


**ASSESSING THE IMPLEMENTATION OF E-GOVERNMENT IN
GHANA'S PUBLIC SECTOR**

BY

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The crest of the University of Ghana is centered in the background. It features a shield with three golden stalks of grain at the top, a golden knot-like symbol in the center, and a golden banner at the bottom with the Latin motto 'IN PURI PROCEDANT'.

**THIS THESIS/DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF
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DECLARATION

I, MATHAPOLY-CODJOE ENOCK, do here declare that this thesis is the product of my effort, handwork and independent judgement. With the exception of ideas, quotes and opinions from other sources that have being duly acknowledged, the author is fully responsible for any errors that may be identified in this work.

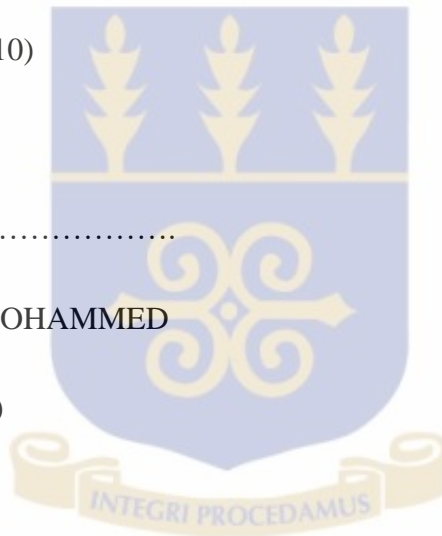
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ABSTRACT

E-government is becoming a fundamental reform tool for enhancing public administration especially in developing countries like Ghana where public organisations face resource constraints in their delivery of public services. Although studies have given considerable attention to how E-government helps improve public administration, there still exist few studies which aim at comparing the perspectives of both public servants and end-users. Studies are also limited on the long term sustainability of E-government initiatives and the degree to which public servants and users are both adopting and buying-into E-government initiatives. With the aid of Actor-Network Theory and the concept of New Public Management, this research engages both end-users and public servants and their understanding of E-government as well as their level of awareness. The study also investigates the factors which influence public servants' and citizen end-users' use and adoption or otherwise of E-government applications. Further, the study identifies the benefits and challenges associated with the implementation of E-government as well as measures to adopt to ensure the long-term sustainability of E-government projects in the Ghanaian public sector. This study uses the mixed-method research design in analysing and discussing the primary and secondary data which were qualitatively and quantitatively obtained. The method of data collection and analysis allowed the researcher to triangulate and cross verify various responses obtained in the field. The study is also aligned to a case study research strategy which makes use of two Ghanaian public organisations. It was discovered that Government of Ghana is committed with its attempt to digitalize the public sector. And this comes on the back of various initial preparations made prior to the implementation of E-government. There was however some pitfalls in these initial preparation measures and some of these could be mentioned as the non-involvement of

public servants in major decision making as well as inadequate training of bureaucrats. The study also found high rates of awareness and adoption (or acceptance) of E-government projects by both public servants and end-users. The rates of awareness and adoption were however, tilted in the favour of public servants than users. And this was because of the depth of institution knowledge and experiences of bureaucrats in relation to end-users. Further, both public servants and users agreed that E-government offer enormous benefits to the public sector and these factors could as well lead to the transformation of the sector. Some benefits of E-government include increased efficiency of public institutions in the delivery of public services. Other benefit relates to low transaction and administrative costs, reduction in corrupt activities and improved relation of public agencies with the general public. In spite of these benefits, the study also discovered some challenges which debilitate the functioning of various E-government projects in the public sector. Some of these challenges were erratic power supply, high cost involved in running and maintaining these projects and the lack of ICT infrastructure. Some measures were also put forward to ensure the sustainability of these E-government solutions in the sector. For example the involvement of private sectors as well as commitment of political leadership were generally cited.

Keywords: E-government; Ghanaian Public Sector, Public Sector Reform, New Public Management

DEDICATION

I dedicate this whole work to the memory of my late senior brother, Michael Papa Codjoe. I also dedicate this work to my mother, Maame Ekua Anowah and my father Mr. Stephen Codjoe for their support, care, advice and encouragement; especially to my mum, I say 'Ayekoo'.



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LIST OF ABBREVIATIONS

ICT	Information and Communication Technologies
ADB	Agricultural Development Bank
UN-ECOSOC	United Nations Economic and Social Council
UNDP	United Nations Development Programme
APDIP	Asia-Pacific Development Information Programme
OECD	Organization for Economic Cooperation and Development
MDAs	Ministries, Departments and Agencies
MMDAs	Metropolitan, Municipal and District Assemblies
GRA	Ghana Revenue Authority
AMA	Accra Metropolitan Assembly
DVLA	Driver and Vehicle Licensing Authority
NHIA	National Health Insurance Authority
WAN	Wide Area Network
IMF	International Monetary Fund
ANT	Actor-Network Theory
NPM	New Public Management
TQM	Total Quality Management
UK	United Kingdom
US	United States
SOEs	State Owned Enterprises

MPSR	Ministry of Public Sector Reform
ERP	Economic Recovery Programme
SAPs	Structural Adjustment Programmes
CSRP	Civil Service Reform Programme
PNDC	Provisional National Defence Council
NIRP	National Institutional Renewal Program
CSPIP	Civil Service Performance Improvement Programme
PUFMARP	Public Financial Management Reform Programme
CMAs	Central Management Agencies
NCS	Network Computer Systems Limited
NCA	National Communications Authority
ISPs	Internet Service Providers
ITU	International Telecommunication Union
UN	United Nations
IPTC	International Centre for Theoretical Physics
LANs	Local Area Networks
VCD	Video Compact Disc
DVD	Digital Versatile Disc
PDA's	Personal Digital Assistants
GPRS	General Packet Radio Services
ADSL	Asymmetric Digital Subscriber Line

VSAT	Very Small Aperture Terminal
ICT4AD	Ghana National ICT for Accelerated Development
AISI	African Information Society Initiative
ECA	Economic Commission for Africa
FDI	Foreign Direct Investment
GCNet	Ghana Community Network Services
NDC	National Democratic Congress
NITA	National Information Technology Agency
NIA	National Identification Authority
FDA	Food and Drugs Authority
NGOs	Non-Governmental Organizations
G2C	Government to Citizen
G2B	Government to Business
G2G	Government to Government
NPM	New Public Management
IT	Information Technology
EHRs	Electronic Health Records
SSA	Sub-Saharan Africa
UNESCO Organistaion	United Nations Educational, Scientific and Cultural
SARS	South African Revenue Services

OPEN	Online Procedures Enhancement for civil application
ECG	Electricity Company of Ghana
EGOV	Electronic Government
CITO	Chief Information Technology Officer
UGCS	University of Ghana Computing System
SPSS	Statistical Package for Social Sciences

CHAPTER ONE

INTRODUCTION

“It must be considered that there is nothing more difficult to carry out, no more doubtful of success, nor more dangerous to handle, than to initiate a new order of things.” (Machiavelli, 1513: 21)

1.1 BACKGROUND OF THE STUDY

E-government, which could generally mean using information and communication technologies (ICTs) in the public sector to advance its operations and delivery of services (Kumar and Best, 2006), is increasingly becoming a fundamental tool for enhancing public administration (Njuru, 2011). E-government is being hailed as the solution to dealing with a plethora of problems that encumber government or public sector agencies with respect to serving their populace effectively. This is especially the case in developing countries such as Ghana where public agencies face resource constraints in improving their operations and delivering services to the citizens (Kumar and Best, 2006). E-government thus has been gloated as a mode of saving costs in the public sector and at the same time improving quality, response times, and access to services (Agricultural Development Bank, 2003; Andersen et al., 2010). Many are the political analysts who have agreed to its role in improving the efficiency and effectiveness in public administration (Pacific-Council, 2002; UN-ECOSOC, 2003; Kumar and Best, 2006).

E-government as a public administration tool has also been perceived to help enhance transparency in public sector administration, reduce corruption, as well as increase political participation (Seifert and Bonham, 2003). Likewise, it makes governments more competitive and competent in tackling the challenges associated with the present information and communication age (OECD, 2003; UNDP-APDIP, 2003).

By means of the present information and communication age, provision of quality public goods and services, which is an unfettered right of every sovereign citizen of a country at least in a case of democratic system, has seen some major improvements. And this is not only exclusive to the Ghanaian society, but democratic governments across the globe. Thus, in an attempt to ensure the provision of or make accessible, quality public services to the citizenry, some forms of ICTs have been adopted in one mode or the other by some ministries, departments and agencies (MDAs) as well as local governments in Ghana (Ghana e-Health Strategy, 2010). This adoption is not only with respect to the delivery of efficient public services but also reaching out to the Ghanaian society or getting the Ghanaian public involve in the whole governance process. To this end, government MDAs as well as local government institutions (MMDAs) are now developing web sites for the dissemination of information and also making their activities known to the Ghanaian society at large (Ghana e-Health Strategy, 2010).

The commencement of the E-government project in Ghana (which is under the name *e-Ghana*) was formally revealed by Hon. Haruna Iddrisu the then Minister of Communications, when he took his turn in the Meet-the-Press series in Accra on 6th April, 2010 (Otabil and Agbenorto, 2010). The Ghanaian government's initiative to be indulgent with the concept of E-government in the public sector has since moved from a 'mere whiff' as the government has embraced and accepted it as a formal policy. This was followed with the President of Ghana's recent address at the 8th Annual Conference of Chief Directors, Chief Executives and Chairpersons of Governing Boards/Councils of Public Services Organization. The President reemphasized the need to transform the base of the public services of Ghana with E-government solutions for the purpose of reducing "*human discretion and human interface and to create more transparency in...*

*(Public sector) institutions”*¹. *Component III* of the e-Ghana project² gives more meaning and expression to this commitment by government to transform public institutions with the aid of E-government solutions.

Thus, as part of *component III* of the e-Ghana project, some public agencies have been specifically captured (as a pilot measure), to use various ICTs and other E-government solutions to achieve greater efficiency, transparency and accountability. Such agencies include; Ghana Immigration Service, The Ghana Revenue Authority (GRA), Registrar General’s Department, Accra Metropolitan Assembly (AMA), Birth and Death Registry, Driver and Vehicle Licensing Authority (DVLA), Ghana Police Service, Ghana Tourism Authority, Minerals Commissions, Ministry of Foreign Affairs, The Parliament, and the Judicial Service of Ghana are making greater use of ICTs to enhance their public service delivery³.

It must be said however that many other public sector institutions in Ghana are also making use of ICTs and E-government solutions, although they have not been migrated officially onto the *e-Ghana project*. For example The National Health Insurance Authority (NHIA) which is a Ghanaian public sector institution established by an Act of Parliament, *“has deployed an ICT infrastructure for the automation of health insurance services”* and this means that *“all accredited public health providers operate a common ICT platform with common protocols for patients’ authentication and claims management”* (Ghana e-Health Strategy, 2010: 27). In addition, the Ghana Health

¹ President Mahama’s Speech at the Opening of the 8th Annual Conference of Chief of Directors, Chief Executives and Chairpersons of Governing Boards/Councils of Public Services Organization. Friday April 24, 2015 at 10:00am. Capital View Hotel Koforidua

²Component III of the e-Ghana project formally aims at achieving greater efficiency, transparency and accountability in some selected government agencies and departments. Further illustration of all the three components of the e-Ghana project can be found under the sub-title ‘Ghana’s ICT policies in chapter two of this study.

³Available at www.nita.gov.gh

Service, is also making use of E-government applications and has even gone further to launch the *Ghana e-Health Strategy* at the ministerial level. Further, the Ministry of Education in collaboration with the board and management of various public universities have instituted many e-Learning projects across various public universities an example of which is the “*Campus Connect*” program. This is to enhance their public service delivery by way of providing good teaching and learning to students and the academic community as a whole. The use of ICTs in the educational sector is also to enhance administrative processes accompanying the delivery of quality education as a public good. Tertiary institutions like the University of Ghana and the University of Professional Studies (Accra) can be cited as instances, albeit other public institutions even at the secondary school level.

Again, a nation-wide area network (WAN) is also being deployed by the Ministry of Communication for use by the MDAs and MMDAs together with other agencies and regulatory bodies in the Ghanaian public sector (Ghana e-Health Strategy, 2010). This will mean that MDAs and MMDAs as well as other statutory agencies would now be interconnected to ensure effective communication and collaborations.

In spite of the preponderance of studies, giving prominence and considerable attention to how E-government as a measure help improve public services, there still exist relatively few studies that focus on the impacts of these services on the government agencies or bureaucrats themselves, especially in developing countries (Grant, 2005; Kumar and Best, 2006; Norris, 2001). Further, there exist few studies which aim at comparing the perspectives of both public servants and the citizen as end-users. Studies are also limited on the long term sustainability of E-government initiatives (Aichholzer, 2004; Heeks, 2003; Dzhusupova et al., 2011; Kumar and Best, 2006) and especially in the Ghanaian context.

1.2 STATEMENT OF THE RESEARCH PROBLEM

Many businesses in the Ghanaian private sector today have adopted the use of internet and other ICT mediums in increasing their customer base as well as reaching out to their clients on variety of issues through what is called e-trading or e-commerce (for examples, e-banking, e-shopping, amongst others). Businesses in the private sector are also creating web pages where these clients can lodge their complaints and/or where these private organizations communicate to their clients' deluge of problems, therefore, heightening the populace perception of the private sector being more efficient in their dealings with the public. Conversely, cramped spaces; grungy ambience; ill-mannered dealing personnel, with their untiring absenteeism; demands of gratification; wastefulness; long zigzagging queues; procrastinating officials; procedural complexities; etc., are some of the abhorrent description of the working of the Ghanaian public sector (Ayee, 2000; Monga, 2008). This in essence, turns to make a stopover at a government department to get any service rendered, inadvertently a tormenting undertaking (Monga, 2008). Incidentally, the awareness and the increasing 'adroit' citizens, and their better experiences with the private sector has led to a clarion call on government to revamp the public sector for the provision of better services (Ibid). The 'ensuant' reaction from the Ghanaian government to this cry and the desire by the Government itself to move away from the moribund and antiquated public administration systems-which is evident by the many public sector reforms, has in part brought forth, the application of E-government and its associated solutions in Ghana's public sector. Again, E-government is also considered by International Financial Institutions like the International Monetary Fund (IMF) and other developmental partners as a core component of the public sector reform programs that are currently

reinventing public administration in developing countries (Stanforth, 2007). This is particularly true in the Ghanaian experience, as attested to by the government's recent agreement with the IMF for an economic bailout.

Although, the Ghanaian Government has adopted the use of E-government, the point must be made that, the Ghanaian Government and for that matter the public services of Ghana together with the citizens as end-users are rather approaching E-government lukewarmly. And this is even made worse with the lack of concrete plan, focusing on its long-term sustainability. This has led to the reluctance of public servants and citizen-end-users alike to embrace the benefits and opportunities created by E-government for effective public administration (Ahmadu, 2006).

In spite of this, however, the introduction of E-government is helping to change the old ways of public administration in some Ghanaian public institutions and this has reflected in quality of service provision; saving of time (due to provision of services through a single window); standardisation and universalisation of procedures; better office and record management; and reduction in corrupt activities, among public servants (Andersen et al., 2010; Monga, 2008; Njuru, 2011). Though E-government can overturn the drawbacks in the public sector as evident in some public sector institutions in Ghana, it does not come without challenges. As uncertainties, fears and enthusiasms are often associated with the introduction of every new technology (Kwak et al., 2004). E-government projects, as revolutionary as any may be, are expected to face some measure of resistance to its adoption and other gainsays in its actual implementation (Njuru, 2011).

The successful implementation of E-government projects is important for the thriving of the public sector; therefore there is the need to understand the various challenges and benefits of E-government implementation (Stanforth, 2007). Owing to these

aforementioned, and together with the various vicissitudes of empirical studies relating to the benefits and challenges confronting developing countries in adopting E-government as well as the lack of studies relating specifically to Ghana's public sector, it has become important to assess E-government implementation in Ghana's public sector. Again, there are few studies on the views of public servants regarding E-government, and on the degree to which they are adopting and buying-into to the new E-government systems (Baldwin et al., 2011). Thus in seeking to address this lacuna and filling in this seeming vacuous space of study, the study proceeds to engage the perceptives of both citizen-end-users and Ghanaian public servants. This would enable the study to achieve the objective of weighing the perspectives of bureaucrats with that of citizen-end-users, in the light of a comparative analysis.

1.3 THEORETICAL FRAMEWORK

Mikkelsen, (2005: 157) explains a theory to mean "*an interconnected abstraction of ideas that help organize knowledge about a particular phenomenon in the social world*". Theories play essential role in explaining a social situation whiles helping a researcher to think through his work (Johnston et al., 2000; Pryke et al., 2003). The essential role of a theory in fortifying a study leaves many scholars (Silverman, 2007; Kitchin and Tate, 2000) to wonder if there could even be a credible research, which could stand the test of time, without a theory underpinning it. Therefore, in giving meaning to the essence of a theory as highlighted, the study is be situated within the confines of Actor-Network Theory (ANT) and The New Public Management (NPM) Concept.

1.3.1 Actor-Network Theory (ANT)

Before going to the intricacies of the theory itself, the rationale for choosing this theory for a public administration study is here justified. First, studies on networks within public administration studies is not a novelty, rather it has even gain much currency in recent time and this is manifested by the study of ⁴Isett et al. (2011). It would also be apt to fortify this study with a network theory like ANT particularly because of the inherent nature of E-government as a technological tool. According to Walsham (1997), Actor-Network Theory (ANT) is most appropriate when undertaking an information system research as it provides new concepts and ideas for the understanding of the socio-technical nature of information systems. Again, Isett et al. (2011) have also noted that studies in public administration use network theories in an attempt to respond to the new technological-administrative-reality, which is driven by social, political, and economic forces. Further, in his work titled *“New Public Management and E-Government: Trajectories of a Marriage between Managerial and Technological Reform in Government”*. Homburg (2004), also adopts a network theory to understand how E-government is helping in reinventing the public sector through new public management practices. This was but also just in line with other previous and subsequent studies (Barad, 2003; Orlikowski and Scott, 2008; Slife, 2004; Suchman, 2007). All these studies accentuate the need to investigate the social aspects of organizations in their entirety including both material and immaterial aspect (Montenegro and Bulgacov, 2014). Thus this study adopts the ANT in order to have a holistic view of the

⁴ In their article titled *Networks in Public Administration Scholarships: Understanding where we are now and where we need to go*, the writers examined the road that network scholarships has followed in public administration from antiquity and the drivers which determines the use of network theories in public administration.

Ghanaian public sector in its entirety, including both human and technological elements within the sector.

ANT is often associated with the early writings of Michel Callon, Bruno Latour, and John Law. The theory states that Actors⁵ build networks by merging both technical and social elements. And that the elements of these networks, including those actors who have engineered the network, are, at the same time, both constituted and shaped within those networks (Stanforth, 2007).

The theory contends further that the use of technologies or ICTs do not come about as a result of scientific logic as reflected in ideas of ‘technological determinism’ school (Hanseth and Monteiro, 1998). Rather ANT theorists contend that technologies themselves possess some inherent social momentum. They further contend that by virtue of this social momentum, “technologies mirror our societies” (Bijker and Law 1992) themselves. And are in turn shaped and reshaped continuously by the interplay of a range of heterogeneous forces within that same network. In an attempt to simplify the theory, Callon (1987) illuminates ANT as “*reducible neither to an actor alone nor to a network...An actor-network is simultaneously an actor whose activity is networking heterogeneous elements and a network that is able to redefine and transform what it is made of*” (p.93). These technicalities could be reduced to imply that technologies or machines are also actors in the networks as are human beings; both machines and human beings are accorded the same status. And the network established by both machines and humans in turn influence how both behave in that same network (Stanforth, 2007). Furthermore, campaigners of ANT view the ‘world’⁶ as made up of

⁵ Those different elements of the network are known as the actors or “actants” and they include peoples, organizations and technologies (Walsham, 1997).

⁶ In his study, the ‘world’ used here should be made to mean the Public Sector although the original proponents like Law (1992) did not allude to the public sector per se.

bits and pieces with no social order to regulate it. Thus forming and stabilizing a network, is the only panacea to ensuring order. This according to Stanforth (2007) is the political function of ANT. As a political function, Actor-Network theorist calls for enrolment of allies, who are able to marshal resources to ensure the sustainability and at the same time ensure unfettered commitment to the new network. Callon (1990) used this example to illustrate the point: *“Everyone would speak their own language, but everyone else would understand them”*. However Stanforth (2007), has noted that ‘convergent’ networks of this kind develops, only after directing all efforts towards long-term development plans and investments.

Again, in the thinking of Actor-Network theorists, social scientists ought to also understand power⁷ as an effect or a consequence of collective action within a network but not as a cause of action (Cresswell, 2009; Stanforth, 2007). Thus the ‘powerful’ in any society are those who define and redefine what holds everyone together (here the network) but not those who hold power in principle (Cresswell, 2009; Latour, 1986; Stanforth, 2007). Demonstrating this point, Latour (1986:268) said *“Power is always the illusion people get when that are obeyed...people who are ‘obeyed’ discover what their power is really made of when they start to lose it. They realize, but too late, that it was ‘made of’ the wills of all the others”*. Stanforth (2007:3) elaborated further that *“those who are powerful are not those who hold power in principle but those who practically define or redefine what holds everyone together”*.

Like many other theories, scholars have also largely criticised the ANT. For instance, the very name “actor-network” has been questioned by Cresswell (2009), who labelled it as an oxymoron. Cresswell’s astonishments regarding how something could be an

⁷ According to Stanforth, (2007:39): “Understanding power relationships in ANT means describing the way in which actors are defined, associated, and obliged to remain faithful to their alliances”.

actor and the same time a network was very evident from his writing. To him this often leads to some confusion in clearly understanding the theory. ANT has also been criticised for its inability to recognise pre-existing, existing and other parallel structures (Doolin and Lowe, 2002) in a political setting like the public sector. Another criticism of the theory concerns the refusal to recognise the distinction made by nature between human and non-human. Those who support this argument opine that there are inherent difference between the thinking and emotions of man, which cannot be equated, for the sake of a theory. This union of technology and man, according to Ziemkendorf (2008) makes it daunting to appreciate the real complexities of the network. Alexander and Silvis (2014) have also cited ANT as having a vague boundary thus leading to loss of particular research foci. Again, it has been criticised for failing to recognise the norms and values which underpin the very society it seeks to thrive (Cresswell, 2009).

These complexities and weakness in the theory, however, leads to no serious lacuna in the development of the theory as these weaknesses rather makes the theory only to be understood as something that is ‘performed’ rather than something that is ‘summarized’ (Cressman, 2009; Law 1997; Law and Singleton 2000). Further, the detailed social explanation of what constitutes technology has been cited by many as one of the major strengths of ANT. Technology in ANT finds expression in both hardware and software, and individuals, who premeditated, mature and maintain these technology. This helps provide a researcher with a defined framework for describing technology and society and how they interact as a unit (Tatnall and Gilding, 1999). Again, ANT brings with it uniformity in understanding the actors of a social order as this prevent issues of essentialism which often appears in many social oriented theories and studies (Ibid). Consequently, the problem of insider or outsider and other externalities are largely done

away with under ANT and this makes it simple to understand how various actors react in a collective unit (Latour, 1999).

1.3.1.1 Deployment of ANT in the study

According to Yanow (2006), whatever the public sector does is best seen and appreciated when it is communicated through and between objects. This to Yanow (2006) entails communicating political meanings, outcomes and issues regarding public institutions through objects like buildings, ICT equipment and other physical structures associated with the agency and not necessarily communicating through spoken or written languages (Montenegro and Bulgacov, 2014). This practically means that all interactions between human actors in an organisation like Ghana's public sector are also mediated by objects. Thus the delivery of public services in Ghana for example, according to Yanow (2006), is a product or an output of an interaction between human and objects (ICT equipment or E-government applications).

Thus ANT will help this study to appreciate the role of both human and non-human actors, their actions and relationships as well as the power play between these actors and the implication it has on the implementation of E-government policies. In other words, ANT is deployed in this study to depict humans and technology interactions, so that the success or otherwise of E-government policies may not be ascribed wholly to the technological equipment 'per se'. Rather the extent to which the equipment interact successfully with the users of the system (in this case public servants and citizen-end-users) will also dictate whether the system will work or whether it could be sustained. Again, issues pertaining to resources (electricity, repairs, upgrading etc, and regulating frameworks) and other social factors which are all attributable to man, affect the functioning of E-government thus until all these agencies and factors are ascertained with certainty, any ICT solution is more probable to be a fiasco. Therefore ANT affords

this research, a framework that would aid in appreciating the ‘human details’ which are often disregarded in technological oriented studies. It would therefore be apt and valuable to draw on ANT to understand the factors that help shape the design and operation and maintenance of an E-government project. In that case, the failure and the challenges of the project may not only be accounted for by technological factors alone but human factors would also be considered.

1.3.2 The concept of New Public Management (NPM)

NPM is a management concept adopted by governments since the 1980s and 1990s to transform and modernise the public sector (Ehsan and Naz, 2003; Hood, 1991; Hughes, 2003). And as a very leading concept in public administration (Arora, 2003; Hood and Lodge, 2004), NPM preaches minimal government, ‘debureaucratisation’, decentralization, market orientation of public service, contracting out, privatization, and performance management (Ehsan and Naz, 2003). These features suggest great disparity with the traditional model of public administration, which exemplifies a dominant role of the government in the provision of services, hierarchical structure of organization, and centralization (Ehsan and Naz, 2003; Hughes, 2003). Coming from ‘Rational Choice’ and Public ‘choice’ theories with some elements of total Quality Management (TQM) or ‘Managerialism’ theories (Schedler, 1995), NPM seeks to offer more efficient mechanism for delivering goods and services and for raising governmental performance levels (Kelly 1998: 201).

There is no generally accepted definition for NPM concept, however; scholars have developed frameworks to aid in the understanding of the concept. Thus in attempting to be lucid and coherent in discussing the concept of New Public Management (NPM), and also to reflect the aims of this study, NPM would be explained from the framework

developed by ⁸Osborne and Gaebler (1993) cited in Miller and Dunn (2006). Osborne and Gaebler (1993) who recognized ten principles that encapsulate the concept of NPM. Firstly, the public sector must be seen to have an unfettered obligation to only “steer” or direct (not “rowing” or totally control) the delivery of public services or in the addressing of public issues. Secondly, government should be “community owned”. This implies government giving power to the public servants and community at large to exercise self-governance. This principle also defeats the thinking that public servants or citizens in general are just beneficiaries of public services. The third is competition. According to Osborne and Gaebler (1993), competition is inherently good in enhancing public sector performance as competition leads to the best ideas and most efficient delivery of services (Miller and Dunn, 2006). The fourth principle underlining NPM relates to government or the public sector being driven by their own ‘mission’.

The fifth and sixth principle largely pertains to seeing the citizenry and consumers of public goods as customers. Customers here have the right to select between competing and differentiated approaches that could be taken to deliver any particular public good and this is predicated on the value of choice (Miller and Dunn, 2006). ⁹*“The seventh principle is based on the notion that agencies (bureaucracies) “earn” their allocation of resources by demonstrating the value in terms of the public good that will be generated by the “investment” that elected officials would make in a particular agency. This perspective has the units in an agency competing with each other by “selling” to the elected officials a greater public good than that offered by the other agencies”.*

⁸These set of principles are contained in their book titled ‘*Reinventing Government*’.

⁹ Ibid

Relating to the eighth principle, NPM views public servants as preventive agents rather than curative agents of public problems. Public agencies in the mind of NPM theorists are always in to prevent social problems than just seeking for solutions. The ninth and tenth notion of NPM concerns increasing the number of people and institutions in the public decision-making process. In this regards, the public sector is seen as ‘anti-hierarchical’ and ‘anti-bureaucratic’ (Miller and Dunn, 2006). But a study by Gruening (2001) identified some of these features of NPM as ‘undisputed’ characteristics (which were identified by most observers in his study) and ‘debatable’ attributes (identified by some, but not all, observers).

The main objective of NPM concept, from this backdrop is the transformation of the traditional public administration system (Larbi, 1999) so that it would be more efficient, more adaptive and because of these become more effective in delivery of services to the general public (Rosta, 2011). This also means that the public sector will now be more market oriented and compete with the private sector regarding best management practices.

This transformation NPM concept seeks to bring to public sector according to Hood (1991:3, cited in Rosta, 2011) is often characterised by “(i) *attempts to slow down or reverse government growth in terms of overt public spending and staffing* (ii) *the shift toward privatization and quasi-privatization and away from core government institutions, with renewed emphasis on 'subsidiarity' in service provision* (iii) *the development of automation, particularly in information technology, in the production and distribution of public services; and*(iv) *the development of a more international agenda, increasingly focused on general issues of public management, policy design, decision styles and intergovernmental cooperation, on top of the older tradition of individual country specialisms in public administration*”. From Hood’s (1991)

analysis, particularly his point (iii) above, the development of E-government is clearly as a NPM measure to transform the public sector.

The concept of NPM has been criticised a great deal, particularly its practice in developing countries (Ehsan and Naz, 2003; Hughes, 2003; Mongkol, 2011; Savoie, 2002; Singh, 2003). For instance, Ehsan and Naz (2003:45) have expressed the point that *“most developing countries are adopting the model without considering the socioeconomic and political implications. Perhaps because of their vulnerable position at the international level, these countries are being forced to adopt the model”*.

The first criticism levelled against the concept stems from the over-emphasis on private sector practices. Armstrong (1998) like Savoie (2002) argues that the public sector has some distinct political, ethical and constitutional features which make them one of its kind and inimitable to other private practices. Thus importing into it, some private sector practices could go fundamentally to redefining these distinct political, ethical and constitutional features that uniquely characterise the public sector (Mongkol, 2011). Related to the unique features of the public sector, Singh (2003) also argued for the impracticability of the concept in the public sector. According to Singh, the public sector has a more multifarious and complex aims, a more intricate and complex accountability regime, and a more turbulent political environment than the private sector. These features according to Singh (2003) make the practice of NPM equally complex in the public sector and largely unrealistic. Hughes (2003) again criticised the practice of NPM in developing countries owing to what he says are insufficient experiences in free-hand market operation. Again, the thinking of "customers" rather than "citizens" when speaking of NPM concept has been criticised as an inappropriate exercise (Andrews, 2003). To Andrews (2003) and others who uphold this claim, the private sector uses the term customer as a means of generating profit rather than seeing

the customer (citizens) as the owner (of the government). Thus with New Public Management, people are perceived as economic units rather than real public participants (Hughes, 2003), and this is unacceptable in the practice of a good governance.

In the face of these criticisms, however, NPM concept has still remained useful in practice across developing and other OECD countries because of its strength in promoting an efficient and effective public sector (Bowornwathana, 1995). NPM has for example recorded successes in the UK, US, Japan and other developing countries as a public sector reform initiative (Ibid). It has also been extolled for its cost effectiveness particularly in developing countries where resources are hard to come by. And as observed by Hughes (2003), it is always possible to practice NPM in developing countries as an alternative to the old traditional model of public administration. This is because it is not necessary to apply all the principles of NPM concurrently, in order to give meaning to the concept.

1.3.2.1 Deployment of NPM concept in the study

Scholars like Hood (1991), Hughes (2003) and Osborne and Gaebler (1993), have all related NPM to the development of information and communication technologies in the delivery of public services and the replication of private sector practices to transform the public sector. This aspect of the theory could be seen in the Ghanaian public sector with the rolling out of E-government project in many public institutions. Therefore the concept of NPM would guide this study to view public institutions in the light of anti-bureaucratic private sector practices which often involves developing measures to ensure efficiency in service delivery. In addition, the concept of NPM offers this study a guide in understanding government as an institution which is jointly owned by public servants and the citizenry. This implies that public servants and citizens in general are

construed in this study as not just at the mercy of the central government rather, a core component of the whole process of public administration.

In summary, NPM is largely deployed in the study to depict the attempt by Ghanaian Government to use E-government as a modern tool and as a global administrative reform initiative to reinvent the whole structure of the moribund public sector. NPM as a concept is thus installed in this study to show how the public sector is emulating the practices of the private sector in order to be more productive.

1.4 RESEARCH QUESTION

The essential question that this study seeks to answer is what has been the impact of E-government in the Ghanaian public sector during the early stages of its implementation?

To appreciate and deal with this central problem, the following questions are raised by the study:

1. What is the level of awareness of E-government among public servants and citizen-end-users?
2. What factors facilitate or thwart the use and adoption of E-government applications among public servants and citizen-end-users?
3. What benefits and challenges are associated with the implementation of E-government in the Ghanaian public sector?
4. What are the measures to adopt to ensure long-term sustainability of E-government projects?

1.5 OBJECTIVES OF THE STUDY

This study seeks to:

1. assess the initial preparations made before the implementation of E-government project in Ghana's public sector
2. assess public servants' and citizen-end-users' understanding of E-government as well as the level of awareness of E-government in the Ghanaian Society
3. identify what influence public servants and citizen end-users' use and adoption or otherwise of E-government applications
4. identify the benefits and challenges associated with the implementation of E-government in the Ghanaian public sector
5. propose measures for ensuring the long-term sustainability of E-government projects in the Ghanaian public sector

1.6 SIGNIFICANCE OF THE STUDY

The utilization of ICT facilities in public sector administration is low as compared to the private sector and this situation is even worse in Ghana and developing countries in general where financial and other resource constraints are enormous. As one of the few studies relating to the Ghanaian public sector, this research is expected to highlight the benefits and the challenges that Ghanaian public sector institutions gain or face with the implementation of E-government policies. The findings from this study can assist Ghanaian policy makers and public authorities in general, to envisage the long-term sustainable measures to adopt and the necessary actions to take to ensure the realisation of the goals of E-government. This study will also add to existing but few studies conducted in relation to E-government and public sector administration of developing countries and may also serve as a basis for further future studies. The study would also

contribute to the Actor-Network Theory and the concept of New Public Management as it seeks to give it a more practical effect and meaning.

1.7 SCOPE OF THE STUDY

This study's scope would largely be limited to the impact of E-government in the Ghanaian public sector. The study would cover Ghanaian public institutions that in one way or the way make use of E-government applications and some few public servants, whose work are not necessarily related to the use of E-government but are well placed to give meaningful information. This study also covers the perception of citizen-end-users who are actually at the receiving end of public administration.

1.8 ORGANIZATION OF THE STUDY

This study is divided into seven chapters. Chapter one consists of the general introduction and the theoretical framework which discusses the theories that underpins this study. Chapter two of this is devoted to public sector of Ghana, and the various public sector reforms in Ghana. The chapter also contains the use of ICT in Ghana and the major Ghanaian government policies on ICT. Chapter three of the study holds the review of relevant literature on the general notion of E-government. This includes; the meaning of both E-government and E-governance and their distinction. It also encompasses the factor that promote or inhibit the acceptance or adoption of E-government solution in the public sector, proposed benefits and challenges of E-government implementation in the public sector, and the proposed measures to ensure the long-term success of the implementation of E-government solutions. Chapter four of this research covers the research methodology employed in the study. This entails the research philosophy, the data collection techniques and the various sources of data

including methods for data analysis. Chapter five is devoted to data presentation and analysis. This entails the presentation of primary data obtained from the study and the interpretation of data obtained from the interview and the questionnaires. Chapter six, discusses the various findings of the study together with literature and other secondary data. Chapter seven, which is the last chapter covers summary of the study findings, conclusions, recommendations and the limitations to the study.

CHAPTER TWO

THE PUBLIC SECTOR OF GHANA AND GHANA'S ICT POLICIES

2.0 INTRODUCTION

This chapter aims to explain in general terms what public sector means and what constitute the Ghanaian public sector and the various ICT policies adopted by the Ghanaian government. Embedded in this quest is also an attempt to highlight the various reform initiatives that the Ghanaian public sector has gone through. This is particularly so as this study deems the introduction of E-government or ICTs in the Ghanaian public sector as a reform initiative propelled by the concept of NPM to transform the sector.

2.1 UNDERSTANDING THE PUBLIC SECTOR AND AN OVERVIEW OF GHANA'S PUBLIC SECTOR

The expression 'public sector' or simply 'public service' in its daily usage is often swapped with 'civil service' (Manning 1994:1; Wereko, 2009). This interchangeable use is not only in practice but also in scholarship. For instance, Nti (1978) like Ayee (2001) have both equated civil service to public sector or public service in their studies. The transposition of public service with civil service in the work of Ayee (2001) and Nti (1978) and other similar ones, takes nothing away from their studies. But it is instructive to point out that in a much technical sense, there is a greater difference between the term public sector or service and civil service, at least so far as Ghana (and particularly Ghana's 1992 constitution) is the context of analysis. The interchangeable use of public sector or service and civil service according to Wereko (2009:4) tend to be so because *"the lines distinguishing one from the other have become increasingly*

blurred and newer and more autonomous organisational forms have emerged within governments.”

From an economic perspective, public sector could be seen as *“that portion of an economy whose activities (economic and non-economic) are under the control and direction of the state...The state owns all resources in this sector and uses them... to maximize the well-being of society as a whole”* (Todaro, 1977: 436). Viewing the term public sector in the context of administrative system of a state, the public sector could be construed simply as *“the entire executive machinery of government - the public bureaucracy, which responds to politically defined priorities within a constitutional framework”* (Wereko, 2009:5). In terms of its structure, the public sector could be explained to be made up of various public services, like the core civil service and the services in the local government administrative system, together with other public or state owned enterprises (SOEs), whose establishment are specified by an appropriate legislation passed by an Act of Parliament (Ibid). Although Ayee (2007) espouses the view that the roles of the public sector is increasingly changing, the public sector still merits the definition as those institutions and establishments charged with the responsibility of providing services for the public (Asamoah et al., 2013).

The Fourth Republican Constitution of Ghana lists the Public Services of Ghana to include fourteen services which includes the civil service, and the civil service is further defined under Article 190(2). Therefore, the Ghanaian 1992 constitution makes a clear distinction between what could be termed public service (or largely the public sector) and the civil service. Under the 1992 Republic Constitution Chapter 14, Article 190(1) the fourteen public services which forms the public sector of Ghana are:

The Civil Service; The Judicial Service; The Audit Service; The Education Service; The Prisons Service; The Parliamentary Service; The Health Service; The Statistical

Service; The National Fire Service; The Ghana Customs, Excise and Preventive Service; The Internal Revenue Service; The Police Service; The Immigration and Legal Services; and Public Corporations other than those set up as commercial ventures.

Article 190(1) (d) additionally makes provision for the establishment of other public services as Parliament may by law recommend. In keeping faith with this provision the 15th public service - The Local Government was created in 2003 by the Local Government Act (Act 656).

It is now clear from the above enunciations that the public service or the public sector is very distinct and separate from the civil service: the civil service is a sub-set of the public sector. Thus in the Ghanaian context, the public sector is seen as an umbrella which covers the civil service together with other 14 public services together with other statutory agencies established by the Ghanaian Parliament.

2.1.1 Public sector reforms in Ghana

After its independence, Ghana took over one of the finest and efficient post-colonial public sectors in Africa (Ayee, 2001; Bloom, 1973:1; Nti, 1978; Wereko, 2009). This inference is largely in respect of a public sector which had been managed extensively by foreigners (Wereko, 2009). Many were the cynics who therefore, challenged the justification for espousing and taking up an alien bureaucratic practice just after independence (Adu, 1973) particularly when the evidence available suggested an insufficient and worn-out experienced personnel to manage the sector (Ayee, 2001; Nti, 1978; Wereko, 2009). Further, the post-colonial public service inherited by independent Ghana in 1957 was unaccustomed to many Ghanaians and also as Wereko, (2009:1) mentions the public sector was “*not adequately responsive to the pressing needs of a*

newly independent nation". Hence, the ¹⁰Nkrumah administration partly responded to these concerns by initiating "A New Charter for the Civil Service" in 1960. The 1960 charter was aimed at doing away with "*the last vestiges of the colonial civil service and to equip it to play the appropriate role of meeting the aspirations of an independent nation.*"¹¹

Caiden (1969: 165) saw the reforming of the public sector as "*an artificial inducement of administrative transformation against resistance*". Making their conclusions on the drivers of public or administrative reforms, Adei and Boachie-Danquah (2002), agreed with Caiden (1969) that the need for or what necessitate an administrative reform in various governments across the world, develops from the malfunctioning of the natural processes of administrative change. It follows that public sector reforms in Ghana and other part of the world are man-made, deliberate, planned but not natural or unintentional (Adei and Boachie-Danquah, 2002; Caiden, 1969). This reinforces the explanation and decision by the Nkrumah Administration when it introduced the "New Charter for the Civil Service" in 1960 as well as other subsequent reforms in Ghana.

But after three changes of government and thirteen (13) years after instituting the 1960 New Charter, Bloom's (1973; cited in Wereko, 2009) assessment of public sector of Ghana was one which never inspired hope. Bloom concluded that the Ghanaian public sector is "*one of the tragedies of independent Ghana.*" She further expressed the view that the Ghanaian public sector "*has been ruined by the depredations of successive Ghanaian Government...and the Civil Service and other state institutions have become a drag on the economy and the society as a whole*". Ayee (2001) collaborate this point

¹⁰ This administration was the first to inherit an independent Ghana in 1957 after a British Colonial rule. Dr. Kwame Nkrumah was the leader of this first independent administration.

¹¹Ghana Government White Paper No. 260, 1960 "New Charter for the Civil Service"

when he labelled the period between 1974 to the 1980s as the bad time for Ghana's public service, after independence.

Thus, from a high plinth of what was seen as one of the best and brightest in Africa and in the whole of the Commonwealth, the Ghanaian Public Service had, by the time of Bloom's assessment in the 1970s and the early 1980s, debauched into a corrupt, kneejerk and visionless institution (Adei and Boachie-Danquah, 2002). Political instability; bad governance; economic decline, over politicization, and over-centralisation amongst other reasons have been alluded to as some of the reasons that explains the blip (Adei and Boachie-Danquah, 2002; Ayee, 2001).

Recent assessments of Ghana's public sector (for example: Sakyi, 2008; Ayee, 2001; Wereko, 2009) suggest not too different a situation of a gloomy and moribund public sector as witnessed in the 1970s to the 1980s. Hence, the clarion call to reform the Ghanaian public sector is to a significant extent as valid today as it was some 30 years ago (MPSR.2006; cited in Wereko, 2009; Ayee, 2007). Again, the importance of public sector in the growth and sustains of the economy and the development of Ghana in general has led to deluge of attempts to reform the public sector with the objective of improving efficiency, effectiveness, and the quality of public service (Ayee, 2001; Asamoah et al., 2013; Sakyi, 2008).

2.1.1.1 ¹²The trends of public sector reforms in Ghana

The Ghanaian public sector has gone through extensive reforms since its independence in 1957. Some of these reforms have not only been wide-ranging in scope, but many had turned out to be over-ambitious, expensive and ill-tailored to addressing the real

¹² Government of Ghana, Reform Documents and Reports, 1957 to 2006, Government of Ghana National Development Plans and Reports

needs of the sector (Ayee, 2000; Wereko, 2009). Again, most of these reforms have also been prompted by international donor agencies with very little local participation and proprietorship (Ayee, 2001; Wereko, 2009). Coupled with the lack of political will, resource constraint, institutional inertia and resistance (Wereko, 2009), most of these public sector reforms have been failures in achieving their intended purposes. The various public sector reforms in Ghana could be grouped into three major trends; these are first, second and third-generation reforms (Ayee, 2001; Wereko, 2009).

First- Generation Public Sector Reforms (1949-1966)

These reforms were between the periods 1949 to 1966 when the first local administration under the leadership of Dr. Nkrumah was overthrown. The major aim of the first generation reforms were the achievement and sustenance of national independence.

The first stride towards reforming the public sector was the R.H Saloway “Select Committee of the Legislative Council on Africanization” which was inaugurated in 1949 to develop an arrangement which will lead to the ‘Africanization’ of each public service institution. This move was to allow indigenous Ghanaians the chance to manage top senior positions in various public institutions. The Report of the Saloway committee led to the creation and appointment of a Commissioner of Africanization in 1950 (Wereko, 2009). In 1951, the “Lidbury Commission Report on the Civil Service of the Gold Coast” was also aimed at improving the performance of the civil service and restructuring same as demanded by the self-government championed Constitution of 1951 (Wereko, 2009). The 1951 Constitution (Order-in-Council) also established a Public Service Commission to advise the Governor on issues relating to the affairs of

public servants like appointments, transfers, retirement and disciplinary control mechanisms¹³.

In 1960, as already mentioned, “A New Charter for the Civil Service” was introduced to do away with the remnants of the civil service in the colonial administration. ‘The Civil Service Act 1960 and Civil Service (Interim) Regulations’ was passed into law by the Ghanaian Parliament and these two legislative instruments were passed to augment the ‘New Charter for Civil Service’. It also established a Civil Service Commission to replace or rebrand what was seen as a moribund Public Service Commission.

The Second Generation Public Sector Reforms (1967-1980)

The public sector reforms which occurred between these periods were mostly on the recommendation of high-powered delegation who were mostly themselves public servant appointed by government. The recommendation of these commissions according to Wereko (2009) were borne out of rich experience gained while they were serving in both colonial public service and independent Ghana’s public service. For example in 1967, the reports of J.G.C Mills-Odoi’s “Commission on the Structure and Remuneration of the Public Service ” made a suggestions on how to structure the entire public service as well as how to decentralise decision-making processes to the periphery regional and district administrative levels (Ayee, 2001). The report also brought about improved condition of service and new salary schemes for the public sector institutions (Ayee, 2001; Wereko, 2009). In 1974-76; E. K Okoh “Commission on the structure and Procedures of Ghana Civil Service” was instituted to lead a reform process which would

¹³ This information was obtained from the web-site of Ghana Public Service Commission www.psc.gov.gh/About-us/history.html

improve the structure of the Ghanaian public service and as well as reducing delays in the provision of services to the citizenry. In 1979, the third Republican constitution restored back the Public Service Commission which was scrapped by The Civil Service Act and Civil Service (Interim) Regulations of 1960¹⁴.

The third generation Public Sector Reforms (1983-2014)

The public sector reforms between these periods were basically forced on Ghana as an economic conditionality by the international donor communities (Ayee, 2001; Wereko, 2009). Although the Economic Recovery Programme (ERP) and Structural Adjustment Programmes (SAPs) were aimed at creating the environment for economic growth by drastically getting rid of price controls, they were also aimed at reducing budget deficits, resulted by bloated public wage bill (Ayee, 2001). Besides the ERP and SAP, there were other specific public sector reforms which were directed towards restructuring Ghana's public sector. With the aim to reform the 'Civil Service' to make it more efficient and effective institution, a Civil Service Reform Programme (CSRP), 1987-93 was launched by the Provisional National Defence Council (PNDC) Government (Ayee, 2001; Adei and Boachie-Danquah, 2002; Wereko, 2009). The CSRP which is seen as a component of a World Bank led economic and administrative reforms in Ghana (Ayee, 2001), failed to make greater impact owing to an avalanche of reasons. Some of which were the over-concentration on the 'Office of the Head of Civil Service' as the main focus of the reform rather than the Civil Service as a collective whole (Ayee, 2001). Again, the programme was designed as a technical instrument by 'consultants' and mission experts and imposed directly on civil servants with very little local participation (Adei and Boachie-Danquah, 2002).

¹⁴ This information was obtained from the web-site of Ghana Public Service Commission www.psc.gov.gh/About-us/history.html

In an attempt to plug the loopholes and gaps acknowledged in the conceptualization and implementation of the CSRP (Adei and Boachie-Danquah, 2002), the Ghanaian government in 1994/95 launched The National Institutional Renewal Program (NIRP)¹⁵ as more a broader policy to ensure the transformation of the public sector. Since its inception, the NIRP has coordinated major reforms programs like (National Institutional Renewal Program, 2003, cited in Wereko, 2009): The Civil Service Performance Improvement Programme (CSPIP); Public Financial Management Reform Programme (PUFMARP); State Owned Enterprises (SOEs) Reforms; Subvented Agencies Reforms; Legal Sector Reforms; Public Sector Incomes Policy; Central Management Agencies (CMAs) Reforms; Decentralization and Local Government Reforms – e.g. Local Government Service Act (Act 656) and Gateway Project-/ICT Projects.

The Ministry of Public Sector Reform was therefore created under the John Agyekum-Kufour's administration in 2006, to oversee the National Institutional Renewal Program (NIRP) and other public sector reform programs that fell under it as well as bringing out entirely new policies to reform the public sector (Ministry of Public Sector Reform, 2006). This was to be done in conjunction with the Public Services Commission of Ghana, an institution created and charged by an Act of Parliament¹⁶. Although, under the ¹⁷Mills led Administration the Ministry of Public Sector Reform was scrapped as a substantial ministry, a Minister of State at the Presidency, responsible for Public Sector Reform in the person of Alhassan Azong was however appointed. And this is still the arrangement under the current Mahama Administration. This new arrangement has

¹⁵ The National Institutional Renewal Program is a major object of Ghana's broad Vision 2020 Development Program.

¹⁶ Public Services Commission Act 1994 (Act 482).

¹⁷ The Mills Administration took over from the Kufour Administration in 2009 - 2013.

been questioned by many who believe it does not show enough commitment towards reforming the public sector but the spokespersons of the government have debunked these assertions and rather argues in favour of a leaner government as promised in their manifesto.

2.2 BACKGROUND OF ICT IN GHANA

Ghana is known to be one of the leaders in the development of ICT in sub-Saharan Africa, since its first internet connectivity in 1989 (Ghana e-Health Policy, 2010). The development of ICT has since continued to flourish. For example, the country's ICT infrastructure grew from 0.04% in 1995 to about 3% in the year 2000 as opposed to other developing countries that were growing at an average rate of about 1.1% (Opoku, 2003; World Bank, 2002). Successive governments together with other agencies in the private sector have over the past two decades made several strides to develop the ICT infrastructure in Ghana in order to maintain this lead (Achampong, 2012).

With the aid of Pipex International, the Network Computer Systems Limited (NCS) in 1993 registered 'GH.COM' as the first commercial internet service in Ghana. This was followed by Africa Online and Internet Ghana as the other internet service providers. By the end of 1995, Ghana has become one of the few African countries particularly in sub-Saharan Africa but first in West Africa to have full internet connectivity (Quaynor et al., 1997). The National Communications Authority (NCA) was thus established in 1997 as the result of a new telecommunications legislation passed in 1996 by the Parliament of Ghana to regulate the budding and potential communication and ICT sector. Of course the standing of Ghana as one of the liberal ICT markets regarding ICT in sub-Saharan Africa could be attributed to the pro-competition policies put in place by the NCA (Achampong, 2012). This manifests Ghana's 61st ranking in the 2005/2006

World Economic Forum's Global Information Technology Report (World Economic Forum, 2006). As a result of this, by the year end of 2002, the National Communication Authority (NCA) had issued license to 52 Internet service providers (ISPs), even though only about ten were functioning as at the time (Lundkvist et al., 2004). This feat was made possible by the collaboration of institutions like Network Computer Systems (NCS), Pipex International, and the Ministry of Communication of Ghana, Ghana Telecom, British Telecom and the National Communication Authority (Quaynor et al, 1997).

In 2009, subscribers of internet services in Ghana according to ¹⁸ITU report were about 997,000 which accounted for a penetration rate of 4.2%. However, as at the mid of 2010, the figure of internet subscribers in Ghana had risen to 1.3m internet users, which converts to a 5.3% internet penetration rate (ITU, 2010). With just about 30,000 Ghanaian internet subscribers in 2000, (0.2% penetration rate), 2008 recorded over 880,000 subscribers of internet services in Ghana. It suffices to intimate that the 2010 penetration rate of 5.3% was among the highest in the sub-Saharan Africa. This was however lower than the African average of 10.9%, an average which has been skewed by the North African countries, the majority of whom had internet penetration of 20-30% (Achampong, 2012). In 2008, the Ghanaian Parliament recognised the increased use of ICT not only in the public but also in commerce. To this end the Electronic Transaction Act, 2008 Act 772 was passed to facilitate electronic transactions online between government, businesses and the general public.

Despite these remarkable figure, a trip away from urban cities in Ghana will see internet penetration dropping rather sharply as the majority of Ghana's rural dwellers have

¹⁸International Telecommunication Union (ITU), is a UN ICT development agency

limited access to the web (Ibid). Internet penetration in rural Ghana lingers around 1% (Ghana eHealth Policy, 2010).

Furthermore, ICT infrastructure in Ghana has seen a massive injection of investments from both existing internet service providers and telecommunication companies operating in the country. Additionally, Ghana is connected directly to the world's first submarine fibre-optic cable system, SAT-3/WASC/SAFE, which links Africa to the rest of the world (Achampong, 2012). From this backdrop, the overall internet connectivity and network speed is expected to increase and at the same time reduce the cost of internet accessibility in the country (Ibid).

In spite of the massive financial investment in ICT infrastructure, there has also been a move to increase capacity building. For instance, the Ghanaian government together with other organisations like the Abdul- Salam International Centre for Theoretical Physics (IPTC) have trained and continues to train many professionals in ICT and other related areas (Opoku, 2003). This is to ensure the availability of the necessary knowledge and skills, needed to support ICT activities in the country (Ibid). Even though investments in ICT infrastructure and ICT capacity-building has been huge, Ghana still lacks the drive and strategies to strap up the full potential of ICT for the socio-economic development of the country (Frempong, 2004).

According to Ghana eHealth Policy (2010), ICT infrastructure comprises of: Computing equipment (desktops, laptops, servers); Networking devices (switches, routers, wireless access points, firewalls, local area networks (LANs) and wide area networks (WANs)); Multimedia systems (Television sets, VCD and DVD players, camera's and camcorders); Mobile telephony and communication systems (Personal Digital Assistants (PDAs), cell phone, landlines, fax machines etc.); Imaging (desktop

and network printers) systems and Internet systems (GPRS, ADSL, VSAT and modems).

2.2.2 Ghana Government's policies on ICT

The Ghana National ICT for Accelerated Development (ICT4AD) policy

'The Ghana National ICT for Accelerated Development (ICT4AD) policy was designed under the sponsorship of the African Information Society Initiative (AISII) of the Economic Commission for Africa (ECA). And through the Ministry of Communication, it was passed by the Ghanaian Parliament in 2003 to be implemented as a policy statement for the realization of the vision to transform Ghana into an information rich society¹⁹. The vision of the ICT4AD policy was to *"improve the quality of life of the people of Ghana by significantly enriching their social, economic and cultural well-being through the rapid development and modernization of the economy and society using information and communication technologies as the main engine for accelerated and sustainable economic and social development"* (Republic of Ghana, 2003: 21).

The ICT4AD policy had different policy goals for various sectors of the economy (Ibid). Amongst these was the utilization of ICTs to facilitate government administration and delivery of public services. Specifically, the objectives of the policy to use ICTs in Ghana's public sector was to reform the public sector to ensuring improvement in its structure, procedure and processes as well as improving the efficiency of the public sector (Ibid). It also aimed to modernise the operation of the

¹⁹ Republic Of Ghana (2003). The Ghana National ICT for Accelerated Development (ICT4AD) policy. Accra: Ghana

public sector together with the aim of establishing an intra and inter communication networks amongst and between public institutions.

The specific focal point (sub-plans) of the ICT4AD policy according to ²⁰Abissath (2007) includes: E-Government Sub-plan; Accelerated Human Development Sub-plan; E-education Sub-plan; Private Sector Development Sub-plan; E-Commerce Development Sub-plan; E-Health Sub-plan; ICT and Physical Infrastructure Development and Rollout Sub-plan; Legal, Regulatory, Institutional Provisions and Standards Sub-plan; Industrial, Scientific Research Drive and Promotion Sub-plan; Foreign Direct Investment (FDI) Drive in ICTs; E-Security Sub-plan; and lastly, ICTs-in-Community Sub-plan.

The e-Ghana Project

Subsequent to the implementation of Ghana Community Network Services (GCNet), which mainly offered ICT-based solutions for the development of trade and increased government revenue, the Ghanaian government has gone further to roll out the e-Ghana project. This was after the World Bank²¹ had initially granted Ghana, a loan facility for the project in 2006 under the Kuffour's NPP administration. The project was however officially launched in 2010 under the NDC led Mills' administration and has since been financed by a \$150 million Chinese EXIM Bank loan²², and \$37 million Danish Government concessionary loan. In 2008, the Ghanaian Parliament passed Act 771, (NITA Act, 2008), which established The National Information Technology Agency

²⁰Abissath, M.K. (2007) *Taking ICTs closer to rural people in Ghana*. Available at <http://www.ginks.org/TAKING%20ICTs%20CLOSER%20TO%20RURAL%20PEOPLE%20IN%20GHANA.pdf> Accessed on 12/12/2014

²¹ In 2006, the World Bank approved a \$40 million loan facility for the commencement of the e-Ghana project. Information was obtained at www.worldbank.org/projects/P093610/eghana?lang=en Accessed: 14/12/2014.

²² \$30 million of this loan facility is however concessionary

(NITA) a public institution responsible for the implementation of the project. NITA together with ²³Vodafone have built a ‘Multiple Layer Switch and WIMAX network’ to connect all MDAs at the national and regional levels (Dowuona, 2012).

The e-Ghana project has three components, and these are: I) creating an overall enabling environment II) attracting investments in IT-enabled services as well as promoting the development of indigenous businesses and III) achieving greater efficiency, transparency and accountability in Government agencies and departments.²⁴

As part of the E-government initiative under the e-Ghana project (specifically ‘component three (III) the National Information Technology Agency (NITA) has implemented the e-services portal to augment the operation of government institutions online (NITA, 2012). The e-services module also aims at bringing together various government services thus helping to do away with the difficulties in dealing with complex and bureaucratic processes at some government agencies. The project which started in 2012 under a pilot scheme and include agencies like Drivers’ and Vehicle License Authority (DVLA); Ministry of Foreign Affairs-Passport office; National Information Technology Agency (NITA); National Identification Authority (NIA), Minerals Commission, Birth and Death Registry, Ghana Police Service; Food and Drugs Authority (FDA); Ghana Tourist Agency; National Communications Authority (NCA) (NITA, 2012).

Again, as part of the E-government project (under component (iii) of the e-Ghana Project), all Ghanaian Parliamentarians received laptops. The business of the House

²³ Vodafone now owns the ‘National Fibre Optic Backbone’ as a result of the take-over of Ghana Telecom. However NITA is able to feed on the 30% remaining Ghana Government shares in Vodafone.

²⁴ Ministry of Communication, e-Ghana Project Description Available at www.moc.gov.gh/e-ghana-project.html

including audio-visuals of debates is also now accessible by all members. Further, the Judiciary Service of Ghana has also had its first share of ICT equipment and application to improve efficient delivery of adjudication of cases. It is noteworthy to also mention the Ghana E-health Policy which has been implemented in various government hospitals to ensure proper keeping of patient records.

2.3 THE INTRODUCTION OF ICTS AS A PUBLIC SECTOR REFORM INITIATIVE

The Ghanaian government has long recognised the need to increase ICT capacity in the public sector. This recognition is contained in NIRP, which has a component which aims at modernizing public institutions by providing them with both hardware and software applications to enhance communication and efficiency in their work practices. The key objective of this NIRP component which focuses on ICT, is to engineer an ICT-led socio-economic development process which would lead to transforming Ghana into an information rich society (Wereko, 2009). Also, component III of e-Ghana project was also launched as a public sector reform initiative to ensure greater efficiency, transparency and accountability in public sector institutions.

2.4 CHAPTER SUMMARY

The chapter aimed at providing a foundation for the study by shedding more light on the public sector of Ghana and the various ICT policies in Ghana. Contrary to other authoritative studies, the chapter identified that in the context of Ghanaian 1992 constitution, the public sector is treated differently and separately from the civil service. Thus in the Ghana, the public sector is seen as a mother institution which covers the civil service and other fourteen different services. The chapter also threw further light

on the various public sector reforms in Ghana, dating as far back as pre-independence. And the point was strongly made that the public sector reforms in Ghana were motivated by donor influences with less local participation. The background of ICTs in Ghana was also discussed as the various ICT policies aimed at reforming the public sector, were also highlighted.

CHAPTER THREE

LITERATURE REVIEW

3.0. INTRODUCTION

This chapter examines relevant literature which relates to the objectives of the study including, the divergent and convergent views of various scholars on the meaning of E-government. The chapter also thrashes out the various factors that propel public servants to adopt or accept E-government application. It then points out the proposed benefits and challenges associated with the implementation of E-government by scholars and other empirical studies (stressing the examples of Kenya, Botswana, South Africa and other developing countries). The chapter finally reviews the views of scholars on the measures to ensure the long-term success of E-government projects.

3.1 DEFINING E-GOVERNMENT: E-GOVERNANCE OR E-GOVERNMENT?²⁵

The definition given to E-government abounds (Curtin et al., 2003; Ngulube, 2007; Oliver and Sanders, 2004:2, 5; Yong and Hiap-Koon, 2005:11). However, the continuous use of terms like E-governance in making reference to E-government and the systematic coalition, with new concepts and developments like e-democracy, e-participation, and mobile or 'm-government' makes obvious the point that E-government still is a sprouting concept which is often confused technically with other terms (Lips, 2007; Taylor and Lips 2008). The confusion is even compounded with the developments of many frameworks to elucidate the distinction between E-government

²⁵ This constitutes the first objective of the study, which is to explain the meaning of E-government. This would be revisited during the presentation and analysis stage with empirical data gathered from respondents regarding their knowledge and awareness of E-government.

and E-governance. For instance a model proposed by Palvia and Sharma (2007) cited in Bannister and Connolly (2012), aimed at differentiating E-government from E-governance which heaved the nuances even further into further bewilderment. In their framework, E-governance was construed with internally focused use of ICT to manage organizational resources and administer policies and procedures; whiles E-government was construed as outward and citizen focused. Not only was this distinction incongruent with conventional knowledge, it also widened the confusion that already exists in literature. Perrri (2001, cited in Yildiz (2007) also mentions e-service delivery, e-democracy and E-governance all together as the components of E-government. Again, Curtin et al. (2003) define E-government as the use of ‘any and all forms’ of ICT by governments and their institutions to enhance operations; the delivery of public information and services; citizen engagement and public participation; and the very process of governance. This definition does not only confuse the meaning of E-government with E-governance but opened the door wider for any interpretation to be made. Indeed the assertion that E-government involves the use of ‘any technology’ is wrong because certain technologies do not necessarily define what E-government is or ought to be (Yildiz, 2007). Thus some definitions given to the term E-government as shown above demonstrates gross ignorance of recent studies and also how the term is being applied in practice.

Bannister and Connolly (2012) in the line of Riley (2003), strongly suggest that not only is E-governance different from E-government, but that the distinction is essential to scholarship and also in practice. Lips (2007) thus believe that a better understanding of E-government necessitates an examination of both the ‘e’ and ‘government’. Also Alateyah et al. (2013), contended that E-government ought to be defined based on an existing set of requirements. Accordingly, before this study proceeds to address the

meaning of E-governance and E-government arising out of literature, it would be apt to mention that the distinction between the terms 'governance' and 'government' as root or head words (to E-government and E-governance) have already been made by scholars in political science.

In drawing the line between 'governance' and 'government', Keohane and Nye (2000), explained governance to mean the processes and institutions (either formal or informal) that steer and control the action of a group in a collective unit while government to the writers is only seen as the subset within the collective unit that acts with authority and creates formal obligations. Further, Keohane and Nye (2000) expressed the view that governance need not necessarily be an exclusive preserve of governments; rather private organisations as well as nongovernmental organizations (NGOs) can be part-takers of the process. This implies that while governance is seen as an open process, government could be seen as an institution which is very much defined by law (my emphasis). Thus government is an institution or an organ that contributes to governance (Riley, 2003).

With this background, the meaning of E-governance was directly inferred largely by scholars and researchers (Bedi et al., 2001; Okot-Uma 2000; Riley, 2001) to reflect the classical definition of governance, as known in the spheres of political science. E-governance was therefore thought of as a model of governance in this current information age that seeks to comprehend processes and structures aimed at harnessing the capability of information and communication technologies (ICTs) at various levels of government and even beyond the public sector (Saxena, 2005). According to Riley (2001), E-governance reflects a nation's commitment to make use of appropriate ICTs to enhance governmental interactions (both internal and external), so that democratic expression, human dignity and autonomy, economic development and fair and efficient

delivery of public services could be achieved. Thus according to Okot-Uma (2000) as well as Saxena (2005:500), E-governance as concept could be considered contextually as a broad concept involving both ‘E-democracy²⁶’ and ‘E-government’.

E-government could therefore be seen as an offshoot of E-governance that aims at transforming public sector institutions through ICT and Internet enabled operations (Al-Tawil and Said, 2002). In simple terms, E-government can be likened to an E-governance process that restricts itself to bringing innovations in public sector institutions. Other authors have also made an effort to clearly define the term E-government within the precincts of public sector. Jeong (2007) for example defines E-government as the use of ICT applications and other web-based applications to improve and/or enhance the efficiency and effectiveness of public sector institutions. Ayee (2008) further but succinctly intimated that E-government is regarded as the pursuit of a ‘paperless’ public service. Other explanations have also highlighted E-government as involving the use of ICTs to support government operations and delivery of government services (Fraga, 2002). Similarly, other definitions have expressed E-government as the use of only the Internet (as a tool for information and communications technology (ICT) to achieve better government (Alateyah et al., 2013; Alghamdi et al., 2011; OECD, 2003). For example the United Nations (2001, p.1) succinctly defined E-government as *“utilizing the internet and the World Wide Web for delivering government information and services....”*

Other writers have sought to widen the scope of E-government with an elaborative connotations to the term, and this has widen the nuances even further. According to

²⁶“e-democracy” here was used by the writers to denote the entire processes and structures that encompass all forms of electronic communication between government and the citizenry such as information, voting, polling, or discussion, thereby enabling citizens to participate in the government’s policy making.

Okot-Uma (2004), E-government, includes two basic components: *e-services*; delivery of services to the public, and *e-administration*- which involves the administrative processes of government with the aid of ICT applications. Moon (2002) together with Jeong (2007) also saw E-government as embracing three dimension/ aspects: (1) government to citizen (G2C), whereby the citizens access government information and services online or are served by the use of ICT application (2) government to business (G2B), which allows online interaction between government and businesses in the private sector; and (3) government to government (G2G), involves various levels of government agencies

Whiles some scholars have explained E-government to encapsulate the use of ICTs in the provision of efficient governmental services (Holzer et al., 2004; United Nations, 2001); other scholars have viewed E-government as a catalyst for public reforms (Helbig et al., 2009; Kraemer and King, 2006; Heeks, 1999). For instance Saxena (2005:501) posited that

E-government does not only mean the use of all sorts of ICTs by public institutions to improve both their relations with their users and their internal functioning. E-government is different from but builds on the administrative reform policies inspired by New Public Management (NPM) implemented... over the past two decades”.

Therefore an E-government initiative aspires to essentially alter the structures and processes in which public services operate; and in so doing change the entire array of relationships of public institutions with citizens, businesses and other governments (Leitner, 2003; Saxena, 2005:501). It is instructive to point out however that a study by Kraemer and Dedrick (2003) titled ‘*Computing and Public Organizations*’ suggested that IT themselves do not force reforms rather they only advance incremental change within the political structures. This view was also reflected by Rethemeyer (2006) when

he contended that ICT-enabled policies only underpins existing blueprint of influence rather than bringing up any new thing.

3.2 ADOPTION (ACCEPTANCE) OF E-GOVERNMENT

The acceptance or the adoption of a new technology on the part of users (be it public servants or a citizen end-user) is prerequisite for a successful implementation of E-government projects particularly in developing countries (Yonazi et al., 2010). Thus to ensure the success of E-government project implementation, there should be some degree of willingness on the part of bureaucrats and the citizenry in general to accept or adopt E-government services (AlAwadhi and Morris, 2008; Moon and Welch, 2005; Yong and Hiap-Koon, 2005). This implies that there is the need on the part of decision makers with political authority, to recognise and understand the factors that would promote public servants and citizens in general to accept the use of E-government applications or electronic service delivery channels (Alateyah et al., 2013; AlAwadhi and Morris, 2008).

There is a preponderance of literature and empirical studies on E-government adoption in both developed and developing countries. But majority of these have often concentrated solely on citizen-centric approaches to adoption (Alateyah et al., 2013; AlAwadhi and Morris, 2008; Alomari et al., 2012; Choudrie and Dwivedi, 2005; Wang et al., 2005; Warkentin et al., 2002; Yonazi et al., 2010) rather than on agency-centric or “silo” approaches (either concurrently or parallel in one study).

According to Ruth and Schware (2008) and most lovers of the citizen-centric approach, E-government adoption strategies that lay emphasis on agency-centric or “silo” approaches are rarely proper. They argue that agency-centric or “silo” approaches correspond to government structures rather than focusing on the wishes and problems of ‘users’. Although their conclusion is true, its general application and acceptance is

problematic. This because the importance of public servants as vehicles which propel E-government projects cannot be underestimated.

According to Thompson (2009), ICT applications themselves do not automatically translate to positive outcome; rather they are managed and operated by humans (this is indeed in line with the theory of this study- Actor Network Theory). Again, Public servants constitute the very structures of government which run these ICT projects, therefore if they are not concentrated on to ensure the thriving of these projects; there would not even be an E-government project in future for a ‘citizen end-user’ in the first place. This can be likened to the failure to lubricate a wheel, yet wanting the wheel to circumvolve (my emphasis). Again, it must be emphasised that public servants themselves are also users of E-government projects. Perhaps their (Ruth and Schware (2008) and other proponents of citizen centric approach) limited definition of ‘users’ could be understood to mean the ‘end-user’ in the chain of demand. Thus for Ruth and Schware (2008) to narrow the argument of users of E-government to only citizens like most of their citizen centric focused counterparts is an unviable proposition in a partial agency-centric focused study like this. Thus this sector of the literature review, and in giving effects to the study objectives, would focus on factors that promote or inhibit not only the adoption of E-government by citizen-end-users but also public servants.

Although less attention has been given to public servants’ adoption to E-government, Benk and Budka (2011) investigated the acceptance of ‘Tax Office Automation System (VEDOP)’ by government employees in Turkey. Bonner et al. (2010) together with Christensen and Grimsmo (2008) have also done a study regarding health administration personnel’s’ experiences with E-government applications²⁷. Again, in

²⁷ Although the research of Bonner et al. (2010) and Christensen and Grimsmo (2008) were on Electronic Health Records (EHRs), this study considers EHRs as a specific E-government application used in the

their work titled “*Same bed, different dreams? A comparative analysis of citizen and bureaucrat perspectives on E-Government*” Moon and Welch (2005) went beyond the citizen-centric approach which has flooded the area of study to including the perspective of bureaucrats with regards to E-government adoption and usage. In all these, the point still ought to be stretched that there has been little research exploring factors that determine the adoption of E-government in developing countries (AlShihi, 2005) particularly in SSA country like Ghana, more so from the public servants’ perspective. Most of the studies that concentrate on public servants and their adoption of E-government are predominately centred on the experiences of developed countries hence this study would be different by concentrating of the Ghanaian public sector.

The Technology Infrastructure and Adoption

One major factor that has been identified from the literature as major contributor of adoption or acceptance of E-government applications is the technology infrastructure itself. The works of Bonner et al. (2010) as well as Christensen and Grimsmo (2008) on health workers’ satisfaction regarding the implementation of E-government applications (specifically electronic health records; EHR) in various health facilities observed that adoption of E-government applications and the satisfactions thereof by public servants are often thwarted with the uneasiness originating from a complete shift from paper based records to E-government application. Therefore, it could be said that like any other new tools or organisational concept, the coming of E-government itself, as a technology infrastructure has also brought about a number of problems for both public servants and governments across the globe (Seifert and Petersen, 2002; Zakareya and Irani, 2005). More credence is given to this by UNESCO (2007), as it emphasised

Health sector. The Health sector also forms part of the public sector thus it is apt to construe health workers in this study as public sector workers.

the thorny nature of transforming the customary public servants' culture of cutting down on bureaucracy and accepting a new technology altogether.

Again in the Health Sector, Schumacher et al. (2010) investigated the adoption or usability of E-government application (EHR) amongst physicians and identified *'failure to use human factors design principles'* as a major bane that impede adoption and user satisfaction. According to the writers, designers of E-government applications (EHR systems) frequently give attention to the technological aspect thus fall short in applying human and social factors when designing the system. They further opine that these result in little time dedicated to appreciating the context and content of usage. They also identified other barriers to the use of EHRs as *"Physician's attitudes that they want a computer system to mimic a paper system as closely as possible* as well as *"IT staff's attitudes that technology solutions are more important than the purpose of the solution and the problem it was intended to solve"* (p: 818).

Further Maurer (2008 cited in Njuru, 2011) put it firmly that majority of users (in this case both public servants and citizen-end-users) refuse to go along with change that comes with new technology owing to insufficient information, fear of the unknown, unwillingness to leave suddenly their comfort zone and old ways of doing things, and a natural inclination to rebuff new innovations. Schraeder et al. (2006) reckoned however that if public servants see it as being required to adopt new technologies rather than making them understand and appreciate the significance of accepting it, they are likely to defy the initiative.

Although the study of AlAwadhi and Morris (2008), only focused on factors that promote citizen's adoption of E-government, their findings would be apt for this study, owing to its revelations. Their findings revealed that majority of respondents (56%) were concerned about technical issues arising out of E-government installations.

Concerns regarding network and server malfunctions as well as problem of access were raised as problems that could disrupt transaction of service and even cause serious delays in the modus operandi of government institutions. From their findings, it was further suggested that these technical issues aforementioned could result in “*great deal of annoyance to users who might be frustrated if they find it difficult to conduct their transactions successfully since this would lead to them having to start all over again*” (AlAwadhi and Morris, 2008:588). Thus building E-government infrastructure with the capacity to handle the amount of electronic traffic was highly recommended (Ibid; McClure, 2000).

Leadership and Adoption/Usability of E-government

Wilson III (2004:13) in his work titled “*The Information Revolution and Developing Countries*” identified politics and political leadership as essential ingredient in ensuring successful adoption or acceptance of E-government projects. Therefore if politics goes bad, then the other key drivers towards the adoption of E-government will not necessarily materialise (Ibid). Accordingly, the political headship ought to show commitment in pushing for “*changes in the face of institutional rigidity, technological backwardness and political resistance*” (Wilson III, 2004:13). This means that the approval and active commitment of prominent politicians plays a significant role in promoting the adoption and use of E-government policies (Zakareya et al., 2004; Ngulube, 2007).

According to Ngulube (2007), leaders in sub-Saharan Africa have given less attention towards developing ICT infrastructure in order to transform government processes owing to the lack of resources and political will. This has led to the low acceptance rate of E-government application in many public institutions and amongst citizen-end-users. Udo and Edoho (2000) also reckoned the unwillingness of government officials to

champion the use of ICTs in the public sector as a major constraint to usability and adoption. Some government officials together with public servants often see E-government as a threat to their position and thus they become resistant to the idea of online transactions (Ebrahim and Irani, 2005; Sanchez et al., 2003) or using E-government applications.

Computer and Information Literacy (Education) and Adoption of E-government

Another key issue identified as a major concern regarding adoption or acceptance of E-government in the public sector is computer and information literacy (Zakareya, et al., 2004). Computer literacy here refers to whatever a public servant or a citizen-end-user needs to know in order to use computers effectively, whereas information literacy here denotes the ability to make use of information or the possession of knowledge of information (Alomari et al., 2012; Alateyah et al., 2013). The educational level possessed by a public servants and citizen-end-users invariably affects his/her computer and information literacy level, and if the level of computer or information literacy is low, it inherently bars the public servant or the citizen-end-user from adequately adopting or using E-government application, and the reverse is also true (Cole and Kelsey, 2004).

According to Heeks (2005:58), there exist “many middle and senior civil servants in developing/transitional countries receive a Western education. This education can play an influential role in exposing those staff to Western ideas about new public management and about E-government”. The findings of Venkateshet al., (2000; cited in Al-Shafi and Weerakkody, 2009) suggested that there exist a significant positive correlation between educational level and technology ownership and usage. Studies from other scholars (Choudrie and Lee, 2004; Dwivedi et al, 2006; Dwivedi and Weerakkody, 2007) have all alluded to the fact that education is one of the most

important factors that promote or thwart the adoption or use of technology (in this case E-government). Again, Al-Shafi and Weerakkody, (2009) found out that E-government adopters in Qatar differ significantly in terms of their level of education and this results in their differing usage of E-government.

Performance Expectancy or Perceived Usefulness and Adoption of E-government

From previous technology acceptance studies (Venkateshet al., 2003; Davis, 1989; Taylor and Todd, 1995; Venkatesh and Davis, 2000), performance expectancy or the perceived usefulness has been established as a strong forecaster for determining the intent to accept or the use of ICT applications. Thus if public servants or citizen-end-users perceive the use of E-government as beneficial, for example seeing it as a time saving tool or a tool to improving the quality of services, then users would be more propelled to accept or use the technology (Al-Shafi and Weerakkody, 2009). Hence, if public servants as users of E-government applications in various government institutions as well as citizen-end-users recognize the usefulness of an E-government application in a negative light, then there would be great apathy towards the acceptance and use of the facility (Ibid).

Effort Expectancy or Perceived Ease of Use and Adoption of E-Government

Effort expectancy here refers to the extent of ease associated with the use of the system (Al-Shafi and Weerakkody, 2009; Venkateshet al., 2003). Many empirical studies have long established the relationship between perceived ease of use of ICTs and actual acceptance or use (Agarwal and Prasad, 1998; Al-Shafi and Weerakkody, 2009; Davis, 1989; Moore and Benbasat, 1991; Thompson *et al.*, 1991). The finding from all these scholarly studies pointed out that if users perceive ICT facilities as easy to use, then, inherently users would be more willing to adapt to the usage of that system. These findings are however in sharp contrast with Chau and Hu's (2002, cited in Al-Shafi and

Weerakkody, 2009) work, which seem to disagree on the point that effort expectancy or perceive ease of use of ICTs have significant influence on intention to use. For example if a public servant is under obligation to use the E-government, then by law he has no excuse to flout this order thus the perceive ease of use would not determine whether or not to use the system.

3.3 THE BENEFITS OF E-GOVERNMENT

From the review of literature, authors have alluded to many benefits of E-government implementation in both developed and developing countries; and the frequently cited benefits that particularly concerns the public sector include the following;

Reduced Red Tape thus Enhancing Delivery of Government Services

Many studies have recounted that E-government solution enhance delivery of public services (Kenny, 2001; Mpinganjira, 2013; Njuru, 2011; Rose, 2002). They also contend that the introduction of E-government applications in public service has radically shrink bureaucratic processes and needless paper work, and eliminate the risk of clerical errors thereby increasing the time hitherto used in delivering public services. The findings and inferences of a study in Botswana by Nkwe (2012) reveal that the country is not adequately utilizing E-government for delivering government services although the study generally recognized the importance of E-government for efficient public service delivery. Furthermore, the findings of Njuru, (2011) with Kenya's E-government policies suggested an increased efficiency and effectiveness in public service delivery. Mpinganjira (2013) examined one of the successfully implemented E-government projects in South Africa (South African Revenue Services (SARS) e-filing program) and concluded that E-government has led to improved and enhanced delivery of government services. A quantitative study by Naz (2009), in Fiji also showed

majority of respondent suggesting that E-government has a very positive effect on public service delivery. Cho and Choi (2004) also observed the use of E-government in handling civil applications by public institutions in South Korean and concluded that E-government help increase the administrative processes and by this means, help public sector to be more efficient in the delivery of public services. Additionally, even though, in their exploratory study Fu et al. (2004) sought to investigate the determinants of taxpayers' adoption of electronic filing methods in Taiwan, the writers were emphatic in pointing out that reduced red tape and unnecessary bureaucracy as a result of the introduction of E-government has led to the quicker delivery of services. Again, Welch and Pandey (2007) did a thorough study on the effects of E-government and bureaucracy in the US and study was consistent with other studies reviewed above when it concluded that the introduction of E-government in US public services has radically reduced unnecessary bureaucratic processes.

Increased Transparency and Accountability:

One of the identified benefits of E-government is that it could lead to greater transparency and accountability in the public sector itself (Bertot et al., 2010; Heeks, 2002b; Herman, 1996; Holzer, 2004; Welch et al., 2005; von Waldenberg, 2004; World Bank, 2004). Through E-government policies, it is now possible for the general public to scrutinize the activities of public institutions. Budgets and other records of public institutions are now made available online and in ensuring greater transparency, some public institutions have even gone a step further to provide avenues for one to trail the status of submitted applications for a particular public service (Mpinganjira, 2013). The provision of public records online do not only ensure that a particular public institutions is open and transparent but it also ensures that that particular institution is been

accountable to the tax payer and the general public (Bertot et al., 2010; Mpinganjira, 2013).

Lowers the Size and Cost of the Public Sector

Mpinganjira (2013) again argues that E-government ensures increased internal efficiencies in delivery of government services and this substantially reduces transaction and other clerical costs associated with delivering public services. The findings of Singh and Sahu (2008) Kumar and Best (2006) also point to the fact that implementation of E-government helps to reduce the cost of public sector institution by reducing the general size of the sector. But many research works (Andersen et al., 2010; Kertesz 2003, cited in Njuru, 2011; Holden and Fletscher, 2005) have however bemoaned ‘the reduction of staff’ benefit (of E-government) if not necessarily the morality of such action, particularly in Africa where the government is the largest employer.

Limits Corruption and other Corrupt Practices

One of the major factors that thwart the progress of public sector institution in developing countries is corruption (Ayee, 2000). E-government has been touted as a measure that could reverse or at least limit the corrupt practices in the public sector (Bertot et al., 2010; Cho and Choi, 2004; Hopper et al., 2009; Pathak et al. 2009, Rose, 2002; Singh et al., 2010). Not only in Africa, but studies in other countries in the Americas, Asia, and Europe have all alluded to E-government as a tool for fighting corruption (Bertot et al., 2010). Kim et al. (2009) undertook an empirical study to evaluate the effect of E-government specifically OPEN (Online Procedures Enhancement for civil application) in the Seoul Metropolis. The study found a positive correlation between E-government and reduction of corruption. Again, in a much

detailed empirical analysis of E-government and corruption, Mistry and Jalal (2012) re-echoed that corruption could best be tackled through the use of E-government. Shim and Eom, (2008) posited that E-government has the potency of reducing corruption by ensuring good governance as well as strengthening reform-oriented actors and initiatives. Thus according to them, E-government helps in reducing corrupt behaviours of public servants externally by enhancing relationships with citizens and also help reduce corrupt practices of public servants internally by controlling and monitoring of public servants' behaviours (Ionescu, 2013).

Participation of citizen in Government

E-government or the use of ICT in public service has facilitated greater public input into decision making and policy advice (Baldwin et al., 2011). Thus E-government has made use of 'e-participation' as a method of informing, keeping happy and convincing the public (Ibid) regarding government policies and policy implementation. It must be stated that the facilitation of 'e-participation' is mainly a top-down approach, where E-government provides an important channel by which information can be made obtainable.

3.4 CHALLENGES OF E-GOVERNMENT

Extensive studies have been carried out to ascertain the challenges that flaunt the implementation of ICT projects in developing countries (Achampong, 2012; Mutula, 2008; Nkohkwo and Islam, 2013). It should be stressed that the implementation of E-government initiatives in Sub-Saharan African countries has in most cases been the most failures (Nkohkwo and Islam, 2013) and this has been on the back of many peculiar challenges confronting developing countries and their implementation of E-government policies. This was collaborated by Mutula (2008), when he concluded that

E-government projects in Sub-Saharan African countries are too far from realization and achieving the purpose for which they were initiated because of numerous challenges in the African continent. The most commonly identified challenges to the implementation of E-government in developing countries are;

Regular Interruption of Electric Power Supply

In sub-Saharan Africa, governments find it difficult to make available uninterrupted power supply, and this customarily affect any good use of an E-government application (Achampong, 2012). In Ghana and with the ongoing load shedding exercise, power supply has even worsened than other neighbouring countries. The situation is such serious to the extent of gaining it an unpopular local accolade; “²⁸Dumsor-Dumsor”. This situation makes it extremely difficult for a public institution in Ghana to securely depend on the flow of electricity supplied by the Electricity Company of Ghana (ECG) to enable the operation of E-government applications. Particularly so when at any point in time and without prior notice power can go off and come back on. This has not only resulted in the inability to use ICTs but it has brought untold hardship to already budget constraint public institutions in Ghana as they are now to incur additional cost in procuring generators (or fuel if they already have) in order to power these computers and other ICT equipments.

In a survey carried out in ten countries in Anglophone Africa (which included Ghana), Chisenga (2004), identified inadequate supply of electricity as one of the major challenges which affect public libraries’ use of E-government. Inadequate power supply was also mentioned by Achampong (2012) with his study of Ghana’s ICTs although the study focused more on Health Informatics.

²⁸ This literally means “on and off, on and off”

Lack of Infrastructure

One major challenge of E-government implementation in developing countries that dominated the literature reviewed was the lack of ICT infrastructure (Ndou, 2004; Ebrahim and Irani, 2005; Bonham et al., 2001; Bourn, 2002). Scarcity of computers in public institutions together with poor internet connectivity has been mentioned as a major affront to E-government initiatives (Bonham et al., 2001). For instance, Mpinganjira (2013: 198) sums up the point aptly when she observed that

“Although significant positive strides have been made in most African countries in terms of investment in technological infrastructure especially in the areas of telecommunications, networks and electricity, the fact remains that most African countries are a long way short of the information technology infrastructure on which many E-government initiatives in other parts of the world are based”.

Other studies in Botswana (Nkwe, 2012) and in Kenya (Njuru, 2011) have reached similar conclusion that the lack of infrastructure is a bane to the development of E-government in Africa’s public sector.

Financial and Resource constraints

Another challenge identified from reviewing literature on the challenges of E-government relates to issues of finance. The major source of funding the cost of E-government services is the central government. This makes it difficult for public institutions themselves to have control of these funds allotted for the development of E-government, and often times these funds are released by governments in bits and pieces or do not even come at all (Ebrahim and Irani 2005; Heeks, 1999; Nkohkwo and Islam, 2013). This makes it extremely difficult to run E-government services proficiently. The findings of a survey conducted in the USA by Norris et al. (2001),

affirms the position that one of the main obstacles to an E-government initiative in public sector institution is the lack of financial resources (Nkohkwo and Islam, 2013). A study by Alam (2012), in Bangladesh (a developing country) reveals that financial limitation is the main barrier for implementing the E-government project in that country.

Security Issues and Cyber attacks

A major challenge confronting E-government and world technology at large relates to cyber-attacks and digital espionage (Chabrowe, 2019; Layton, 2007). These cyber-attacks and other security threats to the ICT assets and E-government are in different forms and come from either internal or external sources to the government (Sorkin, 2009). According to Alam (2012), public servants who are directly responsible for running the E-government project could misuse the access privileges for financial gains or for their own personal aggrandizement. Alam (2012) further argues that the cyber-attacks may come from external sources like professional hackers, criminal organizations, or even terrorist organizations. The aim of these attacks could merely be a callous pleasure to disrupting government operations or for financial gain where the hackers normally demand for ransom so as not to reveal some sensitive information (Ibid). ²⁹The Ghana Government had had to deal with a recent cyber-attack from a Turkish hacker which resulted in the taking down most government websites and information portals. And the Government through the Minister of Communication admit to the possibility of a breach of some national security information.

²⁹ Retrieved from www.myjoyonline.com/news/2015/January-22nd/hacking-of-gov-of-ghana-websites-turkish-hacker-claims-responsibility.php

3.5 MEASURES TO ENSURE SUSTAINABLE E-GOVERNMENT PROJECT

According to Heeks (2003) there is little over 85% failure rate (35% total failures, 50% partial failures) of E-Government projects in developing/transitional countries like Ghana despite huge investments committed into those projects. This staggering figure suggests that the future of E-government particularly in developing countries is highly uncertain, predominantly in the absence of any plan to salvage these initiatives. Again, this towering failure rate of E-government projects in Africa has been a matter of great concern for government itself, members of the general public as well as other many stakeholders (Mpinganjira, 2013). It is surprising to learn however that, it has not been the norm in E-government research works, especially the ones that concentrate on developing countries, to engage in future-focused studies (Dawes, 2009). This largely reflects the opinion of Dzhusupova et al. (2011: 1) when they opined that *“Unfortunately, few studies focus on the challenges affecting sustainable implementation of EGOV initiatives and how these challenges could be addressed.”* But over the past decade nonetheless, some efforts have been made in undertaking studies that focus on the long-term success of E-government projects (Frissen, et al., 2007, Dawes 2008;2009; Dzhusupova et al., 2011; Heeks 2001; 2003; Kumar and Best, 2006) albeit few regarding the sustainability of E-government initiatives in developing countries (Schuppan 2009) particularly in sub-Saharan Africa.

According to Dzhusupova et al. (2011:2) *“strong political leadership, clear vision, early involvement of stakeholders, regular feedback and partnership”* are important to sustain the progress of E-government projects within a limited resource constraint setting like most developing countries (and in this case Ghana).

Their view follows an earlier observation made by Heeks (2001; 2003). On his part, Heeks (2001; 2003) averred that sustaining E-government project in developing

countries are un-enviably ill-famed, owing to the lack of national ownership and weaknesses on the part of public sector institutions which fail to balance the interest of donor agencies and the interests of fellow countrymen. Heeks (2001; 2003) further indicates that there is deficient focus on local context of E-government initiatives in developing countries not only because most of these projects are donor-driven but also key stakeholders who matter most are often neglected in planning (Dzhusupova et al., 2011). Thus Heeks (2003) noted the role of political leadership, devotion of public officials, and the presence of institutions able to lead, coordinate and sustain E-government projects as the panaceas. It is worthy to also highlight that Heeks stressed on the essence of strategic thinking, knowledge, and skills and attitudes of public sector workers. Taking a cue from Heeks' unarguable authority afore, subsequent studies that scrutinized the measures that could be adopted to ensure the sustainability of E-government projects in developing countries (Ali et al., 2009; Grönlund et al., 2005; Schuppan, 2009; Kumar and Best, 2006) drew almost the same conclusion albeit different wording.

The role of the private sector as a stakeholder in the sustenance of E-government projects has been echoed severally in literature. Government across Africa have also shared in this recognition. In Ghana, when the then Minister of Communications Haruna Iddirisu was officially launching the E-government project, he missed no words on the need to engage the private sector in the development of E-government. This was again stressed by the current Minister Dr. Edward Omane-Boamah when he also took his turn at the regular 'Meet the Press Series'³⁰. The President of Ghana in his 2012 annual 'State of the Nation' address recognising that computers and government

³⁰ The information is available at www.graphic.com/gh/news/20117-e-gov-project-makes-headway.html Accessed on 13/122014.

alone cannot drive forward the E-government project into success, stressed the need for stakeholder involvement in achieving the long term success of the Project. In Botswana, the Coordinator of Public Service Reform Dr Omponye Kereteletswe when speaking at a press briefing at the conclusion of a two-day E-government strategy conference, also stressed that the contribution of both the public and private sectors were essential in the implementation of the E-government programmes (Mmegi, 2011, cited in Njuru, 2011). As a sustainability measure, other studies have also stressed on the importance of E-government legislations as a measure of securing the privacy of government information and E-government applications itself (Backus 2001; Gil-Garcia and Martinez-Moyano, 2007).

3.6. CHAPTER SUMMARY

This chapter has reviewed literature concerning the general notion of E-government, focusing particularly on the difference between E-governance and E-government. The various approaches to defining E-government by scholars were also prominently featured. The chapter also reviewed literature on the factors that contribute to the adoption or acceptance of E-government. Here, emphasis was placed on agency or silo approach than on citizen-centric approach to usability of E-government application as factors that promote or thwart citizens' adoption of technology has been widely studied. It was found out that the technology infrastructure itself together with leadership, and other social factors contribute to the acceptance or otherwise of E-government application amongst both public servants and citizen-end-users. It also reviewed some literature on the benefits and challenges associated with E-government application with lessons and experiences drawn from countries like Botswana, Kenya, Fiji and other developing and developed countries. Ultimately, the chapter reviewed literature on the measure to adapt in order to ensure how long-term success of E-government.

There were however some limitations with literature on E-government. First, there were few studies in relation to Ghana and although some extensive work had been done in other developing countries, majority of these studies focused more on the citizens than on public servants. To this extent, there were insufficient description in literature regarding the causal relationship between public servants and their use of E-government. Again most literature reviewed ignored the influence of historical developments, the nature of political systems, international relationships and their influence on the public sector's use of E-government or ICT applications.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.0. INTRODUCTION

This section of the study covers the entire research process, hence pointing out how the whole research work was planned and carried out. This section discusses the research philosophy which underpins this study and the research approach used for the study. The chapter then presents the research design that the researcher chose in gathering and analyzing the data that were generated from the study. This chapter also contains the limitations that the study encountered and other ethical considerations that were adhered to in the gathering of the research data.

4.1 THE RESEARCH PHILOSOPHY

Creswell (2013) explains research philosophy as involving the usage of abstract ideas and beliefs to inform a particular research. Creswell further contends that every researcher when undertaking his study brings with him some beliefs and assumptions, which could be based on the knowledge and realities the researcher encounters through his education, or advice offered by advisors and scholarly communities that the researcher finds himself. Most research works either deliberately or ignorantly overlook philosophical paradigms. However it is very essential that research paradigms are specified and made known. This is because research philosophies do not only impacts the practise of the research, research philosophies also provides an extensive framework within which a particular study can be positioned. Four types of philosophies exist namely: Positivism, Interpretivism, Realism and Pragmatism (Creswell, 2013; Saunders et al 2012; Tuli, 2011).

This study considers the *Interpretivism* research philosophy and the *Pragmatism* research philosophy to be most suitable for this type of research. Goldkuhl (2012) picked out that Interpretivism and Pragmatism are the two possible and important research paradigms for ³¹researches regarding Information systems. He further contends that both philosophies can be deployed together in a research study as one theory (i.e. Pragmatic-Interpretivism) or can be used as parallel theories in one study. This study hence made use of the two paradigms in a parallel manner. ³²Lastly, Braa and Vidgen, (1999), like Walsham, (1993) have all described how interpretive research philosophy can be combined with pragmatism research philosophy in one study.

Kaplan and Maxwell (2005) have asserted that the Interpretivist research approach tries to explore the reality and understand the social phenomenon through various social constructions. Babbie (2005) also explains the Interpretivist research philosophy as a research paradigm that tries to explain a wider principle through observation and discovering patterns of aspect of the social world. According to Orlikowski and Baroudi (1991:14)

“Ontologically, interpretive information systems research assumes that the social world (that is, social relationships, organisations, division of labours) are not ‘given’. Rather the world is produced and reinforced by humans through action and interaction”

This ontological description, claims Goldkuhl (2012), make ‘*cognitive*’ elements (“meanings, beliefs and intentions”) very pivotal in interpretive information systems research. Therefore, this study adopted Interpretivism research philosophy as this

³¹Goldkuhl (2012) was concerned more with qualitative research.

³² Ibid

philosophy did not yank the researcher to assume any dependent and independent variables that are already predefined³³ (Kaplan and Maxwell, 2005). Rather the choice of Interpretivism enabled this study focus more on the details of the situations at hand, and the subjective meanings behind various actions in the Ghanaian public sector. Myers (1997), also makes the point strongly that any study which adopts an interpretive research philosophy to studying an information infrastructure (of which E-government is an example), is sure to produce an understanding of how the information system influences the surrounding and how the surroundings in turn influence the system.

Keleman and Runiens (2008), like Saunders et al., (2012) identified Pragmatism as a research philosophy that views a “concept” as only relevant in any given research when it is supported by a given action or set of actions. Blumer (1969:71) asserted that *“the essence of society lies in an ongoing process of action - not in a posited structure of relations. Without action, any structure of relations between people is meaningless. To be understood, a society must be seen and grasped in terms of the action that comprises it”*.³⁴

Creswell (2013) therefore claims that the pragmatists like their Interpretivist counterparts do not view the world as an absolute or fixed entity but rather they recognize that there are many means of putting meaning to events of the world, likewise any given research. This is in sharp contrast to the positivist views which regard the

³³ Unlike the Positivist or the Realist who prefix their variable as constant and unchangeable

³⁴ This led Goldkuhl (2012) to assert that actions are thus pivotal in pragmatism, but not for their own sake.

world (for that matter public sector) as made of laws and adheres to strict principles. In finding the truth about a given event, the pragmatists search for processes and practices that are credible, reliable, relevant and well founded in the data collected and analyzed (Saunders et al, (2012). Thus, a research of this nature, adopting the pragmatist approach would not necessarily commit itself to any one particular standard (Saunders et al 2012). This is because, the Pragmatic researcher believes that truth is what works at a time and based on the intended consequences look into the “what” and “how” of the research (Ibid). Pragmatic researchers have the freedom of choosing any method, techniques and procedures that best meet their needs (Goles and Hirshheim, 2000). Simplistically, *“Pragmatism may adopt a pluralist position ...This means that it uses whatever methods are suitable for the research study in question”* (Goldkuhl, 2012:15). These interpretativist and pragmatist inspirations influenced the research to consider both public servants and citizen-end-users in this study which focuses on E-government in the Ghanaian public sector.

4.2 RESEARCH DESIGN

Silverman (2007) like many other scholars in social science (Bryman and Bell, 2011; Saunders et al., 2012) imply a research design as that which defines how a phenomenon would be studied or the method(s) a researcher espouses to a phenomenon. There are three types of research designs and these are qualitative research design, quantitative research design and mixed strategies research design (Biggam, 2011; Cresswell, 2003, Saunders et al., 2012). This study adopted the mixed strategies research design.

Quantitative research design entails the use of numerical data collection techniques such as questionnaires and data analysis procedures such as graphs and statistics (Biggam, 2011; Silverman 2007, Saunders et al 2012). In other words, it refers to a research design that is concerned with numbers and measurements. According to

Creswell (2003) quantitative research employs the use of positivist claims for developing knowledge. Thus quantitative research design concerns itself with the adoption of ‘self-styled scientific methods’ to the acquisition, analysis and interpretation of research data (Biggam, 2011). One major strength of quantitative research design is its capability to make predictions which are most often accurate (Cresswell, 2007; Saunders et al., 2009). But it has also been criticised for failing to explain fully, other manipulating or mitigating factors that may be important for understanding and appreciating a phenomenon properly (Cresswell, 2007).

Qualitative research design, on the other hand, involves explaining ‘things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them’ (Denzin and Lincoln, 1994: 2). In other words, Qualitative method of research involves the use of non-numerical data collection techniques like interviews and observation, together with other data analysis procedures such as data categorization and content analysis (Saunders et al., 2012). Arguing strongly against Qualitative research design, Eldabi et al. (2002) intimated that the process of collecting qualitative data and the analysis of qualitative data could be tedious and complicated; to this end, there is an extent to which qualitative data could be generalized outside the boundaries of the research. However, Qualitative research design helps a researcher to overcome the issue of insufficient or hidden data that mostly come up in a pure quantitative study. Qualitative research design therefore help a researcher to acquire the convoluted details about phenomena such as the feelings, thought processes, and even the emotions that are often challenging if not impossible to come by when one uses quantitative methods (Strauss and Corbin, 1998).

Saunders et al. (2012) and many other scholars in social science have intimated that using either quantitative or qualitative approach alone in a study, could be problematic

and narrow the scope of the study. Therefore, this study considers the mixed strategy research design or triangulation as most appropriate in this study.

4.2.1 Mixed Method Research Design: Combining Quantitative and Qualitative Designs

Horn (2009) has termed the combination of qualitative and quantitative research (Mixed strategy) as triangulation. The mixed strategy or triangulation involves the use of both quantitative and qualitative research designs in a research work and the combinations can be done either together (parallel) or sequentially (one after the other) (Saunders et al., 2012). In the words of Hussey and Hussey (2009: 85), mixed strategy or triangulation involves *“the use of multiple sources of data, different research methods and/or more than one researcher to investigate the same phenomenon in a study”*.

Saunders et al. (2012) hold that it is a means of doing away with the challenges associated with both qualitative and quantitative research designs. With mixed strategy research design, researchers base their claim to knowledge on the pragmatism philosophy, which allows researcher to choose any method(s) to achieve the goal of the study.

Bryman and Bell (2011) have also enunciated that a researcher when selecting the research design should consider factors like the level of generalization and the level of depth of analysis. Therefore the study adopts the “Mixed strategy” research design or triangulation where both qualitative and quantitative research strategies were used in the collection and assaying of research data. Associating with the position of Stoop and Berg (2003) that a study which adopts the ‘mixed strategy’ often has the potency of having a deeper insight into the benefits and pitfalls of the implementation process of an information system, this study found it more apt to employ the mixed strategy. Hence, in using the ‘mixed strategy’ or triangulation, this study collected data with the

aid of both close-ended questionnaires and semi-structured interview guide. Further when it gets to the data analysis stage, both qualitative and quantitative analyses were compared and analyzed together. The fundamental premise for choosing mixed strategy research design is that it allowed the study the chance to use both quantitative and qualitative approaches to understanding the research problems better than using either approaches alone.

4.4 RESEARCH STRATEGY

In a study, the research strategy tells the story of how the researcher intends to implement or carryout the study (Saunders et al., 2007). Thus, in order for a researcher to achieve the aims and objectives of his study, the research strategy ought to be known before proceeding with the research (Ibid). The major research strategies used when conducting studies in the social sciences are Experiments, Survey, Archival Research, Case Study, Ethnography, Action Research, Grounded Theory and Narrative Enquiry research strategies (Biggam, 2011; Cresswell, 2003; Saunder et al., 2007; Yin, 2003).

This study seeks to assess E-government in Ghana's public sector, and the best way to realize this aim is through the collection and analysis of relevant empirical data. Thus as an empirical focused study, this research was much concerned with having an in-depth understanding regarding public servants' perception, as well as what citizen-end-users think of E-government. This apparently makes this study a comparative analysis study of two categories of public sector institutions and citizen-end-users. The aim here is to determine whether or not these categories as a point of analysis, have noticeable similarities or differences regarding E-government and its implementation in Ghana's public sector. The comparative analysis nature of this study, therefore necessitates the selection of a research strategy that is best suited to facilitate an in-depth understanding

of E-government, its adoption, benefits, challenges and its continuity in Ghana's public sector. Owing to these and the study objectives which necessitate a thorough appreciation of the impact of E-government, the researcher chose a case study research strategy.

4.4.1 Case Study Research Strategy

A case study is 'a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence' (Robson, 2002:178). Defining case study, The U.S. General Accounting Office (1990: 14) declared that 'A case study is a method for learning about a complex instance, based on a comprehensive understanding of that instance obtained by extensive descriptions and analysis of that instance taken as a whole and in its context'. Creswell (2003: 15) also explained a case study to mean a research strategy *"in which the researcher explores in depth a program, an event, an activity, a process, or one or more individuals"*. Yin (2003) also contended that case study as a research strategy allows the researcher to gain holistic and meaningful characteristics of real-life events- such as, organizational and managerial processes, societal change and this according to him affords the researcher the opportunity to answer "how", "why" or "what" questions raised by his study. Again, Benbesat, Goldstein and Mead (1987) strongly supports that case study as a research strategy is most appropriate research strategy when the researcher endeavour to investigate a phenomenon that is not much studied and which is in the formative stage. The implementation of E-government in the public sector of Ghana is quite new thus case study research strategy helped this study to explore the phenomenon in its natural setting from private citizens, groups and organizations within the public sector of Ghana.

Single and Multiple Case Studies

A study adopting a case study research strategy, either adopts the single case or multiple case study research strategy (Saunders et al., 2012; Yin, 2003). Single case study restricts itself to the study of one particular case or an organization within a unit. For example focusing on only the Immigration Service or any other institution within the public sector. The multiple case study on the other hand involve the examination of more than one case or organization (Saunders et al., 2012). Thus in this study, adopting a multiple case study approach unlike the single case study allowed the researcher to focus on more than only one institution within the Ghanaian public sector.

Yin (2003) argues that multiple case study is more preferable to single case study because single case study requires a rather strong justification for the choice of that organization as a unique case. Yin (2003) stated further that a multiple case study strategy is often considered more compelling and offer substantial analytic benefits compared to a single case design. As this research is based on identifying the impacts of E-government in the Ghanaian public sector, the researcher decided to adopt a multiple case study strategy because the findings from the cases could be compared and contrasted to give more insight into the Ghanaian public sector. Ghana Immigration Service and the University of Ghana as public sector institutions are therefore the cases for this study. The study selected Ghana Immigration service, a public sector institution which is on the e-Ghana project and University of Ghana, another public sector institution which is making greater use of E-government and ICT application, although not yet on the e-Ghana project. This exercise would help to understand the similarities and differences of E-government implementation in an institution which is officially on Ghana's e-Ghana project and another institution which is not on the project.

4.5. STUDY POPULATION AND SAMPLING TECHNIQUE

4.5.1. Study Population

According to Sekaran (2000) and Creswell (2007) it is essential for any study to identify the right place and the right participants for the collection of the required empirical data. Accomplishing this aim requires the researcher to identify those organizations and individuals “who matter” and have the power and leverage to give meaning to the empirical data collected (Adjorlolo and Ellingsen, 2013). Therefore, Schein (1999; 2004) has laid emphasis on the importance of involving employees of an organisation throughout the research process, as employees are the very people to execute changes they have helped to create. To this end, and also since this study focuses on the Ghanaian public sector, the population of this study was the public sector workers in Ghana. The population of the study will however be restricted to the multiple case. Meaning, the population was public servants working in the Ghana Immigration Service and the University of Ghana that use or have encountered the use of E-government applications in one way or another. There is however the likelihood of public servants to give a good account of E-government projects implementation, in a bid to shield the government or the institutions they work for. Because of this and also in an attempt to fully appreciate the issues raised by the study, the end-users who actually receive public services from these two public agencies are also captured in the study.

4.5.2 Sampling and Sampling Technique

A sampling technique gives the researcher an option to the entire population, as sampling provides the researcher the tool to reduce the amount of data needed for a research by considering only the data from relevant subgroups (Saunders et al., 2012). To this extent and again because of the researcher’s inability to collect data from every

public servant or citizen-end-user in the case study population, a sample of 200 participants in total, was selected from The Ghana Immigration Service and The University of Ghana. The 200 participants thus included, 100 public servants from the two public sector institutions (50 each) and 100 citizen-end-users who benefit from their (public) services.

In identifying the sample for the study, this research adopted the Purposive (Non – Probability) sampling technique. Neuman (2005) maintained that purposive sampling technique offers the researcher the chance of choosing cases that have sufficient information to help achieve the aims and objectives of the research. Similarly Babbie, (2006) equates purposive sampling to the selection of samples that are more useful and tailored to a particular study. Accordingly, this research uses the purposive sampling technique to select public servants and citizen-end-users who possess and were capable of disclosing the needed information essential to achieving the objectives of the study. Adhering to research ethics, this study also adopts the convenient sampling technique to include participants who were available and willing to contribute to the research.

This study did not choose any probability sampling technique but rather (purposive sampling and convenient sampling which were) non-probability sampling techniques. This was because, probability sampling as conservatively known, permits or allows for equal opportunities to element in the population to be selected. And this could have inadvertently resulted in a situation where an inexperienced public servant or citizen-end-user (amidst experienced ones), who are unable to share any relevant or sufficient information on the use of E-government, taking part in the study. Again, the researcher could as a result of probability sampling technique select a public servant whose work was nowhere related the use of E-government applications. In other words, the public servants in Ghana have a differing experience when it comes to the use of E-

government applications in the public sector, therefore there was the need to select those who really had a bearing on the use of E-government applications. Thus this research deemed it highly imperative to identify those public servants and citizen-end-users who were capable to share their experiences as a result of directly using the E-government application so as to get an informed data to achieve the stated objectives.

4.6. SOURCES OF DATA

Primary data is a non-existing data that are collected by a researcher through questionnaires or interviews whereas Secondary data is an already existing data that can be analysed or made available to serve a particular purpose (Biggam, 2011; Saunders et al (2012). Sekaran (2000) also contends that Secondary data are the type of data that have been collected from already existing sources such as government publications, documents available on websites, books and articles in journals.

This study would make use of data from secondary sources such as government policy publications, books, articles in journals, relevant E-government and public sector documents, together with other internet sources. The decision to choose secondary data lies in the fact that Secondary data are less expensive to acquire; also the advancement of technology and internet search tools has improved accessibility of existing data which saves a lot of time. Again, secondary data facilitated comparison of this research's findings with other similar studies.

In spite of these, this study also recognises the challenges accompanying secondary data some of which are retrieval of data from unreliable sources, which could invariably affect the quality of research results; irrelevance of data because of its untimely or historical nature and jurisdictional or jurisprudential incompatibilities. In recognition of these challenges this research by way of overcoming them and also aid in interpreting

the qualitative nature of the secondary data sources, applied quantitative methods to obtain Primary data from respondents through the use of survey (close-ended) questionnaires.

In essence, this study made use of data from both primary and secondary sources. With the aid of survey questionnaires and interviews this study will elicit primary data from the Ghanaian public servant in relation to the aims of the study. Secondary data was also be collected through the use of books, journals, articles, government policy documents and other relevant E-government documents.

4.7 METHODS OF DATA COLLECTION

In line with the adopted mixed strategy research design, the multiple data collection strategy was also be adopted by this research in gathering the research data after receiving the necessary approval from participants and their respective institutions. Survey questionnaires and interviews were the specific data collection tools used by the study to generate information from the research field. The subsequent sub-headings provide a detailed description of the use of the various strategies in the collection of data in the field.

4.7.1 Close-ended Questionnaires or Survey

A close-ended questionnaire is “*a pre-formulated written set of questions to which respondents record their answers...within rather closely defined alternatives*” (Sekaran, 2000: 233). It is often used to collect data from a population that are likely to generate the same responses to the same set of questions (Hussey and Hussey, 1997; Saunders, Lewis and Thornhill, 2012). Close-ended questionnaires were distributed to public servants and users on their perceived impact of E-government applications. Two

different type of close-ended questionnaires were developed for both bureaucrats and users. All the two types of questionnaires were structured to reflect the objective of the study. Further, closed-ended questionnaires were used to allow participants ample time to give their responses and also give credence to quantitative research design as aforementioned. The researcher also saw close-ended questionnaires as the best economical means to collecting data from hundreds of participants through the aid of standardized questions. Again close-ended questionnaires were used because it is easy to understand, and has the possibility of achieving a higher return rate as it is also quicker to administer and easy to fill (Bryman and Bells, 2011).

Designing the Questionnaires

The close-ended questionnaires were designed in such a way that the questions was be clear and precise. This was aimed to generate clear and concise answers from participants so that propositions from the literature review could either be agreed or refuted. In ensuring that the questions were clear and precise, the researcher also linked the questions to the aims and objectives of the research. Thus the questions were calculated to reflect the themes presented in the literature review on E-government.

Pilot study and Pre-testing of Questions

The questionnaire was presented to the research supervisor and the Head of University of Ghana Computing System in their respective offices, by the researcher in person. The researcher obtained feedback on the questions in the questionnaires and suggestions from them went into modifying some specific questions. For examples questions on adoption (but not usability) was suggested by the head of University of Ghana Computing Systems (UGCS). The study supervisor also suggested a different kind of questionnaires to be designed for citizen-end-users to reflect the similarities or

differing opinions from the bureaucrats. Again, five people; including public servants and citizen-end-users, were randomly selected to respond to the survey questionnaires and their recommendations were effected into the final questionnaire.

Distributing the Questionnaires

The researcher contacted the two public organizations in person in order to gain access to their organisation or premises and their users. A comprehensive summary of the study was attached to a letter obtained from the Political Science department, and signed by the Head of department. This gave a general information on the study topic, and also a clue regarding the type of questions that will be asked and the persons sought after, to answer the questionnaires. When the organizations replied to the request, a date was slated for the distribution and collection. In all the researcher took three weeks to collect the data from both public servants and clients or users.

4.7.2 Interviews

An interview is an interaction between two or more individuals with the aim of obtaining some material information (Robson, 2002). Interviews may well be structured, semi-structured and unstructured (Saunders et al, 2012; Ibid). Structured interviews, involves the interviewer (researcher) designing a set of pre-defined questions, and restricting the answers, strictly within the precincts of those pre-defined questions. And with unstructured interviews, the interviewer does not necessarily develop any pre-defined questions, rather interviewees are made to answer questions regarding a wide range or area of interest. Also, with semi-structured interviews, the interviewer designs a set of pre-defined questions, but here, the interviewer (researcher) is at liberty to modify these set of questions as and when they suit the issues under discussion. As Saunders et al. (2012) put it, semi structured interviews are in the middle

of structured and unstructured interviews, which are mostly used for the in-depth case studies.

This study adopted the semi-structured method of interviews where the researcher had some set of pre-defined question but the interviewees were also allowed the freedom to provide answers to other range of issues which came up during the actual interview process. According to Kumar (1999), this is the best way to go when investigating multifaceted and sensitive areas, as the interviewer can repeat a question, ask a follow-up question (s) or even change the structure of the questions entirely.

The study conducted an interview with the Head of University of Ghana Computing System, who doubles as the Chief Information Technology Officer (CITO); and a senior representative from The Ghana Immigration Service, whose position and name was expressly mentioned (by him) to be withheld for obvious security reasons. The two interviews were conducted within a period of 3 weeks and this was subjected to changes to allow for adjustments and reschedule of interview appointment.

The Interview Guide

An interview guide contains a list of questions that the interviewer wants to explore during the actual interview process (Lofland and Lofland, 1984). For all the two interviews, semi-structured interview guide were used³⁵. To ensure consistency and uniformity, the interview guides were the same for the Head of UGCS, and the representative of the Ghana Immigration Service. The interview questions were made to be clear and precise so that they could illicit clear and concise answers. Not only were the interview questions clear and precise, they were actually designed to also directly reflect the aims and objectives of the research.

³⁵ The Appendix contains the interview guide

Storage and transcriptions of voice data

All the interviews were voice recorded with the aid of the researcher's Samsung Galaxy Note III phone and this was supplemented with capturing of some reactions in a sketchbook. With the transcription of the voice recorded data, the researcher had to play and re-play over the voice recordings. This facilitated the typing of the responses onto a Microsoft word document and later deleted to ensure respondents' privacy.

4.8 DATA PRESENTATION AND ANALYSIS

The primary data obtained from participants, with the aid of questionnaires, were processed by the application of the IBM Statistical Package for Social Sciences (SPSS). Thus in this study, the researcher used Statistical Package for Social Sciences (SPSS) as a tool for generating output for a meaningful analysis of data generated from the survey. For instance, the computation of participants' responses were displayed in the form of tables, and percentages in order to make statistical or quantitative meaning from the data. This was made possible with the aid of SPSS as it was also employed to provide statistical evidence to make the study empirically weighty. The SPSS generated data outputs, were then presented and interpreted together with the transcribed interviews. This together were placed within a "content analysis" of relevant available documents and literature reviewed. This is was Horn (2009) termed as triangulation of quantitative and qualitative data. Using triangulation (the combination of both quantitative and qualitative data analysis techniques) as data analysis technique in social science research helps the researcher to make inferences by objectively and systematically identifying specified characteristics of messages and responses (Ibid). This according to Horn (2009) enables the researcher to also include large amounts of textual information and systematically identify its other quantitative properties. The

data collection, analysis and the presentation of findings by this study were also situated within the theoretical framework of Actor-Network Theory and NPM.

4.9 THEMATIC CODING

According to Gibbs (2007), thematic coding entails the identification of passages of text, linked with an idea to allow a researcher place his studies into categories or sub-headings. Data collected by the study were presented and analysed using a thematic coding which reflected the objectives of the study and the literature review. This also afforded the study enough sequence and chronology.

4.10 VALIDITY AND RELIABILITY OF DATA COLLECTION

Validity guarantees that appropriate functioning measures are used for a study (Yin, 2003). Thus the validity test addresses the problem of what is supposed to be measured and it determines whether the measured data are relevant and precise, or the extent to which one can identify it with the final results (Zimund, 2000). Validity simply therefore measures whether the measuring instrument is accurate. This raises the question of whether the questions in the questionnaires and interview guides used in this study have been properly raised and whether it goes with the research objective. This was thus given expression by the proper association of the aims and objectives of the study to the themes in the literature review and the questions in questionnaire and the interview guide. Construct validity (Yin, 2003) was also given full credence and fulfilled by triangulation; using multiple sources of evidence of data and theory.

According to Bryman (2004:28) and Easterby-Smith et al. (2008:109), research reliability has to do with the possibility to repeat the result of a study. In improving the

reliability of this study, the primary data collected were verified by the comparison of all available secondary sources of data and striving effort was also made to reconcile diverging points of information. After the ‘squaring off’, data that were not possible to be reconciled was included in the study but was construed as only limited to this study because of the peculiar nature of public sectors in developing countries. A comparison of the Ghanaian experience generated from this study was made with experiences of comparable countries like Kenya, South Africa and Botswana, together with other studies from developed countries. Engaging in this comparison exercise helped the verification of the Ghanaian public sector as a reasonable case that is similar in nature to other countries as this also ensures research reliability.

4.11 ETHICAL CONSIDERATIONS

The participants of the study were adequately informed that participation in the study was voluntary and was only for an academic purpose. Those interested were made to give their indication to their acceptance to participate. No participant was coerced or lured to participate in the study. Participants were adequately informed about their ability to withdraw from the study as when they deem it necessary without any sanction or retribution. Deception was not used or entertained in gathering the data as respondents were made aware of the academic nature of the study. Confidentiality was also maintained as participants were assured of anonymity regarding what they say in the interview as well as their response to the questionnaires. Consent was duly sought from the institutions of study.

4.12 CHAPTER SUMMARY

The chapter has discussed the research philosophies (Interpretivism, Pragmatism) which underpins this study. The research design (mixed strategy) and the research strategy (case study) used in the study were also covered. These were sufficiently justified through critical evaluations. Additionally, other important areas such as the study population, sampling and sampling techniques, validity, reliability and data analysis were also discussed. In summary, this chapter concludes that the research methodology adopted by the researcher is sufficient to achieve the aim and objectives of the research.

CHAPTER FIVE

DATA PRESENTATION AND ANALYSIS

5.0 INTRODUCTION

The aim of this chapter is to present and analyse the primary data obtained from the field with the aid of the close-ended questionnaires and interviews. To aid in triangulating the study results, the presentation and analysis of the primary data were grouped into two sub-sections. The first section dealt with data collected using the quantitative approach (the questionnaires) and the other section was dedicated to primary data obtained through the qualitative approach (interviews conducted). The data gathered through the quantitative approach was further presented into two parts. The first part analysed the data obtained from public servants while the second part examined data obtained from citizen-end-users.

5.1 DATA OBTAINED FROM PUBLIC SERVANTS

The study sent out 100 questionnaires to public servants (50 for each case study), and out of these, 64 fully responded questionnaires were returned. This translates into an unappreciable 64% response rate as this also underscores the unwillingness of respondents particularly public servants to part-take in the study even where the researcher had given them ample time to respond. Nonetheless, an exhaustive analysis of the 64 questionnaires returned by the respondents were completed. The study was able to draw a broad range of public servants in terms of their position, length of service, education, gender, age and departments of work. Respondents were specifically made up of clerical staffs, accountants, administrators, lecturers and other public servants who are using E-government applications in one form or the other. This presents a balance in the respondents as this also affords the study a fair opinion of the

professionals' perception. The information collected is presented and analysed to reflect the following themes: the meaning of E-government and the level of awareness among public servants; E-government and Adoption; Benefits of E-government and challenges of E-government; and the measure to ensure long-term sustainability of E-government projects.

5.1.1 Definition of E-Government and the Level of Awareness

A majority of 31.7% defined E-government as just the use of ICTs in the delivery of public service, with 27% saying E-government involves transforming the public sector institutions through ICT and internet enabled operations. Nineteen percent also indicated E-government to simply mean the pursuit of a paperless public service while the remaining 22.2% took E-government to mean improving the delivery of services to the public and improving the administrative processes of government with the aid of ICT applications. Thus a mammoth 98% of respondents indicated their understanding of E-government. These figure show an appreciable understanding of E-government amongst public servants.

Respondents were then asked if they were aware of government's plan and commitments to increase the use of ICTs in their respective organisations. A whopping majority representing 85.9% indicated in the affirmative that they were aware of government's commitment to increase the usage of E-government application in their institution and public sector of Ghana as a whole. This knowledge and awareness, according to respondents were as a results of various official and unofficial public announcements including other internally circulated memos. But 12.5% of the respondents were, however, unbeknownst to this although they were working within the public sector. Table 1 below further throws light on the data obtained.

Table 1: Public Servants' awareness of governments' efforts and commitment to enhance the use of E-government applications in public organisations

Respondents responses	Number of Respondents (Percentile of respondents)
Yes	55 (85.9%)
No	8(12.5%)
Neutral	1(1.6%)

5.1.2 Public Servants' usability and adoption of E-government

Respondents were also asked whether or not they think there is the need to even use ICT applications (E-government) in public institutions to improve their work practices. Again, an overwhelming majority of respondents (95.2%) said it was very much necessary to use E-government solutions to improve their operations (See Table 2 below).

Table 2: Public servants' perception on the need to use ICT applications (E-government) in public institutions to improve their operations

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	59	92.2	95.2	95.2
Valid no	3	4.7	4.8	100.0
Total	62	96.9	100.0	
Missing System	2	3.1		
Total	64	100.0		

Respondents were further asked to state whether or not E-government (ICT) applications used in their agency were user-friendly. The respondents indicated that the E-government applications currently in use in the organisations were adequately user-responsive. This affirmative response came from a majority of 83.1% of respondents, but some 15%, however, indicated otherwise (See Table 3 below). According to respondents, owing to the user-friendliness of these ICTs in their organisations, they are better able to operate them without any encumbrance.

Table 3: Public servants' perception on the user-friendliness of ICT applications currently in use in their public organisations

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
yes	49	76.6	83.1	83.1
no	9	14.1	15.3	98.3
4	1	1.6	1.7	100.0
Total	59	92.2	100.0	
Missing				
System	5	7.8		
Total	64	100.0		

The study observed that the user-friendliness of these ICT applications in public sector organisations has largely increased the rate of adoption among public servants. However insufficient information regarding the use of these ICT application to a large extent inhibit the degree of adoption. In addition, the rate of adoption is also negatively affected by public servants' unwillingness to shift from the old ways of doing things (paper based system) for the fear of the unknown. Poor network and server malfunctioning also negatively affects how some public servants adopt to E-government applications in their work. But majority of the respondents indicated that they would be more encouraged to adopt E-government applications in their work practices when the usefulness or perceived usefulness of these ICT applications are better explained to them.

5.1.3 BENEFITS OF E-GOVERNMENTS

Prominence was given to the benefits the implementation of E-government has on public service delivery and this partly clarifies why this study also found it imperative to solicit from respondents, their perceptions on the associated benefits of E-government. Before that however, respondent were asked to rate the overall public service delivery of their agency. Exactly, 29% of the respondents suggested that the overall public service delivery of their agency were either poor or very poor. But a majority (69.4%) of the respondents believed that the public service provision of their agency were either good or very good.

Even though majority of participants gave a positive response to the overall service delivery of their organisation, data collected shows that almost half of the respondents still believe that to a very large extent, E-government is facilitating the transformation of their public institution, in terms of how they operate and deliver public services to the general Ghanaian public. Thirty-three percent indicated that to some extent, E-government would transform their agency. Altogether, about 83% of the respondents actually believed that the introduction of E-government in public sector institutions in Ghana, would transform the way public sector agencies deliver their mandate of providing public goods and services. Only 15% indicated that E-government would not transform the public sector or even if it would, the extent of transformation would be very minimal. With this, the study was further interested in knowing the kind of transformation (or perceived transformation) which E-government has brought to their public sector institution:

Increased Efficiency in the delivery of public services

In total, a majority of the respondents (83.9%) indicated some agreement that there has been an increased efficiency in the delivery of public services in their organisation because procedures and processes were now streamlined to reduce the layers of bureaucracy. About fifty-two percent (51.6%) of the participants said they 'strongly agree' with the assertion that there has been improvement in the efficiency of their respective institutions following the implementation of E-government with 32.3% only 'agreeing' to same. 4.8% remained neutral while only 3.2% strongly disagreed and 6.5% disagreeing. Once again, assuming all those who remained neutral would have somehow disagreed, 83.9% would still be overwhelming enough to conclude that increased efficiency in public service delivery is a benefit of E-government implementation at least in the two cases under consideration.

Reduced Waiting time

Associated with the 'increased efficiency' benefit above was the issue of whether as a result of the introduction of E-government, the time customers spend before they are served a particular public good or service has reduced. The responses gathered from the respondents revealed a greater degree of agreement. A majority of 41.7% 'strongly' indicated their agreement while 38.3% only 'agreed'. This translates into 80% of the total respondents providing affirmative answers as opposed to only 11.7% negative. This evidence shows that public servants believe customers are not only receiving the best of services from the E-government platform but they are very appreciative at such, regarding the time they had to wait to get a particular service.

Low transaction and administrative cost

The study also investigated whether the implementation of E-government in public agencies has brought about reduction in transaction and other administrative cost associated with the delivery of public service. Majority of the respondents (80.6%) either agreed or strongly agreed that government is saving a lot of money by way of reduced transaction and other administrative costs because of the introduction of E-government applications. However about 13% of the respondents disagreed with this position (See Table 4 below). As a result of the introduction of E-government, respondents revealed that the cost involved in procuring stationaries and other administrative materials have since reduced. For example paper files and other materials used in keeping and storing paper-based information have now been taken-up by ICT applications.

E-government has made public sector institution accountable and transparent

Respondents were further asked whether the implementation of E-government has made or could lead to their institution becoming more accountable and transparent. Majority of the respondents representing 43.5% strongly agreed while 30.6% agreed. Hence in total a little over 74%, representing more than half of the respondents actually did affirm that E-government could make public sector institutions more accountable and transparent to the general public. 8.1% remained neutral with another 8.1% and 9.7% going for 'strongly disagree' and 'disagree' respectively. This data as shown in Table 4 below, undeniably validates the support for the claim that accountability and transparency is a benefit associated with the implementation of E-government platforms. The indicators of this claim is reflected in the uploading of financial statement online and other online portals which enables questions and answers regarding the provision of a particular service.

Reduced corruption

An overwhelming majority of the respondents (83.9%) agreed that corruption and other activities like nepotism, kickbacks, greasing the palm, the influence of ‘middle men’ and other corrupt activities are largely reduced in public agencies because of the use of E-government applications. The evidence indicates that 48.4% of the total respondents strongly agreed to this position, with 35.5% only agreeing. A little over 11% of the participants were either neutral or totally disagreed with the assertion. The responses indicate that, corruption and other corrupt activities have been largely controlled by E-government solutions.

Reduction of Government expenditure and payroll

E-government as highlighted from the literature has the capacity to reduce government expenditure by detecting fraud and other improprieties associated with government wage bill and other budgetary allocations. Again scholars have alluded to the fact that E-government leads to reduction of government expenditure because tasks that are performed by two or more persons would now be completed by a simple ‘click of a mouse’. In this regard and with this background, respondents were asked to share their perception on whether or not E-government could aid in the reduction of government expenditure particularly in the face of the ever increasing public wage bill. Forty-one percent (41%) strongly agreed with the claim while 34.4% only indicated their bare agreement. This brings the total figure to 75.4% of the respondents, illustrating their agreement. However, approximately 24% of respondents disassociated themselves from this opinion by indicating their disagreements or either remaining neutral (See the Table below).

Better relations with the public and other agencies

The series of E-government benefits questions ended with finding out from the respondents if E-government has or could help their institution to build better relations with the public and other public agencies. Almost forty-seven percent (46.8%) of the participants indicated their strong agreement, with an accompanying 40.3% also agreeing. Accordingly, 87.1% of the total respondents shared the view that E-government solutions provide the platform that facilitate interaction between their institutions and clients, together with other public agencies. Three percent (3.2%) were neutral and 4.8% respondents selected 'strongly disagree' and 'disagree' respectively.

Table 4: Benefits of E-government

Answer/Choice	Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree	N/A	Total
Increased Efficiency	51.6% 32	32.3% 20	4.8% 3	3.2% 2	6.5% 4	1.6% 1	62
Reduced waiting time	41.7% 25	38.3% 23	5% 3	6.7% 4	8.3% 5		60
Low transaction/ clerical cost	45.2% 28	35.5% 22	6.5% 4	4.8% 3	8.1% 5		62
Accountable and Transparent	43.5% 28	30.6% 19	8.1% 5	8.1% 5	9.7% 6		62
Reduce corruption	48.4% 30	35.5% 22	4.8% 3	6.5% 4	4.8% 3		62
Reduce Government expenditure/ payroll	41% 25	34.4% 21	8.2% 5	4.9% 3	11.5% 7		61
Better relation with the public/agencies	46.8% 29	40.3% 25	3.2% 2	4.8% 3	4.8% 3		62

5.14 CHALLENGES OF E-GOVERNMENT IMPLEMENTATION

Regular interruption of power supply

Participants overwhelmingly agreed to the point that irregular supply of electricity is a major challenge that inhibits the thriving of E-government projects. Ninety-seven percent of the respondents (96.8%) affirmed that the energy crisis is actually having a negative toll on the implementation of E-government. Although 3.2% remained indifferent, the negative impact of the energy crisis was more confirmed when none of the responses gathered indicated a disagreement.

Lack of Infrastructure

Again, many were the respondents who strongly agreed that the lack of various infrastructure particularly inadequate computers together with poor internet connectivity is a major challenge to the implementation of E-government projects in their (public) institution. This was indicated by 67.7% and 27.4% of respondents 'strongly agreeing' and 'agreeing' respectively. Therefore, in total, 95.2% affirmed that the nonexistence of infrastructure is a major bane regarding the operationalization of E-government projects in their organisations. But a little over 4% disagreed or were neutral.

E-government is expensive to fund and maintain

As many as 95.2% of the respondents opined that their organisations are challenged by the cost involved in maintaining and operating E-government applications. Cost associated with electricity, cost of data (bandwidth), and the cost of repairing ICT equipment were identified as factors that make it expensive to run E-government projects in public sector institutions in Ghana. This view was, however, challenged by only 4.8% of the respondents who intimated that government thus public institutions

have the capacity to absorb all the cost that comes with the running and the maintenance of E-government projects.

Cyber-attacks and other threats as a challenge of E-government

Lastly, respondents were able to provide answers to the question as to whether cyber-attacks and other security threats could be a challenge to E-government implementation. Eighty-seven percent (87.1%) majority agreed to the assertion (61.3% strongly agreeing) with only about 4.8% strongly disagreeing.

Table 5: Challenges of E-government implementation

Choice	Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree	N/A	Total
Irregular power supply	77.4% 48	19.4% 12	3.2% 2	0	0		
Lack of infrastructure	67.7% 42	27.4% 17	3.2% 2	0	1.6% 1		62
Cost	67.7% 42	27.4% 17	1.6% 1	0	3.2% 2		62
Cyber-attacks/security threats	61.3% 38	25.8% 16	8.1% 5	4.8% 3	0	2	62

5.2 DATA OBTAINED FROM CITIZEN-END-USERS

Like the public servants, the study distributed 100 questionnaires among citizen-end-users, however, unlike the public servants, 93 fully responded questionnaires were returned to the author, which translates into a significant 93% return rate. The respondents here were also drawn from a wide range of users in terms of their age, gender, and education. Respondents were specifically made up of students of University of Ghana, (because they are the primary consumers of the public service provided by the University of Ghana) and various clients who patronize the public services, provided by the Ghana Immigration Service. This strategy of involving the users was aimed at having a balance in the respondents drawn for the study as this would also give the study a fair opinion of the users' perspectives as opposed to the public bureaucrats'.

To also ensure consistency, data obtained from end-users is presented and analysed to reflect the themes of the study.

5.2.1 Definition of E-Government and the Level of Awareness

The study started by asking end-users whether they think there is the need to even use ICT applications (E-government) in public institutions to improve their operations. Ninety-seven (96.7%) of them indicated to the affirmative with only 3.3% saying 'no'. Like public servants, there was greater recognition on the part of end-users for the need to implement E-government in Ghana's public sector as they believed it would translate into better provision of public services.

Table 6: Users' perception on the need to use ICT applications in public institutions to improve their operations

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	89	95.7	96.7	96.7
Valid No	3	3.2	3.3	100.0
Total	92	98.9	100.0	
Missing System	1	1.1		
Total	93	100.0		

The study then solicited from respondents if they have ever heard of E-government or Government of Ghana's commitment to increase the use of ICT in public sector institutions. Seventy-one percent (71.3%) of respondent intimated that they have heard of E-government and increasing government's commitment with E-government in the public sector. But 27.6% of them said they have never heard of E-government nor were aware of government's commitment to increase the use of ICTs in public institutions. Although majority of users indicated that they have heard of E-government, 27.6% is a significant figure to be easily ignored. This evidence stands to reason therefore that majority of public servants because of either their experience, knowledge, profession or institutional knowledge were much more in the known or aware of E-government than end-users.

Table 7: Users' awareness of E-government or Government of Ghana's commitment to increase the use of ICT in public sector institutions

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
Yes	62	66.7	71.3	71.3
No	24	25.8	27.6	98.9
3	1	1.1	1.1	100.0
Total	87	93.5	100.0	
Missing				
System	6	6.5		
Total	93	100.0		

5.2.2 E-GOVERNMENT AND ITS ADOPTION AMONG USERS

Participants (Users) were made to indicate if they had ever accessed web site(s) or used it to obtain any information or service. Eighty-one percent (81.5%) of the respondents said they have used a particular web site of a government institute to either obtain an information or a public service. About 18.5% of the respondents however had not used any government website before because of their lack of knowledge relating to their existence; their inability to access it because of their poor computer knowledge; and the sheer lack of means of accessing these government website. From the testimony of respondents who indicated ever using a website of a public institution, they intimated that they used (or continuously use or access) those government websites because it was the only available avenue to obtain that particular information or service. Again, the belief of users that a particular government or public institution's website contains quality information - thus it is the best means of obtaining the information they were

looking for, was also ascribed by respondents as a reason why they use or continuously use or access government websites.

Table 8: Whether or not users have ever used a website of a public institution to obtain an information or a service before

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	75	80.6	81.5	81.5
	No	17	18.3	18.5	100.0
	Total	92	98.9	100.0	
Missing	System	1	1.1		
Total		93	100.0		

Out of those who indicated their use of a particular government institution website, a majority (50.6%) said those web-sites were not user friendly. From their experiences those websites were not user-friendly because they host too many prompts and links which sometimes makes it impossible for them to know ‘where to find what’. It was gathered also from the users that the non-user-friendliness of these web-pages stem from poor designing systems which makes the websites merely unattractive. This aversion was not overwhelming as 48.1% also indicated that the web sites were friendlier or ‘more friendly’ to use. It is very difficult to make any meaningful conclusion from this split data of users regarding how user-friendly government web-sites are particularly with a 1.3% respondents remaining neutral, which could have gone any way (see Table 9 below).

The study also sought to find out what account for this non-user-friendliness of these government websites. In total, 68.8% (26.0%strongly agreeing, with 42.8% agreeing) agreed that failure of developers to use end-user factor design principles is largely the reason for the non-user-friendliness of these government websites. Accordingly, users were unable to locate a particular place to select in order to access a particular public information or make a demand for a public service via online. However, 28.6% of the respondents remained neutral to this claim with 1.3% disagreeing

Table 9: Do you think websites of public sector institution are user friendly?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
Yes	37	39.8	48.1	48.1
No	39	41.9	50.6	98.7
Neutral	1	1.1	1.3	100.0
Total	77	82.8	100.0	
Missing				
System	16	17.2		
Total	93	100.0		

It was also gathered from the respondents that information hosted by websites of public institutions were not sufficient in addressing their concerns. Sixty two (62%) of majority respondents actually debunked the assertion that information hosted by government websites are sufficient to addressing their concerns. However, 38% of participants confirmed that materials obtained from web sites of public institutions actually help them to address a particular problem or provide them a particular useful

information. Here again the majority view was not that overwhelming to say the materials host by these websites were not good enough. For instance, if 4 out of every 10 respondents say the material of government websites were sufficient, it could not be ignored even casually.

Table 10: Are the materials hosted by government websites adequately sufficient to address your concerns or provide you with information?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	30	32.3	38.0	38.0
Valid No	49	52.7	62.0	100.0
Total	79	84.9	100.0	
Missing System	14	15.1		
Total	93	100.0		

The study went further to probe from participants how the insufficient information really affects their use and adoption of E-government application. And as depicted by Table 11 below, 86.6% said the insufficiency of materials on government websites greatly drive them away from continuously accessing these website. Among these, 56.1% actually agreed strongly and this indicated the unflinching point that insufficiency of materials on websites of public institutions actually affects its use and adoption by citizen-end-users. This can be contrasted with the views of 8.5% of participants who said regardless of the insufficiency of information; they will continue to use government websites, because of its inherent good.

Table 11: Does insufficient materials on government websites negatively affect your continuous use?

	Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	Strongly Agree	46	49.5	56.1	56.1
	Agree	25	26.9	30.5	86.6
	Neutral	4	4.3	4.9	91.5
	Strongly Disagree	6	6.5	7.3	98.8
	Disagree	1	1.1	1.2	100.0
	Total	82	88.2	100.0	
	Missing System	11	11.8		
Total	93	100.0			

In spite of these, users intimated that if they are made aware of the perceived benefits and the ease of use of these government web pages, they would be more encouraged to adopt and use E-government applications. This was reflected in the views of some 94.9% respondents.

5.2.3 BENEFITS OF E-GOVERNMENT

Before the study proceeded to gather the views of end-users regarding the benefits of E-government, the study asked users to as well rate the general public service delivery in Ghana. And this was to better appreciate the degree of transformation or benefits E-government brings to the public sector. Many were the respondents who suggested that

generally, the Ghanaian public service delivery is very poor. Specifically, about 80% of the participants either said public service delivery in Ghana is 'very poor' (37.2%) or 'poor' (40.7). Nonetheless some 20% (18% saying good and only 2.3% saying very good) of the respondents had a very good thing to say about public service delivery in Ghana. These findings mean that while public servants were of the view that their delivery of public services were good, end-users were however less enthralled with their service delivery.

Although the perception of respondents about the overall public service delivery in Ghana was that bad, they were optimistic that the introduction of E-government could to some extent (or even to a larger extent), enhance the performance of public organisations to fulfil their mandate to the citizenry. Seventy-five percent (75.3%) shared this opinion (with 41.6% pointing to 'some extent' and 33.7% selecting 'large extent'). Contrary, 2.2% of the respondents were less optimistic of the impact E-government can have on service delivery by public agencies, with the remaining 3.2% remaining indifferent. These findings clearly indicate that both public servants and end-users are optimistic and remain positive with the knock of E-government applications to transform public service delivery in Ghana.

Though bureaucrats and end-users seem to be in agreement with respect to the overall effect of E-government in the public sector, they differed to some degree, on the kind of transformation E-government brings.

Increased Efficiency in the delivery of public services

Fifty-six percent (56.2%) of the respondents agreed that the implementation of E-government has made public institutions more efficient because procedures and processes are now modernized and trimmed to eradicate the layers of bureaucratic

public administrative systems. An equal percentage of respondents (11.2% each disagreed or strongly disagreed) translating into a total of 22.4% were however in disagreement that E-government solutions has resulted in greater efficiency and this was accompanied by 21.3% of participant remaining neutral. Although majority of users were of the view that E-government has resulted in greater efficiency in the performance of public organisations, the figures for those disagreeing and those remaining neutral, cumulatively, cannot be overlooked. This therefore makes it difficult to conclude with any certainty. This evidence, thus, can be contrasted with that of public servants' (see Table 7 above) who overwhelmingly indicated their agreement that E-government has ensured greater efficiency in their operations.

Waiting time has reduced

A majority of 25.8% of the participants 'agreed' that waiting time has been cut back or reduced following the introduction of E-government in public institutions. This was followed by 24.7% of the respondents 'strongly' agreeing. Also, 19.1% and 16.9% of the respondents, 'strongly disagreed' and 'disagreed' respectively. Again, a sizable number of respondents (13.5%) remained neutral. Thus in total, 50.6% of the respondents acknowledged that waiting time has reduced as compared to the past where public services were delivered manually. Although many end-users agreed to the point that waiting time has reduced, 36% of the respondents who disagreed to the assertion cannot be swept under the carpet, particularly with some 13.5% remaining nonaligned. These two figures combined would give a little over 49% of the respondent who either disagreed or were indifferent. This finding again tells a different story from that of public servants who again enormously endorsed the claim that waiting time has reduced because of E-government implementation. So whiles both public servants and users

agree that waiting time has reduced upon the introduction of E-government solutions, majority of public servants believed this to be the situation more than the majority users.

Accountability and Transparency

From the data gathered many end-users (56.7%) agreed that the introduction of ICTs into the Ghanaian public sector has made public institutions more open, accountable and transparent. However, this positive response was debunked by 31.1% of the respondents. And out of the 31.1%, who debunked the assertion, more than 16% strongly disagreed and said introducing E-government decisions do not necessarily make public servants accountable and transparent. This evidence again does not match the majority view of public servants that ICTs have made their institutions more open and accessible to all.

Reduction in corruption and other corrupt activities

One interesting curiosity of the study was to solicit the views of end-users regarding how E-government has reduced corruption or the perception of it particularly in this part of the world, where public servants are conventionally seen to be corrupt. Precisely, one out of every two respondents (50%) agreed to the claim that the public servant's notoriety for being corrupt has improved greatly through the application of ICTs in their operations. Hence, many users now see public servants to be less corrupt or less engaged in corrupt activities as a result of the use of ICT solutions which is now believed to have sealed and blocked many potential avenues for corruption. Nonetheless, a significant figure of 35.5% of users disagreed with the claim with 14.0% of respondents choosing to sit on the fence. This translated into almost 49% of the respondents either disagreeing or remaining indifferent. This indication thus results in a split of views on the part of users which then makes it impossible to draw any

confident conclusion. But what can be stated with certainty is the fact that about 83% of public servant believe that corruption and other corrupt activities have reduced following the introduction of E-government applications.

Reduction of Government Payroll Expenditure

Approximately, three out of every five respondents indicated to the study that government expenditure particularly with payroll has largely reduced (or could be reduced) owing to the implementation of E-government solutions. But 28.9% were however in disaccord with the contention, with 11% remaining neutral.

Better relations with the public

About, 61% (three out of every five) respondents agreed with the claim that E-government has helped public institutions to build better relations with the public. 23.7% of the 61% were those respondents who agreed strongly. This implies that majority of users believe E-government solutions have enabled them have easier access to public organisations with their complaints and thus the feedbacks to these complains. Nonetheless, 23.4% respondents disagreed to the claim, and about 15% respondents were indifferent.

Table 12: Benefits of E-government

Answer/Choice	Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree	N/A	Total
Increased Efficiency	20.4% 19	33.3% 31	20.4% 19	10.8% 10	10.8% 10	4.3% 4	93
Reduced waiting time	23.7% 22	24.7% 23	12.9% 12	18.3% 17	16.1% 15	4.3% 4	93
Accountability and Transparent	25.8% 24	29.0% 27	11.8% 11	16.1% 15	14.0% 13	3.2% 3	93
Reduced corruption	23.7% 22	24.7% 23	14.0% 13	20.4% 19	14.0% 13	3.2% 3	93
Reduced Government expenditure/ Payroll	23.7% 22	34.4% 32	10.8% 10	10.8% 10	17.2% 16	3.2% 3	93
Better relation with the public	23.7% 22	35.5% 33	15.1% 14	7.5% 7	15.1% 14	3.2% 3	93

5.2.4 CHALLENGES OF E-GOVERNMENT IMPLEMENTATION

End-users' perception of factors that constrain the implementation of E-government solutions in Ghana's public sector was also sought. And unlike the benefits where end-users' perception seem to vary, in respect of the challenges of E-government, users were largely in accord with public servants on the factors that hinder the flourishing of E-government project.

Regular interruption of power supply

In all, 87.1 % of respondents (a little over four out of every five respondents) expressed an agreement to the point that erratic supply of electricity is a greater challenge to E-government implementation. The survey found little over 69% agreeing more 'strongly' with only about 7% of respondents remaining undecided.

Lack of Infrastructure

About 70% (69.9%) of the respondents showed their strong agreement with the point that lack of infrastructure is one of the challenges that E-government projects encounter in the Ghanaian public sector. Further, the survey result had only 2.27% of the participants strongly agreeing and 7.5% being neutral.

E-government is expensive to fund and maintain

Users shared their view with the study that issues relating to the cost involved in running and maintaining E-government projects, is a greater challenge that affronts the implementation of ICT projects in the public sector. Thirty-five percent of the respondents agreed and 50.5% strongly agreed. This study finding points to the fact that overwhelming majority of users like public servants; perceive the cost of operating E-government project as a challenge of its implementation.

Cyber-attacks and other threats as a challenge of E-government

Lastly, end-users were asked to indicate whether or not they perceive cyber-attacks and other security threats as one of the factors that could hinder E-government implementation. Eighty-six percent (45.2% agreeing strongly; and 40.9% only agreeing) of respondents representing an overwhelming majority of the total respondents affirming the claim as a challenge with only about 4% disagreeing.

Table 13: Challenges of E-government implementation

Answer/Choice	Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree	N/A	Total
Irregular power supply	69.9% 65	17.2% 16	7.5% 7	2.2% 2	0	3.2% 3	93
Lack of infrastructure	58.1% 54	29.0% 27	3.2% 3	4.3% 4	2.2% 2	3.2% 3	93
Cost	50.5% 47	35.5% 33	7.5% 7	3.2% 3	3.2% 3	0	93
Cyber-attacks/ security threats	45.2% 42	40.9% 38	7.5% 7	2.2% 2	1.1% 1	3.2% 3	93

5.3 INTERVIEWS

In all, a total of fifteen (15) questions were asked during the interview and out of these ten (10) were major questions and five (5) were supplementary questions. In this study, one representative from the two case study organisations was interviewed in order to better appreciate the operations of E-government solutions in their organisation. The organisations for the case study (thus their representative interviewees) were chosen because they are amongst a few public sector organisations in Ghana that are currently engaged in the massive use of the E-government applications. The Ghana Immigration Service is one of the few public institutions selected for the special e-Ghana project by the Government of Ghana. University of Ghana is also another public sector institution which is making extensive use of E-government application although it is not yet on the e-Ghana project. This would therefore give the study an insight into a public institution which is on the e-Ghana project and another which is not yet on the e-Ghana project but is already making use of E-government applications. Again, the interviewees were selected because of their accessibility and willingness to contribute to the study. However, the study made sure that their willingness to assist in the research did not have a negative bearing on the answers provided. The study also selected only two interviewees in order to avoid preponderance of data, particularly so when 100 public servants have been engaged already with respect to the distribution of the questionnaires.

Overview of Interviewees

The study chose the interviewees to provide qualitative expressions to the quantitative data gathered from public servants. The two case study institutions were made to elect a representative each to be interviewed in this research. These public organisations are coded I and II where Organisation I represent the Ghana Immigration Service, and

Organisation II the University of Ghana. In order to give meaning to ethical considerations and ensuring anonymity as well as to also facilitate easy reading, the interviewees were also coded Interviewee I and Interviewee II; where Interviewee I represents Organisation I, and Interviewee II representing, Organisation II.

Interviewee I has worked with Organisation I for over 10 years as a senior office. His locus as a senior officer in charge of operations has led to his involvement in most of the decision of his organization of which the use of E-government is only a fraction. Interviewee II has also had over 15 years' experience in the Telecommunication sector of Ghana and is currently the Head of the Computing section at Organisation II. His position as the head of UGCS (University of Ghana Computing Systems) has resulted in him partaking in most of the ICT decisions at the University and also has vast experience which goes beyond just the Organisation he works in.

The similarity of these two interviewees is that they are all senior public servants hence their involvement in public decision making. They also have vast experiences when it comes to the dealings of the public sector and how the sector is being repositioned to embrace the concept of E-government.

5.3.1 The Initial Preparations Made Before E-Government Implementation

To achieve *Objective 1* of the study, an in-depth understanding of the initial preparation from the view point of senior public servants was deemed as very appropriate. This is because ordinary staff would not be well placed to give adequate information in this regards. For example Interviewee II as the head of ICT unit of a public sector institution is more placed to highlight the real preparations that were made before the project was rolled-out. The study observed from interviewees that some preparations were made in all the two public sector institutions but they were not adequate enough. According to Interviewee II, his organisation, Organisation II was: “to a very large extent, prepared

by way of infrastructure and manpower prior to the introduction of E-government. University for example acquired new computer systems, not just here at the UGCS but also other computers in other faculties were changed and some were added to the existing ones that were already in use. If you go to Balme Library right now there are new computers and other ICT applications in use.... The University also brought in new computers for the administrative section of the university. In Ghana, most public institution buy computers and other ICT equipment without the real need for them. There is no careful evaluation of the specific requirement of that institution. So because it is ICT we go and buy anything and later would realise that those 'things' cannot be used. In order to avoid this situation, a whole research was conducted to assess the computing needs of the university and what system or ICT equipment needs to be brought in and which ones ought to be discarded. The university acquired new generators so that the systems would still be up and running even when the power goes off". The unit that I head being the major unit of implementation was also refined even by name from University of Ghana ICT centre to University of Ghana Computing System. So young man, largely I would say YES the university was well prepared".

Interviewee I when asked the same question regarding the initial preparation made by his organisation, intimated that *"there were some initial preparation by the government...but you see, some of those things they promised to our officers were never coming so we had to use our own internally generated funds to get some equipment...if you go to some of our offices there are still some computers that are not functioning because they are completely broken down and those that are functioning, they are faulty and there are no money to even repair them. Go to some of our departments and there is no internet access for over decades now...But if you go to the passport section and those at the Kotoka International airport, I would say there are some better equipment*

over there. So if I am to answer your question I would say the initial preparation was not adequate for us in general as an institution earmarked for the e-Ghana project”.

The study also wanted to find out if as part of the initial preparation, other public servants were involved in the preparation process and were also trained adequately to embrace the system properly. Interviewee I responded that *“Oh on the training, hmmm I would say some training was given but we largely look at your computer experiences before we employ you to operate the system...but I would say on the part of junior officers and those of us already in-service, our involvement regarding training was very low”* Interviewee II on the other hand said adequate training was given to public servants and continuously, public servant in the university are made to attend programs where they are given more training.

5.3.2 The meaning of e-government and the level of awareness

On this objective, the study raised two major questions. The first question was asked to solicit the meaning of E-government as understood from public servants' point of view. This question was raised to establish whether the understanding of E-government from literature represents what public servants take it to mean. The second question was to find out if public servants in Organization I and Organization II were even aware of the implementation of E-government.

To satisfy the first question, Interviewee I responded by defining E-government as *“the use of ICTs in public service to deliver quality public service to the public”*. Interviewee II on the other hand defined it as *“the use of ICTs and other technological application to transform government businesses in the public sector so as to ensure competition, efficiency and productivity...The use of ICTs to do the business of government is diverse and if you narrow it down to this university as a public sector institution, it has a mandate to ensure teaching, learning and research and other*

administrative obligations. So if ICT is being used to facilitate all of these, then I would say that is E-government”.

In providing answers to the second question, Interviewee I and II clearly stated that public servants in their respective public agencies were not only aware of E-government but they are aware that the government of Ghana has renewed its commitment to increase the use of ICT in public service delivery. This awareness is as result of internal memos, public announcement and the general increase in the use of ICTs (Interviewee II).

5.3.3 E-government adoption and users’ satisfaction

ICTs by themselves do not propel transformation unless they are properly commanded by human beings. This view from the Actor Network Theory informed the study to find out how E-government is being used by public servants and whether they were satisfied with the use of the system. The study found out that the issue relating to the actual usage of E-government does not lie in the mouth of public servants. If government develops a policy, public servants are to comply or *“that would mean going contrary to government policies and directives and you could lose your job as a result of non-compliance”* Therefore usability is obligatory in units or departments where it is *government’s policy for it to be used”*(Interviewee II). Interviewee I on the other hand intimated that the use of ICT in Organisation I *“has admittedly increased from the time (he) joined the service over some ten years ago but now as you can see for yourself it is you the young men and women who are now using ICTs more and we the old ones are still comfortable with our paper works....* Thus from the study, it was found out that the use of ICT in the public sector is joined or implied in a public servant’s contract of service, and this makes it compulsory for public servants to use the system where there is a clear government directive for its usage. On the question of adoption and user

satisfaction, Interviewee I said public servants in Organisation I who use E-government in their work seem to have adopted very well with E-government application and are very satisfied by way of adopting it to their work practices because of the ease of use and the speed with which it makes them finish their work. According to him; *“I remember when I was at the airport, there was this lady who came to me and said Sir, please my computer is not working and I cannot do the entries manually....this is an indication that this person is satisfied with the E-government and is not willing to go back”*. Interviewee II also noted that public servants: *“particularly lectures are very happy with the system. At first exams result were sent up there before the entry can be made manually, to reflect on the student’s academic records. Now lecturers meet me and they all indicate their satisfaction with the whole networking and the use of E government on campus. Some lectures even ask me when they can access the service in their homes...and not only lecturers alone, the administrative staff are also very satisfied and have adopted very well with the use of E-government because there is less manual work to be done....”*

However interviewee II expressed that *“in certain situations (I must admit) the adoption or acceptance is not as to be expected. There are some lectures who still don’t want to have anything to do with the E-government. They don’t even know their staff email address let alone open it to access a circular... they simply prefer their old ways and there is nothing much you can do”*.

Interviewee II also said that the E-government systems are very users friendly and vehemently rebuff the assertion that *“the failure of designers/developers to use human factor design principles is the reason for the non-user-friendliness of these ICT applications”*. He further contended that *“One fundamental feature of every ICT program is its user-friendliness, and with the exception of some technical programs,*

most programs on the market are user-friendly. In fact much emphasis is given to the user-friendliness of a system before it is procured so it cannot be the case that the E-government application currently in use are not user-friendly” (Interviewee II).

The user-friendliness of E-government programs was also repeated by Interviewee I when he indicated that the ICT systems in his organisation “are user-friendly to the average educated staff”. Both Interviewees however admitted that when Information regarding the usage of ICT applications (E-government) is insufficient, it may affect the adoption and actual usage of E-government in both Organisations I and II.

5.3.4 Benefits and Challenges of E-government

The author was very much keen to know from Interviewees the benefits E-government is having on public policy implementation. But before then Interviewees were asked to give their general view regarding Public Service delivery in Ghana. Interviewee I shared with the researcher that *“public service delivery in Ghana is good under the present circumstances of a third world country”* Do you know that the Ghana Immigration Service is one of the best in the sub-region? We are doing our best to do the best we can. But if a country is a developing one, and its resources are barely meeting its budgetary demands what do you expect that country to do? So in short I will say Ghana is far ahead of many other African countries in terms of public service delivery and although there are inefficiencies, we have come far from where we started”. In sharp contrast, Interviewee II indicated that public service delivery is not that encouraging when we consider the inefficiencies in many public institutions from the local government level to the MDAs. *“There is too much inefficiency in the system and every day you hear that on the street and as a public servant myself, I experienced that often from many other public institutions and we cannot pretend about that at all...”* (Interviewee II).

Interviewees were then asked “To what extent do you see E-government enabling a transformation in the way your public sector institution operate and deliver services to the general Ghanaian public?” Answering in the affirmative, all the two interviewees said to a very large extent, E-government can help transform the operations of Organisation I and II. For example Interviewee II opined that *“to a very large extent...and it is already transforming the way we are doing things in this university”*

Interviewees were further asked the exact transformation they anticipate or the benefits E-government is currently having on their operations. According to Interviewee I, Organisation I is already seeing the benefit of being part of the e-Ghana project in relation to the use of E-government in their delivery of public services. *“Now there is an improved system of keeping records, also customers are now served in very fast fashion so there is less time wasting at the various points of entry, and now there is a new system to check the validity of passports and other travelling documents....we are also constantly collaborating with the immigration services of other countries and these are all the benefits of e-government and others that do not readily come to mind....oh and before I forget it has also reduced corruption and bribery among other staff”*. On the part of Interviewee II: *“E-government has brought about speed, efficiency and flexibility as well as predictability”*. He further added that *“lecturers as I said earlier are able to meet their deadline line of submission of result, also research materials are now readily available to students and lecturers...there is also an improvement in the internal system of communication.”*

Elaborating further on the benefits of E-government to Organisation II as a public sector institution, Interviewee II added that *“now I send my report to the VC via the university portal and receive reports through that same medium.... many other information are also available to students and the university community on the university portal...and*

I know you yourself use the portal (referring to the researcher) and you know what I am talking about. The university website is also serving as a global presence to the whole world therefore the university is reaching out to many across the shores of Ghana and these are all made possible by ICTs. Even now the admission entries are now sorted out with a special program unlike at first where thousands of applications all would have to be sorted manually”. Also as you see the physical class rooms are limited so the university has various learning centres and this is to make education as a public good accessible to all and by the use of E-government, the university has extended its access to many other distance learning students who don’t now have to travel from say Wa, Takoradi to Accra to access university education”. All these learning centres also have administrators and they all have to collaborate with the main campus and with ICT that is easily achieved”.

Additionally, to achieve the second part of the objective, the study probed further from the interviewees about the challenges that hinder ICT systems in their organisation from achieving its optimal benefits. One particular challenge that became very obvious was the power crisis that the country is currently facing. *“ICT runs on power, and the power situation is the main bane to the operation of ICTs and E-government system in this university...although the university has acquitted plants at various departments to forestall this, it comes with huge cost (Interviewee II).*

Interview I also cited the power crisis as a main challenge that challenge the use of the system. *“Fortunately the lights do not go off at the airport so we normally don’t have challenges there but when you go to other entry point like the Aflao border or the Elubo border, when the light goes off then work has to stop for power to be restored before we can continue and it sometimes takes some time to restore the power” (Interviewee I).*

One other challenge mentioned relates to cost and resource constraint which hamper the improvement and sustenance of the infrastructure. *“We buy bandwidth from Vodafone and even under special arrangement i.e. the ‘Vodafone business solution’ it is still expensive to procure these bandwidths. So anytime I see my superiors, I say sire, I need money, I need money to expand the system....there are free frequencies and we need to explore these frequencies to increase access but where are the funds?”*(Interviewee II).

Interviewee I also admitted to the cost but however said he is not sure exactly the amount of cost Organisation I incurs as a result of the E-government project.

Another challenge observed by the study relates to poor internet connection. According to Interviewee II *“our network providers sometimes do us a lot of disservice particularly when it rains. The poor network kills the zeal to work and delays the accomplishment of tasks a lot”*. Interviewee I also indicated network failures to be a major challenge within organisation I.

The study specifically asked interviewees whether E-government or the ICTs in general pose a challenge in terms of killing talent and increasing unemployment. According to Interviewee II ICTs do not in any way bring about unemployment or hamper talent management rather ICTs help us to do away with the repetitive mundane tasks. *“It’s time we start using more of our mind in doing thinking than to concentrate on our physical efforts which even withers with age. Machines do not get tired and they rather help us to overcome repetitive work which rather brings inertia. That person saying because of ICT he cannot work or is redundant could be redeployed do something else. The public service has a bigger capacity to even absorb more tasks and obligations”*.

Interviewee I on his part said, Organisation I has a security of tenure thus when a staff is employed, that person retires on the job unless that individual voluntarily resign or

get sacked because of something very serious. *“I would not say because of ICT there is unemployment, Rather I would say we are now targeting young men with background in computing to be enlisted for training so it has rather increased the number of people who are now enlisted” (Interviewee I).*

All the interviewees indicated that cyber-attacks and other security threats pose a great deal of challenge to E-government implementation. According to interviewee II *“students and other external parties constantly attempt to hack our system and for example change student results but we constantly update our security features so we are able to control that”*. Although interviewee I could not cite any example of an incidence of an attack, he largely recognised cyber-attacks and other threats as a challenge to E-government implementation.

Interviewees were also asked questions relating to the various measures to adopt to ensure the long term sustainability of E-government projects. From the interviews, it was gathered that, the future of Ghana’s Public Sector would be very bright if E government is continuously used and improved. Sustainability is the symptom of things that have been happening correctly, so to ensure those projects are sustainable, *“the good ways of doing things should be followed always”* (Interviewee II). Also political leadership should lead the way and moneys earmarked for E-government project should be well accounted for; *“and here I am talking about corruption among project managers and politicians themselves. When you commit moneys to do project, almost half is stolen or unaccounted for and if this is checked then E-government would go very far. Also most of our ICT projects fail because the initial processes of planning are often not done right so we need experts and professionals to design these projects in going forward. I would also say private partnership is key in this area of sustainability. For instance, we get our services from Vodafone so to ensure that our*

system here would last into the long-term we need to regularly engage Vodafone as our private partners (Interview). Interviewee I also mentioned the need for public-private collaboration, and the need to expand the existing physical infrastructure to accommodate the ever increasing use of ICT in Organisation I.

5.4 CHAPTER SUMMARY

This chapter presented and analysed the primary research data, gathered from the field. The presentation of the data was in two parts - the data obtained from questionnaires were analysed separately from the data obtained qualitatively through interviews. Further, data was presented to reflect the views of bureaucrats on one side and the view of end-users on the other side. In all, the study found that initial preparations were made before the implementation of E-government in public institutions. However the study also found gaps in these initial preparatory measures. For example, training of public servants was awfully inadequate and this was coupled with some infrastructural deficits. There was also awareness of E-government among both bureaucrats and end-users however; bureaucrats were found to be much more aware of E-government and government's commitment to intensify the use of E-government applications in the public sector as compared to end-users. Additionally, data gather pointed to greater adoption of E-government among users and public servants but both groups identified some potential factors which go to debilitate their adoption. For instance, inadequate information regarding the usage of E-government applications was generally cited as a factor which could hinder the adoption of E-government solutions. Respondents also agreed largely to the predefined set of benefits question asked them and whiles an overwhelming majority of public servants seem to agree with the predefined benefit questions, end-users' responses, varied to a greater extent. There was however, unison

of agreement on the part of both public servants and users regarding the challenges confronting E-government. Lastly, participants were able to suggest some useful measures to adopt to ensure the long term sustainability of E-government projects in Ghana's public sector. Some of the measures cited include public-private-partnership, injection of funds to upgrade the existing ICT infrastructure, etc.

CHAPTER SIX

DISCUSSION

6.0 INTRODUCTION

This section of the thesis discusses the findings of the study as presented and interpreted in Chapter Five. In the previous chapters, the study reflected on the appropriateness of using mixed method (closed-ended questionnaires and interviews) as the methodological approach in assessing E-government in Ghana's public sector. This methodological model was adopted by the study as a means of triangulating the data obtained, in order to enable the authentication of data through cross verification of results obtained from questionnaires and interviews. Equally, to achieve the goal of assessing E-government in Ghana's public sector, sufficient evidence were gathered through field work around the five major themes³⁶; 1) initial preparations made before the implementation of E-government project in Ghana's public sector 2) Public servants' and citizen-end-users' understanding and awareness of E-government 3) E-government Adoption among public servants and end-users 4) The Impact of E-government on policy making and public service delivery as well as the challenges, and 5) The measures to adopt to ensure the long-term sustainability of E-government projects in the Ghanaian public sector. These themes furnish this study a framework for discussing the findings (thus the objectives of the study) through the deliberation of both theoretical data from the literature reviewed and empirical data obtained from the field.

6.1 INITIAL PREPARATIONS MADE BEFORE THE IMPLEMENTATION

Adjorlolo and Ellingsen (2013) have underscored the importance of making adequate readiness assessment and initial preparations before the implementation of any

³⁶Chapter three section 4.6 discuss the thematic coding used

worthwhile ICT project. Therefore, a country which fails to put in place adequate preparatory measures would to a larger extent lack the capacity to undergo any meaningful transformation for a successful implementation of a useful E-government project (my emphasis). This background, informs the study to probe the preparation made by Government before the implementation of E-government in the public sector. Generally, the study found out that some measures were put in place before the implementation of E-government in Ghana's public sector. However, these measures were not enough to meet the ever increasing demands of the present information and communication age and the very demands of the ever growing public sector.

One positive thing discovered was that existing and previous Governments of Ghana, injected substantial investments in developing ICT infrastructure. This includes the expansion of networks and procuring of new set of computers for public institutions. Through the efforts of government and donor agencies, the government of Ghana got it right with capacity building measures to meet the introduction of E-government. For example, Government of Ghana in collaboration with Abdul-Salam International Centre for Theoretical Physics (IPTC), established the Kofi Annan Centre of Excellence in ICT, to train professionals, who would ensure the availability of the necessary knowledge and skills, needed to support the implementation of E-government projects. In 2003 the Ghanaian Parliament also passed the Ghana National ICT for Accelerated Development (ICT4AD) policy, and this provided a policy framework for the realization of the vision to transform the public sector and the general Ghanaian society into an information driven society. The Electronic Transaction's Act was also passed in 2008 to regulate online and other electronic transactions in the Ghanaian society. The Ghana Community Network Services (GCNet), was also introduced as an ICT-based solution for the development of trade and improving

government revenue. On top of all these, the Ghanaian Parliament passed the NITA Act in 2008 and this established The National Information Technology Agency (NITA) to take charge of the implementation of E-government in the public sector (among other objectives). Interviewee II when asked about the specific initial preparation made by his institution remarked that *“to a very large extent, we were prepared by way of infrastructure and manpower prior to the introduction of E-government”*. These evidence go to buttress the claim that the Government of Ghana, inspired by NPM practices, was to some extent prepared, when it introduced E-government solutions, as a mode of transforming the traditional public administration system.

In spite of these remarkable measures, the study however found out that public servants were less represented regarding the major decision prior to the implementation of E-government projects in the sector. Thus the study finds their non-involvement as a huge deficit which could breed dispiritedness and huge apathy towards the project. Wereko (2009) and Ayee (2001) have already hinted that public sector reform initiatives, no matter how thoughtful it might be, are bound to fail when the local involvement and participation are absent. Again, though some measures were taken by government to safeguard the implementation of E-government by procuring computers and other logistics, the study discovered that these measures were woefully inadequate, considering the capacity and demands of the public sector. A remark by one of the interviewees sums it up: *“there were some initial preparation by the government...but you see, some of those things they promised to our officers were never coming so we had to use our own internally generated funds to get some equipment...if you go to some of our offices there are still some computers that are not functioning because they are completely broken down and those functioning too some are faulty...”* (Interviewee I). Furthermore, access to internet services had been suspended in some departments of

Ghana Immigration Service for over decades now and this was reveal to the study by interviewee I. Bureaucrats were also not trained properly regarding the use of some applications and this often resulted in instances where they called on their colleagues for help or direction. These in turn frustrate the entire usage of E-government systems. These gaps in the initial preparation processes cast some shadow on the whole preparation towards E-government implementation.

6.2 AWARENESS AND UNDERSTANDING OF E-GOVERNMENT

Studies have found that awareness is one of the major factors that ensure or obstruct a successful implementation of any E-government project. Although their study related to people with disabilities, Baker and Bellordre (2004) opined that the lack of awareness that a given technology exists and that people could benefit from using that new technology, results in the collapse of many well intended ICT programs. There was therefore the need for the study to investigate the level of awareness among users and bureaucrats with respect to the implementation of E-government in Ghana's public sector. Like majority of public servants, many users were also aware of E-government and were similarly conscious of Ghana government's commitments to increase the use of ICTs in public sector institutions. However the degrees of awareness seem to vary in favour of public servants as compared generally to users. This is partly explained by public servants' better public institutional knowledge and educational and work experiences in relation to end-users. Thus, to influence greater use and adoption of E-government services, there is the need for government to increase the awareness of the citizens regarding the opportunities E-government affords.

The findings of the study also reveal an overwhelming understanding of E-government on the part of public servants and users. Most respondents had an appreciable

understanding of what is meant by E-government and this comes as no surprise as the attachment of 'e' to any word, conventionally, indicate the electronic version of that word. All the various definitions identified by respondent of the term E-government, largely collaborate the succinct and general definitions given by Ayee (2008) as the pursuit of "paperless" public service; and involving the use of ICTs to support government operations (Fraga, 2002). These definitions together with other narrow definitions identified in the literature could be helpful in overcoming the nuances regarding the use of the term. But it is worthy to point out that these narrow definitions limit the scope and modern application of the term E-government. Thus the responses of participants were insufficient in explaining and understanding the real purposes of implementing E-government. Consequently, they run contrary to the position which impute E-government as a NPM tool for public sector reform.

Based on the analysis of both primary data and also secondary data, this study broadly accepts and builds on Saxena's (2005) explanation of E-government. In lieu of Saxena's (2005) definition, the researcher proposes a wider definition of E-government as:

'a (NPM) public policy reform initiative which aims at varying the fundamental structures and processes of public sector organisations; so that public institutions would be more efficient, effective, open, transparent and accountable to the general public; and in so doing change the range of relationships between public institutions or government on one hand and citizens, businesses and other governments on the other hand' (my emphasis).

6.3 ADOPTION OF E-GOVERNMENT

Adoption or acceptance of E-government on the part of public servants and end-users is a 'sine quo non' for a successful implementation of E- government solutions in all countries across the globe and particularly in developing countries like Ghana (Alateyah et al., 2013; Yonazi, et al., 2010). Following the introduction of E-government and the government's continual commitments, coupled with the growing internet penetration in Ghana, the question of how public servants and citizens were adopting to E-government solutions was therefore paramount to the study. This was particularly so as till date, there has been little study investigating elements that influence the adoption of E- government by bureaucrats as most studies on ICT adoption concentrate only on end-users. But if the findings of Thompson (2009) and the position of Actor-Network-Theory is anything to go by, then it could be said that ICT applications in themselves do not mechanically convert to positive outcomes. Reasonably so, public servants need to managed and operationalize these ICTs with a command before they could even function. So it is grossly out of place for any research to neglect the importance of public servants' adoption to E-government. Again, since the Actor-Network Theory was installed in this study to depict humans and technology interactions, it was only in place for the study to have found how participants were accepting and using E-government applications.

It was revealed to the study that usability of E-government application is not an issue with public servants. This is because; public servants are under a mandatory duty to adhere to almost all policies of government that accompanies the rudiments of their work. Therefore if government introduces a new policy or a directive, in this case the use of E-government, non-compliance would mean public servants going contrary to the very contract of service which put them into employment. This compulsory usability

of E-government applications by public servants reinforces the position of the Actor-Network Theory (ANT) that the elements of the network, including public servants and those who engineered the network, are, at the same time, constituted within those networks (Stanforth, 2007). A non-obligatory usage of E-government by bureaucrats would have completely defused the principle of ANT as public servants would have an option to back out of the network they create as 'actants' (my emphasis). This further finds expression in the words of Callon (1987) that ANT is "*reducible neither to an actor alone nor a network*". In light of the compulsory usage of E-government on the part of bureaucrats as correctly espoused by ANT, the study found a huge majority of public servants (95.2%) agreeing that it is very much necessary to use E-government to improve their operations.

Unlike usability, issue of adoption or acceptance is not mandatory. Public servants could be seen working with E-government applications but still could be found not to have actually accepted them in their work practices. This point raises a weakness in the ANT as human actors who constitute the network, might not necessarily accept and buy-into the network to which they are compulsorily assigned. But this was however not the case in this study as many public servants were found to have actually adopted or accepted E-government in their work practices. This finding was consistent with Benk and Budka's (2011) study in respect of a similar acceptance of 'Tax Office Automation System (VEDOP)' by government employees in Turkey. The high rate of adoption was partly explained by top public officials and respondents alike, as owing to the user-friendliness of the various E-government applications. There was also a greater collaboration and admission on the part of public servants that E-government applications in use in their institutions were friendly and easy to use.

Although public servants have widely accepted E-government, there was an indication that insufficient information regarding the system would affect adoption and acceptance. Again like other studies, (Bonner et al., 2010; Christensen and Grimsmo, 2008), the study found that bureaucrats' adoption and satisfaction regarding the implementation of E-government could be negatively affected with the uneasiness originating from a complete shift from paper based systems to E-government solutions. Usability of E-government is not mandatory on the part of citizen-end-users who have rights under the 1992 constitution of Ghana. This point also validate the principle of New Public Management concept that consumers of public goods ought to be seen as customers who have the right to select between competing and differentiated approaches that could be taken to deliver any particular public good or service (Miller and Dunn, 2006). Just the above emphasised principle of NPM that customers (end-users) have the ability to select competing and differentiated options regarding the choice of public service delivery limits the application of Actor-Network Theory. The ANT does not leave human actors (like users) with choices. Rather users are infused within a network from which their choice fine expression. Actors can only make choices unless those choices advance the course of the network they are constituents of. Also, evidence gathered pointed out that sometimes users are compulsorily made to use some particular E-government solution, particularly in situations where it is the only available source to get a particular public service. For example all University of Ghana students (who are construed as end-users in this study) are made to compulsorily do their registrations online.

The study found out that usability and adoption of E-government was high among citizen-end-users as evidenced by 81.5% of the respondents. The high usage and adoption of E-government by users can be explained by the high increase in internet

penetration rate, which has resulted in an upsurge in the number of subscribers of internet services. Furthermore, end-users indicated that they have not only adapted to E-government but they have actually used a particular web site of a government institute to either obtain information or a public service. This finding largely contradicts the point expressed by Dong et al. (2011) that citizens are not adopting E-government in spite of its benefits (Alateyah et al., 2013).

Studies have shown how the design of an E-government website may encourage the citizen-end-user to use and adopt E-government services (Alomari et al., 2012). A majority (50.6%) of users indicated that various government web-sites were not user friendly but this is very difficult to sustain as 48.1% also said the government websites were very much user friendly. The study, thus finds it very difficult to make a certain conclusion from this split responses from end-users, regarding how user-friendly government web-sites are.

But what can be said for certain is that a majority of the users (62%) said materials hosted by web sites of public institutions are actually not adequate in helping them to address a particular problem or provide them with particular public information. This view was admitted by users as affecting their continuous use and adoption. In line with other studies, this study also found out that perceived usefulness (Al-Shafi and Weerakkody, 2009), perceived ease of use (Davis, 1989; Moore and Benbasat, 1991; Thompson et al., 1991), and accessibility factors like network quality (Alateyah et al., 2013) also affects users' adoption of E-government.

6.4 BENEFITS AND CHALLENGES OF E-GOVERNMENT

For a better appreciation of the degree of transformation or the benefits that comes with E-government implementation in the Ghanaian public sector, the study set out to find the general perception of users regarding public service delivery in Ghana. Majority of users (80%) expressed that public service delivery by Ghanaian public institutions were generally poor. About 40% of users actually intimated that it was 'poor' with corresponding 37.2% of users saying 'very poor'. This negative assessment of the Ghanaian public sector was consistent with other recent and previous influential studies (Ayee, 2001; Ayee, 2007; Nti, 1978; Wereko, 2009). All these studies suggested a Ghanaian public sector that is moribund and inefficient in delivering quality public services.

But responses from public servants' point of view, reveals a different outcome. Sixty-nine percent (69.4%) of public servants intimated that their provision of public services were either good or very good. Although top management public servants interviewed, also admitted to some of the challenges with the Ghanaian public sector, they were in no way ready to accept that is was that bad. One interviewee actually said when the Ghanaian public sector is compared with other countries in the sub region; Ghanaian public sector would overpower most when it comes to competency and efficiency.

Even though public servants were generally positive regarding the effectiveness of their service provision, majority of them still recognised the need to introduce E-government in their work practice to facilitate transformation. Eighty-three percent (83%) of public servants indicated this. Users were likewise optimistic that the introduction of E-government could to some extent (or even to a larger extent) transform public sector institutions, at least, regarding their poor service delivery. This implies that public servants and end-users are both positive with the ability of E-government applications

to transform public service delivery (Andersen et al., 2010; Kumar and Best, 2006) in Ghana, albeit a variation in the degree and the kind of transformation. So the question now is what kind of transformation has the implementation of E-government solution brought to the public sector?

6.4.1 Benefits of E-Government Implementation

The respondents identified the benefits of the E-government implementation to include the following;

Increased Efficiency in the delivery of public services

It is very common in Ghana (and other part of Africa) to hear of people spending oodles of hours at government institutions just to get a particular public information or service. Again, there are stories concerning people giving money to public servants who themselves sometimes insist on payment in order to speed up the delivery of government services (Mpinganjira, 2013). This has led to apprehension with the public sector regarding their delivery of public services. Thus the implementation of E-government is considered by both public servants and users as a panacea which could reverse this unfortunate trend that has characterised public service delivery channels in Ghana. Eighty-four percent (83.9%) of public servants affirmed the position that there has been an increased efficiency in the delivery of public services in their organisation. This was attributed to the fact that procedures and processes were now streamlined to reduce the layers of bureaucracy with 51.6% of them 'agreeing strongly. Though majority of users (56.2%) also shared in this position, about 22.4% were however in disagreement with 21.3% remaining neutral. Clearly, this does not match the overwhelming response by public servants as they shared in this position more than users. But this does not take anything away from a general conclusion that E-government has made public institutions more efficient as a result of reduced

bureaucratic layers and tendencies. This finding of the study that E-government ensures efficiency in Ghana's public sector is collaborated by other studies in Botswana (Nkwe, 2012), Kenya (Njuru, 2011), South Africa (Mpinganjira, 2013) and the United State of America (Welch and Pandey, 2007).

Increased Transparency and Accountability

Through the introduction of E-government solutions in Ghana's public sector, more public institutions are now making their activities known to the general public as well as making available their public records online including budget and other policy statements. According to Mpinganjira (2013), this arrangement of public institutions making their activities open online, translates into transparency as it also makes a public institution accountable to the tax payer. The findings of the study reveals that respondents (both users and public servants) were in agreement that E-government has made more public institutions transparent and accountable of their activities and this finding is also consistent with other previous studies (Bertot et al., 2010; Heeks, 2002b; Herman, 1996; Holzer, 2004; Welch et al., 2005; von Waldenberg, 2004; World Bank, 2004).

But it must be stressed that public servants agreed overwhelmingly with some 30% of users disagreeing. Scholars like Heeks (2002b) and Njuru, (2011) have argued that the aim of using E-government as a transparency and accountability tool would be deficient in the absence of a two-way communication channel between citizens on one hand and public sector institutions on the other hand. Thus government websites ought to have features that make it possible for interactions and provide feedback from the general public as it is not just sufficient to simply host government websites and place modern computers in public institutions without interaction from the public (Heeks, 2002b). In addition and from the result of the study, one cannot say with certainty that the use of

E-government to promote transparency creates a sustainable culture of transparency. This conclusion is based on the mixed results from practice and other previous research works (Bertot et al., 2010).

Lowering the Size and Cost of the Public Sector

The ever growing size and cost of the public sector in a resource constraint Ghana has become an issue of great concern to present and past governments as well as international donor agencies. For example the World Bank and the IMF together with the donor community have consistently frowned upon the bloated and expensive nature of public services in Ghana (Wereko, 2009). The issue of the size and cost of the public sector became a concern during the implementation of the Civil Service Reform Program (CSRP) between 1987 and 1993. With governance being a continuous process, successive and current public sector reform initiatives by the government of Ghana are still focused on designing ways to cut down public expenditures whiles achieving a smaller but yet effective public sector, particularly in the face of shrinking revenues (MPSP, 2006:14). To this extent, majority of respondents (75.4% public servants; 60% users) recognized the need of using E-government applications to overhaul the excessive cost incurred in public service provision. The study also learned from interviewees that with the use of E-government applications in Ghana's public service, cost incurred in acquiring stationeries have reduced to its lowest ebb. Again, the use of E-government is currently helping Ghana government to deal with the problems of 'ghost names' on government's payrolls.

The findings of Singh and Sahu (2008) Kumar and Best (2006) have contended that the implementation of E-government helps to reduce the cost of public sector by decreasing the general size of the sector thus the number of public servants. This was disapproved by the study when interviewee II intimated that E-government rather replaces mundane

and repetitive rather than seeking to take up the work of public servants. He also intimated that public servants have security of tenure which makes their dismissal or retrenchment for the sake of E-government highly challenging.

The finding of the study that E-government does not necessarily lead to a downturn of public servant is confirmed by other research works which completely bemoans 'the reduction of staff' benefit (of E-government). For example, Holden and Fletscher (2005) challenged this in their study. They concluded that staff reduction due to E-government implementation is not a universal phenomenon and even in some cases it brings new employment opportunities (Andersen et al., 2010). This reflects the assertion made by interviewee I that because of E-government implementation, the Ghana Immigration Service is now employing graduates with the requisite computer skills to augment the inadequate personnel with computer skills.

Limits Corruption and other Corrupt Practices

Corruption is a bane to the development of any society (Ayee, 2000). Hence to ensure an efficient public sector, there is the need to institute radical anti-corruption measures to reverse corruption and other corrupt activities. The implementation of E-government has been glorified as a measure that could reverse or at least limit the corrupt practices in the public sector. 83.9% of public servant affirmed to the study that corruption and other corrupt activities like, kickbacks, greasing the palm, middle men and other corrupt activities are largely reduced in their public agencies as a result of the implementation of E-government solutions. Data gathered from users varied greatly as 50% of users agreed that corruption or the perception of it has reduced following the implementation of E-government. The rest of the users still believed corruption to be lingering in the public sector, in spite of E-government policies.

E-government maybe an effective tool for tackling corruption but Shim and Eom, (2009) observed that some social attitudes could even hamper the effectiveness of ICTs in the quest to fighting corruption. For example in Cameroon, public servants' refusal to use E-government application greatly undermined the attempts to use E-government as a tool to check corruption (Heeks, 2005 cited in Bertot et al., 2010). Wescott (2001) have also intimated that public servants who are more inclined with the use of ICT could even be empowered more to use E-government to enhance their corrupt practices without any detection. This led Schuppan (2009), to suggest that E-government could results in more corrupt practices because of the centralism it creates. Interviewee II largely accepted this but was however sure that with the right computer programs, any corrupt practice could be detected and prevented.

6.4.2 Challenges of E-government implementation

In spite of the highly acclaimed benefits E-government is yielding, case studies from both developed countries and developing countries show that there are many challenges and issues that have 'dun' the successful implementation of E-government projects. These challenges of E-government implementation have practically had significant effect on the ability of public sector institutions' to deploy E-government solutions to deliver public goods and other public services (Nkwe, 2012).

E-government project mostly fail in Africa ((Nkohkwo and Islam, 2013; Mutula, 2008) owing to peculiar challenges confronting the continent. Hence the study thought it wise to also cover the challenges of E-government implementation so that measures could be put in place to mitigate the effects of these challenges. Unlike the benefits where there were varying degrees of opinions, both users and public servants seem to be in an accord, regarding the challenges of E-government implementation.

Regular Interruption of Electric Power Supply

Unreliable supply of electric power became a distinguishable challenge identified by the study. Public sector institutions are unable to rely on the electricity provided by the Electricity Company of Ghana (ECG) owing to the challenges in the energy sector, which has resulted in an on-going load-shedding exercise. The worst part is that even when there is power, it could go off at any time without any prior notice. This is particularly worrying as E-government solution run on electricity. This unfortunate situation implies that, E-government applications become only operational when there is power. This makes it difficult to achieve the optimal benefit of E-government applications. It was also gathered from interviewees that public institutions are now incurring additional cost to acquire generator set and other plant to power these E-government applications. Additionally, the sporadic supply of power does not only upset the operationalization and functioning of E-government systems but in certain situation even damages the system itself thus resulting in an additional cost of repair. This finding is also consistent with the findings of Achampong's (2012) study in Ghana regarding Electronic Health Record management in Ghanaian public hospitals.

Lack of Infrastructure

Any successful E-government initiative will require the availability of appropriate infrastructure to support it (Mpinganjira, 2013). However, the study discovered that the deficiency in the existing ICT infrastructure is a major challenge which affronts E-government implementation in the public sector. There were inadequate computers in some departments and others were just not good for use because of their faulty nature. Related to this issue is also the issue of poor network connectivity as this also affects the use of E-government solutions. Even when there is internet connectivity, the speed is often low especially when it rains and this result in a high rate of backlog of tasks

and to some extent apathy on part of public servants. This is clear in the words of one participant: *“The poor network kills the zeal to work and delays the accomplishment of tasks a lot” (Interviewee II).*

The lack of ICT infrastructure as a challenge of E-government implementation, was also identified in a study by Njuru (2011) in Kenya and also by Mpinganjira’s (2013) study in South Africa, as well as other studies in other developing countries (Ndou, 2004; Ebrahim and Irani 2005; Bonham et al., 2001; Bourn, 2002).

Issue of cost

E-government projects were discovered as generally expensive to run and maintain. The issue of cost involved in buying bandwidth and other cost associated with the update of some complicated software programs were particularly mentioned by public servants interviewed. Majority of users were also in agreement with public servants regarding the issue of the cost involved in keeping E-government applications running. The Government largely controls the major sources of funds used in running the system and it was observed that often the budgetary allocation, earmarked for expansion and keeping the system up and running are often inadequate and irregular. One interviewee speaking to the challenges remarked that *“I would say one of the major problem is the budget constraint and what I mean is the cost in buying bandwidth and also to expand the infrastructure. We buy bandwidth from Vodafone and even under special arrangement; the ‘Vodafone business solution’ it is still expensive to procure these bandwidth. So anytime I see the superior... sire, I need money, I need money to expand the system....there are free frequencies and we need to explore these frequencies to increase access but where are the funds?”*

This implies that public institutions are made to use their own internally generate funds to expand and keep the system running and this result in huge financial drain on these already financially constraint institutions. Other studies (Ebrahim and Irani, 2005; Heeks, 1999; Nkohkwo and Islam, 2013) have all also recognised the huge effect of unavailability of funds to support E-government programs, particularly in developing countries as challenge which affront the implementation of E-government policies.

Security Issues and Cyber attacks

Affirming the position of Chabrowe (2009), Layton (2007), (Sorkin, 2009), and Alam (2012), participants engaged in this study agreed to the challenges posed by hackers and their cyber-attacks together with other related security issues. These security issues were discovered to be mostly external, however enough data could not be gathered to approve or contradict the position of Alam (2012) that public servants sometimes breach access privileges for their own financial gains.

One thing which was very certain relates to attempt by students for example in the Organisation II (University of Ghana) to hack the university's system to alter their academic records. The public institutions regularly update their security features but it comes with cost which adds to the challenges.

6.5 MEASURES TO ENSURE THE SUSTAINABILITY E-GOVERNMENT PROJECTS

Despite the huge investments in E-government projects in developing countries, over 85% of these projects results in either partial or total failures (Heeks 2003) owing to the lack of sustainability measures. Thus it was the study's aim to identify some measure that could ensure long term sustainability of these projects. Respondents

intimated that Strong political leadership with a clear will and vision is the first step towards ensuring sustainability. This implies that government and politicians alike ought to be seen as active players in championing E-government policies (Zakareya et al., 2004; Ngulube, 2007). This also requires devoted public servants who give their best to implement these E-government policies rather than see E-government policies as a threat to their position (Ebrahim and Irani, 2005; Sanchez et al., 2003).

Involvement of private sector and other stakeholders to drive the goals of E-government was also identified by respondents. For example it was discovered that the University of Ghana had a very good collaboration with Vodafone Ghana regarding the provision of internet services. In the absence of this collaboration, the public sector might not be able to stand alone to achieve the full benefits that E-government brings (Heeks, 2003; Dzhusupova et al., 2011).

It is refreshing to mention that government officials themselves have recognised the essential role private sector play in E-government implementation programs. The President of Ghana in his 2012 annual ‘State of the Nation’ address stressed the need for stakeholder involvement in achieving the long term success of the E-government projects in the public sector. And this was after a similar pronouncement by Dr. Edward Omane-Boamah the Minister of Communications when he was addressing the press at ‘Meet the Press Series’³⁷ in Accra.

Issue of local content and local ownership of E-government project was also seen as a tool which could drive the long term sustainability of these E-government projects. The

³⁷ The information is available at www.graphic.com/gh/news/20117-e-gov-project-makes-headway.html Accessed on 13/122014.

issue of local content and ownership is very essential as most E-government projects in developing are donor-driven (Heeks, 2001; 2003).

The study also gathered the need for public sector to increase the staff strength of their IT department as the current number is woefully insufficient. Another measure which could also improve the long term sustainability of the system is the need to increase the supply of power, which was identified by almost all the users as one of the main challenges confronting their usage and adoption of E-government services.

The desirability of a responsive E-government action to incorporate a system of rules or regulation to accomplish the goal of regulating the behaviour of users and public servants was also muttered and stressed by respondents. E-government legislations could play a significant role in securing the privacy of government information and E-government applications itself. This finding is again consistent with the study of Gil-Garcia and Martinez-Moyano (2007) as well as Backus (2001). Legislations on E-government can take the form of an Act of Parliament, a Presidential order or even a directive at the ministerial level.

6.7 CHAPTER SUMMARY

This chapter of the study has discussed the primary data obtained from the field together with literature. On the whole, the study discovered that there were some initial preparations before the rolling of E-government project in Ghanaian public sector although there were some pitfalls with these measures prior to the introduction of E-government policies. There was a general level of awareness on the part of both public servants and users regarding E-government although public servants were much more aware than users. Whiles usability was obligatory for public servants, user were largely

making use of government online service although they were not under any obligation. Thus, adoption and acceptance of E-government was also high with both users and public servants.

The study also discussed some benefits of E-government to include; increased efficiency in the delivery of public services, increased transparency and accountability, decrease in the size and cost of the public sector as well as the reduction in corruption and corrupt practices of the public sector. Challenges of e-government implementation were identified to include the regular interruptions in power supply which the various e-government applications largely depends on to function. Lack of infrastructure, increased expenditure on the part of the user departments and security issues as albeit cyber-attacks, were some of the other challenges discussed under this section of the study. The chapter concluded with a discussion on the measures to ensure future sustenance of the e-government project to include; the government playing an active role in championing E-government projects; positive attitudes of public servants in the implementation of E-government projects; and the involvement of the private sectors as partners in the execution of E-government projects; as among other measures.

CHAPTER SEVEN

SUMMARY, CONCLUSION AND RECOMMENDATIONS

7.0 INTRODUCTION

The general aim of this study was to engage both public servants and end-users on their perspectives regarding the implementation of E-government in the public sector of Ghana. The specific objectives were to: assess the initial preparations made before the implementation of E-government project in Ghana's public sector; assess public servants' and citizen-end-users' understanding of E-government as well as the level of awareness of E-government in the Ghanaian Society; identify what influence public servants and citizen end-users' adoption or otherwise of E-government applications; identify the benefits and challenges associated with the implementation of E-government in the Ghanaian public sector; and propose measures for ensuring the long-term sustainability of E-government projects in the Ghanaian public sector. The objectives of the study as enumerated in Chapter 1 were achieved based on the data gathered. Thus this concluding chapter recapitulates the key findings the study discovered, as it also aims at presenting the conclusion and recommendations of the study based on the findings.

7.1. SUMMARY OF FINDINGS

The study findings from the preceding chapters are summarized in this section. The summary is presented following the themes and objectives set out by the study.

7.1.1 Initial Preparations Made Before the Implementation

With respect to the initial preparations made prior to the implementation of E-government projects in the public sector of Ghana, empirical data gathered from the field as well as other policy documents identified that some measures were put in place prior to implementation. This in a way indicated the readiness and commitment policy makers gave and still giving to E-government projects in the public sector. The research findings however highlighted some paucities in the initial preparatory measures. Thus although there were prior measures, those measures were insufficiently inadequate. This reflects the minimal local involvement and participation in the preparatory measures.

7.1.2 Awareness and Understanding of E-Government.

The study showed there exist high levels of awareness regarding implementation of E-government amongst both public servants and end-users. However, the degree of awareness seem to be tilted in favour of public servants as compared generally to users. Not only were users and public servants aware of E-government, the study also finds an appreciable understanding of E-government on the part of both public servants and users. This in turn creates an impression that E-government is now a house-hold name not only amongst public servants but also the general public at large.

7.1.3 Adoption of E-Government

Both public servants and users were found to be adopting or accepting E-government solution in their day to day activities. The high rate of adoption was partially due to the user-friendliness of E-government applications currently in use at the sector and the perceived usefulness or benefits of these ICT solutions. It was also revealed to the study that factors like insufficient information regarding the system; together with

accessibility factors like quality of network largely affect adoption and acceptance of E-government on the part of both users and bureaucrats.

7.1.4 Benefits and Challenges of E-Government Implementation

On the contribution of E-government towards the transformation of the public sector, the literature and empirical data gathered from the field suggests that the implementation of E-government has provided the public sector enormous benefits even at its initial stages of implementation. The benefits that were largely acknowledged were that as a result of the implementation of E-government projects there has been increased efficiency in the delivery of public services as well as transparency and accountability. Further the study found that because of E-government implementation the public sector is increasingly shrinking in size and thus resulting in the reduced cost and expenditure of the sector. Other benefit relates to the capacity of E-government to reduce corruption and other corrupt practices. In spite of the above mentioned benefits, from the data gathered on the field, it was also unearthed that a plethora of factors also affront the functioning of various E-government projects in the public sector. These include; regular interruption of electric power supply; lack of infrastructure; cost involved in running and maintaining the system; and other issues relating to cyber-attacks and security of information of the system.

7.1.5 Measures to Ensure Long-Term Success of E-Government Projects

In assessing the suitability of E-government projects, both public servants and users were of the opinion that E-government projects are very much sustainable if the necessary measures are rolled out to ensure same. Sustainability measures that the study found from empirical data and literature are the need to increase public-private partnership. There was also the need to ensure that political leadership continuously remain committed towards the implementation and expansion of E-government

projects. The findings of the study also showed that to ensure sustainability of E-government, government and policy makers ought to increase local involvement and participation in the implementation processes than just the imposition of these processes. The need for adequate legal regime to regulate the operation and information on E-government platforms were also allude to by empirical data and literature.

7.2 CONCLUSION

Judging from the views of bureaucrats and end-users, the end product of this assessment (of E-government in Ghana's public sector), has generated useful and pertinent insight into the possibility of E-government as a (NPM) tool which could transform the moribund Ghanaian public sector into an efficient one. Regardless of the challenges which confronts the Ghanaian public sector in almost all areas, the responses from participants were generally positive as participants were generally hopeful that the implementation of E-government facilitates public service delivery by helping to circumvent the problems inherent in the manual public service delivery channels. From the findings, analysis and discussion it became apparent that in order for E-government projects to achieve its full potential of transforming the public sector, a number of things ought to be done properly. These comprise of injection of investments on the part of government into ICT projects as well as redesigning of work processes in the public sector to give way to E-government solution. Again, the highly acclaimed benefits which E-government produces, can only be realised when political leadership bind themselves to the course of appreciating and understanding the benefits associated with E-government initiatives and are also seen or perceived to be willing to provide direction and support. This would also involve greater commitment on the part of public servants as well as end-users towards the full embracement of E-government projects.

7.3 RECOMMENDATIONS FOR POLICY MAKING

From the above findings, the study makes some recommendations which are pertinent for policy making regarding the implementation of E-government.

- Government (public policy makers) should take the necessary steps towards the expansion and the furnishing of the existing ICT infrastructure including various ICT departments of public institutions.
- Government should also provide on-the-job ICT training to ensure that public servants acquire the necessary and requisite ICT knowledge needed to operate the various E-government projects.
- Public servants must also be involved in any major E-government decision as this would promote empathy and ownership of the E-government projects. Again, involving public servants in major E-government projects and decisions will ensure that public servants have personal and first-hand understanding of such projects and would be able to act, if not least temporally, should there anything impede the operationalization of E-government systems,
- Government again should intensify the awareness creation on its intention to digitalization of the Ghanaian public sector. The awareness creation should also include the expectations and the responsibilities of public servants in their operation of E-government solutions. Further, the awareness creation should aim at also getting the citizenry involved in appreciating the benefit E-government offers.

- The involvement of private institutions and other donor or development partners is also highly recommended particularly in the areas of injection of investments in E-government projects.

7.4 LIMITATIONS OF THE STUDY

The major strength of this study is the method used in collecting and analysing of the data obtained from the field. The choice of the study to use a quantitative strategy (close-ended questionnaires) together with a qualitative data collection strategy (the interview) afforded the study an opportunity to obtain varying responses from respondents. This method of data collection also allowed the researcher to triangulate and cross verify various responses.

However, the study encounters some methodological limitations. Firstly, the study was unable to equate the assessment of the implementation of E-government in Ghana's public sector to any standard assessment criteria. And this was because there exist no universally accepted standard assessment criteria for E-government implementation particularly, a comparative assessment criteria which makes it possible to compare the views of users to public servants. Nonetheless, a comparison of the study to some standard criteria could have been more informative as this would have reinforced a determination of the status of Ghana's public sector regarding E-government implementation as this also decreases the generalisation of the results. But since there is no universal standard, the methodology adopted still has validity in its own right. Secondly, owing to the mixed methodology used in obtaining the primary data from respondents, the study generated an enormous amount of data to be analysed and synthesized. Thirdly, analysis and discussion of data was based on information obtained from public servants and users only and this narrow the scope of E-

government implementation assessment. It would have been more appropriate to widen the scope by also soliciting the views of Government or the implementing agency responsible for E-government in Ghana-NITA.

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APPENDIX ONE

QUESTIONNAIRE FOR EMPLOYEES (PUBLIC SERVANTS)

This investigation is being conducted by a M. PHIL student, from the Political Science Department of University of Ghana, Legon toward an academic thesis. The aim is to assess E-government in Ghana's public Sector, with Ghana Immigration Service and University of Ghana as case studies. You are rather humbly requested to add to the success of the study by objectively responding to the questions/statements on the questionnaire. Please note that the study is for academic purpose thus anonymity will be strictly maintained. **Please, you are here reminded to ONLY tick [] the appropriate option(s).**

SECTION A: DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

1. Age: [] 18- 24 [] 25-34 [] 35-44 [] 45-54 [] 55 and above

2. Gender: Male [] Female []

3. Educational Background

[] O'Level [] A' Level [] SSSCE [] Tertiary [] Post Graduate []

Other

4. How long have you been working within the public sector?

Below 5 years [] 6-10years [] 11-14 years [] Above 15 years []

SECTION B**THE MEANING OF E-GOVERNMENT AND THE LEVEL OF AWARENESS**

5. Are you aware of Government of Ghana's commitment to increase the use of ICT in public sector institutions including your agency? YES NO

6. What comes to mind when you hear of E-government? (**You can tick one or more options**)

Using ICT to delivery public service

Transforming the public sector institutions through ICT and Internet enabled operations

The pursuit of a 'paperless' public service

Improving the delivery of services to the public and improving the administrative processes of government with the aid of ICT applications

E-GOVERNMENT AND USABILITY/ ADOPTION

7. Do you think there is the need to even use ICT applications (E-government) in public institutions (like in your agency) to improve their operations? YES NO

8. Are the ICT applications used in your public sector agency user-friendly?

YES NO

Answer question 5 ONLY if your answer in QUESTION 4 was NO

9. Failure of designers/developers to use human factor design principles is largely the reason for the non-user-friendliness of these ICT applications?

Strongly Agree Agree Indifferent Strongly Disagree Disagree

10. To what extent does **Insufficient Information** regarding the usage of ICT applications (E-government) in your agency negatively affect your use?

Large Extent Some Extent very small Extent Neutral

11. Are you willing to shift from the old ways of doing things (Paper base) to using a new ICT application in your public sector institution completely?

Absolutely YES Partially Yes NO Completely NO

12. Does Poor Network and Server malfunctioning negatively affect how you use ICT application (E-government) in your public agency?

YES NO

13. You will be more encouraged to use ICT applications in your institution when you know or perceive it to be 'easy to use'?

YES NO

14. The usefulness or perceived usefulness of ICT applications (E-government) in relation to your work would largely lead to greater usage.

YES NO

BENEFITS OF E-GOVERNMENT

15. How would you rate the over-all Public Service delivery of your agency?

Very Poor Poor Good Very Good Indifferent

16. To what extent do you see E-government enabling a transformation in the way your public sector institution operate and deliver services to the general Ghanaian public?

Large Extent Some Extent very small Extent Neutral

What kind of transformation do you think E-government has brought to your public sector institution? (Question 13 – 19).

17. Increased efficiency in the delivery of public service because Procedures and processes are now streamlined thus reducing the layers of bureaucracy

Strongly Agree Agree Indifferent Strongly Disagree Disagree

18. Waiting time is low in public service delivery because of less bureaucracy

Strongly Agree Agree Indifferent Strongly Disagree Disagree

19. E-government helps to reduce transaction and other clerical costs associated with delivering public services in your public sector agency.

Strongly Agree Agree Indifferent Strongly Disagree Disagree

20. E-government has made your public sector institution more open, accountable and transparent to the general public.

Strongly Agree Agree Indifferent Strongly Disagree Disagree

21. Tasks that are performed by two or more persons would now be completed by a simple 'click of a mouse' thereby reducing the work force and the public wage bill.

Strongly Agree Agree Indifferent Strongly Disagree Disagree

22. Nepotism, Kickbacks, greasing the palm, middles men and other corrupt activities are largely reduced in your public agency because of the use of E-government applications

Strongly Agree Agree Indifferent Strongly Disagree Disagree

23. E-government is now helping your institution build a better relationship with the public

Strongly Agree Agree Indifferent Strongly Disagree Disagree

24. E-government has helped reduced the expenditure of government in your agency

Strongly Agree Agree Indifferent Strongly Disagree Disagree

25. E-government has facilitated the internal communication and communication between your institution and other public institutions.

Strongly Agree Agree Indifferent Strongly Disagree Disagree

CHALLENGES OF E-GOVERNMENT

26. Regular Interruption of Electric Power Supply is a great challenge to the use of ICT applications (E-government) in your institution.

Strongly Agree Agree Indifferent Strongly Disagree Disagree

27. Lack of infrastructure particularly inadequate computers together with poor internet connectivity is a major challenge to E-government initiatives in your institution.

Strongly Agree Agree Indifferent Strongly Disagree Disagree

28. Funding the cost of E-government services is also another challenge

Strongly Agree Agree Indifferent Strongly Disagree Disagree

29. Cyber-attacks and other security threats to the ICT assets and E-government are also a major challenge of E-government in your public agency.

Strongly Agree Agree Indifferent Strongly Disagree Disagree

MEASURES TO ENSURE SUSTAINABLE E-GOVERNMENT PROJECTS

30. How do you see the future of Ghana's Public Sector if E-government is continuously used? Very good Good Not so good Do not have a future

Indifferent

31. On a scale of 1-5, with one being the lowest and 5 being the highest;

Rate how the following factor would go a long way to ensure the long-term sustainability of E-government projects in your institution.

	1	2	3	4	5
Strong Political Leadership and Devotion of Public Officials					
Early Involvement of Stakeholders from the Private Sector					
Increased focus on Local content and local ownership of E-government projects					
Instituting Rules or regulations (For example E-government Act)					

THANK YOU!!!!

APPENDIX TWO

QUESTIONNAIRE FOR USERS (CITIZEN-END-USERS)

This investigation is being conducted by a M. PHIL student, from the Political Science Department of University of Ghana, Legon toward an academic thesis. The aim is to access the impact of E-government in Ghana's public Sector, with Ghana Immigration Service and University of Ghana as case studies. You are rather humbly requested to add to the success of the study by objectively responding to the questions/statements on the questionnaire. Please note that the study is for academic purpose thus anonymity will be strictly maintained. **Please, you are here reminded to ONLY tick [] the appropriate option(s).**

SECTION A: DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

1. Age: [] 18- 24 [] 25-34 [] 35-44 [] 45-54 [] 55 and above
2. Gender: Male [] Female []
3. Educational Background
[] O'Level [] A' Level [] SSSCE [] Tertiary [] Post Graduate []
Other

SECTION B: THE MEANING OF E-GOVERNMENT AND THE LEVEL OF AWARENESS

4. Are you aware of Government of Ghana's commitment to increase the use of ICT in public sector institutions? [] YES [] NO

5. Do you think there is the need to even use ICT applications (E-government) in public institutions to improve their operations? YES NO

6. Have you ever heard of E-government before? YES NO

7. If **YES**, what do you understand by E-government? (**You can tick one or more options**)

Using ICT to delivery public service

Transforming the public sector institutions through ICT and Internet enabled operations

The pursuit of a 'paperless' public service

Improving the delivery of services to the public and improving the administrative processes of government with the aid of ICT applications

Don't Know

E-GOVERNMENT AND END-USERS' ADOPTION

8. Do you think the websites of public sector institutions in Ghana are agency user-friendly?

YES NO

Answer question 5 ONLY if your answer in QUESTION 4 was NO

9. Failure of developers to use end-user factor design principles is largely the reason for the non-user-friendliness of these government websites?

Strongly Agree Agree Indifferent Strongly Disagree Disagree

10. Do you think in general terms that information hosted by government websites are adequately sufficient? YES NO

11. To what extent does **Insufficient Information** on government websites negatively affect your continuous adoption or use?

Large Extent Some Extent very small Extent Neutral

12. Will you be more encouraged to use websites of public sector institutions when you know or perceive it to be ‘easy to use’ and also useful?

YES NO

BENEFITS OF E-GOVERNMENT

13. How would you rate the over-all Public Service delivery in Ghana?

Very Poor Poor Good Very Good Indifferent

13. To what extent do you see E-government or ICTs enabling a transformation in the way Ghanaian public sector institutions operate and deliver services to the general Ghanaian public?

Large Extent Some Extent Very small Extent Neutral

Question 14 – 20: What kind of transformation has E-government brought to Ghanaian public sector institutions?

14. Increased efficiency in the delivery of public service because procedures and processes are now streamlined thus reducing the layers of bureaucracy

Strongly Agree Agree Indifferent Strongly Disagree Disagree

15. Waiting time is low in public service delivery because of less bureaucracy and speed of ICTs

Strongly Agree Agree Indifferent Strongly Disagree Disagree

16. E-government helps to reduce transaction and other clerical costs associated with delivering public services in your public sector agency.

Strongly Agree Agree Indifferent Strongly Disagree Disagree

17. E-government has made public sector institutions more open, accountable and transparent to the general public.

Strongly Agree Agree Indifferent Strongly Disagree Disagree

18. Nepotism, Kickbacks, greasing the palm, middles men and other corrupt activities are largely reduced in your public agency because of the use of E-government applications

Strongly Agree Agree Indifferent Strongly Disagree Disagree

19. E-government is now helping public institutions to build a better relationship with the public

Strongly Agree Agree Indifferent Strongly Disagree Disagree

20. E-government has helped reduced the expenditure of acquiring public services

Strongly Agree Agree Indifferent Strongly Disagree Disagree

CHALLENGES OF E-GOVERNMENT

21. Regular Interruption of Electric Power Supply is a great challenge to the use of ICT applications (E-government) in your institution.

Strongly Agree Agree Indifferent Strongly Disagree Disagree

22. Lack of infrastructure particularly inadequate computers together with poor internet connectivity is a major challenge to E-government initiatives in your institution.

Strongly Agree Agree Indifferent Strongly Disagree Disagree

23. Funding the cost of E-government services is also another challenge

Strongly Agree Agree Indifferent Strongly Disagree Disagree

24. Cyber-attacks and other security threats to the ICT assets and E-government are also a major challenge of E-government in your public agency.

Strongly Agree Agree Indifferent Strongly Disagree Disagree

ENSURING SUSTAINABLE E-GOVERNMENT PROJECT

25. How do you see the future of Ghana's Public Sector if E-government is continuously used? Very good Good Not so good Do not have a future Indifferent

26. On a scale of 1-5, with one being the lowest and 5 being the highest;

Rate how the following factor would go a long way to ensure the long-term sustainability of E-government projects in your institution.

	1	2	3	4	5
Strong Political Leadership and Devotion of Public Officials					
Early Involvement of Stakeholders from the Private Sector					
Increased focus on Local content and local ownership of E-government projects					
Instituting Rules or regulations (For example E-government Act)					

27. Do you think public authorities and institutions are doing enough in promoting E-government in Ghana? YES NO I CANNOT TELL

28. What measures would you recommend for promoting E-government amongst citizens and the general public?

Promotion of internet

Increase awareness level of citizens through public sensitization programs

Both

Other (specify).....

THANK YOU FOR YOUR RATHER BENEVOLENT PARTICIPATION!!!!

APPENDIX THREE

INTERVIEW GUIDE FOR THE HEAD OF UGCS AND A REPRESENTATIVE OF GHANA IMMIGRATION SERVICE

I want to thank you for taking the time to meet with me today. My name is Mathapoly-Codjoe Enock, an MPhil final year student of the Department of Political Science, University of Ghana, Legon. I am interested in knowing, E-government in Ghana's public sector and particularly the contribution it is making to public service delivery. The interview should not take more than one (1) hour. I will be taping the session because I do not want to miss any of your comments. All information that would be given will be used for academic purposes only. This means that your interview responses will only be shared with research team members like my supervisor and external supervisor and we will ensure that all the information given including our reports are used for academic purposes. Also, where you are not comfortable your identity shall not be made know.

.....

Interviewee Date

.....

Institution

1. What were the initial preparation made prior to the introduction of E-government in your organisation?

THE MEANING OF E-GOVERNMENT AND THE LEVEL OF AWARENESS

2. Do you think there is the need to even use ICT applications (E-government) in public institutions (like where your agency) to improve their operations?

3. What would be your own explanation of E-government?

4. Would you say the level of awareness is high amongst the staff of your organisation?

5. And what has accounted for this low or high level of awareness?

E-GOVERNMENT AND USABILITY/ ADOPTION

6. What are the factors that contribute or thwart the usage or adoption of ICT applications in your public agency?

7. Failure of designers/developers to use human factor design principles has been mentioned largely as the reason for the non-user-friendliness of these ICT applications.

What is your opinion on this?

8. Are there **sufficient Information** regarding the usage of ICT applications (E-government) in your agency?

BENEFITS/ CHALLENGES OF E-GOVERNMENT

9. What is your general view regarding Public Service delivery in Ghana?

10. To what extent do you see E-government enabling a transformation in the way your public sector institution operate and deliver services to the general Ghanaian public?

11. What kind of transformation do you think E-government has brought to your public sector institution?

12. What would you say are the challenges of E-government implementation in your public agency?

13. What would you say to the assertion that E-government or the use of ICT in public sector has made some people redundant?

SUSTAINABLE E-GOVERNMENT PROJECT

14. How do you see the future of Ghana's Public Sector if E-government is continuously used?

15. What factors would account for the long-term sustainability of E-government projects in your institution and the public sector in general?

THANK YOU!!!