agencies, providing diverse services and information to citizens.

2.1 | E-government: definition and theoretical approaches

Undoubtedly, the nature and operations of public administration in the Wilsonian and the Weberian periods differ from that of the 21st Century. Currently, significant transformation has occurred in the structure, functions, operations, and management of public administration systems all over the world. There are various factors responsible for this transformation, but environmental and technological factors reign supreme. Of these two factors, the influence of Internet and computer technology is the most pronounced, leading to the term e-government. The term e-government evolved as ICT permeated the corridors of public organizations (Coursey & Norris, 2008; Dawes, 2008; Norris & Moon, 2005), promising management effectiveness, service delivery, and civic engagement (Asgarkhani, 2005; Milakovich, 2012; Reddick, 2005; Yang & Melitski, 2007).

Although there is hardly a consensus about the definition of e-government, a few are noteworthy. The Organization for Economic

Cooperation and Development (OECD, 2003, p. 23) defines e-government as “the use of information and communication technologies, particularly the Internet as a tool to achieve better government.” Layne and Lee (2001, p.123) also define e-government as “the use of technology, particularly web-based Internet applications to enhance the access to and delivery of government information and services to citizens, business partners, employees, other agencies, and government entities.” Aldrich, Bertot, and McClure (2002, p. 103) define e-government as “the means of exploiting the power of information to help transform the accessibility, quality, and cost-effectiveness of public services and to help revitalize the relationship between customers and citizens and public bodies who work on their behalf.” A close examination of these definitions of e-government reveals the following: first, e-government fundamentally encapsulates the use of information and communication technology, without which its conception is incomplete. Second, the ability of e-government to improve public services delivery is dependent on specific government strategies. Third, e-government is Internet-dependent as it aims to bridge the citizen–government divide and enhance interaction. In this study, e-government refers to usage of Internet and ICT by public sector institutions to provide services to citizens.

E-government enthusiasts herald its potentials in contributing to development. For instance, Kaisara and Pather (2011) submit that a country can improve its competitive standing in doing international business by adopting e-government; this is in addition to other benefits like efficiency, service accessibility, economy, effectiveness, citizen satisfaction, and service quality. Similarly, Layne and Lee (2001) suggest that e-government has the potential of improving the relationship between government and the public by making interactions with citizens smoother, easier, and more efficient. With these potential benefits of e-government, it is not surprising that the United Nations (UN) in 2001 sounded the clarion call: “it is time for a new partnership between technology and development.” The awareness raised by the UN seems to be making impact if one reflects on some global success stories emanating from the adoption of e-government. For example, Holiday’s (2006) study highlights celebrated e-government initiatives in both developed and developing country contexts such as Mexico’s Tramitanet portal (www.tramitanet.gob.mx) providing an online catalogue of more than 2,000 forms available 24 hours a day, 7 days a week. He further highlights how the portal approach was spearheaded by e-government leaders in the United States of America, Singapore, and Australia. In Ghana, for instance, the establishment of Services Portal of the Government provides a range of online services to citizens including business transactions and access to public documents.

Despite the potentials of e-government in improving public service delivery, scholars are divided on its modernization abilities, resulting in three groups: the hyper-modernists, the anti-modernists, and the post-modernists (Margetts, 2003). Hyper-modernists perceive ICT as the bedrock of achieving Weber’s vision of modernity, premised on the ability of computers to formalize rules and procedures and enhance the horizon of improving rationality in decision making; hence, long-standing problems of rational decision making such as “bounded rationality” (Simon, 1995) can be tackled as computers can simulate policy alternatives. Anti-modernists, on the other hand, seem skeptical about the “over-emphasis” of the transformative powers of

computers. Scholars such as Beniger (1991) and Burnham (1983) have warned of the “Control Revolution” and the “Computer State,” where massive data could become instruments of control, rather than aiding the transformation of public administration systems. Mediating between the two extremes are post-modernists, who are “optimistic about the influence of ICTs on public administration, seeing a strong increase in fluidity and flexibility where fragmentation will lead to an emancipation of the bureaucratic organization beyond central control and the pyramidal nature of public administration changes into an archipelago of network organizations (Frissen, 1995; 1999; Margetts, 2003, p. 236).”

2.2 | Conceptualizing public service quality in the context of e-government

Despite increased pressure on governments to improve the quality of public services, especially in recent times, the rise of calls for improved public services dates back to the 1990s when customer satisfaction was recognized as a critical strategic imperative for reinventing the public sector (Rhee & Rha, 2009). Prior to this time, the quality of public service provision was deemed poor and of low standard partly due to highly inefficient and moribund public bureaucracies. This situation gave impetus to the NPM paradigm, championed by Rowley (1998); Donnelly, Wisniewski, Dalrymple, and Curry (1995) and Osborne and Gaebler (1992). In their title *Reinventing Government*, Osborne and Gaebler (1992, p. 19) argue that the crux of public management reform was a re-alignment of rules-based bureaucracies towards being result-orientated. Thus, NPM sought to re-align public sector institutions to maximize productivity and improve efficiency hampered by “bureaupathology,” that is, public service unresponsive to the demands of the citizen, led by bureaucrats with power and incentives to expand their administrative empire and policy space (Nagel, 1997, p. 350 cited in Kaboolian, 1998).

The rise of the public service quality model sparked spirited scholarly discussions, resulting in multiple definitions of the concept. To Rhee and Rha (2009), for instance, this concept has four main dimensions: design quality, process quality, outcome quality, and relationship quality. They explain that design quality refers to how well a policy is developed at a policymaking or service design stage and the quality that a customer has experienced or perceived in relation to the policymaking and service design; process quality refers to how customers perceive quality during a service process; outcome quality refers to how customers perceive of what is left with after a service process is finished; and relationship quality refers to the extent of depth and climate between parties in the service delivery process. Olshavsky (1985), however, views public service quality from a total evaluation of a product; a view supported by Holbrook and Corfman (1985) who maintain that quality acts as a global value chain, while Parasuraman, Berry, and Zeithaml (1991) support the notion that service quality is an overall evaluation similar to attitude.

These notions of public service quality imply the following: First, public sector quality cannot be determined only by public sector institutions; what customers think and perceive is equally relevant in the overall evaluation. This observation encapsulates what Zeithaml (1987) refers to as perceived quality, which involves the customer’s

judgement about the entity's overall excellence or superiority. Gaster (1995) further supports this observation adding that quality in the public sector is a collective exercise and needs to involve a more active role for customers and citizens and allow workers at all levels to feel valued; this cannot be achieved through standardization and performance management alone but requires a notion of total quality that at the same time incorporates public rather than private sector values. Second, public service quality is focused on customer satisfaction, which places citizen-customers at the center of the operations of the public sector. Yet, measurement of customer satisfaction can be difficult as there are constraints in determining who customers are in the public sector compared with the private sector. Donnelly et al. (1995) explain that public organizations have a variety of customers for different services who have different and contrasting opinions on current levels of service provision; this compounds managerial difficulties in terms of determining priorities in customer service management. Third, the concept of public service quality is a multi-dimensional concept, making it difficult to measure using a single construct or scale. Impliedly, measuring the quality of public service delivery can be a painstaking enterprise.

One strategy that governments have adopted to improve public service quality is e-government, as it has the capacity to make government and its policies more efficient, providing citizens with quicker and better access to information and the ability to use services in a more personal and cost-effective manner (Bekkers & Zouridis, 1999; Heeks, 2002; Prins, 2001). Given its benefits, Millard (2003) suggests that using ICT for delivering public services would lead to improved relationship between government and citizens or business; e-government would also fortify democracy and reduce the distance between citizens and government (Macintosh, Robson, Smith, & Whyte, 2003). Similarly, e-government can improve government–public relations by making interactions between them smoother, easier, and more efficient (Layne & Lee, 2001). More so, e-government improves efficiency in government business, enhances service quality, brings about more effective outcomes in different policy areas such as health and education, promotes economic growth and productivity, advances the reform agenda, and improves the overall relationship between citizens and public administrators (Asogwa, 2013). Other benefits of e-government include contribution to building an information society such as transforming information technology and networks into tools for the renewal of business and the public sector (Yussuf, 2006).

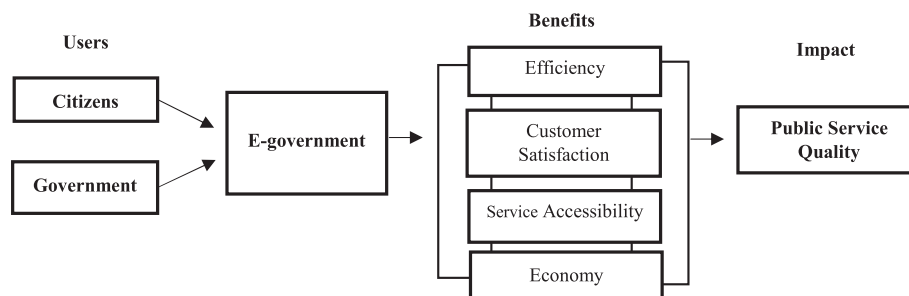
Deducing from the foregoing arguments, the impact of e-government on public service quality can be analyzed from four

dimensions: efficiency, customer satisfaction, economy, and service accessibility. Efficiency is the extent to which quality public services are delivered to citizens while avoiding waste either in terms of time or resources. This is achieved as e-government allows automation of operational activities, reducing cost of labor, and injecting speed into service delivery. Service accessibility “measures what types of services are available online and how many website pages are meeting accessibility criteria (Yang & Rho, 2007 p. 1200).” Customer satisfaction measures the extent to which government sites meet the needs of citizens at the point of access; this notion assumes that information about the needs of citizens are collected and used in designing websites even though user-centeredness is missing in most e-government programs (Verdegem & Verleye, 2009). With regard to economy, e-government can “reduce costs by reducing paperwork, staffing, printing, mailing, document storage, telephone call, and visits to field offices, among other things (Yang & Rho, 2007, p. 1202).” The need for governments to judiciously use resources is backed by the reality of reduced budgets (Bertot & Jaeger, 2008). Altogether, the impact of e-government on public sector quality in this study is conceptualized in Figure 1 as follows:

3 | METHODOLOGICAL APPROACH

This study used exploratory methods in qualitative inquiry to answer the research question: what is the impact of e-government on public service quality in Ghana? The use of exploratory methods is justified on two grounds. First, given the descriptive nature of the research question, exploratory method was appropriate as it is deemed relevant for descriptive studies (Babbie, 2005; Creswell, 2009; Neuman, 2000). Second, given the non-availability of an appropriate model to measure and test the constructs of public service quality as conceptualized in this study, exploratory methods were used in order to gather relevant information for further quantitative analysis. I employed archival research and elite interviews in data collection for analysis.

Two main sources of data comprising primary and secondary data were used for this study. The sources of secondary data include books, journal articles, government reports and documents, newspapers, and magazines, while primary data was collected through interview. Using purposive sampling, I collected relevant literature for analysis guided by the research question. Relevant phrases such as



Source: Author's construct

FIGURE 1 Impact of e-government on public service quality

“impacts of e-government in Ghana,” “benefits of e-government in Ghana,” and “ICT and government performance” were entered into different journal databases such as Google Scholar and Emerald to obtain relevant journal articles for analysis. Purposive sampling was also used in selecting respondents from Ghanaian public sector institutions, which use electronic medium to provide certain services to citizens; these include but not limited to the Ghana Revenue Authority (GRA), Registrar General's Department (RGD), Driver and Vehicle Licensing Authority (DVLA), Ghana Education Service (GES), Customs Excise and Preventive Service (CEPS) and Parliament. These institutions were selected as units of analysis for this study for two reasons. First, the deployment of e-government is yet to spread to all institutions as it is done on a rolling basis; therefore, not all public sector institutions in Ghana provide services using electronic medium. Second, these institutions were selected as they represent the broad categorization of services namely, business (GRA and RGD), Services (DVLA and Ghana Education Service) and government (Parliament) indicated on the e-services portal of Ghana.

The data were analyzed by generating themes from interviews in addition to content analysis. The relevant themes analyzed correspond to the four constructs into which public service quality is conceptualized in this study namely: efficiency, economy, customer satisfaction, and service accessibility. This allowed for close examination of the impact of e-government on each of the construct as a component of public service quality, in order to draw the appropriate conclusions.

4 | HAS E-GOVERNMENT IMPROVED PUBLIC SERVICE QUALITY IN GHANA?

In this section, I explore the specific ways in which e-government is contributing to improved public service quality in Ghana. Using e-government as an independent variable, I unpack the concept of public service quality into dependent variables comprising efficiency, customer satisfaction, service accessibility, and economy. Based on extensive literature review and interview, the analysis is presented as follows:

4.1 | Efficiency

In this study, efficiency generally refers to the ability of public sector agencies to reduce the cost of operations in service delivery by focusing on mission-critical areas and using electronic means to manage routine activities. In connection with this, e-government aims at providing citizens with quicker and better access to public information and the ability to use services in a more personal and cost-effective manner (Bekkers & Zouridis, 1999; Prins, 2001). Given that one of the basic aims of e-government is to make government efficient, the quality of public service can be said to have improved if the means through which public services are delivered are efficient. Some success stories in Ghana currently are worth considering. For example, the Ghana Education Service introduced the CSSPS in 2005 that places Junior High School graduates into selected Senior High School on the basis of their grades obtained.

Under this system, the yearly ritual where parents and students throng the premises of Senior High Schools following up their

admission has significantly reduced as they no longer have to go through this hustle. Still in the area of education, Junior High School and Senior High School graduates can now check their results online before receiving official result slip from their school; additionally, majority of universities in the country such as the University of Ghana, the Kwame Nkrumah University of Science and Technology, and the University of Cape Coast have all introduced online application and admission systems, which completely takes away paper application procedures. Other important improvements in public service delivery worthy of note include the online renewal of driver license and change of vehicle ownership provided by the DVLA; the online registration of business and other related services like renewal of business license provided by the RGD; and the availability of important documents such as Acts of Parliament and Hansards online. By providing these services electronically, the government is likely to reap the benefit of reducing manual paperwork processes and procedures and expediting service delivery to citizens.

It is important, however, to mention that despite the success stories chronicled, most of the e-government systems in Ghana appear to be at the interactive level (Layne & Lee, 2001), which only allows citizens to access information online and complete business transactions with government by walking to a service access point. An illustration in this regard is business registration at the RGD where clients can begin the business registration process online by providing all the relevant details but will have to walk to the premises of the RGD in Accra to make payment. At this stage, along the developmental continuum of e-government in Ghana, Yang and Rho (2007) caution that efficiency losses may occur during the transition period from traditional service delivery to an online system. This conclusion partly helps to explain the initial challenges and frustrations with the CSSPS, for instance, as some students could not be placed in the school of their choice even though they passed. It also helps to explain why citizens appear to be unaware of the availability of the online services provided by some public sector agencies in Ghana. The explanation offered by Yang and Rho (2007, p.1202) for the lack of awareness of the online services is that “it takes time for employees and clients to overcome the learning curve and adapt to a different system under a new culture. It also takes time to integrate the online system with other government systems. Without careful preparation and education, introduction of e-government may cause chaos, anxiety, resistance, and loss of productivity, resulting in a downward spiral.”

4.2 | Economy

In an era of tight fiscal constraints, all governments are concerned with maximizing resources in order to meet the vast needs of their citizens. In this respect, the apostles of e-government have long argued that e-government holds tremendous potential in reducing the cost of running state administrative systems. The potential of e-government to maximizing resources in public institutions can be seen from two perspectives: cost (Liao & Cheung, 2002) and time (Meuter, Ostrom, Roundtree, & Bitner, 2000). The meaning of economy in this regard is the ability of “e-government to reduce costs by reducing paperwork, staffing, printing, mailing, document storage, telephone calls, and visits to field offices (Yang & Rho, 2007, p.1202).” In this respect, Asogwa

(2013) reports that the introduction of electronic documentation system in Ghana's Kotoka International Airport has reduced the mean clearance time from 3 days to 4 hours and that of customs documentation reduced from 24 hours to 10 minutes.

These findings are consistent with results from studies on how e-government is contributing to reducing the cost of government operations in other areas. A study by Asogwa (2013) in Nigeria revealed that e-government has contributed to lowering the cost of administration in the country. He explains that e-government has simplified the bureaucracy involved in service delivery to citizens. This was achieved because government agencies now share information, which has reduced the inefficiency associated with traditional approaches to public services delivery. Similarly, Yang and Rho (2007) report that Michigan's Electronic Filed Unemployment System allowed Michigan to close its 43 branch offices, producing US\$ 22 million in staff savings, US\$ 5 million in annual rent savings, 3.5 million hours time savings.

Clearly, e-government has a tremendous potential in reducing governmental operations in Ghana, beyond the initial gains made. This would, however, require deployment of ICT beyond the few public sector institutions currently providing services online. According to the Director General of the National Information Technology Agency, e-government was yet to be extended to an additional 100 online portals for other agencies to make them able to provide services online and have access to their data in real time.² The need to spread the use of Internet in the provision of public services to other agencies in Ghana buttresses the imperative for governments to fulfill the new needs and expectations of their citizens under reduced budgets (Bertot & Jaeger, 2008). Similarly, Norris and Moon (2005) have concluded that there is greater efficiency and returns on e-government investments when its use is widespread. Hence, public sector agencies in Ghana stand a better chance of cutting operational cost when e-government becomes widespread across public sector institutions.

4.3 | Service accessibility

Given that many public institutions provide services over which they have monopoly, access to such services are critical. In the Ghanaian context, such services include clearance of items from the airport and harbor, provision of vehicle registration and licensing services, and business registration and license renewal services. In connection with these, government's ability to reduce bureaucracy by employing Internet in delivery of such services is a necessity. In this study, service accessibility refers to the range of public services, which are available to citizens through online access. In the present Ghanaian context, the government has succeeded in tapping the potential of Internet in providing a range of services online, which are discussed as follows:

On the services front, the DVLA currently provides license renewal and transfer of vehicle ownership online through www.eservices.gov.gh/dvla. Taking transfer of vehicle ownership for example, the process begins with providing relevant personal details by filling an online form following guidelines provided on the portal.

The guidelines are broadly categorized into standard requirements (five) and procedures (eleven). The transfer is effected when all the requirements are met and procedures followed through. At the time of this study, however, the DVLA site on this portal where the license renewal and transfer of vehicle ownership forms could be obtained was not accessible as it was marked "e-services is under maintenance and will be back soon." In addition to the DVLA on the service front is the Births and Deaths Registry portal available at www.eservices.gov.gh/BDR. This site allows citizens to apply for a birth certificate online. The site provides relevant information regarding the application procedure and requirements for users, which can be downloaded. Yet, the actual form to be filled for application could not be found on this portal at the time of this study.

On the business front, the Registrar General's Department provides a one-stop online business registration system that allows users to apply for their business registration certificate; it also enables users to renew their business registration license. Additionally, the presence of the Ghana Revenue Authority's website allows citizens and organizations to file their tax returns using their unique Tax Identification Number, making revenue mobilization less arduous and improving the possibilities of increased revenue. This finding is consistent with the conclusion of Schuppan (2009, p.121) that "the use of ICT offers particular potential to improve financial and taxation systems, especially because governments in sub-Saharan Africa lack well-functioning tax administration and finance administration systems. The introduction of integrated financial systems with appropriate databases offers the possibility to better control inflows within the state."

On the government front, Ghana's parliament, which is currently online at www.parliament.gh, provides useful information about parliamentary proceedings and activities. The site features a publications section containing documents such as Acts of Parliament, Bills, committee reports, Hansards, and budget statement, available to the general public.

4.4 | Customer satisfaction

Customer satisfaction in this study is defined as the extent to which the needs of citizens are met using electronic means. In other words, customer satisfaction implies that citizens are able to access services using electronic means in a timely, cost-effective, and efficient manner compared with manual processes. Although there are challenges facing e-government in Ghana, some achievements have been chalked in this regard. For instance, while parents and students used to experience anxiety in following up their school placement, the introduction of the CSSPS has considerably relieved students of the hustle of following up on selected schools to track their admission. Also, the introduction the Online School Placement Checker allows students to track their admission status from any Internet access point in the country. Further, the introduction of the e-services portal through the www.ghana.gov.gh provides a one-time access point for accessing a range of services and information.

Another important milestone in improving customer satisfaction through e-government is implementation of the GCNet project to aid clearing goods from the harbor and airport. The results of Schuppan's (2009, p. 124) study on e-government in developing countries

²<http://business.myjoyonline.com/pages/news/201209/93345.php>. Accessed on May 25, 2016.

including Ghana reveal that due to this project, “the flow of goods could be substantially accelerated by the system because interactions have reduced. For example, importers no longer need to personally visit the different permitting institutions and authorities as most processes can be executed electronically. At the Customs, Excise and Preventive Service, documentation and verification processes have been reduced to 15 minutes, and the payment of import and export duty (and bank confirmation) now occurs within 10 minutes. Goods at the airport are dispatched within 1 day and in the harbor within 3 days.” Based on the results of this study, the frustrations and challenges involved in clearing goods have substantially reduced, thus improving customer satisfaction.

Yet, there are significant challenges such as low education, weak ICT infrastructure, and power outages that threaten the full adoption of online services in Ghana. Pockets of evidence based on interactions with officers from the DVLA, GRA, and RGD for instance, reveal that most low-educated clients do not appreciate the online services provided and prefer to stick to the manual, paper-based processes. Additionally, frequent power outages in Ghana, which frustrate users in accessing online services, are a major drawback to reaping the benefits of e-government. An equally critical obstruction is weak ICT base in most communities and towns outside Accra, Tema, Kumasi, and Takoradi—the major cities in Ghana. The presence of these challenges necessitates their removal in order to improve customer experience online.

5 | CONCLUSION

This study concludes that the quality of public services in Ghana, at least based on the institutions examined in this study, has seen significant improvement largely due to the introduction of e-government. There has been a significant reduction in the time and procedures involved in clearing goods from the harbor and airport. Business registration and license renewal processes are faster and access to important documents such as Acts of Parliament are quicker nowadays. Yet, there are deep challenges such as weak ICT infrastructure, low education, and frequent power outages that undermine the potential of e-government to transforming public service quality in Ghana. These challenges would need to be solved in order to reap the full benefits of e-government.

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