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PhD

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E-government Implementation and Adoption: The Case Study of Botswana Government

Thesis

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ABSTRACT

The advancements in the ICT and internet technologies challenge governments to engage in the electronic transformation of public services and information provision to citizens. The capability to reach citizens in the physical world via e-government platform and render a citizen-centric public sector has increasingly become vital. Thus, spending more resources to promote and ensure that all members of society are included in the entire spectrum of information society and more actively access government online is a critical aspect in establishing a successful e-government project. Every e-government programme requires a clear idea of the proposed benefits to citizens, the challenges to overcome and the level of institutional reform that has to take place for e- government to be a success in a given context. E-government strategy is fundamental to transforming and modernising the public sector through identification of key influential elements or strategy factors and ways of interacting with citizens. It is therefore apparent that governments must first understand variables that influence citizens' adoption of e-government in order to take them into account when developing and delivering services online.

Botswana has recently embarked on e-government implementation initiatives that started with the e-readiness assessment conducted in 2004, followed by enactment of the National ICT policy of 2007 and the approval of the e-government strategy approved in 2012 for dedicated implementation in the 2014 financial year. Significant developments have taken place around national and international connectivity including initiatives that offer connectivity to citizens such as the I- partnership, community run Nteletsa projects, post office run tele-centres and Sesigo projects that have been deployed on a wider Botswana. In spite of these remarkable initiatives there is no change management strategy in place and evidence to suggest that citizens cluster groups, government employees, key influential citizens' stakeholders and other local government administrative governing structures at district levels have been appropriately informed, consulted, engaged and participated in the design, development and implementation initiatives. This position has contributed largely to low e-readiness indices for Botswana, low PC, Internet and broadband penetration levels, which do not commensurate with levels of connectivity initiatives already in place and operational. The strategy development, which is the viability business plan for the entire project has been initiated and concluded without the appropriate input of citizens, employees and local government structures at the districts. Considering that that e-government is new and narrowly researched in Botswana. There is non existing research on both the impact of strategy factors to e-government implementation success and citizens' involvement and participation in the e-government design and implementation through to adoption and continual use.

This study therefore explores and investigates empirically the key e-government strategy influential success elements and the how citizens' involvement and participation in e-government development can be secured, supported and facilitated towards adoption and continual future use. This culminates in the proposal of both

theoretically supported and empirically validated e-government strategy framework and citizen centric conceptual model. The study is crucial as it aims understand how can influences upon success in e-government project be better understood and citizens' stakeholder adoption of e-government enhanced to facilitate successful development of e-government in Botswana and is also timely as it comes at the time when Botswana has not yet implemented her e-government strategy, hence factors identified are critical to both strategy re-alignment and design of the citizens' involvement and participation change management strategy to support both implementation and citizens' adoption of e-government in Botswana.

The study utilises the mixed methods research, employing both qualitative and quantitative methods to address the research question and triangulated data collection approaches used to select survey sample for two questionnaire sets carried on opinion holders within government and non government structures and ordinary citizens, use of observations on operating tele-centres, interviews with key e-government strategic stakeholders and document analysis which included e-government policies and related documentations as well as extensive review of e-government published literature including applied implementation and citizens adoption experiences of developing and developed countries. In the analysis of data the multiple regression analysis has been utilised and multivariate analysis performed to ensure linearity, normality and collinearity. The linear regression has been used to test the hypothesis through the Analysis of variance (ANOVA) technique.

Keywords
E-government, strategy critical success factors, key influential elements, citizen centric conceptual model, strategy framework, Botswana.

Dedication

Firstly I thank and dedicate this work to God, the Holy, Righteous and Glorious Father in Heaven through our Lord Jesus Christ. Truly the grace of God enabled me to reach the end mark.

Then, to my inspiring, supportive and selfless wife Gofa, my two sons Adrian Boago and Elisha Racious-JR. and two daughters: Katso Nicole and Melissa Gabriella. The four I hope they will be inspired to achieve better in life (Above all to remain closer to God in all things).

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I returned and saw under the sun that: - the race is not to the swift; nor the battle to the strong; nor bread to the wise; nor riches to men of understanding; nor favour to men of skill; But time and chance happen to them all (Ecclesiastes 9:11). I thank God for the grace and perseverance throughout the PhD journey, without God I wouldn't have made it to the end.

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I have a father who knew me before I was formed and ordained me what I am and shall become, He knows my every move and sees each tear that drops, He calls me his very own, He never leaves nor forsake me, when my world shatters and everyone's hope in me fades He sees me in a good light and gives me a shoulder to lean on. In my fall, He raises me up and carries me in His right hand. Under His wings and pavilion I am treasured. I thank God for my life and PhD journey.

Biography and List of Publications

Racious is a PhD researcher at the University of Derby Investigating E-government Implementation and Adoption in the context of Botswana a developing country. He is a graduate of Masters Degree in Strategic Management (UK), Bachelor of Accountancy Degree (UB) and both Diploma in Accounting and Business Studies (UB) and Intermediate in Banking studies (B.IO.B). Racious has a wealth of extensive experience in Entrepreneurship, Business Finance (project appraisal), Management, Development Mentoring, Monitoring and Portfolio Management (Including Credit Management and Collection), Banking (Consumer and SME), Leadership and People's Management as well as Customer Service Excellence. Racious has worked in a number of banking and business finance institutions and has held several positions including interalia; (a) Investment Officer and Branch Manager for Botswana Building Society; (b) Senior Branch Manager for Citizen Entrepreneurship Development Agency (CEDA); (c) National Head of Premier and Prestige Banking at Barclays Bank of Botswana; and (d) Head of Medium Business for Standard Chartered Bank of Botswana. In his previous employments Racious led and supervised a combined total of over 40 managers and numerous workforces (employees). While studying for PhD he has conducted a number of Market Research assignments for various departments contracted by the University Marketing Department and also served as a Study Advisor for the university Learning Centre providing study guidance and mentoring to undergraduate students.

List of Publications

1) Moatshe, R. M., Mahmood. Z. and Antonopoulos, N. (2010): SDEAT; A Six Dimensional Framework for Assessing E-readiness for E-government Projects. Proceedings of the 15th IBIMA Conference Cairo, Egypt.

2) Moatshe R. M., Mahmood. Z. (2010): Application of the Theory of Diffusion of Innovation in E-government Implementation. Proceedings of the 15th IBIMA Conference Cairo, Egypt.

3) Moatshe, R. M., Mahmood. Z. (2011): Strategies for e-government implementation in developing countries: the case study of Botswana government. 11th European Conference on eGovernment (ECEG) 2011, 16-17 June Ljubljani, Slovenia

4) Moatshe, R. M., Mahmood. Z. (2012): Implementing eGovernment Projects: Challenges Facing Developing Countries. 12th European Conference on eGovernment (ECEG) 2012, 14-15, June Barcelona, Spain. Indexed by Thomson ISI and Published by Academic Publishing International Limited, Reading UK.

5) Moatshe, R. M., Mahmood. Z. (2012): A New Population Targeted Survey Based Sampling Method (NPTSBS-Model). 12th European Conference on eGovernment (ECEG) 2012, 14-15, June Barcelona, Spain. Indexed by Thomson ISI and Published by Academic Publishing International Limited, Reading UK.

6) Moatshe, R. M., Mahmood. Z. (2012): eReadiness and eGovernment With Respect to Citizens' Participation and Involvement: Towards a Citizens' Inclusive eReadiness Assessment Model. 12th European Conference on eGovernment (ECEG) 2012, 14-15, June Barcelona, Spain. Indexed by Thomson ISI and Published by Academic Publishing International Limited, Reading UK.

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List of Abbreviations

BIH	Botswana Innovation Hub
BTA	Botswana Telecommunication Authority
BTC	Botswana Telecommunication Corporation
CAC	Community Access Centre
DMSC	District Multi-Sectoral Committee
DDC	District Development Committee
EASSy	East African Cable System
E-government	Electronic Government
GDP	Gross Domestic Product
GND	Government Data Network
GNI	Gross National Income
G2B	Government to Businesses
G2C	Government to Citizens
G2G	Government to Government
ICT	Information and Telecommunication Technology
ISPs	Internet Service Providers
IT	Information Technology
Kgotla	Village Assembly
MFDP	Ministry of Finance and Development Planning
MMEWR	Ministry of Minerals Environment and Water Resources
MOH	Ministry of Health
MTC	Ministry of Transport and Communications
OP-QS1	Opinion holding Questionnaire Survey
OC-QS2	Ordinary Citizens Questionnaire Survey
PC	Personal Computer
PITSO	Gathering
SADC	Southern African Development Community
VDC	Village Development Committee
VET	Village Extension Team
WACS	West African Cable system

CHAPTER 1: INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction

This research aims to understand stakeholder factors that can facilitate or impede the implementation of e-government in the context of Botswana, a developing country. The research focuses of two primary e-government stakeholders, namely, Government and Citizen (Flak et al, 2007). Arguably several authors (Heeks, 2000; Bailey, 2007; Flak et al, 2007) have stressed that the most important basic entity is citizen, specifically the subgroup consumers (Sein, 2011). Notwithstanding, these stakeholders have not received a scholarly research focus (Flak et al, 2007).

E-government is about transforming government to be more citizen-centred and to achieve e-government success it requires active partnerships between government, citizens and the private sector (Farelo and Morris, 2006). Amongst the main challenges that e-government implementation often faces is that of adoption (Thakur and Singh, 2013), that is, getting the new e-government system implemented and used by the target stakeholders (Heeks and Santos, 2009). Therefore, government leadership and key stakeholders involvement affect the success of e-government (Luk, 2009). E-government adoption initiatives are also affected by digital divide issues (Hossan et al, 2006; Helbig et al, 2009) as they often focus on and concerned with efficiency improvement through information dissemination, rather than adopting a more comprehensive e-government system (Naidoo et al, 2011; Abraham, 2009). It is argued that e-government solutions are not a 'One Size fits all' each application must take into account the variable factors influencing such application (Al- Eryani, 2009). Hence, not supported for governments to adopt other countries' e-government systems as this may pose implementation problems, arguing that (Heeks, 2003) e-government should be country specific and not based on of the counter applications from other countries. It is therefore apparent that in studying the implementation of e-government in Botswana a unique country with peculiar GDP, population, administrative, consultative and societal communicative structures, the research proffer appropriate and fit for purpose e-government strategy frameworks and implementation model.

In this pursuit, the study applies the Stakeholder Theory (Freeman, 1999; Gronlund, 2005; Flak, et al, 2008) combining it with user involvement theory and framework (Fichman and Kemerer, 1993; Freeman et al, 2010) to identify and understand the role of government stakeholders in e-government and the subgroups of citizen-stakeholders; (a) how they can be informed, consulted and involved in e-government implementation; (b) building understanding, enabling, influencing and facilitating citizen-stakeholders' adoption of e-government; and (c) how government can secure citizen-stakeholder groups participation through interactions and relationships, and how such relationships can be harnessed to support citizens subgroups participatory involvement in the e-government design and development taking the local context of Botswana. The overall aim of this research is to propose an e-government strategy

framework and citizen-stakeholder centric implementation (CSCEI) conceptual model to guide the e-government initiatives in Botswana and hopefully guide developing countries with similar initiatives.

This chapter therefore provides the background to the research (section 1.2); describes the research problem (section 1.3); outlines the research objectives (section 1.4); provides a brief introductory description of the Botswana case study (section 1.5); motivation case for the involvement and participation of citizen- users and stakeholders in the e-government processes (section 1.6); overview of the research methodology and research design (section 1.7); a summary of research contribution and significance (section 1.8); and finally, outlines the structure of the thesis (section 1.9).

1.2 Background to the Research Study

Information and communication technologies (ICTs) are pervasive across the globe and are not only changing the daily lives of people but also affecting the characteristics of the interaction between governments and their citizens (Akman, et al, 2005). These changes, in turn, are rapidly being transformed into new forms of government, namely e-government. The adoption of ICTs, e-commerce, and e-business in the commercial sectors, as well as the diffusion of the internet among the general population have led to rising levels of comfort and familiarity with the technologies in many contexts, for example, (communicating with people, electronic marketing and academic activities). This increased expectations of citizens that the public sector organisation will provide services similar to those in the commercial sector with the same level of agility, effectiveness and efficiency (Ebrahim and Iran, 2005).

It worth noting that e-government is not only restricted to the internet applications or use thereof, it includes non internet electronic communication technologies. This covers, technologies such as telephone, fax, PDA, SMS, text messaging, MMS, wireless networks and services, Bluetooth, CCTV, tracking systems, RFID, Biometric identification, road traffic management and regulatory enforcement, identity cards, smart cards and other near field communication (NFC) applications (Cordella, 2007).

The e-government represents more than a diffusion of some technology in the public sector, but rather has emerged as a discipline concerned with the online provision of public services and exchange of information and services, facilitating interactive, collaborative and participatory engagement of citizens, businesses, employees and government agencies (Almarabeh and AbuAli, 2010; Wu, 2007; The World Bank, 2003). This allows government departments to network and integrate their services using information and communication technologies (ICTs) and the aim is to provide efficient government management of information, better service delivery to citizens and empower people through participation in public decision making (UN, 2005).

It is evident that e-government draws together various stakeholders and increasingly, there is recognition that the way forward to implementing e-government is through participation and involvement of these stakeholders, and further that the stakeholder groups have a significant role to play in ensuring the long term success of the e-government enterprise (Rowley, 2010; Axelsson, et al, 2010; Tan et al, 2005). A successfully implemented e-government offers significant financial, administrative, social and political benefits and value to stakeholders (Kumar and Best, 2006; Wesso et al, 2004; Cliff, 2004; Chircu, 2008). It is asserted that (Tassabehji, 2005) research on e-government increased at the time computers were adopted across the globe; consequently, the origin of e-government was rooted in the notion to promote and facilitate citizens' access to government information and services through online platforms, and to make government more accountable to citizens. This notion is noticeable in some definitions of e-government, for example, (Ho, 2002; UNPA & ASPA, 2001, Tapscott, 1996, World bank, 2001; Muir and Oppenheim, 2002; Coleman, 2006).

It is also evident that e-government involves using ICTs to enhance service delivery to its stakeholders with considerable improvements in efficiency and effectiveness of public service (Bhatnagar, 2003; Weerakkody et al, 2007 Heeks, 2003). However, implementing e-government in developing countries is still a novel phenomenon (Ebrahim and Irani, 2005) where a number of countries are still developing ICT infrastructure platforms and with others still at the initial phases of articulating e-government vision such as drawing ICT policies to act as an e-government enabler (Bwalya, 2010; Abu Ali, 2010)

In support of the perception that e-government is still at preliminary phases in developing countries (Sein, 2011) expounding on the literature (Heeks, 2000; Mukerji, 2008; UNCTAD, 2008), it is revealed that problems faced by developing countries are; access and use of e-government services by citizens; low literacy, where even amongst the literate resources are limiting; information access and information literacy is another constraint. Accordingly, higher percentages of population reside in non urban areas and e-government is largely not accessible to the majority of the people in developing countries (Ngulubane, 2007; Sein, 2011; Heeks, 2000). This picture suggests that the use of ICTs in providing public services is not a single solution for developing countries. However, the fundamental aspect of e-government is that it must deliver public information and services in ways that citizens want them using internet and other ICTs as leverages. This should have direct impact on the effectiveness of public services and governments' continuous contacts with citizens, especially those living in remote areas.

It is posited that in the traditional government concept, a government exists to serve the interest of the people (Kolsaker and Lee-Kelley, 2006) similarly e-government exists to primarily benefit the citizen-stakeholders. In order to successfully implement e-government in developing countries, it is imperative to understand the role of government entities, citizens' needs, priorities, challenges and peculiarities.

Therefore the notion of salience is necessary (Mitchell, et al, 1997) to categorise, identify, consult, engage and involve citizens' stakeholders in the e-government initiatives.

The traditional model of government is increasingly becoming less efficient (Sharifi and Zarei, 2004), as the emerging vast networks in interacting public, private and voluntary organisations could no longer be served effectively using the traditional setups of a single administration for single services and specific functions. This has propelled the need for e-based technologies to augment the traditional public sector administrations. It is against this background that e-government as the new business and governance model in the public sector, has attracted the attention of political leaders and statesmen around the world. The advent of technological revolution of the late 1990s which enabled delivery of services over the internet caused a major and rapid transformation of governments' functioning around the globe (Wimmer, 2002; Hwang et al, 1999).

In developed countries, the services are increasingly offered in a self service mode through internet portals that become a single point of interaction for the citizens to receive services from a larger number of departments (Bhatnagar, 2003). For example, countries such as Canada, Singapore and New Zealand are among the top twenty e-government leading countries (UN, 2005). In Singapore, citizens can pay parking tickets, job seekers can search for employment and public trustees can file an application for estate administration using opportunities provided by e-government (Ngulubane, 2007). As for developing countries, they have peculiar issues different from developed countries and these issues can have great impact on the success of e-government projects.

The potential for e-government in developing countries remains largely unexploited despite the fact that ICTs offers considerable potential for sustainable development of e-government. Developing countries in comparison to developed countries lack behind in e-government development (Ndou, 2004) and this is more predominant in Africa where e-readiness level, development indices and ICTs penetration and information literacy levels are very low compared to the rest of the world (UN E-government survey, 2012).

E-government in developing countries faces challenges different from those in developed countries, (Molla and Licker, 2005). A number of authors, ((Schware and Deane, 2003; Ebrahim and Irani, 2005; Raman et al, 2007; Wagner et al, 2003; Ndou, 2004; Molla and Licker, 2004; Reffat, 2006; Schuppan, 2008; Chen et al, 2006; Heeks, 2003), have outlined the barriers and challenges facing e-government implementation in developing countries. These include; (a) Inadequate ICT infrastructure development; (b) Lack of supportive legislation and policy environment; (c) Security and protection of privacy; (d) inadequate organisational, managerial and technical skills; (e) Inadequate leadership support; (f) Lack of transparency and citizens trust; (g) Information and data challenges; (h) Digital divide, accessibility and

e-literacy; (i) Lack of effective partnerships and collaborations; and (j) Inadequate funding.

In view of these challenges it becomes apparent that the role of government stakeholder is critical in developing e-government strategy and initiatives that will achieve citizens' engagement and involvement; build understanding, enable, influence and facilitate e-government development and implementation; and also secure citizen-stakeholder groups' participation and adoption of e-government, both in the short-term and long-term. Therefore citizen-users' involvement is crucial and some stakeholders need to be involved in the development of e-government to feed and assure information and knowledge for e-government development to drive both acceptance and adoption of e-government in a wider scope (Axelsson, et al, 2010 Mathiassen and Nielsen, 2008).

Central to the success and failure of e-government is the level of change between "where the e-government project is now" and "where the e-government project is intended to be". Where it is, refers to the current reality of the situation and where it is intended to be, refers to the models or concepts and assumptions built into the project design (Heeks, 2003). In addition, the success and failure of e-government projects largely depend on the extent of the gap that exists between the current reality and the design of the project. The greater the gap is, the greater the risk of failures. The smaller the gap is the greater chance of success. The e-government projects failure is also as a result of limited tools to evaluate initiatives and lack of appropriate strategies to better implement the projects (Esteves and Joseph, 2008).

1.3 Research Problem Statement and Research Question

Implementing e-government is neither an event nor one of project. It is not just about delivering services efficiently and effectively by compressing the steps required to accomplish certain procedural mandates, it requires changing the governance concept and transforming the relationship between government and citizens (Wesso et al, 2004). Governments must firstly understand the basic reasons for implementing e-government beyond just simply drafting laws and issuing political orders. It requires changing how officials think and act, how they view their role and share information between departments with businesses and with citizens (The working Group, 2002). Successful and widespread e-government implementation can be achieved through establishing and prioritizing processes and identifying exemplary strategies and practices. Furthermore, every e-government programme requires a clear idea of the proposed benefits to citizens, the challenges to be overcome and the level of institutional reform that has to take place for e-government to be a success in a given context (Weerakkody et al, 2007). In this regard, (Ebrahim and Irani, 2005) pose that e-government strategy is a fundamental element in transforming and modernising the public sector through identification and development of sound organisational structure and ways of interacting with citizens. It would seem the adoption of e-government can never be straightforward; rather it

requires an integrated citizen-groups engagement approach and strategy framework to facilitate access and place a wide variety of government information and services to citizens online.

Most governments experience difficulties when implementing large IT Projects, such as budgets and deadline overruns and often the quality of the system is far below the standard agreed when the price was undertaken and this failure by governments to manage public IT projects is seen as another threat to the implementation of e-government (OECD, 2001). For e-government to succeed there is need to overcome barriers posed by time, structure and culture of government administration (Culbertson, 2002).

It is argued that successful innovation requires enthusiasm and commitment from all parties involved (SDS, 2006). Successful e-government projects not only attract citizens who are already connected to the internet, but must equally be able to bring people online who are not already there. The ability to provide value adding services to citizens hosted on e-government infrastructure is paramount and reaching citizens in the physical world via e-government architecture is the best way to reach citizens in the virtual world. A person who banks over the internet must be able to pay their bills and taxes through their online financial institution. Equally somebody who buys their fishing kit from an e-commerce site should be able to buy their fishing license from the same web merchant (Reffat, 2006). Thus, using more resources to promote e-government and ensure that all members of society are capable of accessing government online more actively is a critical aspect in the establishment of a successful e-government project.

The success rate of e-government projects is approximated at 15%, with 50% being partial failures and 35% resulting in total failure (Heeks, 2004). Whilst a number of developing countries have established promising e-government initiatives, with the view to enhance accessibility of government services and information to their citizens, the downside, is that, governments tend to design and launch online services based on their understanding of what citizens need, surprisingly, without actually measuring what increases citizens' willingness to adopt web-enabled services (Mofleh and Wanous, 2008). Governments must first understand variables that influence citizens' adoption of e-government in order to take them into account when design and delivering services online. Increasingly, the society and the government readiness for e-government have become areas of interest in Information Systems (IS) research and different countries have different resources and capabilities (Ranerup, 2007). However, e-government readiness assessment is not an easy task, as each government deploys e-government systems according to certain missions, visions, and strategies. Moreover, different governments have different contexts, processes, and command over resource availability. For instance, high e-government readiness ranks are occupied by developed rather than developing countries. This is because different countries have different infrastructures, GDP levels, education rates, and growth competitiveness rates, and

all these are very important to build and maintain effective e-government initiatives (Yunis and Sun, 2006).) The provision of 24/7 electronic interaction by governments in developing countries may not be achievable with same efficiency and flexibility like in developed countries (Rahman, 2007).

It is argued (Ngulubane, 2007), that the major components of e-government are infrastructure, human resources and information, all of which are insufficient in Sub Saharan Africa (SSA) which region covers Botswana herein the research focus. The ICT infrastructure is not widely available to rural populations, government officials and the people who may want to use government services online lack basic skills. In most cases, Government information is not properly organized as records management systems in many countries are collapsing. Generally, Sub Saharan Africa is underdeveloped in the e-government implementation, with the exception of South Africa (SADC E-readiness, 2002; Schuppan, 2009).

Largely, developing countries in Sub Saharan Africa (SSA) have not adequately restructured public bureaucracies in response to the demands of the citizens. Many governments are still hierarchical and lacking accountability and transparency. Public bureaucracies still enjoy the monopoly of power and authority. Elected officials rarely relate closely to the electorate, and only consult with them when they need their votes after every four or five years. Government information systems are still mainly manually operated and paper-based. This situation in SSA is compounded by the fact that some bureaucrats and politicians view the ICT revolution as a “highly political affair and not a technical challenge” (Wilson III, 2004; Ngulubane, 2007).

Nations in pursuit of e-government should aim to improve government processes and integrate the disadvantaged communities into the main stream of the socio, economic, political and global world. This will enable the communities or societies to align with government and the change process. Central to the e-government development is that it must achieve citizen-centred service delivery, the development of which involves an increased role for information technology (Li, 2003; Heeks, 1999). Whilst e-government implementation faces many challenges, it is reported that the main challenge in the implementation of e-government in any developing country is whether the intended objective of reaching the citizens is actually achieved (Kamar and Ongo’ndo, 2007). Fundamentally, e-government should reach all the people who need government services regardless of their location, age, status, language, or access to the Internet.

In Botswana where in some areas free access to ICT is offered, For Example, (Sesigo project, 2010) by Microsoft offering computers and internet access in public libraries and reading rooms in selected villages across country. There is also I-partnership scheme set by government for government employees to obtain advances to buy computers. Notwithstanding, the deployment of strong ICT infrastructures and access centres (Community Access Centres) countrywide, there is still low access and usage of ICT. The personal computer and internet penetration

levels stand at 3% and 6% respectively and only 20 computers had been bought through the I-partnership scheme by September 2011. Ironically, the mobile penetration is Botswana stands at 120% of the population (UN survey, 2012). Therefore it cannot be argued that ICT is for development (Chaudhuri, 2012; Westrup, 2012) as technology adoption is conditional upon need and absorptive capacity, the authors argue that ICT4D only benefits government bureaucracies, consultants, NGOs, vendors, academics, except the proposed users of the technologies.

Aligned to the view by (Chaudhuri, 2012; Westrup, 2012), it is hereto posited that the overwhelming higher mobile penetration in Botswana confirms the argument that mobile phones have emotional appeal given their universal psycho-sociological propensity as opposed to utilitarian of computers and internet technologies. A snapshot research (Bwalya, 2010) revealed low levels of government website awareness, access and use by citizens in Botswana. This also validates sentiments by (Office of Envoy, 2003) that governments do not recognise the need for stakeholders in evaluating the design of websites. The peculiar case of Botswana is attributable to lack of citizen-stakeholder involvement in the design and development of e-government. Consequently, government advancing schemes and initiatives that they (government) feel citizens need without engaging citizens to ascertain their needs thus likely to provide e-government project amiss.

Undoubtedly like any change, e-government, as a new approach to better government, is an innovation that can be adopted or rejected by the citizens depending on how it is implemented. It is, therefore, important to ensure that the society's e-readiness is correctly assessed; here the society's e-readiness is the citizens' preparedness and willingness to adopt e-government (Moatshe et al, 2010). One key aspect of e-government implementation has been the service orientation to make government more 'customer-friendly', thus, government to citizens (G2C) initiatives designed to facilitate citizens' interaction with government online is the primary goal of e-government (Yong, 2004).

Government and citizens have a contract and participation is a key element of this contract (Magnetle, 2003). Consequently, citizens' involvement and participation in e-government design and implementation is necessary for e-government project's success. This view emanates from the perspective that citizens are key stakeholders in systems for e-government (Ghosh and Chavan, 2008; Molin-Junstila et al, 2008). Therefore, the author (this case study) contends that, identifying citizen-stakeholders and knowing what citizens want and engaging them is critical to e-government adoption. The identification of e-government stakeholders in a robust, structured, defined and deliberate manner is critical for getting information and knowledge required for e-government development and implementation.

Therefore stakeholder analysis must be performed to determine their relative degrees of salience (Mitchell et al, 1997) as failure to do the citizen-stakeholder

analysis is likely to result in omitting other significant and important stakeholders whom the whole objective of implementing e-government rests upon (Scholl, 2004). On this basis the stakeholder theory and user involvement theory (Freeman 1984) are applied in this research, in addition it would seem in the e-government implementation, after identifying stakeholders, the involvement process must follow to determine which stakeholders to involve and the level and extent of involvement. In this regard, elements of other user involvement theories are also applied alongside the stakeholder theory, as there is no unified, emergent and strongly predictive innovation adoption and diffusion approach (Fichman and Kemerer, 1993; Schumarova and Swatman, 2006). This approach is noticeable in research studies of (Kamal, et al, 2011; Scholl, 2001; Flak and Rose, 2005; Saebø et al, 2011), hence the stakeholder theory can be combined with other theory frameworks (Freeman, et al, 2010).

On the basis of the foregoing discussions (section 1.2 and section 1.3) above, although e-government development and implementation is increasingly being undertaken in developing countries, it is however still faced with many challenges and its diffusion and adoption by citizen-stakeholders have not yielded expected success. This research therefore followed a:-

Literature based approach to establish and investigate factors influencing e-government in developing country, challenges thereto, identify the role of government stakeholders and strategy framework initiatives to guide citizen focused e-government development and implementation. Case studies experiences of developed and developing countries are critically reviewed, key successes and failures contributors observed and critical strategy success contributing factors identified as a basis for citizen centric strategy framework development. Critical to this is unearthing the importance of citizens' stakeholders' involvement and participation in the e-government design, implementation and adoption.

Preliminary study carried out in 2010 to establish the feasibility and scope of the study, followed by an extensive empirical case study research in Botswana to establish government and citizen-stakeholder implementation and adoption issues. See chapter five and six.

In order to fully understand the e-government citizens and government stakeholder factors influencing design, implementation and adoption, the research problem was hitherto formulated:

How can influences upon success in e-government project be better understood and citizens' stakeholder adoption of e-government enhanced to facilitate successful development of e-government in Botswana?

Subsequently the research problem is broken down into three sub questions that guide the study namely;

(a) How citizen-stakeholders can be informed, consulted and involved in e-government design and implementation in Botswana?

(b) What are the factors that enable, influence, build understanding and facilitate citizen-groups adoption of e-government?

(c) How could citizen-stakeholder groups' participation, adoption and continuous use of e-government services be secured?

1.4 Research Aim and Objectives

As mentioned in (section 1.1) this research aims to understand stakeholder related factors that can facilitate or impede the implementation of e-government in the context of Botswana. The overall aim is to (a) propose an e-government strategy framework and (b) citizen-stakeholder centric implementation (CSCEI) conceptual model to guide the e-government initiatives in Botswana. To achieve this aim, the following objectives had to be achieved;

1) To critically assess and evaluate the key e-government strategy and design elements influencing both the implementation and citizens' adoption of e-government.

2) To critically investigate enabling and facilitating factors for informing, consulting and involving citizen-stakeholders in e-government design and implementation towards securing active participation and adoption by citizen-user groups.

3) To develop an e-government strategy framework and citizen-stakeholders centric e-government implementation (CSCEI) conceptual model within the Botswana context.

1.5 Introductory Background of the Botswana Case Study

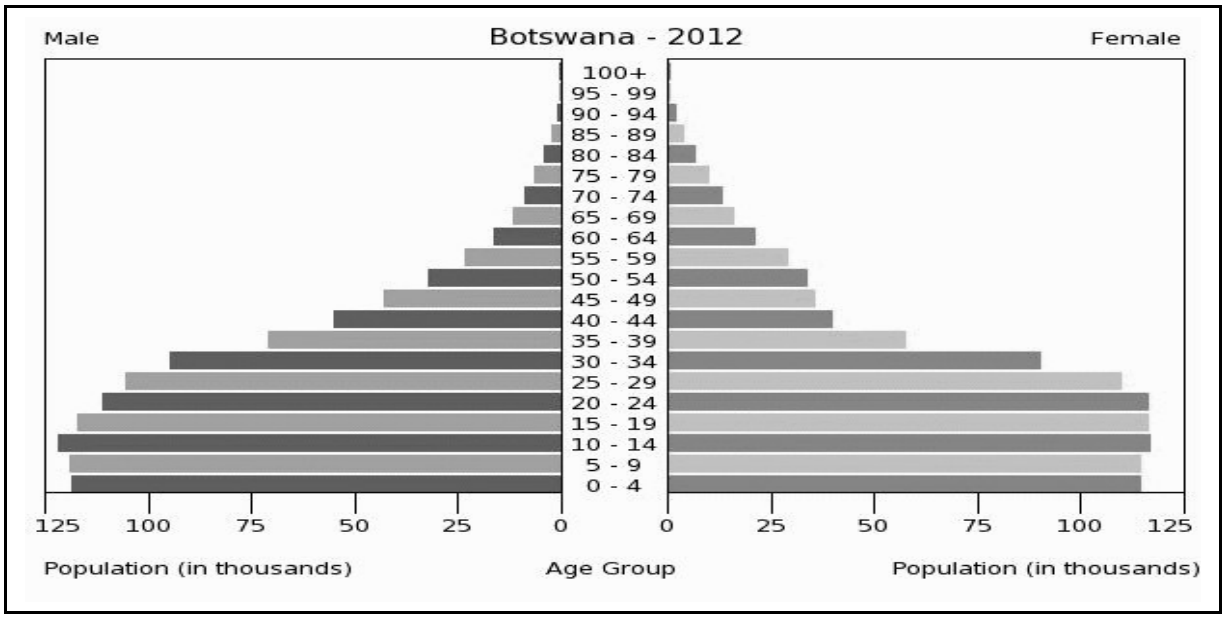
Botswana is a democratic and landlocked country, located in South Africa, Namibia, Zimbabwe and Mozambique, with a big semi-arid land surface of 582, 000 square kilometres, with 70% of the land topology covered by the Kalahari Desert (AfBD /OECD, 2008). In comparison to neighbouring countries Botswana has a very small population of 2 million people, while neighbouring South Africa is 48.9 million, Mozambique 23.5 million, Zambia 13.8 million and Zimbabwe 12.6 million people (CIA World fact book, 2012).

The population is concentrated in the eastern part of the country with over 55% of the people dwelling within 100km radius of the capital city of Gaborone (South-Eastern), while the other 45% is sparsely distributed though across the country. Though the population is small it comprises of many tribal segments with diverse

cultures, for example, 26 small villages each have a population of less than 5000 people. These villages have different culture, values, beliefs and norms. Their economic climate, commodities, access to development and government services differ from geography to another. Majority of the population in Botswana are youth below the age of 30 years (where youth are people between the aged of 12 and 29 years), with 57% of the population comprising of people below the age of 25 years and 20% of the population lies in the range of 15-24 years, when 4.2% of the population falling between 55-64 years and 65 years and over at 3.9% of the population (AfDB, 2012; CIA World Fact Book, 2013; Botswana Central Statistics Office, 2011).

The structure of the population can affect the country's socio-economic and political planning as countries with young population need to invest more in schools while countries with older population need to invest more in health sector (CIA World Fact Book, 2013). Botswana has quite a different labour force structure, with relatively high formal sector employment and relatively small subsistence agricultural sector (United Nations System, 2007) and the formal employment sector is largely dominated by government (local and central), which accounts for 46.7% (Botswana Labour Statistics, 2010). There is high unemployment experienced by the younger age groups at 35% for age cohort 20-24 years and 41.4 % for aged group 15 to 19 years (United Nations System, 2007; MFDP Budget Speech, 2012). The overall unemployment rate stood at 17.8% percent of the total labour force in 2011 compared to 17.5% as indicated in the 2005/06 Labour Force Survey. At 17.8%, unemployment remains a significant challenge which could have a bearing on the uptake of e-government considering that the Botswana population is predominantly youth. This skewness of population distribution towards a youth age category is shown in Figure 1.1 below.

Figure 1.1 Botswana Population Pyramid



(Source CIA World Fact Book, 2013)

The population structure comprises of cities, towns, urban villages, sub villages, and rural and remote villages with different economic conditions with some rural areas lacking basic commodities such as good housing, better health facilities, roads and electricity more at household levels compared to other places (towns, cities and urban villages). There are also low levels of disposable income, yet these are amongst the most consumers of government services (Botswana Central Statistics Office, 2011). The population also comprises of the stakeholders of; youth, students, employees, senior citizens, local communities, executive government, politicians and administrators, other elected and influential citizens groups.

Administratively, Botswana is demarcated into 28 regions comprising of district and sub districts (Botswana Central Statistics Office 2001: 2011). These district administrative divisions fall under local government district administration authority headed by District Commissioners per each of the 28 regions with specialised broad arms of authority. The three arms of district administration authority are the Tribal Administration, District Councils and Land Board Administration. A number of sub agencies are falling under each of these three arms of authority *(*Central Statistics Office, 2001; 2011; Botswana Profile Report, 2013).

This setup forms the fabric point of contact between ordinary citizens and central government at district, sub-district and village levels inclusive of even remote areas. There are communicative and consultative structures showing the various authority levels and relationship chain of select people who represent ordinary citizens in the districts (at village and sub village levels) and whom citizens depend on frequently, for public services, interactions, guidance, mentoring and opinion holding. The following elements have been noted about the structures;

- These representative authority and subordinate structures are of various work / industry sectors, and other backgrounds, examples are; social workers, land board employees, educators, agricultural administrators, youth organisations and other sectors.

- Some of them, for example, members of Village Development Committees (VDCs), Sub land board committees in each district (main and sub villages) and Councillors are directly elected by citizens to represent them over a given term of every 2-5 years on a range of day to day matters that affect their life and well being, so there exists relationship based on significant confidence and trust.

- The chiefs (paramount and representative, at both district and sub districts levels), are perceived closer to the citizens as they interact with them more often and because chieftaincy is hereditary, knowledge and familiarity between the chiefs and people are established over a long period of time. Therefore unique relationships have developed overtime.

- In addition there are District Multi Sectoral Committees (DMSC), District Development Committees (DDC) comprising of members from various government structures in the districts and villages. The chiefs adjudicate open Kgotla meetings which are a public forum for consultation, where a Kgotla is a traditional village social and consultative centre, they facilitate establishment of village ward committees and development committees (VDCs / WDCs); they promote the welfare of their respective tribes and serve as nominated members of the district councils.

These relationships and representations necessitated by the administrative structures in the respective districts facilitate better understanding of citizens' behaviour trends, attitudes, expectations, fears, interest, needs, abilities and priorities and have enabled citizens to trust on their representatives, leaders and mentors and value their judgement and opinions on a wider spectrum of issues especially relating to governance

Botswana like any developing country is faced challenges which include inter alia; declining rankings in global competitiveness, labour market and public sector inefficiencies, escalating unemployment and crime, declining quality of life and reduced trust in government (Kereteletswe, 2009). These challenges compelled Botswana government to embark on e-government implementation, with an e-readiness assessment conducted in 2004 and followed by the enactment of the National ICT policy in 2007. This policy sets the platform for e-government implementation for provision of e-information and e-services through government web portal (National ICT, 2007; Maitlamo Policy, 2004; MFDP Budget Speech, 2009).

Botswana through the ICT policy Botswana targeted for a service oriented government (client centred service delivery) offering vertically integrated online transactions and information access to citizens by 2010, and further to be a fully transformed and seamless government providing a horizontal service delivery by 2016 (UNPAN, 2009; Botswana E-readiness Report, 2004; National ICT Policy 2007; UN E-government Survey, 2008). However, despite the efforts and ambitious targets, Botswana still experiences lower levels of ICT usage and penetration save for a higher penetration on mobile phones of over 100%. Internet users' penetration stands at 6%, Broadband Penetration at 1% and PC penetration at 3% of the population respectively (Kereteletswe, 2009; Pheko, 2009). Botswana also still does not have the necessary e-government legislation in operation and the laws such as, Data protection; Electronic commerce; Privacy; Electronic signatures; and Freedom of information/access to information are yet to be enacted.

Challenges have been noted concerning the e-Botswana portal build up, prolonged approval process affecting delivery of e-government project milestones, E-

government not adequately embraced in the highest level of government, Lack of effective governance structures, Lack of professional and effective promotion and awareness campaign, Lack of content publishing standards for harmonization with UNPAN portal requirements for example in font, style and sensitivity, lack full buy-in from middle management (directors accountability for posted content) and lack of common understanding among change agents and project team members (UNPAN, 2009). Botswana in common with the developing world has lagged behind in providing access to and usage of latest ICT tools and resources to its citizens and in integrating ICT use into her social and economic mainstream, this exists in spite of strong infrastructure (Sesigo project, 2010). It is lamented that this peculiar feature of the Botswana ICT status of low access and usage levels exist in a country endowed with a developed and modern telecommunication infrastructure. Other challenges identified relate to privacy concerns, limited IT skills and training, digital divide, culture issues, and lack of citizen awareness and participation (Nkwe, 2012).

Lack of allocated budget for e-government deployment has also been highlighted by (UNDP, 2006; Nkwe, 2012) and further concern expressed on disparities between people in urban and rural areas in the provision of ICT services (MCST-Minister, 2010). This highlighted the need for policy makers, regulators, operators and related industries to encourage the adaptation of policies and strategies to help promote ICT to citizens especially in rural areas.

1.6 Importance of Citizen Stakeholders' Involvement in E-government

It can be seen (section 1.5) that there are various citizen-stakeholders whom government have to involve in the e-government design and implementation, following the view (Rowley, 2010; Tan et al, 2005) that effective implementation of e-government can be achieved through participation of these stakeholders.

Given the characteristics of the Botswana case study coupled with view that e-government concept is new (UN, 2008; National ICT Policy, 2007) hence, not known by majority of citizen-users. It is imperative for the study to elect an innovation adoption framework that focuses on the process that can better assist the project implementers to achieve the desired citizen-users' adoption outcome.

The development and implementation of e-government that meets its intended goals is a mammoth task (Persson, 2009) and amongst the difficulties of e-government is the users' unwillingness and resistance (Kim and Kankanhalli, 2009; Leornardi, 2009). The quest to unravel the difficulties of e-government development and implementation, propelled the need for recognition of various e-government stakeholders who are affected by the project within the two primary categories of

stakeholders identified as; government and citizens (Flak et al, 2007; Goldkuhl, 2007). This opened up an avenue for the use of stakeholder theory in e-government research (Flak and Rose, 2005; Scholl, 2004; Sein, 2011). In this instance, the author elects to use stakeholder theory combining its use with the user involvement theories based on the views by (Freeman, 2010).

Understanding and determining the population (citizen-user groups) e-government intends to serve is a critical phase of e-government initialisation. Governments have to employ all efforts to provide user focused e-government electronic services equitably. This can not be achieved by only focusing on the physical access, afforbability of hardware, software, connectivity e.g internet and ICT skills, focus should extend beyond to cover; what motivates individuals to become connected and familiarize themselves with government on line.

Adoption is not a momentary irrational act (Bush et al, 2009), but a continuous and ongoing process where citizen-user adopters have an opportunity to be consulted, engaged, participate, learn about e-government, be convinced, motivated and persuaded to try it out before making a decision to adopt or reject it. This emphasizes that e-government innovation is a process that must highly be facilitated, supported over a period of time to yield the desired adoption levels by citizen-users.

Citizens play a multifaceted users' role in e-government (Goldkuhl, 2008). They are direct and indirect users of e-government, customers and clients of the public administration (Ho, 2002; King, 2007; Denhardt and Denhardt, 2000), voters, and influencers (Alford, 2002; Olsen, 2005). Undoubtedly, a largely heterogeneous users and their engagement in e-government is a central part of the process of managing and organizing e-government projects. Therefore involvement and participation of citizens in e-government initiatives, starting with e-readiness assessment is fundamental to a successful e-government implementation and adoption as all citizens participants have a view of what they would like themselves, their children and their communities to have in the future and it enables government to;

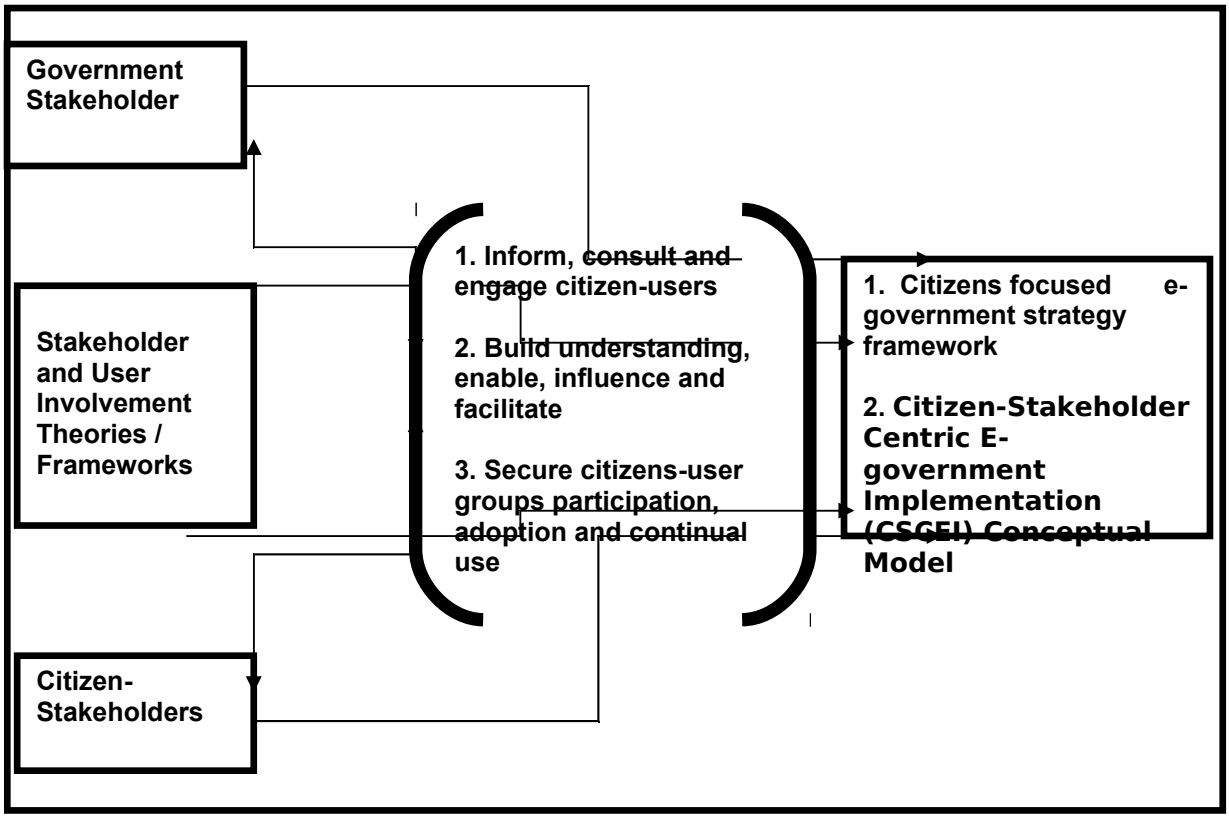
- Prioritise citizens awareness as a critical component of the change model, notably so with e-government
- Provide information and education for citizens to make evaluation of the e-government change process.
- Identify, define and classify citizens' segments groups information needs and prioritise accordingly;

- Identify and effectively use the communication media within the population social networks
- Appropriately gauge citizens' capacity and propensity to accept an innovation and maximise the use of opinion leaders, change agents and other citizen organs likely to be effective in disseminating information across a wider societies and communities.
- The greater awareness amongst citizen-users creates understanding, trust and accelerates adoption.

The primary objective of e-government involves improving the citizens' means for interaction with government entities through facilitated access to public information and services (European Commission, 2011). This process involves the strengthening of government transparency and involvement of citizens' stakeholders in the policy and decision making processes. It is posited that once citizens are engaged their level of interest to participate and adopt e-government will exponentially increase.

It is therefore increasingly becoming visible from the above discussions that e-government implementation initiatives in Botswana need to be guided with strategy input and research based frameworks to help increase project's success rate. Hence, the apparent gap that this study intends to fill. The research problem and sub questions, focus and theoretical approaches that guide the study are herein contextualised in figure 1.2 below

Figure 1.2: Research Guide towards Citizens' Focused Strategy Framework and CSCEI- Model.



In order to answer the research question and sub questions, address the research objectives and fulfil the aim of study a thorough and coordinated methodology was utilised in this research and the overview process is presented in the next section.

1.7 Research Methodology Overview

E-government has varied stakeholder groups and its implementation is a very complex endeavour which requires multiple approaches in answering research questions, rather than restricting and constraining researchers' choices. Hence, mixed method research which combines the use of qualitative and quantitative paradigms was used in this research. Mixed methods can be utilised either in parallel or sequence or in a single study that investigates the same underlying phenomenon, (Onwuegbuzie and Leech, 2006) and is considered effective, efficient and powerful as opposed to the use of a single method, (Thomas, 2003; Stewart and Cash, 2006; Saunders et al, 2003). It is also preferred for its complementary approach to data validation and methodological triangulation (Johnson and Christensen, 2004; Brewer and Hunter, 1989; Blaikie, 2009).

The case study of Botswana was used to conduct this research and the triangulated data collection methods and processes detailed and elaborated in chapter five started with an initial case study conducted in December 2009 and January 2010 which enabled the research to establish the feasibility of the problem being investigated, determine research scope and target respondents. Data for the

extensive empirical research conducted in 2011 was collected from multiple sources through the use of (a) questionnaire surveys, (b) interviews, (c) observations, and (d) document artefact.

Questionnaires Surveys: In light of the population characteristics of Botswana discussed earlier (section 1.5), it was necessary to cluster and target respondents with two sets of questionnaire surveys conducted at different times: (a) across a wider geographic sample on opinion leaders, citizens' mentors, change agents and other critical stakeholders within government and non government structures, (b) ordinary citizens-user adopters

Interviews with key e-government informants: Citizen-groups adoption of e-government apart from consultation and stakeholder engagement is also largely facilitated by factors such as infrastructure, laws and policies, funding, information access and literacy, security and protection of privacy, organisational, managerial and technical factors. These factors are predominately driven by government stakeholder and policy implementers and are the foundation of the e-government strategy design. It was necessary to interview key government and associated partners' informants on these issues and further follow-up on citizen-stakeholder engagement issues raised through the questionnaire surveys.

Observations and discussions with operators of community access centre (CACs): Observation is a valuable data collection technique in a case study (Yin, 1994) and is complimentary to the interview, (Powell, 1997). It was necessary for this research to conduct observations on the already operating information centres ran by the village development committees and Botswana Post and this was conducted in the Kgatleng District as a model mentioned in section 5.6.4.

The observations and discussions with centre operators were conducted for a period of one week on the four (4) information centres run by VDCs and Post office, and six (6) private internet service providers (ISPs) in Kgatleng and Gaborone. This aspect of study complimented and validated data obtained through questionnaire surveys and interviews by establishing the;

- Utilization of the Community Access Centres (CAC) and private internet service providers (ISPs), established services that citizens acquired from the CACs, frequencies thereof and challenges encountered.

- E-government services priorities that may have been influenced by activities of the communities, gained understanding of the structure, sustainability and the business models for CACs

Documentation and Artefact: secondary data is useful because; (a) collecting primary data is difficult, time consuming and expensive, (b) research can never have enough data; (c) it makes sense to use them if the data needed for research already shed light on or complement the primary data that has been collected, (d) may

confirm, modify or contradict the research findings, (e) allows researcher to focus his attention on analysis and interpretation, and, (f) research cannot be conducted in isolation from what has already been done (Blaxter, 2003; Blaikie, 2009; Punch, 1998; Powell, 1997; Yin, 1994; Fink, 1998; Hart, 1998; Saunders et al, 2000). On this note, perusal of documentation artefact covered policy and related documents impacting on e-government to establish and identified issues raised above and also emerging ones.

1.8 Research Contribution and Significance

This research has made novel contributions to both literature and field of knowledge within the e-government domain. Contribution to the literature addresses the literature gaps by providing clarity and focus on the key influential elements (e-government strategy critical success factors) that drive the e-government project success. These have been identified through a critical analysis and review of applied experiences of e-government implementation and citizens' adoption in developing and developed countries to provide insight into what factors contributed to projects successes and failures. Another contribution to the literature is the well detailed and demonstrated process approach offered on citizens' stakeholders' engagement and involvement process, how citizens can be informed, consulted, involved, supported, enabled, influenced and facilitated to participate in the e-government design and implementation leading to adoption and continual use.

The empirical evidence gathered in the course of this research has verified the conceptual frameworks on citizens' engagement process and e-government strategy critical success factors, resulting in new contribution to knowledge on proposed (a) Conceptual citizen-stakeholder centric e-government implementation and adoption model, and (b) E-government strategy success framework. Both the model and framework will significantly guide the current e-government implementation in Botswana and also serve as guiding tool to other countries with similar conditions as Botswana. In addition e-government is relatively new in Botswana with very limited existing literature hence this research provides foundation for future research endeavours on e-government in Botswana. See chapter nine for detailed discussion.

1.9 Structure of the Thesis

This thesis is structured into nine chapters with comprehensive discussions and examination of the study background and framework, conceptual basis, methodology, data analysis, findings and conclusions. These are outlined hitherto in

a chapter by chapter brief explanatory discussions followed by Figure 1.3: Overview of the thesis.

Chapter 1: Introduction and Background to the Study

The chapter has provided an overview of the research study, stating clearly the scope, research problem, aim, objectives, main research question and sub questions. A brief introduction of the Botswana case study is presented, the stakeholder theory discussion made in relationship to the research problem and the process overview of the methodology and design process followed in conducting the research and issues investigated.

Chapter 2: E-government Literature Review

The chapter has captured the e-government overview, definitions, concepts and applications and overview of e-government benefits accruing to both citizens and government stakeholders. E-readiness and its impact to implementation are also discussed. The chapter further discussed e-government development, implementation and adoption theories, models and frameworks in the existing body of knowledge and mainly established a case for the use of stakeholder theory augmented by user involvement theory to provide a basis for conceptual framework arguments made in chapter four towards a citizens focused strategy framework and citizen-stakeholder centric e-government implementation and adoption model.

Chapter 3: **E-government Comparisons and Implementation Experiences**

In this chapter the e-government experiences in developing and developed countries have been discussed and comparisons made. The conducted critical review and analysis of implementation experiences enabled the study to make note of real strategy evolving issues influencing the success and failure of projects. The view here was to further establish a bankable case for the initial framework development. Finally, implementation experiences were contrasted with other research based literature on e-government success drivers to identify the knowledge gaps.

Chapter 4: Conceptual Framework for E-government Implementation

Building on the discussions in the previous chapters, notably chapter three, observations made from implementation experiences have been discussed, with initial e-government strategy success factors identified, proposed and defined as likely to influence e-government projects success. Stakeholder theory and user involvement theory are discussed at length in the context of citizens' involvement and participation in e-government development to justify both the adoption and strategy conceptual frameworks advocated.

Chapter 5: Research Methodology and Research Design

In this chapter the methodology adopted in the study is outlined. This covers an overview of the research philosophy; design, strategy methods and techniques used to gather empirical data and the rationale for research choices and also discussed the data analysis. The case study was used a mixed method research with triangulated data collection methods and techniques employed to gather data. In view of the mixed methods research and use of triangulation, the analysis of data for the two questionnaire surveys was performed through the use of statistical analysis using multiple standard regression analysis and narrative analysis for interview to complement the statistical analysis, also qualitative analysis was used for observation data and document artefacts. Issues of validity and reliability were addressed through conducting initial case study at the beginning of the study to establish project feasibility and by appropriately targeting respondents. In addition through the use of triangulated data collection methods and techniques (data, methodological, environmental and analysis triangulations) and the use of well established Botswana administrative district structures across the wider population sample to target respondents also enhanced validity and reliability. The multiple targeting of informants countrywide enabled the generalisability and transferability of results across a wider scope.

Chapter 6: Botswana Case Study

Expanding on the brief introduction of the Botswana case covered in chapter one (section 1.5), the socio-economic and political background account of Botswana are presented in this chapter. The ICT landscape and connectivity, e-government status and Initial e-government targets, current status of project's implementation, key milestones achieved to date and outline of unique and peculiar issues to Botswana.

Chapter 7: Research Findings and Analysis of Data

The research findings from the analysis are presented in this chapter. The analysis of data has been performed mainly through SPSS Multivariate regression analysis, testing Multiconlinearity, normality tests, normal distribution, linearity and homoscedasticity, validity, reliability test and factor analysis to test the hypothesis formulated to solve the research problem and answer the research question and sub questions. This has been complemented by the use of qualitative analysis for data obtained through interviews and observation sources.

Chapter 8: Summary of Findings and Recommendations

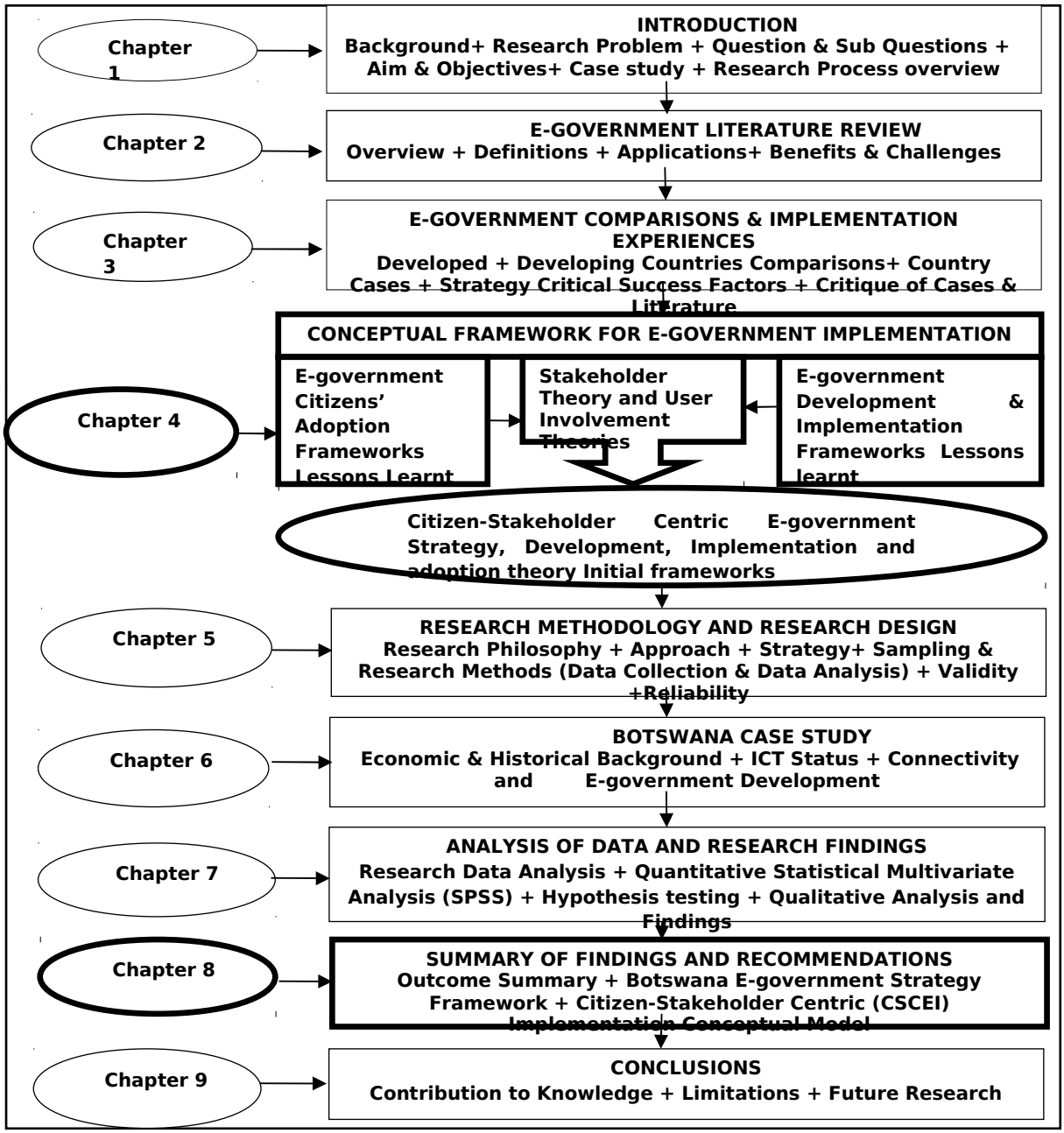
In this chapter a summary of the findings is provided with recommendations linking the e-government strategy factors to implementation and adoption success to support and substantiate the proposed strategy framework and conceptual model

thereto. This has been done to show how the research findings answered the main research question, met research objectives and achieved the aim of study.

Chapter 9: Conclusions

In this final chapter the final results of the study have been concluded, highlights of the contribution to knowledge made by this research, implications for the research and limitations thereof presented, as well as perspective for the future research.

Figure: 1.3 Overview of the Thesis



CHAPTER 2: E-GOVERNMENT LITERATURE REVIEW.

2.1 Introduction

E-government implementation in developing countries is confronted with many barriers which require winning strategies in order to successfully implement the projects (Ebrahim and Irani, 2005; Ndou, 2004; Chen et al, 2006; Molla and Licker, 2004; Reffat, 2006). Inter alia, the barriers include; weaknesses in governance systems, ineffective political structures, lack of requisite technical skills, proficiency and weak implementation capacity, ineffective information provision and access, poor infrastructure, a non-conducive policy environments and legislations. The fundamental aspect of e-government is that it must deliver public information and services in ways that citizens and businesses want them using internet and other ICTs as enablers. Thus, e-government serves as a platform of infrastructure that governments today are building to transform the way they fulfil their missions, values and aspirations. This should have direct impact on the effectiveness of public services and governments' continuous contacts with citizens, especially those living in remote areas. Winning strategies are therefore needed for successful implementation of e-government. Fundamental to successful e-government project and adoption by citizens is the readiness of the environment. In order to achieve success in e-government, the government stakeholder commitment, strategic guide and conducting e-readiness assessment should become high priorities and prerequisites must be to ensure that e-government reaches all the citizens regardless of geographic dispensations, economic, social and political status, age, language, or access to Internet. People with low income, women, youth, disabled, disadvantaged and those living in rural areas should systematically benefits from newer technologies.

The review of literature in this chapter highlights the overview of the e-government concept (section 2.2), discussing the origion, purpose of implementation and the value to both citizens and government stakeholders. E-government definitions (section 2.3.1) are discussed with meanings derived to inform the study in the subsequent chapters and also the perspectives and evolution phases (section 2.3.2). This is followed by outline of the implementation benefits to citizens (section 2.4.1) and government stakeholders (section 2.4.2). The importance of e-readiness and the intertwined relationship with e-government is explained (section 2.5). The challenges of implementing e-government are identified, presented and discussed (section 2.6), with the review of the existing literature performed to analyse already existing implementation success factors (section 2.7.1) as well as the existing adoption models and frameworks (section 2.7.2) to see how they ehance e-government success. In (section 2.8) the adoption models are critiqued to determine their fit for purpose or otherwise in this research and lastly, succinct summary of the chapter is presented (section 2.9).

2.2 Overview of the Egovernment Concept

The concept of e-government is widely believed to have emerged around 1990 following the 50years of information technology (IT) use in the public sector environments (Flak et al, 2007; Young-Jin and Seang-Tae, 2007). While other literature for example (Spremic, et al, 2009) believe that the e-government idea was raised by the United States of America vice president (Al Gore) within his vision of linking the citizens to the various agencies of government by getting all kinds of government services automated, this was coupled with government costs reduction measures, performance improvement, speed and delivery, and also the effectiveness of implementation.

It has been observed that the term "'e-government'' is not universally used, it encapsulates a wide variety of meanings ranging from policies that foster the development of information infrastructures to efforts that address digital divide (Akman et al, 2005; Heeks, 1999: Cawkell, 2001). Many studies have defined e-government in different ways: For example, the e-government hand book for developing countries (InfoDev, 2002) views e-government as a powerful tool to help all types of economies (developed, developing and in transition) to bring the benefits of the emerging global information society to the largest part of their respective societies including a greater transparency and accountability in public decisions, powerful ways to fight corruption, the ability to stimulate the emergence of e-cultures and the strengthening of democracy. Here, e-government is seen as a tool for achieving broader public sector reform goals and objectives (Yildiz, 2007). On the other hand the (World Bank, 2008) conceptualizes e-government as the use by government agencies of information technologies, Wide Area Networks, the Internet, and mobile computing that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends, such as better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions. Similarly, e-government has also been defined as the use of information and communication technologies (ICTs), and particularly the internet, as a tool to achieve better government (OECD, 2003). Better government is simply not just about computerisation of government systems; it entails the capability to use technology to achieve improved levels of efficiency in various spheres of government (Dada. 2006), share information and deliver services to both internal and external clients (Bhatnagar, 2004) and consequently transform the government relationship with citizens' stakeholders.

Mainly e-government is intended to make the government and its policies more efficient: through connecting citizens digitally to their government in order that they might have quicker and better access to public information and services offered by government agencies, and also enable citizens to use services in a more personal and cost-effective manner (Baldwin et al, 1996; Prins, 2001; Bates et al, 2002;

Singh, 1999; Bekkers and Zouridis, 1999; Atkin et al, 2006; Heeks, 2003; Atkin et al, 2007). Even though, traditionally, nations have relied on telephone networks to fulfil similar telecommunication functions, increasingly there has been a shift and migration of information services provision via Web-based technologies (Grant and Meadows, 2007; Lin and Atkin, 2007). In this view, ICTs and internet especially, have significantly become the leverages and drivers for improved relationship between government sector and citizens or business sectors (Millard, 2003; Seifert, 2003; Schware, 2005). However, e-government is not just about the technology it uses, but rather about the development and improvement in services that it ensues (World Bank, 2008; Rahman, 2007; Brown, 2002). E-government represents more than a diffusion of some technology in the public sector. Rather, e-government, along with the set of its accompanying operations, can promote important changes resulting in more streamlined operations and better citizen-oriented services (Yunis and Sun, 2006).

Research (Heeks & Bailur, 2007; Yildiz, 2007; Evans & Yen, 2006) reveals that e-government concept definitions reflect the agenda and priorities in government strategies and the key focus of the implementation. Judging by this assertion and foregoing overview, it is observed that the value intended from the implementation of e-government is more pronounced at both the government and citizen levels. At the government level, the application of e-government has the potential to enhance effectiveness and efficiency, and at the customer level, e-government can promote satisfaction and empowerment by facilitating the provision of new and enhanced services that encourage citizens participation in political processes (Gupta and Jana, 2003; Jaeger, 2003; World Bank, 2003), thus, strengthening democracy and minimizing the distance between citizens and government (Macintosh et al, 2003). Therefore, the government and citizens respectively emerge as the two dominant and key stakeholders in the e-government development, implementation and adoption. These stakeholders are the central focus of this research as mentioned in chapter one (section 1.1). This view is supported by (Schware and Deane, 2008) perspective that the e-government impact on society hinges on; direct citizen value; social value; government operational value; strategic political value; and government functional value. See table 2.1 below.

Table 2.1 E-government Impact

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The objectives of implementing e-government are summarized (Schware and Deane, 2008) as to; (a) improve efficiency and transparency of government entities in the provision of information and services; (b) improve relationships and interactions amongst citizens' stakeholder groups and with the government; and, (c) achieve active participation of citizens' stakeholder groups in the socio-economic and political processes and consequently realise a better governance and democratic society. Therefore this substantiates further that citizens and government are critical stakeholders in e-government implementation.

2.3 Definitions, Perspectives and Evolution Phases of E-government

The prevailing revolution in information and communication technologies (ICTs) is not only changing the daily lives of people but equally changing the characteristics of the interaction between governments and their citizens (Akman, et al, 2005). This is coupled with the globalisation and privatisation of the world societies, cultures, politics and economies that requires organisations of all types, world-over to be more competitive, more productive and, most importantly, even more customer centric and agile. As a result of the pressure of stakeholders, particularly citizens, Governments around the world are transforming the way they operate to reinvent government

systems in order to deliver efficient and effective services, using the current Information and Communications Technologies (ICTs) and other accessible technologies. These changes have rapidly ushered new forms of government, referred to as Electronic-Government (e-government). The various services that different governments are using to reach their users electronically depending on the level or stage of e-government development and the users' needs, also create an expectation as the adoption of ICTs and related practices in the commercial sectors, such as e-commerce, e-business and the diffusion of the internet among the general population have led to rising levels of comfort and familiarity with the technologies in many contexts, (Ebrahim and Iran, 2005).

2.3.1 E-government Definitions

The e-government concept has been broadly and narrowly defined by various authors and agencies (Abramson and Means, 2001; Coleman, 2006; World Bank, 2001; Aicholzer and Schmutzer, 2000; Fraga, 2001, Muir and Oppenheim, 2002; UNPA & ASPA, 2001, World Bank, 2008; OECD, 2003). For example, e-government is defined as an Internet-worked government which links new technology with legal systems internally and in turn links such government information infrastructure externally with everything digital and with everybody such as the tax payer, suppliers, business customers, voters and every other institution in the society (Tapscott, 1996). Based on (Kim, 2004; Hafeez and Sher, 2006: Halligan and Moore, 2004). The definitions suggest that e-government represents; changes in the way government delivers its services and that e-government employs the use of ICTs in the provision of services to citizens and other stakeholders. The concept however comprises of many elements that go beyond a technological change (Grant, 2005; Ndou, 2004) and just making some public information and selected government services to citizens via website (Curtin et al, 2003).

A broader definition of e-government (Hanna et al, 2009) covers (a) transparency and accountability of governments, (b) better management of public funds, human capital and service delivery, (c) economic and attractive investment climate with less regulatory burdens and transaction costs, and (d) access and quality of public services. On the other hand, e-government is intended amongst others; (1) to achieve citizen empowerment, access to information, transform government relationships with citizens, better service deliver to citizens leveraging on information technologies, Wide Area Networks, the Internet, and mobile computing (UN, 2005; World bank, 2008); (2) help governments to be more accountable and maximise benefits to citizens, enhance citizens' participation in public decisions and strengthens democracy (InfoDev, 2002), and (3) to achieve better government by focusing on citizens (OCED, 2003). Therefore, fundamentally e-government definition can be summarised as the public sector's use of the most innovative information and communications technologies, like internet, to deliver to all citizens improved services, reliable information and greater knowledge in order to facilitate

access to the governing process and encourage deeper citizen participation (UNPA & ASPA, 2001).

2.3.2 E-government Perspectives and Evolution Phases

The literature reveals that e-government has been defined from two domains of perspectives, namely; interaction and evolution (Seifert, 2003; Reffat, 2006; Reddick, 2003 Bhatnagar, 2004; Lee et al, 2005; World Bank, 2005), where the interaction perspective involves relationship based communication and services provision between Government and Citizens stakeholders (G2C), Government to Government entities (G2G), Government and Businesses (G2B) and Government and Employees (G2E). The G2C sector enables interaction between the government and citizens, here citizens stakeholders are able to access government information online at their convenience and even participate in the decision making process such as e-consultation, e-voting and e-democracy. The relationship between government and other government departments and entities is classified as G2G, which harmonises provision of government business within different government agencies at different levels and localities. While G2B involves execution of business transactions between businesses and government such transactions include license renewals, payment of taxes, accessing government information (tenders), application for new business registration, identity documents and downloading of other forms. The G2E promotes knowledge sharing and enables employees to access information such as compensation, government rules, benefits policies and learning opportunities, the aim here is to maximise on employees' efficiency and effectiveness on the provision of government services.

E-government comprises of different functions and serves varying stakeholders such as citizens groups, business sectors and organisations, however, the G2G domain is perceived as the pillar and backbone of e-government implementation as it creates a platform for e-government use and influences its use countrywide (Reffat, 2006; Chen et al, 2006; Lee et al, 2005). Similarly to G2G being perceived as cornerstone of e-government implementation, equally, (G2C) is a major stakeholder group in the e-government literature as regards adoption, e-democracy and e-participation (Flak et al, 2007). Citizens stakeholder group involves categories of constituents inter alia, employees, customers, clients, subjects, consumers and general citizenry (Mintzberg, 1996; Sein, 2011; Bailey, 2009; Rowley, 2011). It is noted that employees (G2E) are included as part of citizens stakeholder group, hence the domain does not significantly stand alone. The business (G2B) is a third important stakeholder (Table 2.2), however is not within the research scope. Focus is on two primary stakeholder groups G2G and G2C as aforementioned. These stakeholder domains are shown and highlighted in (Lee et al, 2005).

Table 2.2 E-government Stakeholder Domains and Services

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2.3.2.1 E-government Maturity Models

Alongside the interaction domain of e-government is the evolution perspective where e-government evolves through hierarchical model of phases. Predominately these models are presented in different ways ranging from three to four stages (The World Bank, 2003; Layne and Lee, 2001; Hiller and Belanger, 2001; West, 2001; ESCWA, 2003; Baum and Maio, 2000).

In the implementation of e-government applications, governments are seeking efficiency, effectiveness, and data quality improvement gains. Subsequently, the governmental administrative functions and activities along with general front-end services dominate the application arsenal (Andersen and Henriksen 2006).The review of literature has revealed a good number of e-government models that offer the phases of evolution through which e-government can be measured. The various e-government models that range from three to five levels include (The World Bank, 2003; Layne and Lee, 2001; Hiller and Belanger, 2001; West, 2001; ESCWA, 2003; Baum and Maio, 2000; Gil-Garcia et al, 2007; Sahraoui, 2007; Anderson and Henriksen, 2006). The descriptive examples of some of the mode are presented below:

Gartner Maturity Model (Baum and Maio, 2000) the model focuses on back-end business process integration and offers three stages of (1) web presence which provides a relatively static website for information publishing; (2) Interaction stage which allows a two directional communication where users are able to come in contact with different government entities through downloading of forms and related documents and using emails; (3) The transaction stage which enables users to transact online; and the (4) transformation stage affords the government an opportunity to transform the operational processes in order to provide an efficiently enhanced and integrated personal and unified service to users.

Hiller and Belanger (Hiller and Belanger, 2001), a five stage customer centric model offering; (1) Information dissemination just like the above, information is posted in the static website for general citizenry to access through a one way communication platform; (2) while a two way communication offering is enhanced through dynamic websites functionalities for government and citizens to interact. The next stage is (3) Service and financial transaction, an advanced stage coupled with sophistication in technology, here government online services include financial transactions with citizens as well as Bi-directional communication between governments and individuals; (4) Vertical and horizontal integration stage, enabling government to integrate various systems in its value chain, both from different levels and departments; then (5) the political participation stage being the most advanced stage under this model and enables ordinary citizens to participate politically through online voting and other online means.

Layne and Lee (Layne and Lee, 2001) this model puts emphasis on technological capability and is a four staged model (1) Cataloguing of government information; (2) transactional capabilities; (3) vertical integration where local systems are linked to a higher level system within similar functionalities; and (4) horizontal integration offering a real one stop shop to citizens.

Public Sector Process Rebuilding (PPR) Maturity model (Anderson and Henriksen, 2006). Four stage model comprising of cultivation, extension, maturity and revolutionary. This model was introduced as an extension of the Layne and Lee 2001. Whilst Layne and Lee's model is focused on technology, the PPR focuses on customer centricity. (1) The cultivation stage deals with adoption and use of internet, front-end system and horizontal and vertical integration within government; (2) Extension stage involves the extensive use of internet and personalised interface for customer processes; (3) Maturity stage dwells on accountability and transparent processes; and (4) Revolutionary stage deals with data mobility across organisation, application mobility, ownership of data transfer to customers.

Moon (Moon, 2002), this models focuses on e-participation and system functionalities. The model offers; (1) simple in one-way information dissemination; (2) dynamic website with two way communication where users can make requests and obtain responses; (3) transactional functionalities between government and

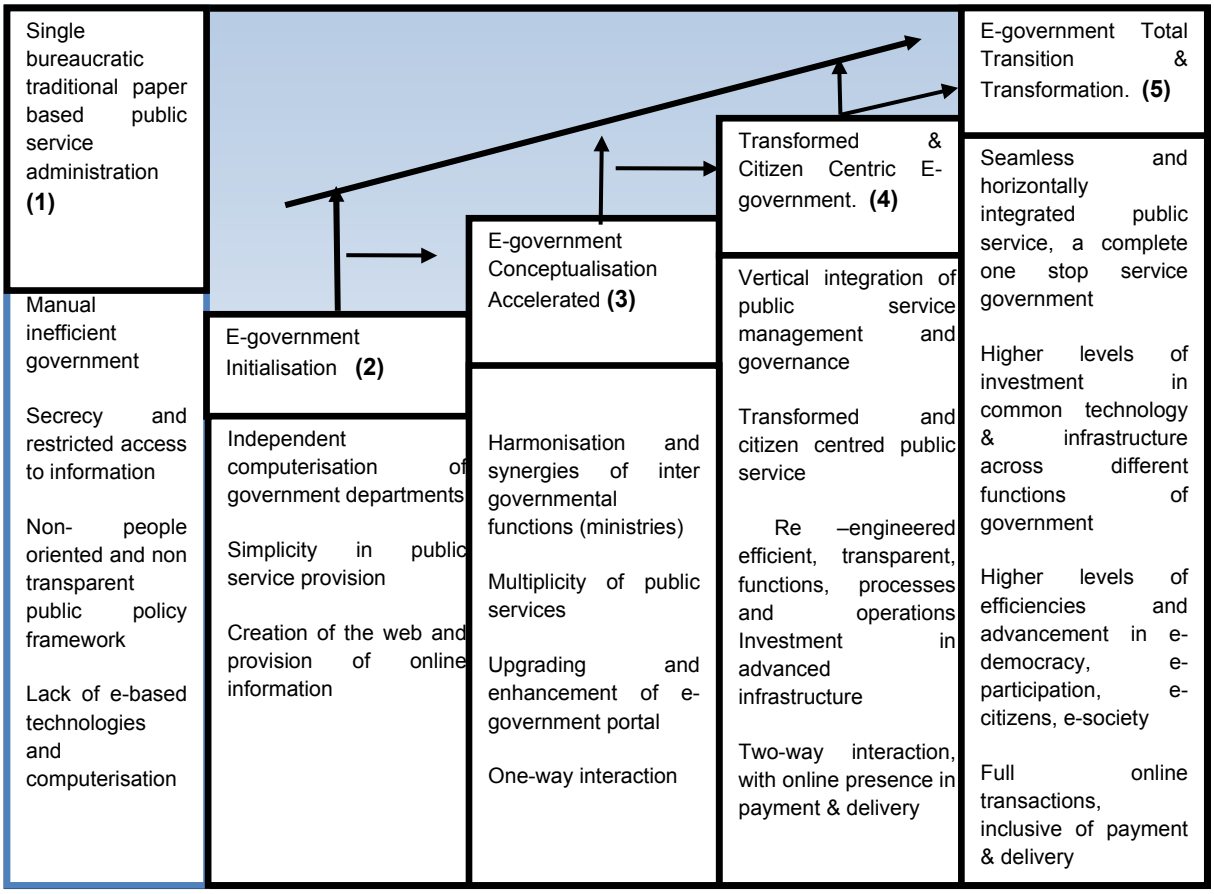
individuals; (4) the horizontal and integration level of this model is similar to the last two stages of (Layne and Lee, 2001) and, (5) the last stage promotes political participation through online voting and surveys. This model on aggregate is similar to the Hiller and Belanger's.

The World Bank (World Bank, 2003), offers a three stages model focusing on efficient provision of e-government services and the overall development of e-government. The model is concerned with (1) Publishing of important government information and ensuring such information is posted on the website; (2) Interactivity, this involves enhancement of websites capabilities to facilitate interaction; and (3) completing transactions, here citizens' users are enabled through the availability of secure ICTs to transact online.

It is herein observed and noted that the e-government maturity models in summary involves the (a) Initialisation of e-government through computerisation and websites creation to push information online; (b) E-government concept acceleration, where government portal are upgraded to facilitate effectiveness in the provision of government information online. Simultaneously, government systems are synergised within ministry; (c) transformed and citizen centric e-government level, here e-government activities are transformed to be more focused on citizens and processes are re-engineered to achieve efficiency and transparency and. Alongside, a relatively significant levels of investment in infrastructure become evident to facilitate vertical integration in public service management and governance. This then enables an enhanced two way interaction and multiple transactional functionalities between government entities, government and citizens as well as businesses; and lastly, (d) E-government total transition and transformation, which is an advanced offering a complete one stop service to citizens, businesses and government entities, resulting in full online transactions, technology innovations and investments are highly enhanced leading to higher efficiencies and advances in e-participation, e-citizens, e-society and e-democracy marking a seamless and horizontally integrated public service. An illustration of this is presented in (Figure 2.1) below.

As captured in chapter one (section 1.2) that emerging vast networks in interacting public, private and voluntary organisations could no longer be more efficiently achieved using the traditional setups of a single administration for single services and specific functions. The inefficiencies and limitations of the traditional governance model brought about the e-government and the evolution thereof (Sharifi and Zarei, 2004). In light of the background, this research traces the discussion of e-government models as evolving from the traditional model and recognises it as a part of the e-government evolution perspectives (Figure 2.1: E-government evolution from traditional to seamless governance model).

Figure 2.1 E-government Evolution from Traditional to Seamless Model



(Source: Based on Various Existing E-government Models- see Section 2.3.2.1)

The above model (Figure 2.1) displays a five fold e-government evolution phases from the traditional paper based public service phase to a highly automated seamless phase.

- **Traditional Paper Based Public Sector**

The traditional phase presents a cumbersome and manually based public services and information provision to citizens and other government and private stakeholders through a single administration largely dominated by bureaucracy and red tape. This governing system has limitations and weaknesses in strengthening citizen stakeholders' participation in public decision making, governance and democracy as it is largely characterised by secrecy and restricted access to information. It is found wanting in e-based technology and other innovative capabilities, as a result it has become non people oriented and is non transparent in public policy framework.

- **E-government Initialisation phase**

The initialisation phase renders fragmented approach to e-government where independent computerisation of government departments takes place coupled with the creation of websites to provide basic online information access. This phase offers simplicity in public service provision with no transactional capabilities.

In this phase there is limited internet presence and some instances the information is static and purely a one-way interface between government and citizens. Based on (UN, 2003) countries falling in this category include inter alia, Ethiopia, Burundi, Angola, Gabon, Botswana, Lesotho, Madagascar, Gambia, Guinea, Malawi, Seychelles, Niger, Mali, Togo, Cape Verde and Central African Republic.

- **E-government Conceptualisation and Accelerated Phase**

Consequent to the initialisation phase, this stage offers upgraded and enhanced e-government portal, and it comes with downloadable capabilities. There is multiplicity in the provision of public service information; harmonisation and synergies of inter governmental functions (ministries).

There is enhanced online information available to citizens with internet portals designed to enhance government activities and processes so as to facilitate interaction between citizens and other stakeholders, however, communication is still mainly one-way (UN, 2002). Countries that are estimated to be in this phase comprises of; Tanzania, Kenya, Namibia, Sierra Leone, Mozambique, Rwanda, Nigeria, Cameroon, Burkina Faso, Cote d'Ivoire, Ghana, Senegal, Swaziland, Zambia and Zimbabwe (Gil-Garcia and Martinez-Moyano, 2007).

- **Transformed and Citizen Centric E-government Phase**

This is a relatively an advanced and interactive phase offering a two-way interaction with online presence in payment and delivery systems, re-engineering processes, transparency and efficiency in operation with significant investment and advanced infrastructure and interoperable systems. The vertical integration of public service management and governance facilitate transformation in citizen centric service provision and with evidence of elements of e-democracy and e-participation.

In this phase there is a complete range of government services being integrated, for example, citizens can be able to buy government tenders, pay taxes, register a birth or death, access legislation, apply for a job and social welfare grant (Symonds, 2000). Mauritius is believed to have reached this phase and making advanced to the next phase.

- **E-government Total Transition & Transformation**

This phase is an improvement on the previous one; it exhibits a seamless and horizontally integrated public service offering a comprehensive and complete one stop service government with multiple access channels for different government stakeholders and citizens-user groups. It offers more customised and secured services with provision for passwords and other security features. Significantly higher investment resources in technology and infrastructure across multiple departments and functions of government are made, resulting in higher efficiencies and advances

in e-democracy, e-participation-society and e-citizen with full online transactions and exclusive e-services.

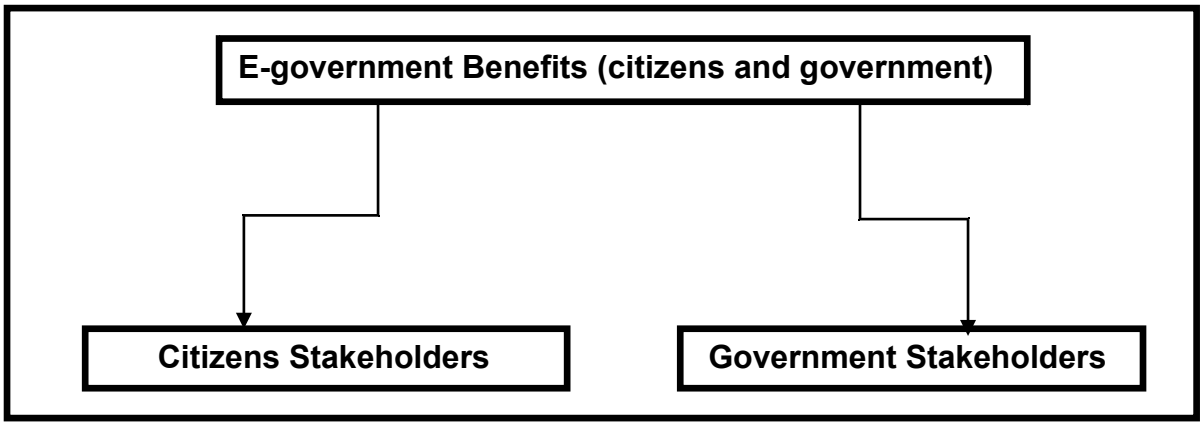
At this level (UN, 2012) government takes a proactive role in soliciting information and opinions from the citizens through the web and other interactive channels and tools. Significant levels of information, data and knowledge are transferred from government agencies through integrated applications. There is a major shift from focusing on government processes to citizen centricity; the services are targeted to citizens through life cycle events and segmented groups to provide tailor-made services. Citizens are empowered to be more involved with government activities and the environment encourages them to have a voice in the decision making. As a result they begin to realise the benefits of e-government (UN, 2002).

2.4 Benefits of Implementing E-government

Cognizant of the e-government benefits, almost every government worldwide has initiated efforts towards implementing e-government be it basic website or putting considerable levels of information online (Darrel, 2006). Governments are capitalizing on the global technology advances to improve service delivery and relief the pressures mounted by citizens' stakeholder groups (Ebrahim and Irani, 2005). The e-government phenomenon predominantly promotes citizens access to government information and online services and improves the efficiency and effectiveness of the public sector by transforming the internal government process. Government adopts the e-government with the view to reap the accruing benefits, these benefits have been outlined in a number of literature (Cliff, 2004; OECD, 2003; Tassabehji and Elliman, 2006; Bwalya and Healy, 2010)

The fundamental aim of e-government is to accrue benefits to both the government and the citizens' stakeholders therefore grouped into two categories relating to government and citizens (Figure 2.2).

Figure 2.2: E-government Benefits (government & citizens-user stakeholders)



(Source: Author Developed)

2.4.1 **E-government Benefits to Citizens Stakeholders**

Citizens are the primary stakeholders for e-government implementation and the e-government projects, if well implemented it has the potential to offer an increased citizens' mindshare and engagement in the political and administrative processes, through delivery of clear and useful information online in a vibrant and interesting manner, as well as attract participation in online public consultations and feedback (Infocomm, 2006). This facilitates and builds participatory democracy (Cliff, 2004) which helps to build trust between government and citizens, thus satisfying amongst others, the fundamental element to good governance, (OCED, 2003). ICTs can help build trust by enabling citizens' engagement in the policy process, promoting open and accountable government. Therefore e-government enhances and strengthens democracy and equality for all citizens stakeholders irrespective of their geographic locality, political, social and economic classes, this is achieved through reach and equitable access, effective representation in decision making process, transparency, interaction and engagement. Examples are; e-voting, e-participation and e-consultation.

Increasingly e-government enhances capacity and synergy of the employee stakeholders in governance process and enables public sector competency development. Here, synergies are created through shared data, processes and systems; enrichment of public officers work experience through innovative use of existing e-government structures and technology platforms, which foster innovative exploitation of ICTs and internet in the public service (Infocomm, 2006). Through e-government there is a substantial development of strategic connections between public sector organisations and their departments, resulting in effective communication between government levels, i.e. central, city and local. These connections and communication improve cooperation; facilitate the provision and implementation of government strategies, transactions and policies. Further this will impact on the improved use and running of government processes, information and resources, (Ebrahim and Irani, 2005; Cabinet Office, 2000; Heeks, 2001)

The online provision of public services and information diminishes the geographic distance and communication barriers, through providing equitable access to information and bridge local urban digital divide within the nation, as well as regional and international digital divide across societies, communities, nationalities and nations. This result in network and community creation, which promotes a culture of openness, greater accountability and through which citizens participation in the governance process and public decision make is achieved, thus, helps advance democracy.

Another benefit of e-government is the creation of an e-society; where an e-society is a globally competitive, knowledge and information based society where communication and interaction is unlimited and takes place across nationalities and societies irrespective of ethnicity, beliefs and cultures. This is made possible through

the use of ICTs and the internet, (Wesso et al, 2004). Internet technologies provide voice over internet protocol (VoIP) communication capabilities to enable rural areas of developing countries network with urban areas. Citizen stakeholders have seamless multiple channel access through internet, mobile phones and other innovative technologies (Sharma, 2004; Gilbert et al, 2004).

2.4.2 **E-government Benefits to Government Stakeholders**

Just like citizens, government is also a major stakeholder in e-government implementation and also derives implementation benefits. E-government enhances national competitive advantage by enabling economic competitiveness through sectoral transformation. The transparency and accountability helps to reduce and prevent corruption, through better policy outcomes, effective and efficient management of the public sector (Bhatnagar, 2003). Many governments have chosen to go online in departments such as customs, income tax, sales tax/ VAT and property tax which have a large interface with citizens or businesses and are perceived to be more corrupt.

Centralisation of data management through e-government enables effective traceability of decision making which can be used to improve audit and analysis. Through implementing e-government, a government improves efficiency in managing and utilizing the country resources and leads to cost savings (OCED, 2003).the use of ICTs enables efficiency improvement in mass processing tasks, thus saves on time and resources; Also internet based applications can generate savings on data collection and transmission, provision of information and communication with customers. The savings generated by the appropriate use of ICTs and e-government capabilities could lead to increased efficiencies. That is, the potential savings in terms of citizens and government employees' time would lead to improved productivity in other areas, (Yen and Evans, 2005), For example, as government increases its efficiency in dealing with citizens, government employees (human resources) could be refocused into more productive areas, the more productive and labour efficiencies the more likely the costs reduction.

Fundamental to realising the benefits of e-government, both government and citizens stakeholders must exhibit some degree of e-readiness, where e-readiness is identified with respect to a community that has high-speed access in a competitive market; with constant access and application of information and communications technologies (ICTs) in schools, government offices, businesses, healthcare facilities and homes; user privacy and online security; and government policies which are favourable to promote connectedness and use of the network (CSPP, 1998).

2.5 **E-readiness for E-government Implementation**

E-readiness is a measure of the ability and extent to which a country, nation or economy may be ready, willing or prepared to obtain benefits that arise from ICTs, e-business and e-government. The key aspects are the ability to pursue value creation

opportunities facilitated by the use of Internet (Dada, 2006; Vaezi et al, 2007; Choucri et al, 2003). E-readiness is the first critical steps taken to determine the extent to which both the government and citizens are ready for e-government. It is used to guide the strategic initiatives.

E-readiness covers (a) Access and connectivity which deals with physical infrastructure and access to the telecommunications infrastructure, including teledensity and Internet access, number of ISPs; bandwidth, pricing, and reliability. (b) Society development measured by the extent of ICT usage levels throughout the society, including homes, businesses, schools, and government; Internet activities undertaken by individuals in the last 12months, preference of public online services for citizens. (c) Training and education covering human capacity resource development which includes education and literacy, ICT skill levels, and vocational training, percentage of schools with website, connected to the internet and number of computers per 100 students/learners. (d) Policy environment dealing with the legal and regulatory environment affecting ICT sector and ICT usage, including telecommunications policy, trade policy, e-commerce taxation, universal service provisions, consumer protection and privacy; and (e) ICT economy which is concerned with the size of ICT sector, Gross National Income (GNI) per capita (US$), expenditures for research and development (R&D) (% of GDP) and population (Bridges.org 2001:2005). The main reason for e-readiness is to lay a foundation for e-government implementation; hence it can determine the success or failure of e-government. Therefore e-readiness is the backbone of e-government. It is the road map that determines all other factors of e-government; it enables the preparation of action plans and policy framework to a successful e-government implementation

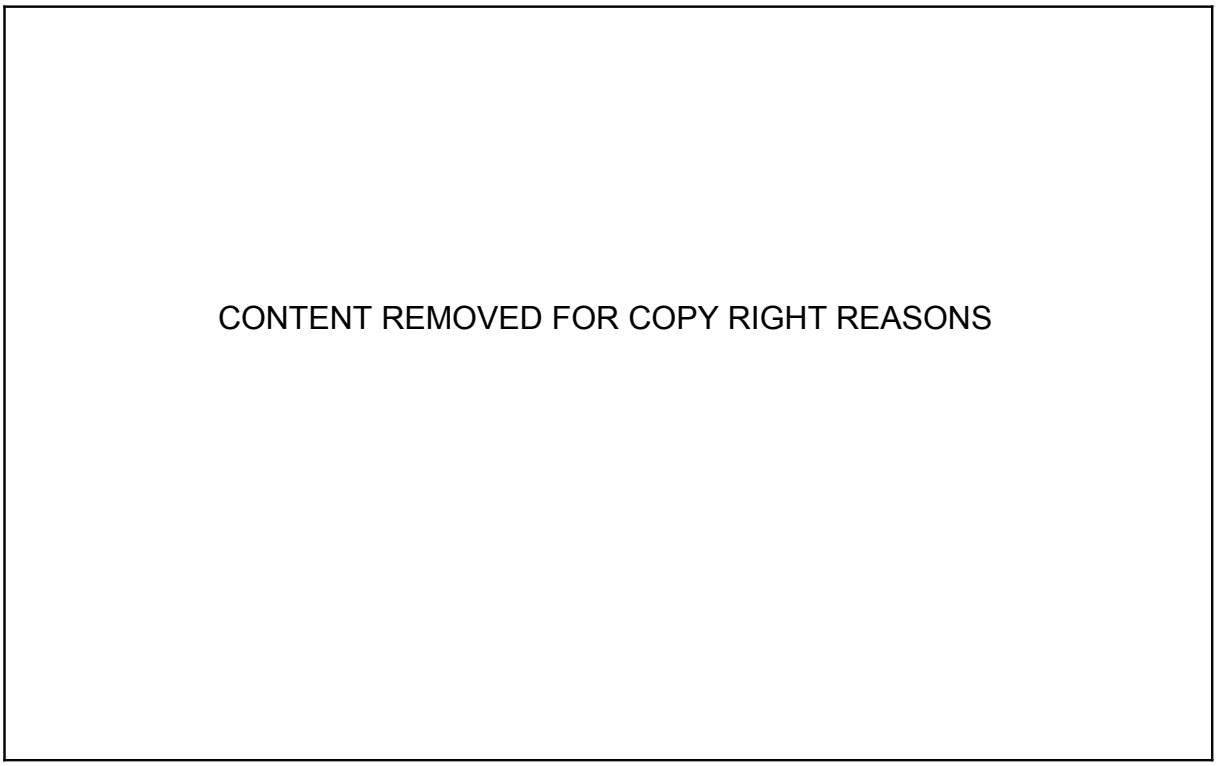
Regardless of a country's level of development, readiness is assessed by determining the relative standing of its society and its economy in the areas that are most critical for its participation to the networked world. However, e-Readiness can be a relative concept and it could be defined differently depending on each country's priorities and perspective (InfoDev, 2002).

However, measuring e-readiness is a complex and multi-faceted phenomenon and there is no objective test of e-readiness (Tsotetsi, 2009). Nonetheless, specially designed assessment tools based on an accessible and manageable set of socio-economic variables or indicators are useful in deriving the state of e-readiness. Numerous instruments or assessment tools that gauge how ready a society or economy is to benefit from ICTs are available world wide, see (Bridges, 2001:2005). These tools differ in their goals, strategies and results, For example, The Global Information Technology Report uses the Networked Readiness Index (NRI) as the main assessment tool. The instrument covered a total of 115 economies which are compared based on the three component indices, namely, (a) the market environment, infrastructure, political and regulatory environment for ICT offered by a given country or community; (b) the readiness of the community's key stakeholders -

individuals, business and governments; and (c) the usage of ICT among these stakeholders.

As aforementioned, ICTs presents greater economic, political, administrative, social and cultural opportunities for governments world wide to improve public sector efficiencies and service delivery to all stakeholders of e-government, manage and use resources prudently, reduce corruption, increase transparency, empower citizens through access to information, strengthen democratic institutions and local communities, achieve press freedom and address other development difficulties. A study conducted across 31 countries found that the use of e-government in developing countries is relatively low, compared to developed countries (Khosrowpour, 2005). Now, given that the main goal of e-government is to improve citizens' access to government information and participation and in the governance process. In this respect, e-readiness assessment is crucial in identifying, outlining and understanding the key and relevant factors for e-government development (e.g. citizen-stakeholders' engagement and participation, infrastructure issues, accessibility, legal and regulatory framework, collaborations, determining vision, strategy, and priorities), this enables governments to pursue achievable milestones for e-government (Docktor, 2002). Therefore E-readiness assessment is a pre-requisite to the implementation of e-government and is necessary to serve as a useful indication to developing countries for planning ahead the e-government initiatives, hence, an intertwined relationship shown in (Moatshe and Mahmood, 2012).

Figure 2.3: E-government and E-readiness Intertwined Relationships.



In as much as e-government proffers significant benefits to governments and citizens stakeholders, its implementation and adoption is complex and can be very challenging.

2.6 Challenges of Implementing E-government

Whereas E-government evidently is an effective driver for efficiency, cost reduction economic growth, e-democracy and e-participation, it however comes with many challenges (Ndou, 2004; Sharifi and Zarei, 2004; and Akman et al, 2005; Jaeger and Thompson 2003; Ali et al, 2009). These studies reveal the distinctiveness and variability of implementation and adoption factors based on implementing countries local context and cultures (Ali et al, 2009)

The e-government challenges are significant and often lead to failure of e-government projects (Heeks, 2003) which fall into three different categories of: Total failure; Partial failure; and Success. Total failure is a situation where the initiative was never implemented, and /or was implemented but immediately abandoned, or was implemented but achieved none of its goals. A largely unsuccessful case is one where some goals were attained but most stakeholder groups did not attain their major goals and/or experienced significant undesirable outcomes. A Partial success / partial failure case is where some major goals for the initiative were attained but some were not and/or there were some significant undesirable outcomes. The other measures of e-government success are; (a) Largely successful: most stakeholder groups attained their major goals and did not experience significant undesirable outcomes., (b) Total success: all stakeholder groups attained their major goals and did not experience significant undesirable outcomes., (c) Too early to evaluate: it is too soon after implementation and/or there is too little evidence yet to evaluate the outcome.

The e-government challenges to implementing countries are many and have been classified differently in various studies (Jennex and Amoroso, 2002; InfoDev, 2002; Ramon, Garcia and Pardo, 2005; Al-Busaidy & Weerakkody, 2009), hence there is no single categorisation of these challenges (Gil-Garcia and Pardo, 2005). For example, (Al-shafi, 2009; Al-Shehry et al, 2006) regrouped them into (a) organisational; (b) technological; (c) social; (d) managerial; (e) operational; (f) strategic and (g) financial, while (Almarabeh and AbuAli, 2010; Coleman, 2006) define the challenges as pertaining to infrastructure development, law and public policy; digital divide, e-literacy, Accessibility, Trust, Privacy, Security, Transparency, Interoperability, Records Management, Education and Marketing, Permanent Availability and Preservation, Public and Private collaboration, Workforce issues and Bench marking. In the case of (Gil-Garcia and Prado, 2005), the e-government challenges fall within five categories of; information and data challenges, information technology, organisational and managerial, legal and regulatory, and institutional and environmental factors. On the hand (Signore et al, 2005) listed the challenges as technical issues, economic issues and social issues. In other literature (Gouliemmos,

2005; Whyte and Bytheway, 1996) e-government is classified as an information systems (IS) project and the challenges are categorised as; use of inexperienced staff to develop systems, lack of senior management support and commitment, budget and time overruns, end –user resistance to change and lack of users participation as well as poor communication between users and implementers.

The e-government challenges are also (Ebrahim and Irani, 2005; Ndou, 2004) outlined in the context of ICTs Infrastructure, environment and legislative issues, change management, human capital development and lifelong learning and partnership and collaboration. It is further observed that, mainly e-government is hindered by leadership inadequacies and poor coordination in initiating, implementing and ongoing support of e-government project; this includes failure to address the needs and priorities of potential users which then hinders the citizens' adoption (European Commission, 2003). In addition e-government success is also affected by financial constraints to support current and future e-government initiatives, inequalities in skills and access (digital divide) to ICT and appropriate systems, poor technical designs and lack of security, privacy and data protection laws often results in lack of citizens' trust on the e-government change, the government and the implementing agency (OCED, 2003). In an attempt to provide mitigating strategies to help nations successfully implement e-government, a number of implementation frameworks and adoption models have been proposed as critical to achieving implementation successes and these are discussed in hereto in the next section.

2.7 Implementation Factors and Adoption Frameworks

The implementation factors and adoption frameworks look at the e-government concept in a two-fold approach, namely; the e-government implementation factors and the user adoption models and frameworks, both based on articulated analysis of existing literature.

2.7.1 E-government Implementation Factors

Multiple e-government implementation frameworks have been proposed (Lam, 2005; Al-Kaabi and Hattab, 2009; AbuAli et al, 2010) and the e-government implementation success is based on variable perspectives and focuses on; (a) Technology factors, where security, compatible technical standards, architectural interoperability, network infrastructure, databases and information infrastructure at national levels are emphasised as key to e-government success. Secondly, (b) researchers such as (Layne and Lee, 2001; Scholl, 2003; Maniatopoulos, 2005; Griffin et al, 2004) argue that the structure factors are important to achieve success as e-government implementation decisions are transferred to e-leaders (top leadership, middle leadership, CIO leaders and champions). Here, decentralisation and decision making process as a whole are impacted, therefore argued that coordination and control must be strengthened through hierarchical network based structures. (c) Organisational culture factors are considered critical (Kim et al, 2007; Ho, 2002;

O'Donnells et al, 2003), the argument is that in the transition to a service oriented culture, for e-government to succeed, employees have to overcome the public sector thinking that focuses more on conventional departmental entities to a robust seamless one and there is need for a culture transformation. There must be a radical change on the leadership thinking, employees need to be motivated to perform more challenging tasks and be supported to willingly take responsibilities. The key focus is to achieve trust and strengthen inter-departmental and inter-organisational cooperation. (d) Processes factors are also identified as critical given that e-government deals with the entire public sector process re-engineering towards accelerating a 24/7 provision of information and services, hence not only trust in the integrated processes is critical, but equally, the safety, maintenance and integrity of the entire change process (Elnaghi et al, 2007; Layne and Lee, 2001; Scholl, 2003). On the people's side (Leitner and Kreuzeder, 2005; Schedler and Schmidt, 2004; Kim et al, 2007; ho, 2002) emphasise that leaders must be able to develop a comprehensive strategy and vision for human resource management and be able to combine their ICT knowledge and capabilities with the understanding of process dimensions. The key focus is on employees gaining horizontal process view and organisation of staff training and collective learning (Layne and Lee, 2001).

Whilst the above literature address important factors, similarly other studies like (InfoDev, 2002; Ramon, Garcia and Pardo, 2005; Reffat, 2006; Al-Busaidy & Weerakkody, 2009) have invariably outlined the challenges and barriers facing e-government in developing countries, and also suggested factors critical for e-government development and adoption (Dada, 2006; Ahmed Al-Omari and Hussain Al-Omari, 2006; Abu Ali et al, 2010; Hotzer and Kim, 2005). However, these studies have not made an essentially justified, clearly stated, detailed and very closely connected case that (see also chapters one, three and four):

1) A successfully citizen-users adopted e-government project largely depends on citizen- stakeholders' engagement and involvement in the development of the e-government strategy and implementation thereof.

2) A citizen-stakeholder centric e-government strategy is critical to e-government project success. As aforementioned in chapter one (section 1.5 and section 1.6), in the case of Botswana, citizens stakeholders are not just limited to employees, but comprises of; the youth, students, employees, senior citizens, local communities, executive government, politicians, administrators and other elected and influential citizens' groups.

Where an attempt is made to recognize these factors such recognition is found lacking both in context and content and even the order of importance is significantly limited and wanting. For example, (Chen et al, 2006) identified three categories of critical factors as (a) Society factors, (b) Culture factors and (c) E-government infrastructure factors. When (Heeks, 2003) identified seven dimensional factors in the design reality gap model (ITPSOMO) as; (a) Information, (b) Technology, (c)

Processes, (d) Objectives and Values, (e) Staffing and Skills, (f) Management Systems and Structures, and (g) other resources. The factors that affect the success of e-government in developing countries are mainly due to a mismatch between the current and future systems (Dada, 2006), and are classified as; (a) lack of government IT staff retain strategy, (b) weak infrastructure, (c) failure to educate citizens about the value and benefits of e-government, (d) Ineffective change management, (e) disparities between those who can afford the technology and those who cannot, (f) Lack of training and qualified IT staff, and (g) Inadequate skills in the private sectors.

On the other hand (Hotzer and Kim, 2005) advocate that success model is determined by (a) security, (b) Usability (the ease with which transactions can be executed online), user friendly or not, (c) Political participation which refers to citizens' involvement in political matters; (d) Integrations, (e) Information dissemination means and methods, (f) two-way communication and nature of the relationship, and (g) services available to citizens and other stakeholders. A four factor model developed (Gil Garcia and Pardo, 2005) asserts that e-government success model rests on (a) Information and data strategies, (b) Information technology strategies, (c) Organisational and managerial strategies, (d) Legal and regulatory strategies.

The success framework by (Al Omari and Al Omari, 2006) based on the analysis of other related literature posited that the important e-government success factors are depended on whether; (a) organisations are ready for e-government; (b) have committed and strong leadership to the project, (c) citizens have skills to use e-government, and (d) there is high technology and legal readiness.

Further recommendations (Abu Ali, 2010) suggests an e-government strategy model to include; (a) legislation such as privacy law and trust in government, (b) political support and stakeholder demands, (c) network infrastructure, computer availability and use, network accessibility and ICT industry. The framework by (Evans and Yen, 2005) identified five factors critical for implementing e-government in developing countries namely; (a) organisation factors, (b) human factors, (c) technology factors, (d) financial factors, and (e) environmental factors.

A study conducted (Caribbean Centre for Development Administration, 2009) identifies four e-readiness areas of strategic planning as: (a) Identifying were the nation is now, this covers cooperative review of the regions on e-government process, environmental analysis and SWOT analysis. (b) Specifying where the nation wants to go, that is, the vision, outcomes and outputs. (c) Defining the strategy where key decisions and strategies are birthed and strategic programming takes place. (d) Measuring the nation's progress, here performance measurements are determined with monitoring and tracking aspects. The SWOT analysis covers areas of leadership and governance (referring to management of the e-government

project), infrastructure, human resources, legal and policy, e-commerce and finance, as well as information management

The study by (Caribbean Centre for Development Administration, 2009), though it touches salient e-government readiness factors, it fails to recognise the role of government in driving, determining and setting the framework to guide in conducting the e-readiness. The study also fails to recognise the importance of citizen-users' engagement and participation in the e-readiness assessment. The million dollar question then is who constitutes the demand and supply of the e-government e-equilibrium, other than citizens and government stakeholders? That is, to whom and for who is the e-government project implemented and/or who should primarily adopt the e-government other than citizens? Although e-government is defined in various ways as presented earlier in chapter two (section 2.3), essentially it embraces the use of ICTs to transform the ways that government works by enhancing administrative efficiencies and effectiveness and increasing citizens' participation in government, enhances transparency, accountability and policy making process (OCED, 2003; Tambouris et al, 2001; AlAwadhi and Morris, 2009) therefore lack of citizens involvement makes the implementation objective deficient from the onset. A further study, still not bridging the knowledge gap by (AbuAli, 2010) presents that the critical success framework must focus on (a) anticipating and managing uncertainty, (b) resource allocation to critical programmme, (c) increased management capacity (d) strong political commitment, (e) improved information management, (f) developed human resources, (g) employing appropriate ICT technology, and (h) security issues.

Another study (Reffat, 2006) provided recommendations on how implementing countries can overcome e-government hurdles and usher a successful project. These recommendations provided in (Reffat, 2006), Likewise, fail to recognise citizens' involvement and participation in e-government development and implementation as critical strategy success and adoption factors.

Table 2.3 Recommendation to Address E-government Challenges

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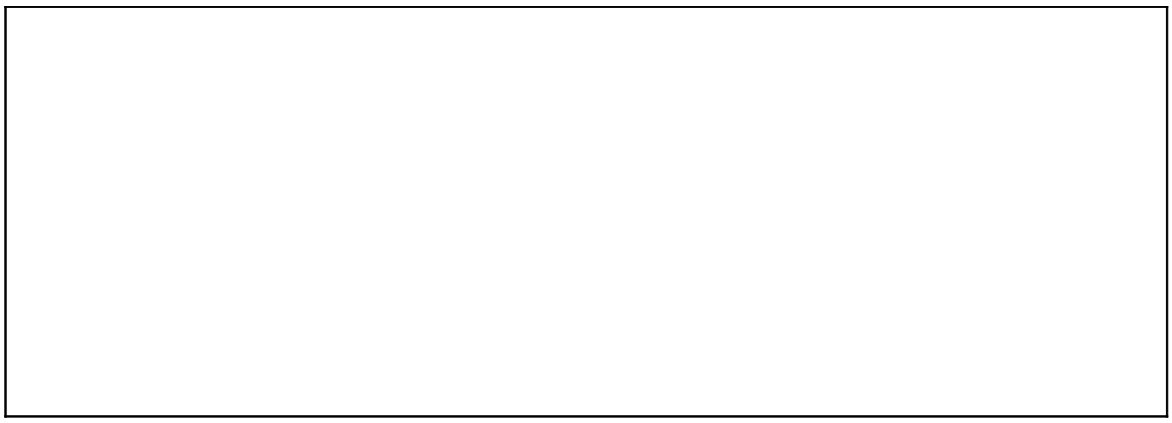

In an e-government project it is useful to view the stakeholders that impact the eventual success of an e-government system as belonging to either demand side, which are those who will consume the services and the supply side, those who fund, design and implement and maintain the system. Individuals, groups and entity representatives belong to either of the stakeholder groups based on their relationships to the system (De, 2005). However these categories are not fast rule as there could be individuals or groups falling in both categories. Therefore the categorization of stakeholders enables a richer understanding of the e-government stakeholder-groups and level of engagement required in the implementation process. It is however, regrettable that most e-government projects or systems implementation in developing countries are driven by the supply side without consulting and demand side stakeholders. Largely the supply side stakeholders dominate the implementation process and are mostly informed by their own ideology, commitments, and their commercial partners' technology imperatives; since they have command over resources and they deploy resources according to their understanding of the demand side needs (Wimmer, 2005; De, 2005).

The above discussed implementation factors are more focused on the supply side and seemingly there is an apparent imbalance in the e-government supply and demand implementation and adoption equilibrium which gap this study aims to fill. Citizens' user groups predominately occupy the demand side. Noticeably, the literature fail to; (a) make an explicit and implicit case that citizen-user stakeholders are the exclusive users of e-government and predominantly determine their needs and priorities for e-government development and design. Hence their involvement is critical to a successful adoption (see chapter three on the implementation experiences of other countries), (b) that the strategy factors identified (theoretically derived from implementation experiences of developed and developing countries still in chapter three) mainly determine the e-government scope and success thus critical factors to inform the initialisation of e-government projects.

Essentially e-government development and implementation can not be effectively marshalled without prior citizens' stakeholders' engagement and on going participation. Supporting this position (Carter and Belanger, 2004) argue that adoption success of e-government is dependent on government initiatives. It is worth

noting that e-government initiatives are largely set and driven by government stakeholders and political leadership, while, adoption is contingent upon citizen-users' willingness to embrace and adopt. Hence the implementation and adoption of e-government centres mainly on the government and citizen-users perspectives (Lee et al, 2011).

2.7.2 User Adoption Models and Frameworks

This section aims to understand and identify critical e-government adoption factors to enable the study achieved research objective two (section 1.4) and this done by reviewing the existing models and frameworks of e-government and technology adoption. The focus here is on models and frameworks that been widely used in both the literature and practice and subsequently received wide validation across various technology adoption settings and how broadly, narrowly and otherwise the models are helpful to fulfil the objectives of this study. The literature suggests that e-government development and similarly its success or failure is determined by the degree of adoption (Shareef et al, 2011) and e-government research adoption is derived from the mainstream of an information systems (IS) adoption research (Lee et al, 2011). It is therefore crucial to have a thorough understanding of the IS adoption models to examine their adoption and diffusion patterns and the extent to which the models and frameworks may be relevant and applicable to some reasonable degree to the case of Botswana herein being studied. This is also necessary to situate the envisaged adoption model for Botswana within the existing body of knowledge as no good research can be concluded without discussing relevant research carried out on the same topic or related topics (Stevens et al, 1993).

Governments are mainly established to provide public services to citizens (Scholl, 2006), similarly, e-government is primarily geared towards efficient provision of public services to citizens and other stakeholders through the use of ICTs. E-government initiatives have been pursued in many countries, but notwithstanding, adoption is still relatively low in developing countries coupled with high rate of failing projects (Ndou, 2004; Dada, 2006; Heeks, 2003). As a result of the wide spread low level of citizens adoption of e-government, a number of studies have been carried out to understanding the low level adoption (Kumar et al, 2007; Gupta, 2008; Fu, 2006; Gilbert et al, 2004: Carter and Belanger, 2005; Choudrie and Dwivedi, 2005). Therefore adoption of e-government is an important strategic action plan (Ebrahim and Irani, 2004). Countries, for example Botswana (section 1.5) have unique peculiarities which may either hinder or facilitate the adoption of e-government services hence the review of existing models and frameworks is necessary prior to developing the Botswana tailored adoption model.

The many IS adoption models and frameworks have been developed over the years with a goal to explore the factors that influence the adoption and diffusion of new technologies throughout the social system ((Benhan and Raymond, 1996; Rocker,

2010; Barnes and Huff, 2003). These adoption models are based on generic diffusion approach for example (Rogers, 2003) and adoption behavioural approach for examples, Theory of Reasoned Action (Ajzen and Fishbein, 1975), Theory of Planned Behaviour (Ajzen, 1991) and Technology Acceptance Model (Davis, 1989).

2.7.2.1 Rogers Diffusion of Innovation Theory

The diffusion of innovation theory (Rogers, 1983; Rogers, 1995) asserts that innovation adoption is influenced by (a) Relative Advantage which is the degree to which an innovation is perceived better than the idea it supersedes, (b) Compatibility which is the degree to which an innovation is perceived as being consistent with the existing values, past experiences and the needs of potential adopters. (c) Complexity referring to the degree to which an innovation is perceived as difficult to understand and use, (d) Trialability being the degree to which an innovation may be experimented with limited resources, and (e) Observability as the degree to which the results of an innovation are visible to others. The easier it is for individuals to see the results, the more likely they are to adopt the change or innovation. The visibility is perceived to stimulate peer discussion of a new idea as friends and neighbours of an adopter often request innovation evaluation information about it.

It is emphasized that better perceptions of these innovation factors translate into better chances for a successful adoption (Rogers, 1995; Orr, 2003). The diffusion of innovation theory suggests that innovation-decision adoption follows a five step process (Rogers, 1995; Orr, 2003; Hornor, 1998; Kautz, 2000) of; (a) Knowledge, here the person becomes aware of an innovation and some ideas of how it functions but perhaps lacks complete information about it; (b) Interest, this is where persuasion takes place, a person becomes interested in the new idea and seeks additional information which may lead to a favourable or unfavourable attitude towards the innovation; (c) Decision, here, an individual mentally engages in the activities and applies the innovation to his/her present and anticipated future situations and then decides to adopt or reject the innovation; (d) Implementation, this is a trial stage where an individual takes a positive decision, adopts the new idea with a view to making full use of the innovation, and (e) Confirmation, here, an individual evaluates the results of the implementation and if acceptable then opts to continue the full use of the innovation.

2.7.2.2 Theory of Reasoned Action (TRA)

This is a social psychology model developed by (Ajzen and Fishbein, 1975:1980) describing the determinants of consciously intended behaviours (Rocker, 2010; Benham and Raymond, 1996). The model places emphasis on predicting behavioural intentions and actual behaviour based on behavioural beliefs and subjective norms. Hence the model suggests that the actual use of a specific technology is influenced by the users' behavioural usage interactions which in time

depend on the users' attitude towards the use of the technology as well as the subjective norms of using the technology predominantly in the users' social environment (Mao and Palvia, 2006).

2.7.2.3 Theory of Planned Behaviour (TPB)

This is an extension of the TRA model (Kumar et al, 2006; Matheison, 1991; Taylor and Todd, 1995), developed by (Ajzen and Madden, 1986; Ajzen, 1985), in addition to TRA, the TPB model include the variables of 'perception behavioural control' which scales a person's perception of control over preferring a given behaviour, (the intention to adopt a specific technology is determined by; users attitude, their subjective norms and perception behavioural control).

TPB has been proved to be reliable in predicting and explaining user behaviour in several applications, (Chang, 1998; Housenblas et al, 1997; Johnson et al, 1999; Taylor and Todd, 1995). However (Taylor and Todd, 1995) extended this theory and created a decomposed TPB model. Here they replaced behavioural, normative and controlled beliefs with a new construct specific to information systems (Ma and Liu, 2004).

2.7.2.4 Technology Acceptance Model (TAM)

TAM was developed by (Davis, 1986; Davis et al, 1989) just like the TRA, TAM has several attributes such as Perceived Usefulness (PU) which refers to the degree to which a person believes that using a particular system would result in enhanced job performance); and Perceived Ease of Use (PEOU) which is the degree to which a person believes that using a particular system would be free of effort). TAM argues that users could choose to adopt a specific technology based on individual cost-benefits considerations (Compeau et al, 1999).

Here the users' decision to use a particular system involves the beliefs that external variables (e.g. individual abilities) indirectly influence technology use through the impact on PEOU and PU. Both PU and PEOU affect the users' attitude towards technology, which in turn influences the intention to use the technology (Mathieson et al, 2001).

The TAM was extended to incorporate variables such as perceived systems performance, perceived use of resources, prior education and personal innovations (Agarwal and Prasad, 1998; 1999; Chin and Todd, 1995; Gefen and Straubs, 1997; Liu and Ma, 2006; Mathieson, 1991; Segars and Grover, 1993; Taylor and Todd, 1995; Venkatesh, 2000; Venkatesh and Morris, 2000; Venkatesh and Davis, 2000)

2.7.2.5 Task- Technology Fit Model (TTF)

A contrast of other theories, TTF assumes that users will choose the technology based on its appropriateness for the tasks they intend to perform. This model is

based on four constructs of; task, characteristics, technology functionality, and technology utilisation (Strong et al, 2006; Rocker, 2010).

2.7.2.6 Technology Infusion Matrix

Technology Infusion Matrix (Bitner et al, 2000) posits that technology when used by providers can make employees more effective and /or efficient; similarly technology can be used by customers to drive services and counter substitution. In this instance technology supports customers who actually provide the service for themselves for instance the use of automated teller machines (ATMs).

2.7.2.7 Information Technology Innovations

Diffusion study by (Prescott and Conger, 1995) reveal that factors affecting the diffusion process are centred on; (a) innovation characteristics, (b) communication, (c) innovation diffusion process, (d) time, and (e) social systems.

The study assumes a process of innovation adoption within an organisation were decisions are made at an organisational management level to bring technology hence primary adoption takes place which is then followed by the actual introduction of technology into the organisation where it is subsequently adopted by users. At this level, secondary adoption takes place, the adoption in this model is in threefold, namely; (a) Innovation adoption by all users is made mandatory; (b) The necessary infrastructural support for users to adopt the innovation is provided whilst allowing the innovation diffusion to take a voluntary course; (c) Innovation is targeted through specific pilot projects within the organisation, this affords implementers the opportunity to study the diffusion patterns, processes and outcomes as they unfold and decide whether to implement the innovation broadly or in a fragmented manner.

2.7.2.8 Stakeholder Theory and User Involvement

The origin of stakeholder theory can be traced throughout the latter part of the twentieth century in a number of disciplines (Halcro, 2008) referring to the game theory (Aoki, 1984), organisational theory (Mintzberg, 1983) and strategic planning (Ansoff, 1965). In agreement (Hitt et al, 2001, Freeman, 1984) trace the emergence of stakeholder theory in the 1960s with the emerged use of the term stakeholder from the pionnering work at Stanford Research Institute, which new ideas (as it were then) argued that managers needed to understand the concerns of shareholders, suppliers, customers, lenders and employees in order to pursue objectives and align to priorities of these shareholders and constituents.

However, various researchers (Schwager, 2004; Clarkson, 1995; Frooman, 2002; Mitchell et al, 1997; Key, 1999; Rowley, 1997; Donaldson and Preston, 1995) give credit to (Freeman, 1984) for popularising the stakeholder theory. Since (Freeman, 1984) published his landmark book Strategic Management: A Stakeholder approach, the stakeholder concept has increasingly dominated in management scholarship and managers' thinking (Mitchell et al, 1997). Therefore the stakeholder theory was first

defined and presented as a set of managerial principles for acknowledging the various actors affected by an organisation's objectives (Lingdren, 2013). A stakeholder is broadly defined as ‘‘any group or individual who can be affected or is affected by the achievement of the organisation's objectives ’’ (Freeman, 1984).

This broad view of stakeholders is grounded on the empirical realities that companies can indeed be vitally affected by or they can similarly affect almost anyone (Mitchell et al, 1997). It is however, acknowledged that the application of stakeholder concept comes with inherent complexities that managers have to address. Without a deeper understanding of stakeholders, an organisation faces the risk of crafting strategies and mapping a long term course that may not yield value to stakeholders (Meyer and Kirby, 2007). It is therefore argued the overall business objective that managers must seek to pursue is that of maximizing shareholders' value (Porter and Kramer, 2011).

As a ‘theory of organisation' stakeholder theory helps to nourish a relational model of orginations by revisiting questions about ‘who' actually is working with in the firm, thus, stakeholder theory is part of a comprehensive project that views organisation-groups relationship and simultaneously viewed as the essence of the organisation being born from the relationship with these groups and required standard to be complied with (Damak-Ayadi and Pesqueux, 2007). This is based on the view that corporate governance issues focus on any or all relationships that may exist between the organisation and its constituents. The stakeholder theory probes issues and questions on how such parties can be counted and in this context (Lepineux, 2003) proposes the classification of constituents into actors such as; shareholders, internal and external stakeholders. In other words, stakeholder theory places ligitimacy on management to give voice and audience to the differing values of various stakeholders that may exist at any point in time.

User involvement is very key to project success and that developing a product or system that delivers superior benefits presupposes the understanding of users' needs and wants (Stevens et al, 1999), the identification of such needs must preceed the actual development of the system. If user involvement and requirements are not achieved it would later lead to significant challenges resulting in the product or system's failure (Cooper and Kleinschmidt, 2000). Arguably, the basic principle for implementing a sustainable system is to make everyone a winner (Stahl, 1980). The user involvement theory (Kappelman and Mclean, 1993,1994) conceptualized the components of engagement into the behavioural user activities and attitudinal user involvement. These respectively cover; (a) process participation, (b) System use, (c) process involvement and system involvement. In this view (Kappelman and Mclean,1994) linked participation and involvement into user process involvement. Therefore the goal of stakeholder invovlement is to increase the performance of policies interms of service outputs or outcomes for the client population whose conditions these policies target (Schalk, 2011;Provan and Milward, 1995).

2.8 Critique of the Adoption Models and Frameworks

The adoption models discussed above individually have both user acceptance independent and dependent factors, some with overlapping constructs (Dillon and Morris, 1996). The Diffusion of Innovation Theory (DIT) and Theory of Reasoned Action (TRA) serve as a basis and foundational models which influence the emergence of other models on technology adoption (Rogers 1962; Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980). The Theory of planned Behaviour (TPB) was developed as an extension of TRA (Ajzen, 1985). This theory explains the individual behaviour by considering a social norm as an important variable. Both the DIT and TRA models have led to the development of the Technology Acceptance Model (TAM) developed by Davis in 1989. These models attach importance to understanding the different sets of technology acceptance and adoption determinants, and highlight the underlining concepts thereof, for example, DIT and TRA focus on factors that propel an individual to adopt a new technology that has just been introduced. Technology Acceptance model (Davis 1989; Mathieson, et al, 2001) and the (Venkatesh et. al., 2000; Venkatesh et al, 2003) Unified Theory of Acceptance and Use of Technology (UTAUT) exhibit similarities with TAM, that is, the constructs of Performance expectancy (PE) and Effort expectancy (EE) in UTAUT are related to Perceived usefulness (PU) and Perceived ease of use (PEOU) in TAM. TTF assumes that users will choose the technology based on its appropriateness for the tasks they intend to perform (Rocker, 2010).The UTAUT seeks to understand adoption from the perspective of future intention (continuance use) and actual frequency of use of the system. The major criticism of these models is that they are perceived as technologically deterministic and seem to focus on system characteristics of technologies and only provide limited guidance on how to influence the use of a technology through its design and implementation (Wixom and Todd, 2005). These models focus on variables that drive citizens or users to adopt the technology that has already been introduced without the users' involvement, which perspective renders the models less helpful notwithstanding their impact in understanding technology adoption.

The Diffusion Innovation Theory focuses on explaining the diffusion and adoption of new technology by the wider society (Rogers, 1995; Rogers 1962) views a diffusion process as one that occurs within a society or in a group; and adoption processes as those related to individuals. The Diffusion of Innovation theory observes that technological innovation is communicated over time amongst different members of a social system or grouping. In addition to the theory been used to explain adoption and diffusion of technological innovation, it has also been used to explain how technology is assimilated in the various fields of study, for example, education and health care (Rogers and Scott, 1997; Zhang et al, 2006; Samson-Fisher, 2004). Notwithstanding, the theory being amongst the first main adoption models with wider usage and publicity in many Information Systems' studies (Choudrie and Dwivedi, 2004; Teng, 2002; Gurbaxani, 1990; Kautz, 2000; Brancheau and Wetherbe, 1990;

Backer, 2005; Huang, 2008; Nilikanta and Scammel, 1990; Hoffer and Alexander, 1992; Moore and Benbassat, 1991), its effectiveness has been found wanting (Lytinen and Damsgaard, 2001). E-government is implemented for the citizens and other stakeholders and their engagement in the design, development and implementation of the system seem necessary prior to adoption.

Theory of Reasoned Action (TRA), (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980) follows the Diffusion of Innovation Theory and is well accepted model, successfully and widely used to study and explain behaviour intention across wide variety of settings (Chau, 1996; Davis et al., 1989; Venkatesh and Smith, 1999). The main limitation of the TRA is the volition assumption control that individual behaviour is perceived to function (Ajzen, 1991) which is seen as not always the case.

Theory of planned behaviour (TPB) was developed to overcome the limitation of TRA, (Ajzen, 1985) TPB and is considered amongst influential theories in predicting and explaining behaviour (Sheppard et al., 1988). The applicability of the theory has been verified across various domains asserting the theory as a valuable framework for explaining and predicting the acceptance of new information technology (Hung et al., 2006). However, the theory does not seem to examine the need to engage users in the design, development and implementation of the system

Technology Acceptance Model (TAM) (Davis, 1989). TAM, its application has extensively been validated and is considered influential and vigour for predicting use of the Information Systems (IS) and the adoption behaviour (Davis, 1989; Lu et al., 2003). In spite of its robustness, TAM is considered general and limited in providing meaningful information about the users acceptance of a particular technology, as it excludes some important sources of variance and its failure to consider factors such as time or money constraints that can hinder individuals from using an information system (Pavlou, 2003; Koufaris, 2002; Gefen and Straub 1997; Mathieson et al., 2001). This led to the development of modified TAM models, which have been proposed and applied in the contemporary technologies to model the factors that influence IS adoption (Pedersen, 2005; Venkatesh & Davis, 2000; Ramayah, 2005; Lee et al., 2010; Horton et al., 2001). However, the developed versions still had limitations and to overcome TAM limitations and uncertainties of other models, the Unified Theory of Acceptance and Use of Technology (UTAUT) model was developed (Venkatesh et al., 2003).

Theory of Acceptance and Use of Technology (UTAUT) focuses on the key constructs of 'performance expectancy', 'effort expectancy', 'social influence', and 'facilitating conditions' as the major determinants that dictate usage behaviour (Venkatesh et al., 2003:425-426) and is explained using the below factors;

- Performance expectancy (individual's belief of the ability of the system to help him or her improve the job performance).
- Effort expectancy (degree of ease of use of the system).

- Social influence (individual perception that he or she is expected by other citizens to use the new system).
- Facilitating conditions (individual's belief that organisational and technical infrastructure is in place to support the use of a system).
- Behavioural intention (individual's decision regarding future system use).

The theory is based on similarities across a variety of technology acceptance and adoption models (Davis et al. 1989; Davis et al*.,* 1992; Davis, 1989; Ajzen, 1991; Thompson et al., 1991; Rogers, 1995; Compeau and Higgins, 1995) and has been tested in various settings and is preferred in comparison with other models owing to its high percentage of the variance in usage intention (AlAwadhi and Morris, Venkatesh et al*.,* 2003; 2008; Dwivedi and Irani 2009; Colesca et al*.,* 2008). In spite of the wider application and acceptance of UTAUT, the literature (Chau and Hu, 2002) identified that the UTAUT together with other widely accepted theories such as DIT and TAM may not explain adoption in all contexts, which aligns to the views of (Fichman and Kemerer, 1993; Schumarova and Swatman, 2006).

Considering the uniqueness and peculiarities of the case being studied (the Botswana case study), these models do not shed enough guide and light to achieve the study objectives, hence, may not be helpful for use in their current form. However, aspects of these models may be helpful when combined with stakeholder theory which seems to align with the study objectives. E-government success is largely measured by achieving citizen centric offering, universal access and inclusion for all (UN, 2010). This research focuses on (1) identifying e-government strategy design elements that can influence the implementation and citizens' adoption success, and (2) how citizens can be involved, engaged and facilitated to participate in e-government design, implementation and adoption. Whereas the models have received wide spread validation over the years (Gallivan, 2001) and predominantly focus on developed systems and what drives people to adopt or use such a system. The models do not advocate for user involvement through process participation (Kappelman and Mclean, 1994), notwithstanding that stakeholder involvement enhances policies performance output (Schalk, 2011; Provan and Milward, 1995).

Amongst the criticisms of e-government in the existing literature is that, it is biased and focused more on government internal benefits giving minimal and no attention at all to citizens' needs and priorities (Ngulubane 2007; Heeks, 2006). E-government implementation ideally must target all citizens' stakeholders as captured in (Section 1.6) and citizen-users' involvement must precede the development and implementation of a system (Meyer and Kirby, 2007). Citizens are the primary users of e-government (Dawes, 2009) and failure to consult, involve and engage citizens' stakeholders often leads to projects' failures (Cooper and Schmidt, 2000; Schmidt, 2001). Citizens' users often align to the change process were their views and input have been incorporated in the process (Kessler, 2004). In view of this position and

based on (a) the characteristics of the Botswana population structures (section 1.5); (b) the importance of citizens' stakeholders involvement in e-government (section1.6) and (c) preceding arguments (section1.2 and section 1.3) the above adoption frameworks are considered limiting when used wholly as they are and less helpful to facilitate the attainment of the study objective and to enable this research to identify and categorise the various citizens stakeholders in Botswana and propose how they can be involved and supported to partake in the e-government development processes, adoption and continual use and even inform the future e-government endeavours. Hence, in order to systematically study citizen-user groups' involvement and participation in e-government, it would seem the use of stakeholder theory is appropriate (section 2.7.2.8) of course complimented by elements of other user involvement theories and fragments of other adoption models, this approach been used in various research studies (Kessler, 2004; Saebø et al, 2008; Wells and White, 1995; Ashford and Rest, 1999; Flak et al, 2007; Helbig et al, 2009 Kamal, 2009; Sein, 2011). See chapter four for a more detailed theoretical discussion.

2.9 Summary

A well informed, focused and critical discussions and review of the e-government literature has been performed in this chapter. E-government concept origin is linked through a revolutionalized presentation of e-government phases to establishing benefits that largely must accrue to citizens and government stakeholders as well as the role and importance of e-readiness to e-government implementation success. Further, challenges to e-government impeding the realisation of benefits to stakeholders in question have been articulated and the implementation frameworks and adoption model discussed and critiqued systematically.

This assisted to realistically and succinctly determine application deficiencies of such implementation models and adoption frameworks in the Botswana case study. The critique further provided a primal basis to expound argument (section 1.6) for the considered relevance and application of the stakeholder theory in this research combining it with user involvement theory concepts. It was also crucial to assess and analyse how the existing body of knowledge has aligned the e-government strategy to overall project success and how the existing adoption models and frameworks encapsulated the citizens' stakeholders' involvement and participation dimension

CHAPTER 3 E-GOVERNMENT IMPLEMENTATION EXPERIENCES IN DEVELOPING COUNTRIES

3.1 Introduction

Nations pursue e-government to improve government processes and integrate the disadvantaged communities into the socio economic, political streams, strengthen the legal systems, achieve good governance and broaden political participation (The working group, 2002). Through these processes e-government ultimately impact on human development as the increase channels to access government broaden opportunities for citizens' participation on governance issues and further create new channels of communication between citizen groups. This has the potential to help better relationship between government and the public by making interactions with citizens smoother, easier and efficient.

The accruing benefits of e-government to both governments and citizens' stakeholders discussed in chapter two (section 2.4.1 and section 2.4.2) have motivated both developing and developed countries to pursue e-government implementation. However, significant challenges are facing developing as opposed to developed countries. For example, countries in sub-Saharan Africa are particularly underdeveloped in implementing e-government (Schuppan, 2009). Studies conducted (Accenture, 2006; UNDESA, 2005; West 2005) are perceived to provide little information about the state of e-government implementation in developing countries in general, relegating e-government to the extent to which public service processes are conducted online, which poses a considerable shortcoming (Schuppan, 2009; Bannister, 2007).

This chapter therefore presents comparative discussions of e-government in developed and developing countries, to enable a better understanding of the existing challenges impeding successful e-government implementation (as discussed in section 2.6) and further to bridge the gaps identified in the already existing implementation models (see section 2.7). The e-government comparisons in developed and developing countries and also the implementation case studies experiences are both discussed to highlight factors that impacted on both the successes and failures in e-government projects in the respective countries.

3.2. E-government Comparisons in Developed and Developing Countries

E-government promotes better prospects for representative and participative democracy, transparent, open and collaborative decision making, close relationships between governments and citizens, enhanced service delivery, new infrastructure convenience and timely one-stop service to citizens and equitable provision of government services (Zakareaya et al, 2004). However in Africa there are many factors that inhibit the realisation of these benefits.

Generally e-government in Africa and developing countries when compared with developed nations lacks in (1) history and culture; (2) technical capabilities; (3) Infrastructure; (4) e-citizen development; and (5) public service focus (Ndou, 2004; Chen, et al, 2006) . See below Table 3.1: Developed and Developing Countries Comparisons.

The disparities between developed and developing countries require developing countries to re-think their systems and seek to improve public sector competitiveness and citizens' empowerment by adopting a citizen centric public service.

Table 3.1: Developed and Developing Countries Comparisons.

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The main challenge for the global society is to figure out how to harness the power of computer-based information and communication technologies (ICTs) to raise the ability for governments in developing countries to govern, serve their citizenry and, ultimately, improve the human development conditions for their people (ITU, 2008). Therefore governments face great levels of uncertainty in developing and providing e-government services because of the complexity of the technology, deeply entrenched organizational routines, and great diversity in the acceptance of technology by individuals. This asserts that e-government requires much more than technical wizardry for developing and operating successful online services, but includes developing strategic approaches for organizing and assembling tangible resources such as computers and networks and intangible resources such as employees' skills, knowledge and organizational processes.

In a number of the developing countries (Kling, 2000) governments are very fragile from civil unrest and military coups, making transition from one form of government to another difficult. These factors create instability in plans to develop the resources needed to support e-government. Hence, posited herein that political commitment to democracy and rule of law is a significant e-government success parameter.

As it can be seen in Figure 3.1 below, developing countries, in particular, African countries do not comprise of the top 20 world e-government development leaders and even amongst the 25 countries classified as upcoming world e-government leaders (UN, 2012) African countries still do not feature. Coincidentally, the leading 20 countries have considerable level of democracy and rule of law. When in African some countries experience civil unrest, poor democracy and political governance systems lapses.

Figure 3.1 World E-government development Leaders

Rank	Country	E-government Development Index
1	Republic of Korea	0.9283
2	Netherlands	0.9125
3	United Kingdom	0.8960
4	Denmark	0.8889
5	United States	0.8687
6	France	0.8635
7	Sweden	0.8599
8	Norway	0.8593
9	Finland	0.8505
10	Singapore	0.8474
11	Canada	0.8430
12	Australia	0.8390
13	New Zealand	0.8381
14	Liechtenstein	0.8264

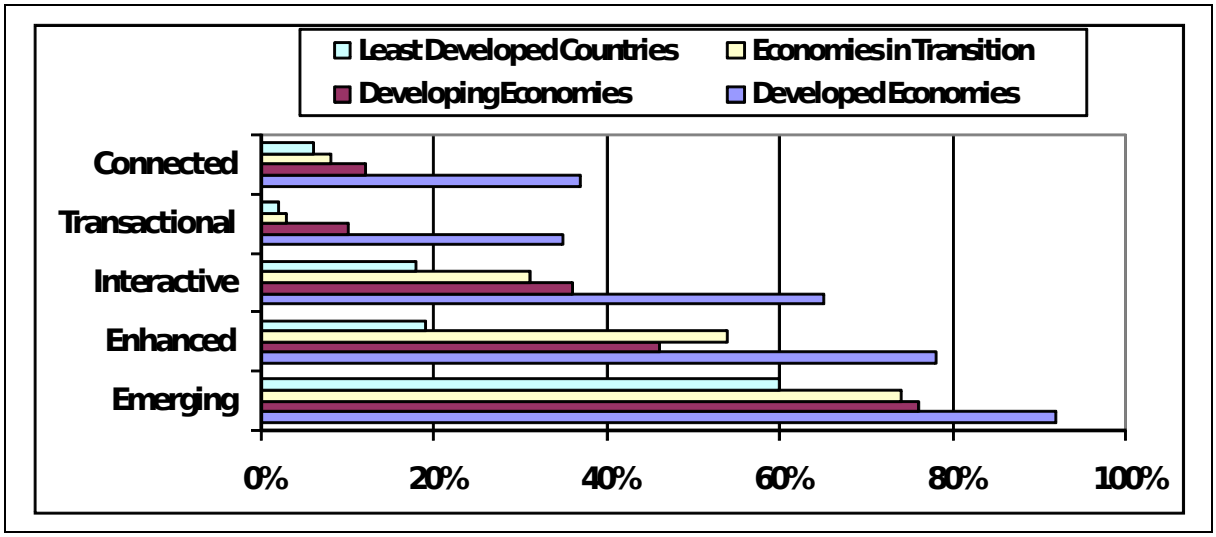
15	Switzerland	0.8134
16	Israel	0.8100
17	Germany	0.8079
18	Japan	0.8019
19	Luxembourg	0.8014
20	Estonia	0.7987

(Source UN E-government Survey, 2012

There is need for robust and effective strategies to support Africa and developing nations generally, to mitigate the widening e-government development gaps between the developed and developing countries. Again is posited herein, based on table 3.1 and figure 3.1 above that e-government success does not only depend on advances in ICTs, but rather comprises of several aspects that form the basis of strategy and adoption factors (see sections 3.3 to 3.5).

The data in Figure 3.2 below also clearly reflect gaps across each level of e-government functionality between developed and developing countries. The data shows that most governments worldwide have websites that meet functions at the emerging level of e-government and the least prevalent level are websites with functions at the connected level, with 94% of developed countries websites being at the emerging level as compared to 72% for developing countries (including economies of transition countries and least developed countries). For countries with developing economies and economies in transition, the levels of e-government functions are very similar across the emerging, enhanced and interactive stages. However, the levels of e-government functions among the least developed countries are significantly less prevalent than the other countries in these three stages (ITU, 2008; UN, 2008). It has been found (Clift, 2003) that citizens would ordinarily have a greater interest in using the various e-democracy tools when governments are ready to provide more services online and in a transparent and efficient manner that can easily engage them. This therefore suggests that citizens' involvement is necessary for e-government development and adoption.

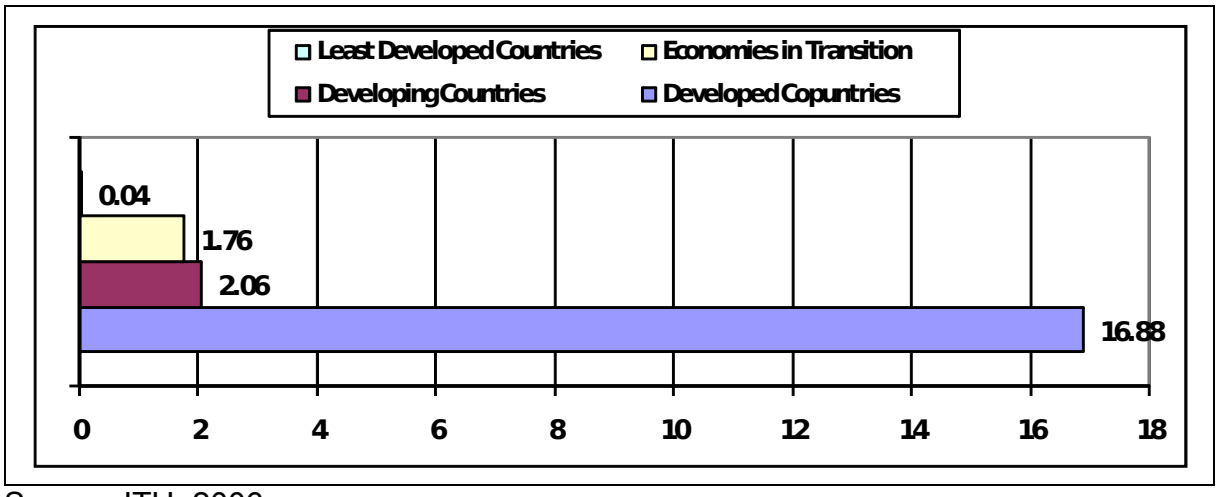
Figure 3.2 E-government Stages in Developed and Developing Countries



Source: UN E-government Survey, 2008

Broadband access is another great challenge in developing countries; there are significant disparities in the use of ICT and Internet access in developing and developed countries as seen below in Figure 3.3 (ITU, 2006; ITU, 2008). This position makes it apparent for e-government research to provide strategies that can support the engagement of citizens user groups, facilitate their knowledge and understanding towards e-government adoption and continual use of e-services and this endeavour is what this research aims to fulfil.

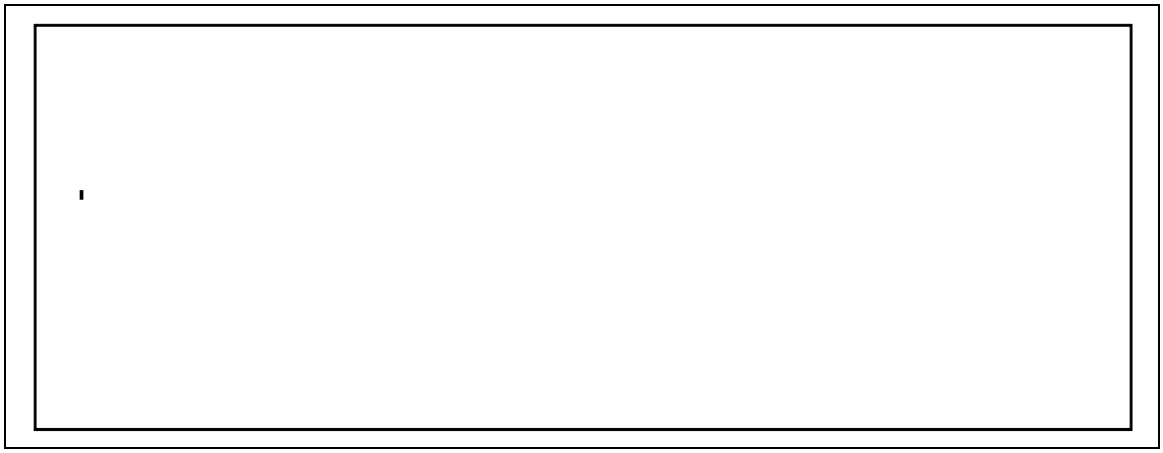
Figure 3.3 ICT Access and Internet Use per 100 Inhabitants



Source: ITU, 2006

While the (UN, 2007) millennium goals measures suggests an improvement in broadband access in Africa, the latest Internet World Statistics (IWS, 2012) shows that Africa still occupies only 7.0% at a penetration rate of 15.6% against the world internet users at 93.0%, with the top 10 countries in ranking order being; Nigeria, Egypt, Morocco, Kenya, South Africa, Sudan, Tanzania, Algeria, Uganda and Tunisia (IWS, 2012).

Figure 3.4 Africa Internet Access Compared to Rest of the World



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It is evident that developing countries, Africa especially, lags behind in technology, human capacity and e-participation with highly low e-readiness levels compared to the rest of the world (Internet World Statistics, 2009; UN, 2010; EIU, 2009) as depicted in the extracted Table 3.2 E-government Development Index. Comparative data estimated Africa's population at 14.2% and Europe at 12.6% of the world population respectively. Notwithstanding, Africa only had 3.6% internet penetration and 2.9%usage while Europe had 11.8% penetration and 37% internet usage (Internet World Statistics, 2009). However, while there have been some improvements in Africa's e-readiness levels, they have not been significant as Africa is lagging behind compare to the world whole (UN, 2010). This position still depict challenges that need to be overcome with better strategies, policies and devoted political will to avail resources, change laws to ensure that the people have access to government online.

Table 3.2: E-government Index (some Developed and Developing Countries)

Rank	Country	Index Value	Online service component	Telecommunication infrastructure component	Human Capital Component
1	Republic of Korea	0.9283	1,000	0.8356	0.9494
2	Netherlands	0.9125	0.9608	0.8342	0.9425
3	United Kingdom	0.8960	0.9739	0.8135	0.9007
4	Denmark	0.8889	0.8562	0.8615	0.9487
5	United States	0.8635	1.000	0.6860	0.9202
93	Mauritius	0.5066	0.4314	0.3296	0.7588
101	South Africa	0.4869	0.4575	0.2214	0.7817
142	Angola	0.3203	0.3333	0.0892	0.5883
121	Botswana	0.4186	0.3595	0.1873	0.7091
136	Lesotho	0.3501	0.3007	0.0499	0.6997
159	Malawi	0.2740	0.2157	0.0321	0.0000
158	Mozambique	0.2786	0.3660	0.0443	0.0000
144	Swaziland	0.3179	0.1438	0.1125	0.6973
154	Zambia	0.2910	0.3137	0.0601	0.4993
133	Zimbabwe	0.3583	0.3007	0.1099	0.6644

190	Somalia	0.0640	0.1830	0.0090	0.0000

(Source: Extract from--UN E-government Survey 2010)

In some African countries it is believed that the low development index are due to non availability of electricity in many rural areas to power, PC and internet connectivity, resulting in high internet costs even where there is internet access and connectivity, the disparities and inequalities are reported to be higher (Schuppan, 2009; Jensen, 2003; Frempong et al, 2005). In addition, poverty, lack of infrastructure and low information technology (IT) and functional literacy are other significant limitations hindering the adoption and use of ICT in developing countries (Goodman and Green, 1992).

These gaps could continually and largely contribute to e-government projects' failures in developing countries if they are not mitigated with research based mitigation strategies. This research is focusing on Botswana (a developing country in Africa), however, it is deemed to shed light into what can be done to assist developing countries perform better in e-government projects and further to motivate future research. This is necessary to ensure that as government leaders and officials are increasingly aware of the potential of e-government and are well supported to improve the performance of government organisations and provide potential benefits to their citizens and other users.

3.3 E-government Implementation in Some Developing Countries in Africa

E-government development challenges in Africa remains the widespread lack of infrastructure and functional literacy. Despite recent expansion in mobile telephony, most countries in Africa remain at the tail end of the digital divide. These challenges have translated into a lower than world average e-government development for all sub-regions (UN, 2012), with Southern Africa within which the countries like Mauritius, South Africa and Botswana fall, consistently outpacing all the other sub-regions in Africa at e-readiness development trend of 0.3934, with the least e-ready sub-region being Western Africa (0.2171). Whilst Africa generally lags behind in all the parameters of e-government development, It is however reported that African countries have started the pursuit of e-government with the degree of commitment (Coleman, 2006; Bwalya and Healy, 2010), though the down side is that citizen-users' access and e-participation are still very low. African countries such as Uganda, Zambia, Tanzania, and Kenya have initiated e-government developments plans with Seychelles, Mauritius and South Africa leading the pack, while Botswana and Namibia occupy 9th and 10th positions respectively (UN, 2012). Whilst Botswana occupies the 9th position, and like others experiences lower levels of ICT usage and penetration, higher penetration on mobile phones of over 100%, Internet users' penetration of 6%, Broadband Penetration of 1% and PC penetration of 3 % respectively (Kereteletswe, 2009).

Reiterating on discussions made in chapter one (section 1.1 and section 1.2), specifically based on the critical review and analysis of various literature

(Ngulubane, 2007; Mofleh and Wanous, 2008; Reffat, 2006; Kolsaker and Lee-Kelley, 2006; Mathiassen and Nielsen, 2008; Axelsson et al, 2011) and the 85% failure rate of e-government projects (Heeks, 2004: Schware, 2004), it is clearly evident that the e-government implementation efforts still fail to involve, consult and engage citizens' stakeholders in the development and implementation of e-government projects and strategy initiatives. In view of this, it is increasingly apparent that there is need to proffer strategic guide and research based conceptual framework to support, enhance, facilitate and support e-government initiatives in Botswana and variably replicate same to other countries with related conditions. The latest literature (UN, 2012) still reports low levels of the internet users and population penetration percentages in the southern Africa countries (SADC) save for Mauritius at 35% penetration level see Internet World Statistics, 2012).

Table 3.3: Internet Users for Africa (SADC -Countries 2012-Q2

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In order to expand on knowledge and understanding of the e-government implementation experiences in developing countries, it is needful to look at few available case studies per country to contextualise the impact of strategic framework and citizens' stakeholders' participation and involvement in government strategy development and implementation through to adoption and future continual use. These discussions are hitherto presented (subsections 3.3.1 to 3.3.6).

3.3.1 E-government in Mauritius

Notwithstanding the challenges of e-government in developing countries, comparatively e-government is largely developed in Mauritius because government embarked on strategic and dedicated initiatives to transcend the country and its people into an information based society, where interaction platforms are readily available for citizens stakeholders to appropriately interact with government (Dwivedi et al, 2008; Mborika et al, 2005). Mauritius has integrated the web portals to allow access of wider array of sophisticated transactions e-based services.

The government of Mauritius took deliberate decisions and steps to develop and implement the following e-government policies and initiatives (Vencatachellum and Pudaruth, 2010; Chauhan and Singh, 2011; Pudaruth et al, 2004);

- The E-government Task Force of 2001 to drive e-government agenda
- Government Online Centre
- E-government Master Plan for civil service and e-government portal setup
- E-government Interoperability Framework
- Establishment of Government Intranet System focusing on government to government (G2G) information sharing and collaboration
- Introduction of Community Access Centres through the Post Offices
- Introduction of web standards index detailing and regulating context displaying in the government websites
- Introduction of the ICT Act of 2001
- The Computer Misuse and Cyber-crime Act of 2003
- Data Protection Act of 2004.

The Mauritius government strategic thrusts and visionary project leadership, legislative framework, notably data protection and cyber laws, infrastructure development, connectivity and e-government interoperability framework ushered through the ICT Act of 2001, together with the focus on citizens through provision of citizens access centres, and availing funding for e-government programmes and

related initiatives enabled the country to attain excellent e-government rankings in Africa and comparatively good in the world.

3.3.2 E-government in Kenya

In Kenya the e-government development is largely constrained by lack of government ICT policy, poor information infrastructures, digital divide and inadequacy in the human skills. The reluctance to share information by the state has resulted in policies that deny access to information and this led to government mostly creating websites with content that offer limited value to users (Mabafu and Maiga, 2012). Other constraints are low ICT skills which have adversely affected the e-government process. Kenya is reportedly experiencing high inadequacies of qualified ICT staff, relevant training schemes to serve the country and even training opportunities are also very limited and costly for citizens (Ongo'ndo, 2007). The financial constraints and political leadership priorities have constrained the rate at which e-government is introduced in Kenya.

Here, e-government is hindered by lack of ICT policy, poor information infrastructures, digital divide and human capacity development issues, funding inadequacies and high access cost hindering adoption. The project leadership and governance issues are also evident with the overall problem being lack of e-government strategy.

3.3.3 E-government in Zambia

As for Zambia the challenges to e-government development are mainly resistance from the citizens and employees, weak ICT infrastructure access, lack of IT skills especially amongst the rural communities and over dependence on donor support to fund the e-government (Bwalya, 2009). In Zambia e-government is reportedly still at an infancy stage of implementation with no strategy in place. This has largely impacted on Zambia's e-government capacity index of 0.76, which is very low in comparison to countries like Congo, South Africa and Zimbabwe (Bwalya and Healy, 2010).

The Zambian government through the ministry of Health and International Partners set up integrated health management information systems (HMIS). This initiative has been hindered by lack of developed ICTs infrastructure; hence it is not reaching out to citizens and facilitating health care delivery systems (MOH report, 2007; Bwalya, 2009) other challenges include; lack of adequately trained human resources; and lack of national capacity to acquire legal software for HMIS applications.

There is an apparent need to for e-government strategy framework and project leadership to guide the implementation initiatives in Zambia, without which the project is very unlikely to succeed.

3.3.4 E-government in Uganda

In Uganda the e-government strategy aims to deliver high quality customer centric and performance driven e-services to citizens and enhance social and economic development with the view to transform Uganda into a competitive and knowledge society (Mabafu and Maiga, 2012). It is however reported that the strategy is impeded by inadequate resources for ICT initiatives, lack of co-ordination and training across government, poor network connectivity and low comprehension of integrated information systems (Rwangoga and Baryayetunga, 2007). The e-government in Uganda is the portfolio of the Ministry of Local Government (MOLG) and amongst the mandate is to ensure efficient operations of the local governments and proper co-ordination of the decentralisation process. The ministry is expected to drive the harmonisation of the Local Government Information Communication services (LOGICS) with Government Financial Information Analysis Systems (LGFIAS) in order to harness the benefits of e-government services.

LOGICS are an e-government application for developing national outcome along the domains of e-administration, e-services and e-society (Mabafu and Maiga, 2012). LOGICS has not been effective to achieve the desired outcome due to weaknesses and inadequate ICT skills, limited ICT infrastructure, inadequate roll out and follow up by the parent ministry, staff turn over and effects of restructuring that resulted in loss of skilled personnel, resistance to change, insufficient funding in local government and limited technical capacity at the ministry level (Rwangoga and Baryayetunga, 2007). LGFIAS role is to capture financial data on revenues and expenditures and generate high profile revenue performance reports, expenditure, donor funds and central government transfers. These reports are used as input for fiscal planning, policy formulation and decision making by various stakeholders such as local authority, central government, NGOs and other development parties.

There is an uneven levels of ICT integration and development in Uganda, largely affected by lack of resources to initiate dedicated programmes (Rwangonga and Baryayetunga, 2007), coupled with limited efforts to promote efficiently the e-government application and processes. ICT budgeting is largely uncoordinated with individual ministries seeking their own piece meal funding to off set the limited funding availed through the central government budgetary channels. The main reasons advanced for the deficient progress are, lack of staff training, poor connectivity of networks and low appreciation of the importance of integrated information systems.

Here is another case of e-government strategy rollout failure impeded by e-readiness issues, lack of finance, project leadership and governance, resulting in less ICT initiatives, connectivity and human capacity challenges.

3.3.5 E-government in South Africa

The e-government policy in South Africa was drafted in 2001, by the department of public services and administration (DPSA), after an extensive consultation process which lasted for two years with various private sector representatives, community

organisations and public services officials (Truster, 2003). The policy outlines a ten year e-government implementation plan.

Consequent to the 2001 policy adoption, the progress with e-government beyond the policy statement is reported to have been regrettable (Abrahams, 2009). The crucial early lead was soon lost through weak political leadership and ineffective management of the e-government ministerial portfolio (Cloette, 2012). The weak leadership has presented a serious obstacle to the implementation of e-government combined with other structural and operational constraints.

Whilst in 2005/2006, specific initiatives were targeted through the Presidential National Council on Information Society and Development (PNC-ISAD, 2005), little progress has been made over the past five years of such initiatives (PNC-ISAD, 2009). The specific initiatives for (PNC-ISAD, 2006) were to address public awareness and motivation, digital empowerment, accessibility, affordability and disability. The main contributions to these failures are ; too many e-government frameworks with divided control over e-government and e-development as well as weak ICT governance structure, power struggles and poor decision making inherently with governing systems.

Fundamentally, project leadership and governance by government stakeholders coupled with poor ICT governance structures resulted in poor implementation of the e-government strategy / policy.

3.3.6 E-government in Tanzania

The e-government in Tanzania started with the National ICT Policy (URT, 2003) through which recognition was given to ICT as a key development factor. The National ICT focuses on 10 pillars covering; strategic leadership, ICT infrastructure, ICT industry, Human capital, legal and regulatory framework, productive sectors, services sectors, public services, local content and universal access (Shame, 2004-2009). The Tanzanian government through various initiatives continued to invest on e-government and ICT related programmes (UN, 2008). The e-government project falls under the Office of the President (Office of Public Services Management (POSM)). This office coordinates all e-government activities country wide including funding.

E-government in Tanzania is still at the initial development stage, and a good number of initiatives have been implemented (URT, 2008; Sawe, 2007). Notwithstanding the progress (ITU, 2009; Mutagaywa et al, 2007) the e-government initiatives in Tanzania have been affected greatly by inadequate telecommunications infrastructure with no national broadband connectivity. Other challenges identified are lack of coordination on e-government initiatives, low understanding of e-government and its benefits, insufficient ICT capacity in the country and inadequate quality ICT supplies in the industry (Shame, 2009).

3.3.7 Overall Implementation in Developing Countries (Africa)

The e-government initiatives in African countries as discussed above, in relation to the (Figure 2.1 evolution phases of e-government) reveal that most countries that are already struggling have not progressed beyond e-government initialisation phase which offers independent computerisation, simplistic e-public service provision and creation of websites with predominant one-way provision of online information access and minimal downloadable capabilities. However, a country like Mauritius (albeit low in comparison to developed countries like Singapore and South Korea) seem to have progressed above the accelerated conceptualisation phase and making strides on the transformed and citizen-centric phases with varied transactional capabilities.

Amongst major issues hindering implementation are infrastructure, resistance to change, laws/regulations, computer literacy amongst public service staff and limited funding. There is minimal and in some cases no evidence of citizens' user centricity in the development of e-government and higher level of poor strategy (supposedly inappropriate strategy) rollout, where countries pursued the initiatives they were not ready for. There is a compelling case to support the e-government initiatives in these countries with better e-government strategy frameworks to enhance the current poor levels of implementation. Therefore studying the case of Botswana with socio economic and political dynamics partially similar to sister countries in Africa, this research will in part bridge the knowledge gap generally in the context of developing countries and contribute to both practice and research by sensitising developing countries endeavours and propelling future research in similar pursuits to specific countries' needs.

In order to gain better factual understanding of experiences in developing countries and make meaningful comparisons, in the next section (3.4) experiences of e-government initiatives in other countries (comparatively developed) are discussed to compare and contrast the strategies used, the level of citizen stakeholders' involvement and engagement in the e-government design and implementation.

3.4 E-government Implementation Experiences in Some Developed Countries

3.4.1 E-government in Singapore

Singapore is amongst the top 10 world leading countries with excellent e-government ratings (UN, 2012).The Singaporean government has come up with a clear vision and strategy enshrined in the e-government 2015 master plan (2011-2015) which focuses on connecting people (Infocom, 2011). The vision and strategic thrust transcends the Singapore government to be a collaborative government through; (a) co-creating for greater value to citizens, (b) connecting citizens for active participation, and (c) catalysing whole of e-government transformation. The vision and strategic thrust leverages on;

- Ensuring citizens are informed and involved to engage government on national policies.
- Achieving information access and facilitated information literacy amongst the people of Singapore
- Attaching great value on citizen empowerment, where citizens co-create new e-services with the government. Here the citizens and other stakeholders share their respective information and services needs. They influence current and future government decisions on what technologies and access channels to adopt.
- Government transformation is being enhanced through innovative and sustainable technologies.

Prior to this, Singapore over many years maintained visionary and strategic e-government design and implementation, which greatly facilitated the adoption and expanded functional literacy levels amongst citizens. The government stakeholders, political leadership, sound project leadership and governance, citizen centric e-government strategy and vision, e-readiness action plans and capacity achieved overtime were marshalled through initiatives such as EGAPI, 2000-2003; EGAPII, 2003-2006; IGOV, 2006-2010). The key focus has been on acquiring a deeper understanding of customers (citizen-users) and responsiveness to their needs and preferences, increasing awareness of e-services and convenient access for all citizens, residents and non residents as well as businesses (Infocom, 2013; Tan et al, 2005). The delighted customer (citizens) experience is achieved through integration of government services across public, private and people sectors to deliver total customer- centric services.

It is clearly observed that the Singapore case is an e-government development, implementation and adoption success story, which was achieved through strategic thrusts focused on improving and increasing users reach and richness. There is indeed evidence of citizen-stakeholder groups' involvement and participation in e-government design and implementation.

3.4.2 E-government in Malaysia

In Malaysia the e-business and e-government landscape was initiated primarily through the Multimedia Super Corridor (MSC) project launched in 1996 by the then Prime Minister (Mohammed, 2007). The MSC story was pursued alongside the Malaysian vision 2020. At the time Malaysia was losing her competitive advantage to other emerging economies within the region and government needed interventions to address the situation hence the 1996-2020 long term strategy initiative. Through the MSC seven flagships were identified and launched namely; (a) Electronic government; (b) National multipurpose card (My Kad); (c) Smart school; (d) Tele-healthy; (e) R&D Clusters; (f) E-business; (g) Technopreneur development

As for e-government, the Malaysian administrative modernisation and management planning unit (MAMPU) had already started the ground work pursuing the following nine strategic initiatives; (a) Citizens centric portal; (b) Business community portal; (c) Local government systems; (d) Land and property systems; (e) Online income tax (f) Integrated financial management systems; (g) Government employee portal; (h) E-learning; (i) E-social services.

In pursuit of the Malaysian e-government agenda, from 2001-2005 and subsequent years a number of projects had to be rolled out with greater collaborations and smart partnerships between the academic and corporate sectors in Malaysia. However, despite the good strategic initiatives, the implementation faced the following major challenges interalia;

- lack of broadband
- slow adoption of e-government applications due to lack of integrated and insufficient engagement of citizens and key stakeholders
- Low PC ownership and low ICT literacy amongst members of the society
- Information provided by government agencies via the e-government sites was stale
- The sites were not easy for the novices to navigate
- Implementation of the tele-health did not succeed due to inadequate change management and inappropriate business model
- Inappropriate e-readiness

It is noted here that lack of citizen centricity, that is involving and engaging citizens in change management and e-government design resulting in inappropriate e-readiness strategies failed the e-government project. It's however worth noting that as a result of the strategic re-alignment, since the suffering from the 1996 initiative, Malaysia has over the years taken a visionary and strategic decision to achieve e-government rating successes which were as a result of re-focusing e-government attention on citizens. Currently, Malaysia is second to Singapore in the lead in South-Eastern Asia on e-government development (UN E-government Survey, 2012).

3.4.3 E-government in Bahrain

A study conducted by (AL-Kaabi, 2010) probing the levels of e-government awareness amongst Bahrain citizens, challenges in using the e-government portals and the overall citizens' experience with the use of e-government portals, identified the success of the project as centred around effective marketing and awareness, process mapping, effective process re-engineering, good project leadership and

capacity building. These outcomes were then categorised into; organisational factors, technical factors and governing factors.

Bahrain in comparison to other countries in the region is ahead in fostering ICT4D. ICT in Bahrain is planned and implemented by the central information organisation (CIO) and e-government project is a vital project undertaken by CIO. The government of Bahrain had embarked on effective strategy for economic diversification with considerable emphasis on ICT and deliberate e-government agenda to achieve citizens' connectivity, accessibility, accountability and efficiency and effective social, political and economic development (Al-Almer, 2003). The economic development board (EDB) of Bahrain has placed ICT as a pillar in attracting private investments and improving government services to all users. Government stakeholder (political leadership) commitment is more evident and also citizen-users participation in change management initiatives in Bahrain

3.4.4 E-government in India

E-government initiatives in India started when the government approved National E-government Action Plan (NEGP) for implementation during the year 2003-2007. The NEGP e-government strategy aimed to make ''all government services accessible to the common man in his locality, throughout his life through one stop shop (integrated service delivery) ensuring efficiency, transparency and reliability at affordable costs to meet the basic needs of the common man'' A number of initiatives were rolled out such as project 'Bhoomi' in the state of Madhya Pradesh, project 'smart government' in the state of Pradesh, project 'Sam-park' in the Chandigarh and other programmes that were focused on delivery of services to citizens (Monga, 2011).

Prior to the (NEGP, 2003-2007) the following plans were introduced inter alia;

- Development of e-office to enable various ministries and departments to transact and operate online.
- Creation of websites by government ministries to provide information about government policies online.
- Setting up of High Powered Committee (HPC) with cabinet secretary as its chair. This was intended to improve administrative efficiency through the use of IT in government.
- Setting up of centre for e-government to disseminate the best practices in the area of e-government.
- Establishment of the National Taskforce of Information Technology and Software Development in 1998.

- Adoption of information technology (IT) Act, 2000 by the government of India to provide legal framework to facilitate e-transaction.

Not withstanding these initiatives, the e-government project in India faced challenges such as; lack of strategic control of e-government, poor change management, sustainability issues, ineffective technological initiatives and obsolescence (Sigh, 2011). Other challenges related to the failed Sustainable Access in Rural India (SARI) project (Kumar and Best, 2006) which was dedicated to demonstrating that the creation, development and delivery of ICTs, services and technologies in poor rural areas led to improvement in health, empowerment, learning and economic development amongst the poorest and most disadvantaged communities.

The SARI project encountered the following challenges;

- Lack of appropriate stakeholder engagement (where private sectors and district government officers where excluded)
- Poor coordination and maintaining of the programmes
- Lack of strong project leadership
- Inadequately trained government officials
- Poor turn around in obtaining timely and adequate responses from the districts officers on request (applications) from kiosks, which resulted in citizens declining trust and use of the programmes

3.4.5 E-government in South Korea

South Korea has been a consistent world leader in e-government with higher development indices of 0.8785 and 0.9283 for 2010 and 2012 respectively (UN E-government Survey, 2012). The South Korean main website has developed into an integrated citizens centric portal where citizens can find almost every service they want at both central and local government levels. The main government portal provides a gateway to services through multi-channels organised by theme and subjects. The portal also affords the citizens opportunity for customised channel by inputting their own age, gender and services of interest. This is facilitated by robust back office search engine offering advanced categorised functionalities, which can list results by websites, services and news.

The success key for South Korea's continued e-government leadership (UN E-government survey, 2012) is the significant development and provision of downloadable mobile applications that are available from its national portal. The survey further inform that the sector mobile applications for citizens are both iphone and android compatible, including for e-learning, with functionalities that allows students to learn on their mobile phones in areas such as social studies, maths and

English. Employment opportunities are available through job cast for all jobs available in Korea along with the relevant governing labour.

South Korea's journey to world's e-government leadership intensified in 2002 with launch of 'e-Korea vision 2006' which laid a solid platform for e-government initiative alongside the first world's initiated IMT-2000, 3G wireless technology for higher data rates between base antennas and mobile phones. Subsequently a number of initiatives were rolled out such as U-Korea Master Plan, broadband convergence network in 2004, U-Sensor network and IPV6 master plan which were crafted and accordingly implemented (Menon, 2011; West, 2010). Korean government successfully embarked on initiatives to bridge the digital divide for equitable ICT access and usage, this was made possible through a people-oriented and inclusive information society (Seo, 2011).

The visionary and strategic leadership of Korea enabled other interactions such as Public Private Partnership(PPP) through which the private sector including NGOs, civil societies, citizens and other business entities cooperated with government to realise e-government goals, for example, the PPP comprised about 700 individuals members from various economic sectors, these efforts assisted in bridging the digital divide and motivated global access to ICTs by Korean citizens irrespective of their geographic, economic and social status (Seo, 2011).

However e-government journey to the world's leadership for South Korea was not achieved over night nor was it a one event. It has been a characterised journey traceable in many years of relentless efforts and initiatives (Noh, 2009);

- 1986- Computer Network Act was enacted
- From 1987-1997 Legislation and Regulatory Framework was put in place.
- In 1995 Information Promotion Act was paced
- From 1998-2001, Korea Information Infrastructure (KII) project which birthed the Digital Divide Act in 2001 and Knowledge Resources Management Act in 2000
- In 2001 also the E-government Act was enacted from 2003-2007 numerous e-government roadmaps projects were implemented including broadband and IT Korea vision 2007. All initiatives greatly advanced country wide ICT sector growth in Korea (Menon, 2011; Seo, 2011)

Korea's experience is a notable one, focused on citizens firstly through engagement, access and provision of services mostly through access points desired by citizen-users, for example, mobile phones access. Significant role played by the visionary and strategic Korean government Political Leadership with adequate assessment of

what needed attention and roll out of well funded initiatives have brought Korea to a renowned e-government world leader.

3.4.6 E-government in Ireland

The implementation of e-government by Irish government started with action plan for an information society in 1999 which outlined the three fold approaches to online delivery of public services through information services, literature services and integrated services. This e-government programme was executed through the Reach Agency which was officially established in 2000 to implement e-government strategy. In April 2002, a secondary plan of action 'New Connections' was introduced specifically for development of multiple access channels and ensure that all citizens have specific benefits and access through multi channel access to government online. In this pursuit, the Irish government made a political commitment to have all public services capable of e-delivery available through a single point of contact by 2005. From 2000-2002, a number of e-government initiatives were carried out such as launching of websites, e-forms, availing every local authority paper based form online and making them individually customisable.

A study conducted by (Scott et al, 2004) revealed that the local authority websites and later OASIS and BASIS represented the crucial evidence of a clear shift from a departmental orientation to a customer focused orientation. The launching of REACH services portal, connecting local and central systems through a centralised database allowed a greater degree of vertical integration and the functionality to process certain forms online. This development was in response to a clear mandate to improve the quality of online public services as per the 'New Connection' action plan.

In 2003, the local authority identified a lack of involvement from REACH in local development issues and expressed a need for more practical frameworks. This resulted in the implementation of organisational and technical changes. The Donegal County Council (DCC) radically altered its organisational structure to support the process of services through Information Society Communion (ISC) to promote cross-functional activities between service providers and stakeholders' involvement was the key focus of this approach (Scott et al, 2004).

In summary the Irish implementation approach achieved stakeholders' opinion representation in the development of strategy and processes of implementation. This resulted in a successful development of inter-agency cooperation. The use of ICT enabled service integration and better quality public customer service was achieved through coordinated range of services. However, initially organisational aspects were ignored by REACH in favour of a technically focused implementation and this was met with resistance endangering the overall project success. The DCC strategic intervention prioritised and secured stakeholders' involvement and participation to implementing e-government.

3.4.7 E-government in Canada

E-government in Canada can be traced as far back as 1999 when the Canadian government expressed the goal of 'becoming a model user of information technology and the internet' for its citizens and attempted to achieve their goal by making all government information and services available online (Fraser, 2009; Government of Canada, 1999; Privy Council Office, 1999), this endeavour provided Canadian citizens with commercial and secure access irrespective of locality. In this pursuit, information infrastructure was taken as a high priority. The government of Canada through the e-government strategy has over the years focused on citizens' engagement in all democratic processes. The significant milestone was evident in the Throne Speech outlining the government's commitment to the democratic renewal to support open, honest, transparent and accountable government. This was achieved through creation of multiple channels for citizens to participate in the policy development and government decision making processes.

Further efforts to strengthen citizens' centred approach to e-government, the Ontario province developed a strategy on citizens' engagement with the view to expand the use of electronic channels especially internet and consequently bring citizens closer to government online. The strategy recognised that the expectations and priorities of citizens, businesses and employees are continually increasing (Accenture, 2002). The development of e-government portal guide was another deliberate effort by government to ensure provision of a seamless, no wrong door access to government. The Canadian website was launched in 2001 with a single point entry for citizens by providing access to 450 federal websites along with email correspondence options (Fraser, 2009; Accenture, 2002).

These strategy initiatives enabled the Canadian government to become the number one e-government world leader for five consecutive years (Accenture, 2005). The government stakeholders (political leadership) commitment of Canada and dedication to e-government strategy implementation became more evident when funding allocation of $880 million was availed over six years (2000-2005) to support the e-government programmes (Government online, 2003; Kumar et al, 2007). Focus was not only limited to funding, government continued to take measures to further increase the adoption of e-services by the Canadian people. Resources were extended over time to establish citizens' needs and wants. GOL Advisory and consultation committees made up of prominent citizens, business people, NGO representatives and academic people were established to advice the ministers.

In the case of Canada, internet was used as a platform possible for citizens to access government online. This aligns to the view of (Wind et al, 2012) observing that the internet makes it possible for customers to be at the centre of all marketing and business strategy and not the technology or the company taking the central role. Therefore engaging customers in the marketing process from product design to pricing, distribution and communication is critical to achieving closely strong, loyal and rewarding customer relationship experience through which competitive and cooperative advantages of the business can be achieved.

3.4.8 E-government in Australia

E-government in Australia has been a success story placing the country amongst those in the forefront of e-government development and ICT usage.

The initiative started in 2001 when the Prime Minister (NOIE, 2002) advocated for a more connected government which led to the e-government strategy of 2002 which focused on (a) achieving greater efficiency and return on investment, (b) delivery of government information and services that are representative of citizens needs , (c) provision of government services and information through interoperable and multifaceted online channels , (d) building citizens users trust and confidence on e-services, high websites standards were developed, and (e) strengthening closer citizens engagement, key focus was on e-democracy and particularly processes on government policies and decision making (Halligan and Moore, 2004; 2009).

The Australia e-government focused on high policy priority for the information economy where the Prime Minister encouraged citizens to embrace the information age. The government committed to amongst other things to delivering all appropriate commonwealth services on the internet by 2001. ICTs have played a significant role in the history of e-government in Australia that spanned over 50 years. The government continued to lead in understanding and harnessing the importance of ICT and the internet to deliver better government services to Australians (Kaczorowski, 2004)

3.4.9 E-government in Finland

The development of e-government in Finland centres around the relationship between the central administration's role in prioritising e-government as well as local and regional government's role as primary services providers. Other players are the independent central agencies under parliamentary authority and input from the private and NGO sectors functioning through Information Society Advisory Board (ISAB). These parties facilitate the Finland's e-government strategy development (OECD, 2003)

The (OECD, 2003) reports that as in other OECD countries, little is known about the citizens demands in Finland and other barriers to Finland e-government development are legislation and regulatory issues, budgetary barriers, technological barriers and digital divide.

There is need for re-visioning the e-government through committed leadership, to ensure coordination of e-government initiatives, manage public-private partnership, improve citizens' skills, enhance the portals and engage citizens

3.4.10 E-government in Sweden

Sweden is one of the most advanced countries in e-government development index with higher levels in ICT access and broadband diffusion. Within the top league of

world e-government leaders, Sweden occupies the seventh position (UN, 2012). The Swedish ICT status reveals computer access levels of 86%, Internet 83% and broadband penetration at 78% all at household level, with the daily internet use at 62% (Findahl, 2009; Janson, 2009). This resulted in Sweden ranking the highest in e-government readiness (UN, 2008).

Prior to (UN, 2008) study, Sweden has in several benchmarking studies been highlighted as one of the front-runners in e-government maturity (Löfgren, 2007; Accenture, 2006; UN, 2004). The aim of Swedish e-government focuses on strengthening democracy by enhancing transparency and citizens' participation in the policy-making and decision making processes (Al Bakar, 2009). In this regard the Swedish government established 24/7 Agency Delegation launched in 2003 tasked with stimulating the development and use of electronic services, this comprised of members from central and local government, industry, academia and general citizenry.

The rapid uptake of computers involving the Swedish society at large started with 'The Government Bill' 1981/ 82 on a coordinated data policy through which a number of ICT related bills and policies were enacted by parliament with the most notable being 1997 parliament decision to provide tax deduction incentives for employees to purchase personal computers via their employers (Ilshammar et al, 2005). This was intended to support creation of an information society for all, act as an injection to ICT industry, support democracy by means of e-access and e-participation and also to serve as the base rationale for e-services (Lind et al, 2009).

The central focus of the Swedish government has been the development of e-government services based on specific users' needs to achieve a better citizens and government relationship (E-delegation, 2012). Therefore the involvement and participation of citizen users in e-government development is a good logical for government to know the users' needs.

3.5 Comparative Observations (Developed and Developing Countries)

It is notable that the developed countries experiences reveal most success stories compared to developing countries, where predominantly e-government initiatives are characterised by alarming failure challenges and in relation to Figure 2.1 (subsection 2.2.2) e-government in developing countries has mostly not developed beyond conceptualisation phase, whereas developed countries have advanced to the phase of transformed and citizen centric e-government with other countries, for example, Singapore, South Korea, Sweden, Canada and Malaysia making significant strides in the e-government total transition and transformation phase and offering multiple diversity of full online transactions capabilities and complete one stop public services.

Also developed countries exhibit higher levels of efficiencies and advancements in e-democracy, e-participation and e-citizens, when in developing countries the position

is the opposite. There is a significant difference in citizen-user centricity and e-government development capabilities and e-readiness levels. Both developing and developed countries' e-government experiences reveal observable disparities in implementation success and failure levels. These observations and implementation outcomes are drawn hitherto summarized in Table 3.4 below.

Table 3.4 Observations in Developed and Developing Countries Studies

Noted Factor	Factor Description	Country Example	Implementation outcome and focus
Awareness and Access	• Engaging citizens through active consultation and virtual communities • Increasing awareness and enabling convenient access for various user groups (citizens, residents, non residents and other citizens businesses).	Singapore, Canada, south Korea	Successful e-government projects:- with evidence of citizens' users involvement and stakeholder differentiation
Technology, Information Access, literacy and Education	• First IMT-2000, 3G wireless technology in South Korea • Infocomm education and knowledge management. • Mobile applications (iphone and android) allowing students to learn on their mobile phones.	South Korea	Successful e-government project:- User tailored access (differentiation in stakeholders' access channels).
Citizens involvement engagement and participation	• E-government implementation through stakeholder and user differentiation strategy • through engagement of various categories, for example, individuals, businesses sectors representatives, government, NGOs and private entities over 700 people in the e-government design and execution	South Korea	Successful e-government project:- Stakeholder identification, categorisation- Citizens groups with opinion leadership and influence , change agents champion and other representative users were involved in the design and visioning of e-government

			strategy
Lack of user Involvement and poor strategy orientation	The initial e-business and e-government initiatives launched through the Multimedia Super Corridor (MSC) in 1996 by the then Prime Minister. Initial project faced many challenges and had to be revisited with better strategies and engagement of citizen users	Malaysia	Initial e-government was not successful:- Lack of user Involvement in the design of e-government initiatives coupled with inappropriate e-readiness
E-government strategy and citizens-users and stakeholder participation	Canadian citizen centric approach and throne speech in 2003 asserting government commitment to support open, honest, transparent, accountable government, availing funding and forming of citizens advisory committees comprising of various categories of stakeholders	Canada	Successful e-government project:- Citizens focused strategy design, implementation and adoption, resulting in a democratic society and higher information access and literacy levels.
Strategy issues	Lack of e-government strategy, policy, poor, digital divide and human skills and capacity issues	Zambia, Kenya, Uganda, Tanzania	E-government projects not a success:- Citizen-users' needs not met, poor legal e-government requirements and human resource capacity issues, coordination, governance and project leadership issues
Government Citizen-users and stakeholders partnerships	Commitment to placing citizen-users at the centre of every e-government initiative. Services provision based on citizens input, for example public private partnerships with NGOs, over 700 individuals representatives, private sector and other entities	South Korea	Successful e-government project:- Engagement of Citizens; Stakeholders development, implementation resulted in an adopted e-government
Citizen centric approach	• Development of citizen engagement strategy, citizens expectations, needs and priorities guided the portal development seamless e-services (no wrong door access to government)	Canada, south Korea, Singapore,	Successful e-government projects:- e-government vision and strategy focused on citizens
Strategy issues and non user focused	• Lack of strong project leadership, poor coordination, lack of stakeholder engagement, resistance to change	India, Tanzania, South Africa	E-government project not a success:- Lack of use centricity as well as Project governance and management capability
Information literacy and democratic society	• E-government focused on information building an information age and driven economy and enhancing citizens' information literacy. • E-services responsiveness to citizen-user groups needs through multiple access channels and closer citizen engagement given priority.	Singapore, Canada and Australia	Successful e-government projects
Citizens' oriented e-government strategy initiatives	• Government commitment and initiatives to bridge digital divide, provide equitable ICT access and usage, achieve through people oriented strategic initiatives	South Korea, Singapore, Canada	Successful e-government projects:- Information literacy and access

	• Enhanced information literacy and access leading to advanced and knowledge driven information society.		
Strategy issues and not user focused	• Implementation of e-government without the users' involvement in the vision, strategy and design is most likely to fail.	Finland	E-government project not a success:- Lack of user focused E-government implementation
E-government strategy design	• Deliberate strategic initiatives and committing resource to achieve the strategic milestones and delivery e-government services to citizens. For example, Singapore's eGAPI, eGAPII, IGOV2010 and eGOV2015. • Conversely poor e-government design is seen in African countries, Kenya, Zambia, Uganda, Zimbabwe and Tanzania	Singapore, South Korea, Canada, Ireland	Successful e-government projects:- User engagement in the e-government development, implementation through to adoption is key to project success
E-government leadership and governance	• User focus e-government vision and strategy, • Adequate readiness assessment and execution of action plans thereof brought good results.	Singapore, Canada, South Korea, Australia,	Successful e-government projects:- A well formulated strategy leads to success.
Technical proficiency and capability	• REACH strategy implementation and CARE programme	Ireland and Singapore	Successful e-government projects
Shared ownership with user	• Core creating e-government services for greater value and citizens connectivity for greater participation. • For example, Citizens are informed and involved to engage government on national policies.	Singapore	Successful e-government project:- Success e-government project is unlikely to be realised without the engagement and involvement of citizen-user groups in the strategy design , implementation, adoption and future endeavours
Gradual implementation approach to an e-government	• On aggregate most countries with better e-government rankings did not achieve success over night, considerable high level strategic initiatives and government stakeholders' commitment, • focused on citizen-user groups need and priorities as well as resource allocation have enabled success, • For example it took Australia 50years and Singapore over 35 years of building upon progress and strategy occupy the current e-government rankings.	South Korea, Singapore, Malaysia, India, Canada, Mauritius, Australia	Successful e-government projects:- e-government initiatives is not an event and can not be achieved over a night, it takes a gradual capacity building over along period of time and countries with limited resources may opt for a phased implementation to acquire enough capacity in creating the required ICT capabilities.
Users needs and Users participation	• User requirement analysis prior development of e-government initiatives • Initiatives (policies to promote ICT and internet access at household levels	Sweden	Success experience – knowing the needs and priorities of users and involving user to participate in e-government development
Financing	• Sustainable e-government funding is the	Kenya,	E-government projects not a

	life blood of every electronic related initiative. • In Africa funding has hindered ICT infrastructure, Human capacity development, adequacy of e-readiness assessment and action plans thereto	Uganda, Zambia, Zimbabwe, Tanzania	success:- Lack of appropriate e-readiness resulted in developing countries implementing e-government to the levels they are not ready for.

(Source: Developed based on implementing countries studies-Sections 3.3 and 3.4)

3.6 Identification and Significance of Strategy Framework Factors

In the next section e-government strategy framework factors are identified with justification as to how and why they are considered significant to inform the model set out in chapter four (figure 4.1).In line with research objective one (section 1.4) this is important to identify strategies that can enhance implementation success of e-government projects development in Botswana in particular; amid alarming failure rates of projects in developing countries (refer to chapter two).

In this pursuit this research firstly looked at the existing literature to understanding the strategies already provided. In addition to critical review of literature the next step involved studying the implementation experiences of both developed and developing countries to understand strategy factors that may have led to both successes and failures respectively and correlate then with the existing strategies in the literature, identify the gaps and basis for ascertaining the 'key influential strategy factors' relative to adoption (see above discussions in this chapter).

In a number of literature sources perused the following factors have been suggested as critical to e-government success; (1) infrastructure development and connectivity factors, including technical and interoperability (Ngulubane, 2007; UN, 2005; Chen et al, 2006; Ebrahim and Irani, 2003; UN2008; SADC, 2002); (2) Funding (Seifert and McLoughlim, 2008; Almarabeh and Abu Ali, 2010; Evans and Yen, 2005); (3) ICT Policy and E-readiness factors (E-readiness Guide, 2002; UNPAN, 2004; Bridges, 2001:2005; UNDESA, 2005; ITU, 2009); (4) Human capacity factors (Ojo et al, 2007; Ndou, 2004; UNPA & ASPA, 2001); (5) Information and data factors (Aicholzer and Schumutzer, 2000; Gil-Garcia and Pardo, 2005; Sigh, 2003; Wong et al, 2007); (6) Leadership factor, that is, lack of political accountability and transparency which ideally deal with political leadership commitment to democracy (Sharifi and Zarei, 2004; Ngulubane, 2007; Wilson, 2004; Signore et al, 2005); (7) Economic development factors (UN, 2010; Schuppan, 2009; Working group, 2002; Gronlund et al, 2006); (8) Management and organisational factors comprising of weaknesses in project governance and skills (Grant and Chau, 2005; Bhatnagar, 2002; Reffat, 2006; OCED, 2001; Caldow, 2001); (9) Legislation and regulatory environment, which includes security, privacy and data protection issues (Wu, 2007, OCED, 2005; Brown and Thompson, 2011; Hwang et al, 2004, Caldow, 1999; Culbertson, 2002) and lastly (10) Change management including resistance to change and cultural barriers (Anderson and Anderson, 2001; Frances, 1999; Burns 1996; Willis, 2012; Weick and Quinn, 1999). When evaluating the implementation experiences of e-

government in developed and developing countries, these strategy factors have been identified as vitally contributed to e-government successes and failures thereof.

In addition to confirming these literature (above) based e-government success factors, significant outcomes from the above implementation experiences as summarised in table 3.4 reveal that the e-government implementation factors provided in the existing literature (also see chapter two) fail to succinctly address and recognize that e-government projects success; (1) rests heavily upon the strategy design, development and implementation and (2) on the citizens involvement and participation in e-government design and implementation . The impact of citizen focused strategy to e-government success is not adequately recognized in the literature as key critical factor, resulting in the inadequacy of the proffered models and frameworks to effectively support implementing countries with better implementation strategies, especially in developing countries where most challenges exists (section 3.3 and chapter one).

A well formulated citizen-centric e-government strategy has lead to projects' successes in countries such as Sweden, Ireland, South Korea, Singapore, Malaysia, India, Canada, Mauritius and Australia. On the contrary, lack of citizen centric e-government strategy (design, development and implementation) amongst others constituted to high failure rate of e-government projects in developing countries. Inadequately coordinated e-government strategy design have been noted in countries such as Kenya, Zambia, Uganda, Tanzania, South Africa and Finland, correspondingly, e-government projects have not reached the desired success levels in these countries. This therefore points out that; (i) e-government strategy design, development and implementation is critical to e-government project success, and (ii) successful e-government project is unlikely to be realised without the engagement and involvement of citizen-user groups in the strategy design, implementation, adoption and future endeavours.

The development therefore augments the existing literature by recognising 'e-government strategy design and development' together with 'citizens'' stakeholders involvement and participation' amongst the key e-government strategy influential factors herein stated as (a) Stakeholders inclusive change management; (b)Infrastructure Development and Technical issues; (c) Project Leadership and governance; (d) Human Capacity Development; (e) Economic Development; (f) Political Commitment to Democracy; (g) Legislation and Policy; (h) Sustainable Funding (short term and long term); (i) ICT Policy and E-readiness Action Plans; (j) Information and Data Access; (k) Citizens Stakeholders involvement and Participation.

a) Stakeholder inclusive change management

Engagement of citizens and other stakeholders in the design, development and implementation resulted in an adopted e-government in South Korea. In Canada the e-government strategy, citizens-users and stakeholder inclusion in the change

process became evident in the throne speech in 2003 asserting government commitment to support open, honest, transparent, accountable government, availing funding and forming of citizens advisory committees comprising of various categories of stakeholders, resulting in a democratic society and higher information access and literacy levels and the overall e-government project's success

Through the development of citizen engagement strategy, citizens' expectations, needs and priorities guided the portal development to seamless e-services (no wrong door access to government) and greatly enhanced e-government success in Canada, South Korea and Singapore. Initially e-government was not successful in Malaysia due to lack of users' inclusion in the design of e-government initiatives and also due to inappropriate e-readiness assessment levels. The Initial project faced many challenges and had to be revisited with better strategies and engagement of citizen users. As for India whilst good initiatives were taken, poor change management amongst others adversely affected the e-government initiatives. The contribution and significance of the stakeholder inclusive change management to e-government success is partially evident in the literature review discussions in chapter two and also more evident in the critical evaluation and review of e-government implementation experiences of developed and developing countries discussed in chapter three. Therefore is worth considering in the framework shown in figure 4.1 as key e-government influential success factor.

b) **Infrastructure Development and Technical issues**

Infrastructure, connectivity and interoperability form the backbone of e-government services and hindered the e-government initiative in Zambia. Kenya lacked ICT policy, suffered from poor information infrastructures and digital divide, whilst Uganda experienced poor network connectivity and lack of integrated systems. Similarly, Tanzania had limited ICT capacity and inadequate quality and industry supplies. These challenges affected e-government initiatives.

Solid ICT initiatives and infrastructural performance and connectivity in Singapore, South Korea, Canada, Australia and Sweden facilitated the success of e-government projects. ICT related factors, contributed to high levels of information literacy and knowledge management, enhanced the quality of human capital development, increased citizens' awareness and government responses to citizens' needs, enhanced convenient provision of e-services and access for all citizens. To a degree the citizens' economic empowerment and literate information society have been facilitated through ICT initiatives, for example, citizens were accorded high status of co-creating services for connectedness and active participation. Technological innovation resulted in adoption of advanced technologies such as 3G wireless. Also there are high levels of internet, PC and broad band penetrations and various user tailored access channels and all these highly facilitated the e-government adoption rate. The contribution and significance of the infrastructure development and technical issues to e-government success is evident both in the literature review

discussions in chapter two and in the critical evaluation and review of e-government implementation experiences of developed and developing countries discussed in chapter three. Therefore is worth considering in the framework shown in figure 4.1 as key e-government influential success factor.

c) Project Leadership and governance

On aggregate most countries with better e-government rankings did not achieve success over night, considerable high level strategic initiatives and government stakeholders' commitment, focused on citizen-user groups' needs and priorities as well as appropriate allocation of resources have enabled countries to attain implementation success, examples are; Mauritius, Canada, Singapore, South Korea, Malaysia, Australia and India. Technical proficiency and capability for example, the REACH strategy implementation and CARE programme led to implementation and adoption success in Ireland.

Lack of strong project governance, leadership and management capability, poor coordination, resulted in stakeholder resistance to change due to project lacking user focus and engagement in India, Tanzania, Uganda and South Africa. The contribution and significance of project leadership and governance to e-government success is evident both in the literature review discussions in chapter two and the critical evaluation and review of e-government implementation experiences of developed and developing countries discussed in chapter three. Therefore is worth considering in the framework shown in figure 4.1 as key e-government influential success factor.

d) Human Capacity Development

Lack of trained personnel and low ICT development of citizens in general affected the success of e-government in countries such as Zambia, Kenya, Uganda and Tanzania. In South Korea, information technology access through First IMT-2000, 3G wireless technology in South Korea contributed to literacy and education of the people and in Singapore Infocomm education and knowledge management greatly enhanced human development and brought about technologically informed societies.

E-government in Singapore, Canada and Australia focused on building information driven economy and enhancing citizens' information literacy. E-services responsiveness to citizen-user groups needs through multiple access channels and closer citizen engagement were given priority and this not only impacted positively on the human capacity development of the citizens of these countries, but also on the overall projects' implementation and adoption successes. The contribution and significance of the human capacity development to e-government success is partially evident in the literature review discussions in chapter two and in the critical evaluation and more evident in the review of e-government implementation experiences of developed and developing countries discussed in chapter three.

Therefore is worth considering in the framework shown in figure 4.1 as key e-government influential success factor.

e) Economic Development

In Australia economic development through e-government initiatives became recognised through the creation of information economy as a high priority policy supported by significant deployment of ICTs. The e-government strategy aimed to achieve greater effectiveness on return on investment. In India a high powered committee (HPC) chaired by cabinet secretary was set up to improve IT usage in government. However, the project suffered as a result of inadequate training of government officials, which led to poor turn around from district staff and ultimately citizens' trust and use of e-government programmes. The Bahraini's economic development board (EDB) also prioritised ICTs as an economic pillar for attracting private investments. Public Private Partnerships were set up in South Korea comprising of 700 people from various economic and social fronts. The contribution and significance of economic development through to e-government initiatives is noticeable in the literature review discussions in chapter two and evident in the critical valuation and review of e-government implementation experiences of developed and developing countries discussed in chapter three. Therefore is worth considering in the framework shown in figure 4.1 as key e-government influential success factor.

f) Political Commitment to Democracy

Singapore's initiatives in availing resources to achieve the strategic milestones to deliver e-government services to citizens, for example, the eGAPI, eGAPII, IGOV2010 and eGOV2015 fulfils the citizens' democratic rights to access government services. Also the governments commitment and initiatives to bridge digital divide, provide equitable ICT access and usage, achieved through people oriented strategic initiatives have led to enhanced information literacy and access leading to advanced and knowledge driven information society in Canada and South Korea, yielding overall e-government projects' successes. On the other hand the government of Kenya's anti information policies is reflective of lack of political commitment to democracy which amongst other factors affected the success of the e-government project. The contribution and significance of the political commitment to democracy to e-government success is not explicitly covered in the existing literature (see chapter two), however, based on the discussions in sections 1.2 and 1.3 and the critical evaluation and review of e-government implementation experiences of developed and developing countries discussed in chapter three, this factor is considered as a key e-government influential success factor. Therefore is worth considering in the framework shown in figure 4.1.

g) Legislation and Policy

Lack of e-government strategy, policy, poor, digital divide and human skills and capacity issues in Zambia, Kenya, Uganda, Tanzania resulted in Citizen-users' needs not met as a result of; poor legal e-government requirements and human resource capacity issues, coordination, governance and project leadership factors.

A number of e-government legislations preceded the implementation programmes in South Korea, ensuring that e-government was implemented on a solid legal and policy framework, these include interalia, computer network act, 1987-1997 legislation and regulatory framework, information promotion act, digital divide act, knowledge resources management act and e-government act in 2003. All these pieces of legislations facilitated the success of e-government through ensuring achievement of significant milestones such as, information and data access, citizen-centric e-government, infrastructure development and connectivity issues, political commitment to democratic rights and freedoms of citizens to access government online, development of human resources and generally the Koreans as well as economic development through the use of ICTs. It is also noted from the Ireland experience that the organisation structure was altered through the Donegal County Council to support cross functional activities to achieve information society, while in Canada amongst others secured access was made a high priority.

On the other hand Kenya's e-government project experienced challenges of the political government not willing to share information which resulted in the enactment of anti information sharing policies. The contribution and significance of the legislation and policy issues to e-government success is evident both in the literature review discussions in the previous chapters and also in the critical evaluation and review of e-government implementation experiences of developed and developing countries discussed in chapter three. Therefore is worth considering in the framework shown in figure 4.1 as key e-government influential success factor.

h) Sustainable Funding (short term and long term)

Sustainable e-government funding is the life blood of every electronic related initiative. In Africa funding has hindered ICT infrastructural development, Human capacity development, adequacy of e-readiness assessment and action plans thereto, resulting in overall lack of ICT connectivity, access and partial failure of e-government initiatives before full swing. From the above discussed implementation experiences these challenges are notable in the cases of Kenya, (funding constrained the project rollout, low ICT and unqualified ICT personnel), Uganda (strategy was impeded by inadequate resources to fund ICT initiatives resulting in an uneven levels of ICT integration and development) in Zambia (finance hindered ICT infrastructure development), and Ugandan (piece meal funding approach and funding insufficiency at local government level).

In India funding was availed to rollout a number of initiatives such as Project 'Sam-park and 'Smart government as well as numerous initiatives identified under National E-government Action Plan (NEGP), while in Canada e-government strategy

implementation was funded to the tune of $880 million over six years which greatly enhanced the Canadian e-government project success. The contribution and significance of sustainable funding to e-government success is evident both in the literature review discussions in the previous chapters two and more evident also in the critical evaluation and review of e-government implementation experiences of developed and developing countries discussed in chapter three. Therefore is worth considering in the framework shown in figure 4.1 as key e-government influential success factor.

i) ICT Policy and E-readiness Action Plans

Lack of appropriate e-readiness resulted in developing countries implementing e-government to the levels they seem not ready for. The e-government projects have not been a success in Kenya, Uganda and Zambia. The implementation initiatives in Zambia started prior to development of e-government strategy resulting in inadequately coordinated initiatives, for example, the integrated health management information systems (HMIS). E-government initiatives cannot be achieved over a night, for example, it took Australia 50 years and Singapore over 35 years of building upon progress and strategy initiatives to occupy the current e-government rankings and readiness levels. Other countries that achieved better readiness levels, capacity and success over the years include South Korea, Malaysia, India, Canada and Mauritius. Therefore countries with limited resources may have to opt for a phased implementation to acquire enough basic readiness and capacity in creating the required ICT capabilities. The contribution and significance of the ICT policy and e-readiness actions plans to e-government success is evident in the literature review discussions in the previous chapters and notably in section 2.5 and also in the critical evaluation and review of e-government implementation experiences of developed and developing countries discussed in chapter three. Therefore is worth considering in the framework shown in figure 4.1 as key e-government influential success factor.

j) Information and Data Access

Successful e-government project in South Korea facilitated user tailored access resulting in differentiation in stakeholders' access channels, for example, Mobile applications (iphone and android) allowing students to learn on their mobile phones. While in Canada and Singapore, the engagement of citizens through active consultations and virtual communities resulted in increased citizens' awareness of e-government and also enabled convenient access for various user groups (citizens, residents, non residents and other citizens businesses) to access government information and services. Conversely, e-government initiatives in Kenya suffered due to lack of information and data access facilitating policies. The contribution and significance of information and data access to e-government success is evident both in the literature review discussions in chapter two and in the critical evaluation and review of e-government implementation experiences of developed and developing

countries discussed in chapter three. Therefore is worth considering in the framework shown in figure 4.1 as key e-government influential success factor.

k) Citizens Stakeholders involvement and Participation

In the above implementation experiences, mostly successful e-government projects have evidence of citizen- users' involvement and stakeholder differentiation; examples are Canada, Singapore and South Korea. E-government implementation was done through users / stakeholders differentiated strategy and differentiated access in South Korea reflecting differentiation in user access delivery channels. Citizens groups with opinion leadership and influence, change agents, champions and other representative user-groups were involved in the design and visioning of e-government strategy. The strategy engagement included various categories such as individuals, businesses, NGOs and private entities resulting in over 700 people engaged in the e-government design and execution.

In Singapore we see a shared ownership between government and citizen-users and other stakeholders demonstrating co-creation of e-government services to achieve greater citizens' participation through greater value and connectivity. The Swedish success experience came from identifying and knowing the needs and priorities of users and also their involvement and participation in e-government development. The focus of the government was delivery of e-government based on users' participation and needs awareness, which focus guided the policy initiatives. Whilst the literature does not make an explicit and closely connected case on the significant impact of citizens' stakeholders' involvement and participation in e-government design and implementation success factor. The significance and contribution of this factor is evident both in the discussions in section 1.6 and in the critical evaluation and review of e-government implementation experiences of developed and developing countries discussed in chapter three (see also table 3.4). Therefore the factor is worth considering in the framework shown in figure 4.1 as key e-government influential success factor.

These eleven factors (A to K) are developed into conceptual input discussions in the next chapter towards the development of citizens' stakeholder centric strategy framework and conceptual implementation and adoption model finally proposed in chapter eight.

3.7 Critique Summary of Experiences

The Implementation experiences reveal that e-government projects successes have been achieved through a robust e-government strategy encapsulating critical factors listed above, dedicated and focused on;

- Informing, involving and engaging citizen user stakeholders in the e-government design and development (National policies and other initiatives), the good examples include, Sweden, Canada, Singapore, and South Korea

- Building understanding, enabling , influencing and facilitating e-government change (examples are programmes implemented through the CARE initiative of 2004; such as provision of robust Infocomm infrastructure, Infocomm education, knowledge management and facilitated information literacy amongst Singaporeans, customer personalisation via My.e-citizen which allowed citizen users to subscribe and customise variable services and also provision of computers with internet access at affordable prices and government e-services training to kick start their e-journey)

- Securing citizen stakeholder groups participation and continuous adoption (use) of e-government (investing in innovative and sustainable technologies, continually looking for new ways to improve customer experience to keep up pace with new technology acquired by users)

Explicably e-government cannot just be offered without understanding the citizen-user stakeholders' needs and priorities, varying levels of readiness and sophistication, capacity and capability. However this reality (implementation experience based) is in contrast with the existing e-government literature.

In addition to chapter two (section 2.7), the multiple e-government success perspectives proposed (Lam, 2005; Al-Kaabi and Hattab, 2009; AbuAli et al, 2010) focus on (a) technology, where security, compatible technical standards, architectural interoperability, network infrastructure, databases and information infrastructures at a national level are rightly emphasised, but unfortunately to the detriment and non inclusion of citizens' user groups' involvement and participation to the same equitable importance and ranking as with these important factors. (b) Organisation culture is proffered as a success determinant (Ho, 2002; Kim et al, 2007; O' Donnells et al, 2003) the argument is that in transition to a service oriented culture, employees must overcome the traditional public sector departmental entities and the thinking thereof. Suggesting the need for more resources and focus to be spent in radically changing the leadership thinking, motivating employees to perform more challenging tasks and encouraging their willingness to assume responsibility. The key focus is to achieve trust and strengthen the inter-departmental and inter-organisational cooperation.

Others (c) Layne and Lee, 2001; Maniatopoulos, 2003; Griffin et al, 2007; Scholl, 2003) suggest that to achieve e-government success the structure is important as decisions on the implementation of e-government are transferred to e-leaders (top leadership, e-champions, CIO leaders) and the decision they make leads to decentralisation in the broader decision making process, arguing that coordination and control must be strengthened through hierarchical structure transformation to a network based structure. Another view (Leitner and Krenzeder, 2005; Kim et al, 2007, Ho, 2002) places emphasis on human resources, project management and the ability of leadership to develop strategy. The processes are also identified as a success driver given that e-government hinges on the entire public sector process

re-engineering towards accelerating 24/7 e-information and e-services provision, thus not only trust on the processes, but equally important is the safety, maintenance and integrity of the change (Elnaghi et al, 2007 Layne and Lee, 2001). As stated above these factors are important, but in recognising their importance the current literature do so by failing to recognise equitably the citizens-user groups involvement and participation in the e-government development and other continuing initiatives. This exclusion creates a gap that adversely impact on the overall success of e-government projects.

3.8 Summary

A reasonably balanced discussion on e-government development initiatives, maturity levels and disparities between the developed and developing countries outlined.

The e-government implementation experiences in developed and developing countries have been discussed and comparisons thereof made to illustrate the impact of citizens' focused e-government strategy initiatives and citizens' stakeholder involvement to the implementation success and thereto constituted as critical success factors. These perspectives are found missing in the existing literature (models and frameworks) discussed in chapter two, resulting a knowledge gap this study intends to fill.

CHAPTER 4: CONCEPTUAL FRAMEWORK: FOR CITIZENS ADOPTION MODEL AND E-GOVERNMENT STRATEGY FRAMEWORK FACTORS

4.1 Introduction

The overall aim of this thesis as captured in chapter one is to develop both the strategy framework and citizen stakeholder centric adoption model for e-government implementation in Botswana. Consequently, the aim of this particular chapter is to propose an initial conceptual e-government adoption framework for the anticipated final model and also to identify initial strategy framework factors influencing e-government project success leading to adoption.

The strategy framework factors and conceptual adoption framework deliberations herein, build on earlier discussions in chapter one (section 1.2 and section 1.6), chapter two (section 2.7 and related subsections) and also chapter three which discussed the e-government comparisons implementation experiences in developed and developing countries. Critical factors are drawn from the bankable, validated and applied countries projects' experiences which have been succinctly analysed, reviewed, contrasted and critiqued in chapter three (sections 3.3 to 3.6) and are a primal urge for both identifying strategy initial issues influencing e-government success and also for proposing initial conceptual adoption framework for the anticipated model. This is necessary to bridge the gaps already highlighted in the existing implementation frameworks and adoption models (see chapter two). .

This chapter is structured into two broad sections (4.2 and 4.3) and subsections thereto. Section 4.2 presents e-government strategy development framework drawing critical lessons learnt from countries experiences of e-government projects and consequently redefines, proposes and discusses (incorporating the discoveries, supposedly new knowledge), the e-government strategy critical success and adoption factors presented in Figure 4.1. The proposed strategy and adoption factors are likely to influence the e-government implementation success and adoption by citizens' stakeholders.

Section 4.3 presents the e-government adoption- towards developing citizen stakeholder centric involvement and participation framework. Primarily the section applies the stakeholder theory combined with attributes of user involvement theories to e-government development, implementation and adoption. The discussions thereto expounds on stakeholder concepts and arguments already advanced in chapter one (section 1.6) and chapter two (section 2.7.2.8 and section 2.8). The discussions herein focus on, the stakeholder theory in e-government research; elements of stakeholder theory; identification and characterization of stakeholders to parttake meaningfully in e-government; proposes the case study stakeholders; and finally proposes and presents citizens' stakeholders' involvement, engagement and participation process and the intial framework thereof.

4.2 E-government Strategy Development Framework

Many frameworks and models have been proposed to address critical factors for implementing and adopting e-government in developing countries, however, these factors have not been studied in enough depth in the literature and also the frameworks and models do not address other important factors (see chapter two sections 2.7).

Building on the critical review of individual countries' (developed and developing) and in-depth analysis of e-government experiences as articulated in the preceding chapter (sections 3.3 and 3.4), factors observed from the case studies which have been underpinned and identified in section 3.6, are herein discussed in the following (subsection 4.2.1) to provide an applied contextual bases.

4.2.1 Contextual E-government Implementation Factors Observed

The implementation experiences in the previous chapter illuminates and suggests factors that influence development of e-government and citizens' engagement in the

development processes. These aspects enrich knowledge and understanding regarding e-government implementation. The critical factors observed are that are:-

- **Observation one: Development of citizens centred e-government strategy is critical to overall project success**

E-government strategy is the business plan for project's implementation and captures all essential elements to achieve desired results, and accordingly (Shahkooh et al, 2009) acknowledges that for successful e-government implementation and adoption to occur an appropriate strategy design with clear a vision is necessary.

The success of e-government has been achieved through strategic and vision thrust (e.g. Malaysia vision and strategy re-alignment, South Korea, Singapore, Canada and Australia). These have revealed high levels of government stakeholders and political leadership commitment in setting up the necessary infrastructure, citizens' engagement initiatives, funding and embarking on deliberate e-readiness and ICT policies to achieve successful e-government projects.

The e-government strategies and initiatives in Singapore focused on citizen stakeholders in key areas of; (a) development of personalised services (user needs and priorities), (b) exploring new delivery channels (facebook, twitter etc), (c) use of social media channels (facebook and twitter), (d) soliciting views from citizens which developed citizens trust and confidence in e-government, enhanced democracy and active participation of citizens stakeholders in the governance process.

The Singapore vision 2015 still prioritises citizen centricity in enhancing e-government services. It is about connectivity for active citizens' participation and co-creating for greater citizens' value. The previous vision and strategy was also citizen centric, for example, e-government action plan for 2003-2006 was focused on delighting customers and communicating with citizens.

- **Observation two: Stakeholder analysis (identifying and characterising) positively impacted on the involvement, engagement and participation process of the e-government development and implementation**.

In Ireland through the REACH initiative, user involvement was achieved through a number of strategic practical approaches such as the Donegal County Council strategy that prioritised and secured stakeholders participation to implementing e-government and further users were involved in the development of e-government strategy. The e-government strategy in Canada was citizen centric and e-government was achieved through a dedicated citizens' engagement strategy.

With this strategy academic people, citizens as individuals, activists, representatives became part of the GOL Advisory and Consultation Committees liaising closely with ministers on e-government issues and most revealing also was the resources

committed the by Canadian government to realise e-government project success. Similarly, in South Korea the government stakeholders and leadership deployed resources to facilitate e-government and significantly achieved a high degree of citizen centricity.

Australia also adopted a citizen centric approach to implementing e-government where the e-government strategy focused on enhancing citizens' trust and confidence in e-government services

- **Observation three**: **Informing, consulting, engaging and involving citizens stakeholders in e-government development and throughout implementation is a key success and adoption contributor**

Most revealing in these lessons is the majority of unsuccessful cases of e-government projects are in developing countries and significant successes are in developed countries. As seen in chapter three, e-government successes in developed countries have mainly been achieved through a robust e-government strategy initiatives dedicated and focused on citizens stakeholders, where citizens' voices have been recognised, and generally citizens have been represented, informed, consulted, engaged and involved in the strategy and e-government development and further participated not only in the ongoing implementation but also in co-setting the scene for future endeavours. This reality is evident in the implementation experiences of Singapore, South Korea, Canada and Malaysia and other countries. See chapter three (section 3.4 and table 3.4).

- **Observation four**: **Lack of clarity on what constitutes critical e-government strategy success factors**

In addition to the strategy development, dedicated commitment by government stakeholder and political leadership, the engagement, involvement and participation of citizens' stakeholders have a significant impact on the e-government project success and adoption. As established in chapter one, citizens and government are critical e-government stakeholders and key strategy players. However, in conducting a comparative review of the e-government strategy in other countries (USA, 2002; Bahrain, 2007; Dominica, 2005; Kenya, 2004; Jordan, 2006; Namibia, 2008), it has been identified that the e-government strategies comprised of many different components varying from one country to another.

Whilst it is acknowledged that countries have differing level of readiness, it is unclear as to which high level strategic factors are critical for the strategy design and execution to achieve e-government projects success. For example: (a) Singaporean e-government strategy and vision thrust focused on: delighting customers, connecting citizens, networked government. (b) Jordan strategy and vision focuses on four pillars, institutional framework, legal framework, ICT infrastructure, business

level. (c) United States of America (USA) strategy and vision is to be: citizen centred, not bureaucracy centred, results oriented, market based, which is, supporting citizen-users specific requirements. (d) Namibian government strategy and vision focuses on: contributing to national development, creating learning regional and local authority levels, cost effective and efficient e-administration, providing easy and low cost access for all, strengthening e-democracy and inclusion, improving local content production and innovation capacity, compatible foundation for deploying inter-governmental ICT applications and lastly, (e) Bahrain's strategy and vision priorities; liberalisation of telecommunication sector, institutional framework reform of the telecommunication sectors, efficiency in decision making process and customer service delivery (citizens, businesses, investors and companies).

It can be seen that individual countries have different perspectives of what constitutes critical e-government strategy factors and the focus thereof. Nonetheless, e-government success depends on how well each country's strategy and vision is aligned to the needs, priorities of its users, the e-readiness levels and action plans pursued to achieve success. The lack of clarity of what are the key e-government strategy successes factors creates knowledge gaps and disenfranchises the support to emerging e-government initiatives especially in developing countries were technical capability and resources may be lacking and could hinder strategy development.

- **Observation five: Key critical strategy factors are identified to bridge the knowledge gap**

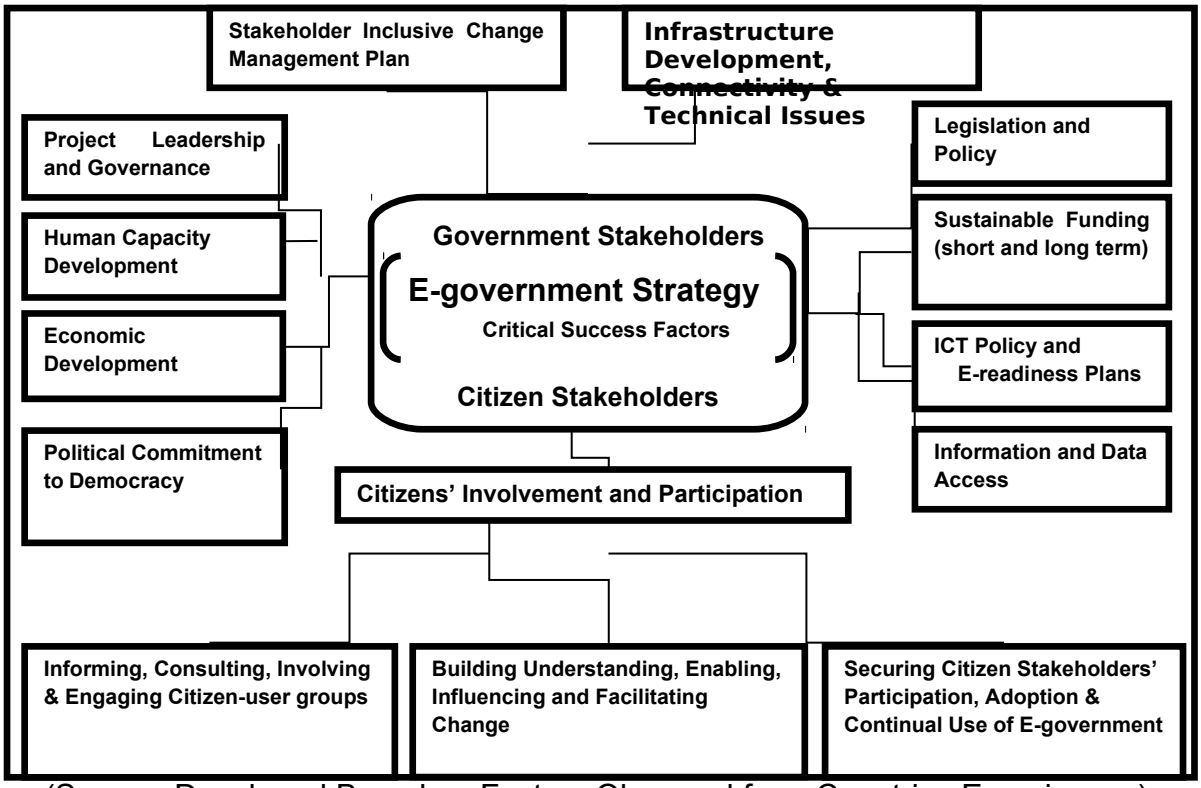
Drawing from the applied experiences, e-government implementation takes a long time of dedication, strategic efforts to bring about the project to expected levels. Government stakeholders and political leadership commitment is tested over time e.g. Singapore started with; (a) Computerisation: 1980-1999; (b) eGAPI: 2000-2003; (c) eGAPII: 2003-2006 (d) IGOV: 2006-2010; (f) eGOV 2011-2015. On the other hand, poor project leadership and governance, weak coordination and management of the e-government initiatives were the government implementing stakeholders failed to put in place adequate project management structures have been observed in cases of India, South Africa and Zambia. The government and political leadership priorities compounded with lack of appropriate e-readiness assessment, inappropriately executed change management, lack of training staff , lack of awareness on e-government , ICT infrastructure and technical interoperability challenges, lack of development and local infrastructure (including basic needs, unemployment, electricity, computers maintenance and software suppliers) have had

an impact in failing projects in Kenya, Uganda, Tanzania and Zambia and these are developing countries in Africa.

Therefore the following factors as have been identified (section 3.6) are significantly critical to achieving e-government strategy development and implementation success (see also chapter three table 3.4); (1) Stakeholder inclusive change management; (2) Infrastructure Development and Technical issues; (3) Project Leadership and Governance; (4) Human Capacity Development; (5) Economic Development; (6) Political Commitment to Democracy; (7) Legislation and Policy; (8) Sustainable Funding (short term and long term); (9) ICT Policy and E-readiness Action Plans; (10) Information and Data Access; and lastly (11) Citizens Stakeholders Involvement and Participation, which is achieved through citizens' consultation, engagement; facilitation initiatives, targeted differentiations ensuring adoption and continual use of e-government services (Examples of these are evident in the experiences of, Canada, Singapore, Sweden, Australia; South Korea).

Consequent to the above detailed critical lessons learnt, from the strategy stand point, it is needful to propose a comprehensive, tried and tested (applied) e-government strategy framework to support implementing countries such as Botswana and further to bridge the knowledge gaps. In this context, for developing countries (Botswana in particular) to realise the e-government benefits to the stakeholders (chapter two subsections 2.4.1 and 2.4.2) and achieve pre-requisite levels of readiness to effectively circumvent implementation challenges (chapter two section 2.6), arrive at comparable levels to developed countries (chapter three section 3.2), and avoid failure experiences (chapter three section 3.3), this research proposes and defines the identified eleven strategy critical success factors (as underpinned in section 3.6) as initial e-government implementation and adoption framework factors that are likely to influence the development, implementation and citizens' adoption of e-government, herein presented in (Figure 4.1: E-government Strategy Critical Implementation Success Factors and Adoption Framework Elements). These factors are validated in the analysis of data and research findings presented in chapter seven and summary of findings in chapter eight and consequently the presentation of the strategy framework thereto.

Figure 4.1: E-government Strategy Critical Implementation Success Factors and Adoption Framework Elements



(Source: Developed Based on Factors Observed from Countries Experiences)

The author posits that these factors (Figure 4.1) will significantly impact on Botswana's and other developing countries' e-government success. Thus, are termed critical e-government strategy development, implementation and citizens' adoption factors. Further more, they contribute in redefining and augment the existing body of knowledge and would serve as a broader and general (though relevant and realistic) contextual reference and starting point for assessing critical e-government strategy factors as they comprise of applied experiences from both developing and developed countries perspectives .

This research argues that a successfully implemented and citizens adopted e-government carries two aspects of; (a) citizens' engagement and involvement in the design of the project and (b) the design of the project itself which primarily hinges on e-government strategy critical factors (Figure 4.1). In the section 4.2.2 and sub sections below, the research presents a contextual discussion that justifies this argument.

4.2.2 Justification for E-government Critical Implementation and Adoption Factors in the Strategy Context.

The preceding three chapters provide some evidence that e-government challenges are numerous and may contribute to the failure of projects in developing nations. The question then facing the researchers and implementers alike is; - What must be done to address these challenges? The key issue here is; what are the elements that are vital for an e-government project to be successful? That is, what must go right from the beginning to ensure e-government project success? These in addition to the

research question and sub questions (section 1.3) are critical to addressing the failure factors and to proffer a critical success factor (CSF) strategy framework that can support and improve e-government projects success rate in developing countries.

Critical success factors (CSFs) is a term for elements that are necessary for a project to achieve its intended aims, objectives and goals. The critical factors are activities and initiatives that are required to achieve success. CSFs are therefore those vital and essential things that must be in place, followed and go well to ensure success. They are the required enterprise area that must be given special and continual attention to bring about performance of the project (Rockart, 1979; Boynlon and Zimud, 1984). The critical factors for successful e-government implementation evolve from the development of appropriate strategy (Shahkooh et al, 2009) which is essentially a business plan for e-government project. As in the experiences of Singapore, South Korea, Canada and Malaysia, the e-government project must show viability and sustainability in goal attainment and the e-government strategy is a critical plan that must demonstrate and achieve these key aspects.

Therefore the discussions on the identified critical success factors are premised from the perspective that e-government project cannot effectively progress to implementation stage without proper e-government strategy through the involvement and participation of the two primary players of government and citizens stakeholders.

4.2.2.1 Defining E-government Strategy

Based on the UNPAN perspective, the e-government strategy is an important design, implementation and execution plan that includes; (a) explicit defination of e-government and key focus areas to be addressed and identification of all the targeted users, (b) A vision of the project which must clearly explain the concepts and plans of the e-government project, (c) policies to support the e-government project, and the SMART goals and objectives.

In other words a strategy is a mechanism designed to meet the various groups' expectations and to fulfil these expectations, an organisation must manage and plan the process to satisfy its stakeholders (Hill and Jones, 2003; Johnson, 2006). A successful e-government is supported and initiated by the government stakeholders through a winning strategic initiatves and appropriate plans that will address critical issues such as; (1) goal for pursuing e-government; (2) define and set clear vision, mission and priorities for e-government; (3) determine the e-government the nation is ready for; (4) assess the political will to support and lead e-government efforts; (5) Decide on the best method of selection of e-government projects; (6) Planning and managing e-government projects; (7) Decide on change management processes to overcome resistance from within governments and outside government; (8) Determine progress measurements and communication strategies and how to depict failure; (9) Determine relationship level with private sector; (10) Determine how e-

government can facilitate and improve citizens participation in public affairs (Almarabeh and AbuAli, 2010; Working Group 2002).

For necessary transformation of governments towards a customer- oriented virtual administration there is need for e-government strategy (Wimmer, 2002) to be formulated and concretised into initiatives, here the financial and operative resources for realising e-government initiatives are allocated and strategic decisions made to implement the strategy and the government stakeholders' role is paramount in this regard. Government could identifiy collaborating partnerships either a single partner or multiple partners for the entire strategy, producing guidelines for design, re-engineer processes, developing software, helping in procurement and providing training (Bhatnagar, 2002), for example, In Kuwait the government acknowledged their lack of capacity to develop and design e-government and opted to Sinagapore as the country advisor (Boujarwah, 2006).

The government stakeholders make strategic decisions to determine the extent of citizens stakeholders' involvement and participation. E-government implementation is very complex (Asgarkhani, 2005) and these complexities have continued to result in failing projects despite the number of mitigation frameworks (Subramanyam et al, 2010). Amonsgt the major causes, is the failure to involve and engage citizens in the development of the project, resulting in implementers' lack of awareness and understanding of citizens' needs and priorities (Heeks 2006, Goldkuhl, 2007). Having said that e-government implementation emanates from the strategy, it is important to note that the e-government strategy development, citizens and government stakeholders must co-develop the stratetgy and other initiatives if the rollout is to successful.

In recognising the value of citizens involvement in e-government development (OCED, 2009) advocates for openness and inclusiveness in public policy, where policy processes are made accessible, responsive and incorporate a spectrum of citizens' voices in policy decisions at all stages of design and delivery of such policies. While the government is the backbone of e-government design and strategy, citizens exclusively play the role of e-government user in various capacities.

4.2.2.2 Stakeholders Inclusive Change Management Context

Change management is a very important element of the e-government implementation and strategy design. It deals with real human issues that require realistic strategies to curb. Successful e-government entails overcoming barriers and challenges posed by time, structure and culture of government administration (Culbertson, 2002. A well thought change management initiative maximises benefits and minimises the change resistance (Anderson and Anderson, 2001).

In order to help individuals move through the transition efficiently there is need to understand their perceptions of the past, present and future. The past experiences on what people had and that which impacted on them, coping mechanisms, what they will consider important, that they will be losing as part of the change and also what they anticipate to gain (Frances, 1999). Therefore a comprehensive change and communication strategy is necessary to enable a good momentum for e-government adoption by participating citizens.

Critical to change management is the awareness of people's values, beliefs, attitudes and cultures as well as involving and working through them, (Rogers, 1995) offers example of opinion leadership which can include; social community mentors, agents and change champions who are trusted and whose views are respected by their communities to drive the change process.

Change is occurring in all phases of people's life at an ever increasing pace and people often fear change because it upsets their way of doing things and threatens their security (Burns, 1996). However through effective change strategy this feeling can be balanced by a desire/need for new e-government change experiences and benefits that occur as a result of e-government implementation and adoption. Resistance to change is often cited as the number one reason why change program fail to deliver to the anticipated level (Willis, 2012), with employee resistance still being the biggest barrier to e-government (Ndou, 2004). Therefore understanding what drives change is very important and that change is a process that cannot be achieved over night (Weick and Quinn, 1999). Citizens can tend not to trust governments where there may have been elements of dictatorship, political instability, lack of transparency, lack of consultation and uncurbed corruption.

Systematic barriers that prevent people from accessing and eventually adopting e-government can be addressed by focusing on characteristics of the users (Pilling and Boeltzig, 1997) through appropriate change and communication strategies. The propensity of citizen-user groups to adopt e-government innovation is influenced by factors of: (a) novelty of e-government innovation to citizen-users (b) the value, benefits and importance attached to e-government innovation, (c) the e-government suitability and adaptability to the citizen-users' environment. Hence, in order to implement change successfully, the government stakeholders initiating, driving and sponsoring change must create a compelling vision for e-government change, form powerful and empowered partnerships with categories of citizens' stakeholders and carefully study the environment and systems within which e-government implementation and adoption will take place.

In order to implement any change successfully, to convince people that change is necessary strong leadership sponsoring and initiating the change is required (Kotter, 1995) as well as visible participation and support from key people, referring to citizens' stakeholders such as youth, senior citizens, employees, students, individuals and representatives of (NGOs, business owners, health, education,

finance, information systems, suppliers, change agents, champions and opinion leaders). The government stakeholder leadership is needed to start honest discussions, dynamic and convincing arguments to get people talking and thinking about the change. Open and honest communication that address people's concerns, fears, and anxieties enhances user groups cooperation and is important to create awareness for the change and allow the change sponsors to study the peculiarities of those affected by the change (Menhravani et al, 2011), and the environmental readiness factors necessary to address prior the implementation of the change process

This helps to remove barriers, obstacle and address challenges facing the change, which may be human challenges or otherwise (Kotter, 1995). The change strategy must therefore, incorporate drivers that promote engagement and facilitate successful flow and adoption of the change (CASE, 2010). In spite of a wider research conducted to study e-government implementation and adoption across nations (Al-Omari and Al-Omari, 2006; Abu Ali et al, 2010; Hotzer and Kim, 2005; Chen et al, 2006, Heeks, 2003; Dada, 2006; CARICAD, 2009), It still remains unclear on what constitutes critical success factors for an e-government project and why some societies and governments are able to adopt e-government better than others (Choudrie and Dwivedi, 2004; Teng, 2002; Tambouris et al, 2001; Gurbaxani, 1990; Baker, 2005; Huang, 2008). Other studies argue that there is no single adoption model and theoretical position to account for this locus stand across cases (Schumarova and Swatman, 2006; Ebrahim and Irani, 2005; Warkentin et al, 2002; SDS, 2006).

4.2.2.3 E-readiness and ICT Policy Context

E-readiness is the preparedness by the nation, its government leadership to implement e-government and the readiness of citizens to adopt the e-government innovation. It deals with a number of important e-government strategy factors comprising of three phases of (a) the assessment, (b) development of a strategy and preparation of an action plans and (c) implementation of key ICT strategic policies (GeoSINC International, 2002). The goal of e-readiness process is to identify how ICT and participation in the digital economy helps to create a better society. Therefore e-readiness is a primary factor, useful for developing a strategy and preparing a national action plan for ICT and e-government rollout.

The country's level of readiness is assessed by determining the relative standing of its society and its economy in the areas that are most critical for its participation in the networked world. It is not just based on a number of websites, mobile phones, and computer servers but rather on citizen-users' ability to use the technology skilfully, focus is also on the extent to which government encourages the use of digital technologies and the transparency of business and legal systems (EIU, 2005). Therefore e-readiness assessment guides the development efforts by providing benchmarks for comparison and gauging progress (Bridges, 2005). The government

leadership is provided with statistics that outline the legal, financial, physical, social and technological infrastructure that is necessary for the country to be fully a networked society (Dada, 2006).

E-readiness defines ICT policy intervention to make ready the environment for e-government implementation. The extent to which the government stakeholder leadership determines and executes the e-readiness assessment and action plans thereof, determines the extent to which e-government implementation and adoption will be. In addition, e-readiness covers information access and literacy, organisational and managerial capabilities, funding capabilities, hardware and software components of e-government, culture and attitudes of users and political climate (Ndou, 2004). The framework for successful e-government project emphasises on a holistic approach to e-government that includes, sharing services, instituting a governance process, prioritization and authorization, developing specific e-government policies, addressing privacy and security issues and developing a unified marketing brand (Kreizman and Fraga, 2003).

Therefore e-readiness depicts and determines the environment readiness for e-government innovation and when the environment is e-ready then the adoption of e-government by citizen-user groups is largely facilitated.

The ability to provide value adding services to citizens and businesses alike hosted on e-government infrastructure is a significant factor. Policy statements and laws in themselves may not be sufficient to bring about the change, that is, sometimes it is necessary to transform business practices for the greatest possible diffusion of ICTs that is needed to usher e-government successfully (UNDP-APDIP, 2005; Labelle, 2005).

While government sets policies, people need to be involved and participate in developing these policies, and e-readiness assessments, can be a helpful source of information for visioning e-government, especially if more focused on people instead of only on documenting hard evidence of technical diffusion.

4.2.2.4 Human Capacity Development Context

Amongst the significant challenges of e-government project is for government leadership to address the ICT skills deficiency within the public sector and wider society, more often this characterises implementation in developing countries.

The availability of adequate and appropriate skills is critical to e-government project success (UNPA & ASPA, 2001). A wider array of human capabilities and capacities are needed, for example, technological, commercial and managerial (Ndou, 2004). Equally, technical skills such as installation, maintenance, design and implementing ICT infrastructure, skills for managing and using online processes are required.

The government stakeholder must influence knowledge management initiatives, up skills, strengthen and equip citizen-users, public sector employees and implementers

of the e-government project. Here long life learning and education initiative are necessary to grow and sustain citizen-users beyond just project implementation. These skills will eventually enable information literacy initiatives to bear much fruits as ICTs offer a good platform for information literacy initiatives.

4.2.2.5 Project Leadership and Governance Context

Reiteratingly e-government is not an easy initiative and there are no short cuts. It requires technical proficiency in personnel to implement, LaVigue (in Reffat, 2006) proffers five skills to achieve a successful e-government. These skills covers mainly three elements of:-

Analytical and Project Management Skills, covering ability to analyse processes, practices, policies and other factors contributing to e-government implementation. project management skills refers to planning, organising, estimating and allocating resources, negotiation, results measurement, trouble shooting and progress tracking.

Technical and Information Management Skills, deal with higher understanding and skills to implement e-government solutions. Information is a valuable public organisational resource and skills required include information context quality, format, storage, classification, searching, transmission, accessibility, usability and security.

Communication and Presentation Skills, cover the on going and adequate training, education and marketing initiatives. The need for ongoing communication of project goals, results and other issues. Continued interaction with stakeholders can lead to buy-in and participation and this can be achieved through various types of communication, for example, emails, bulletins and formal reports on the project. However, information needs to be categorized, summarized and presented into briefings that convey crucial facts without over simplification beyond underlying data.

The government stakeholder through the political leadership has the mandate to draw up an e-government team with skills and capacity to implement the project and where such is lacking to solicit for technical expertise elsewhere to ensure success.

Successful e-government implementation requires effective management, strong project skills to re-engineering processes. E-government management is more than implementing projects, it involves planning for capacity-building. Training employees as all levels of bureaucracy must not be compromised and should cover inter alia: project leaders who should define project deliverables deal (negotiate with consultants and mentors, and manage the outsourced development process). Low staff critically need training on specific applications, superiors and managers need training on information usage and citizens need training to be made aware of online services and how to transact on portal (Bhatnagar, 2002; The Working Group,2002).

4.2.2.6 Legislation and Policy Context

It is impossible for e-government to make accelarated and smooth development without an integral and unified legislation and policy framework (Wu, 2007; Culbertson, 2002). Legislation and regulatory issues can impede the uptake of e-government (OECD, 2005). The use of modern IT, comminication facilities, and electronics, to deliver public services requires adaptation of laws to make e-government transactions legally binding (Wimmer ,2002). Developing e-government services requires a high penetration in homes or presence of a large number of public kiosks, for example, handling e-payments and building trust between citizens and government in doing transactions over long distance requires an enabling legal framework, (Bhatnagar 2002).

The need for a regulatory and public policy environment to operationalise electronic transactions cannot be overlooked (Caldow, 1999). This covers data protection, access to sensitive data, networking of activities and database, electronic signatures, cyber laws, security policy, transparency policies (Reffat, 2006; OECD, 2005; Wimmer, 2002). Government must enact e-government laws and support structures, maitaining a healthy policy environment. E-government requires careful examination of issues such as security, service requirement of e-government, e-government model, strategy and policy, thus an aware and demanding citizenry, which understands its rights, willing to express them and to fight for them in case of laxity and ineffeciency is critical. Therefore an e-government legislation and policies can be an instrument for promoting citizens awareness and publishing performance data and citizens' charters (Bhatnagar, 2002; Hwang et al 2004).

Commentators (Wu, 2007; Culbertson, 2002) advocate for setting up a specific and specialised agency to lead and coordinate e-government and further that the agency should be authorised to initiate correlative policies and oversight plans, to punish illegal activities and launch safety education and training. This agency is expected to accredit major systems for security, monitor and improve security of commissioning systems as well as the privacy and communication of data. The government stakeholder leadership has the mandate to enact laws and policies that support e-government implementation in a safe and secured environment for all users.

4.2.2.7 E-government Funding Context

Therefore is a concern that the costs of implementing e-government in developing nations coupled with inappropriate cost benefit analysis approaches, can constrain or block the flow of investment at the level necessary to support e-government innovation,(European Commission, 2006). Low levels of infrastracture and lack of resources in developing countries is compounded by the fact that e-government initiatives would often compete for limited resources with other national priority projects such as roads construction, schools and health.

While planning for e-government in a changing and difficult financial climate, governments should seek to invest in sustainable programs that can produce savings (Almarabeh and Abu Ali, 2010). This can be achieved by: activating

functionalities clearly and try not to add details that will push budget into deficit; develop projects that are achievable within the resources available; consider the government's current use of technology and study past successes and failures; and designate an officer or organising body that will oversee costs.

Funding is really the life blood of e-government, in many OECD countries, budgetary arrangements restricted e-government initiatives, funding structures have been done through traditional government silos and ICT expenditures were not recognised as an investment (OECD, 2003). E-government requires level of certainity of future funding to provide sustainability of projects, avoid wasting resources and gain maximum benefit from given funding levels. A central funding programme could help faster innovations and allow for key demonstration projects. Public private partnerships are necessary to financing seamless government services and shared infrastracture, budgetary regulations should facilitate cooperative funding mechanism such as coordinated bids for new funds and the pooling of funds (Seifert and McLoughlin, 2008). The public private partnership facilitates risk reduction, more innovative arrangement, innovating flexible longterm relationships with partners sharing risks and rewards can help respond to changing technologies and opportunities.

The government stakeholder leadership has a significant mandate and responsibility to fund e-government and ensure future funding prospects. Potentially government stakehoders can influence the funding scales either direction and that has a bearing on the project success.

4.2.2.8 Infrastructure Development, Connectivity and Technical Context

E-government can only thrive when the required and necessary information and communication technology (ICT) infrastracture, interoperable software systems and hardware capabilities are available. A developed telecommunications sector with a fast reliable and security ICT networks to facilitate voice, data and media is critical. The core success driver of this is the government stakeholder and political leadership.

Different access methods such as remote access by Cellular Phones, Satellite Receivers, Kiosks etc, need to be considered by governments in order that all members of society can be served irrespective of their physical and financial capabilities (Ndou, 2004), without ICT effective and competitive public sector is unattainable. It is argued that in developing correlative information and communication infrastracture first of all, the most urgent is to establish the government to citizens (G2C) links (Wu, 2007) this depicts that citizens are a key targeted e-government stakeholders. The major benefit of e-government is to allow the populance of all walks and cricles to share public information, hence establishing an intergrated information platform is significant for e-government services.

Infrastracture development, citizens access, connectivity and interoperable systems (ICTs) allow an unprecedented opportunity for countries to leap frog traditional modes of service delivery and make manifold improvements in process effectiveness and efficiency (UN, 2005: Reffat, 2006) . It facilitates the creation, distribution and manipulation of information which is the most significant economic and cultural activity (Wesso et al, 2004). Therefore infrastracture development is a necessity before implementing e-government (Chen et al, 2006) and what constitutes sufficient infrastructure, level of development, quality, complexity, sophistication and effieciency is directly attributed to the decisions and actions plan deviced, influenced, supported and determined by government stakeholder leadership.

4.2.2.9 Information and Data Access Context

A mature private sector has enabled business process outsourcing and public-private partnership while a technologically mediated world is made possible by self service delivery and government online not ''ín-line", (Sigh, 2003). Why could not government services be accesable 24/7 like the Automatic Teller Machines (ATMs)? Citizen-user groups increasingly expect government to perform more like commercial entities, they want convienent, instant access to public information and services 24hours a day, 7 days a week. The e-government rethinking and transformation of the functioning of the democratic process is all about enhancing, facilitating convienant and instant access to government information and services by citizens, businesses, employees, government entities and other agencies (Aicholzer and Schmutzer, 2000; Wong et al, 2007); Lyane and Lee, 2001; Sharifi and Zarei, 2004).

For e-government to succeed, the government stakeholder leadership must be prepared to employ technology strategy that include interactive capabilities which allow citizens to take active real time participatory roles in government on line and unrestricted secure access to information (24/7) and also provides opporturnities of real time participation throughout the democratic process, not just simply disseminating stale, inaccurate and irrelevant information as shown initially in the case of Malaysia (subsection 3.4.2).

Information is a competitive tool, knowledge is power, and life blood of every nation, hence e-government initiative should be backed by sound policies to improve access to information and online services. Citizens in their representative capacities as customers and participating stakeholders should have choices in the methods of access and interaction with government and amongst user groups. Understanding citizens' customer needs should drive the 24/7 on line information access and is critical in the current globalised and privatised world economy. Existing laws that support equitable flow and access to information are a necessity, e.g Freedom of Information Act and broader government policy on information sharing.

Through the use of e-government (leveraging on internet and ICTs platforms) various citizens and government stakeholders are able to share ideas, information and inform specific policy outcomes e.g sharing of information between central and

local level government can facilitate environmental policies, sharing information on health sector can improve resource use and patient care (OECD, 2003). Within the knowledge society, data, information and knowledge objects are the major resources to be elaborated, therefore appropriate design of the data, information and knowledge object are required for standardization, interoperatability, comminicability and intergration to distinct IT systems over a corporate semantic web (Wimmer, 2002). Information needs to be transfered adequately so that citizen-user groups are able to use it in a smart way.

The development of information literacy policies and introduction of related curriculum initiatives in schools and training institutions will faclititate citizen-user groups awareness and value for information as well as the ability to source, evaluate, process, munipulate and use information in the broader context of an information literate and knowledge driven society.

4.2.2.10 Economic Development Context

For e-government to succeed, implementing goverments need to have a clear vision and priorities for e-government and promote priority economic sectors through the best selection of projects (The working group, 2002).

The internet and e-government are a new world's trade routes and the nations ability to leverage on the internet will determine its competitive advantage in the global digital economy. Becoming a competitive e-government involves systematic technological transformation of traditional economic development assets such as great schools, safe streets, a clean environment, quality health care, viable land use and good governance. How well the technology is exploited in each of those assets is the new differentiation, critical issues are, what is the student-to-pc ratio? Are the schools wired? Can citizens and businesses conduct business with the government online? Is there a healthy and growing market of high capability, telecommunications, wireless cables to the homes and businesses? Do transportation systems, law enforcement and hospitals employ the latest technological advances? Are higher education resources connected to new technologies, re-skilling and producing a workforce of knowledge workers? Are technology strategies employed in urban planning and help to alleviate urban sprawl? Are processes in place to continually re-evaluate traditional competitive assets in a digital society? Are public policies and the legal environment conducive to e-commerce, e-business and e-government? (Caldow, 1999).

It is the government stakeholder and political leadership that set the agenda and scope for answering these issues and mobilises other stakeholders to partake in e-government pursuits that will enhance economic competitiveness and comparative advantage of the country.

4.2.2.11 Political Commitment to Democracy Context

The government political leadership commitment is critical for successful e-government implementation, state politics and culture can impede or support e-government development (Seifert and McLoughlin, 2008). Government leadership drive the strategy and are sponsors of the change process as in (Figure 4.1).Therefore, e-government is at the mercy of the political leadership who govern the state. The leadership can decide to partially /not finance, partially or not prioritise certain aspects of e-government, for example, the level and extent of user engagement, the leadership can also choose to implement e-government project fully or partially irrespective of its value to citizens. The fundamental question now is, how best can the political leadership be compelled to embrace, initiate and sufficiently finance and fully get involved to make an e-government initiative a success? Should there be an e-government Act? To make implementation a legal requirement. Since the political ownership is vital, in the UK, a minister was entrusted with the implementation responsibility and reported directly to the Prime Minister (Sigh, 2003).

The political ownership and priorites to democracy gets reflected when political leadership take the responsibility and find resources to take the initiative forward, engage citizens, conduct a citizen inclusive e-readniess assessment and action plans thereto, determine the e-government vision, develop strategy, design and implement e-government and motivate citizens' adoption. Only such a commitment can bring about the necessary momentum in over coming inter departmental rivalries and burreaucratic hurdles that are encountered in the implementation process, (Seifert and McLoughlin, 2008). In Italy, Parliment applied a law (4/2004) which imposed that impaired people should not be discriminated and must have access to sources supplied using ICT technologies (Signore et al, 2005). The political leadership has the overriding determination and influence on all facets of e-government planning, implementaion and adoption. Therefore their role can not be under estimated as a critical success factor for e-government project.

Government Political leadership influence and support to e-government project is very critical to set the stage for e-government, to be the fore front and centre facilitators, make both short and long term commitment to guarantee e-government success and future re-engineering processes and uptakes. It is the political leadership that influence decisions from initial adoption by government and consequently cause the development of e-government vision, action plans, strategies and objectives. The government political leadership makes available the e-government needed resources, monitors and ensures such resources immediate and appropriate use. The leadership has a role to commit to, deliberate action plans to drive effectively the e-government project and programmes to citizen-users in the manner and context citizens desired and prioritised during the empowerment and consultative processes. Furthermore, it is the political leadership that empowers project teams as they (political leadership) may not be engaged in the project on day to day plans. However, the key to pursuing citizens focused e-government initiatives

could be largely governed by the extent to which government through the political leadership is committed to advancing democracy, citizens' voice, ideals and aspirations.

4.2.2.12 Citizens Stakeholders Involvement and Participation Context

The provision of equitable access to public information and services has always been the goal of an open and democratic government (Fishkin, 1995) and it is against this background that most government leaders around the world are pursuing e-government implementation (Jaeger, 2003; Grant and Chau, 2005). Consquently the important goal of e-government is to deliver efficient and effective e-services to citizens, employees, business partners and other entities (Layne and Lee, 2001). Amonsgt the main challenges of e-government is for governments to identify users needs and tailor e-nformation and e-services to such needs (Torres et al, 2003). Increasingly the need for citizen centric approach to e-government design and implementation is a dominant debate (Ngulubane, 2007; EU, 2006; Accenture, 2002; Brown and Schelin, 2005). However, users are still not afforded enough opportunities to participate in e-government design, leading to implementation solutions based on what the government think citizen users want (Mofleh and Wanous, 2008; Jaeger, 1999; Janssen, 2006). Research studies have indeed confirmed that to a large extent governments do not provide e-government services based on users needs (Office of Envoy, 2003; SIBIS, 2003, Cook, 2002).

In retrospect to earlier arguments in the previous chapters, this research contends that all citizens-user groups' inclusion is key to successful e-government initiative. Citizen-users in their interaction with government agencies, should have greater awareness of services and priorities, wider choice of access channels, greater convienence, low costs, flexible and more personalized services as well as greater participation and openness in the democratic process. Governments have to provide services to all citizens. However, conditions differ from nation to nation among developing countries as each country has its own set of cultural, social, political, economic and technological factors that influence whether or not its citizens will go online to use government services. Then, if the development of e-government fails to incorporate the citizens' values, then e-government is not meant and developed to better serve citizens' stakeholders.

It asserted that (Rorissa and Demissie, 2010; Heeks, 2002) an e-government initiative which encourages citizens' participation in government activities does not only act as participatory tools through which citizens can contribute actively in government but could also bolster the core notion of democracy. Therefore, developing countries need to create awareness of the benefits of e-government services among their citizens through literacy campaigns programmes and further invest in telecommunication, broadband, and associated technologies that can support a robust e-government infrastructure. There is also need to invest in human capital to maintain ICT infrastructure to implement e-government services and

websites. In addition, developing countries may well adopt a bottom-up approach in the implementation of e-government by encouraging local governments to have a presence, for example, local e-government website, followed by integration at the regional and national levels. Successful e-government projects in many governments have been developed using both top-down and bottom-up approaches (Garson 2006).

The next section looks at the e-government adoption towards developing a citizens stakeholder centric involvement framework. The discussions thereto are crystalised into the stakeholder and user involvement theories. As aforementioned, discussions are focused on; categories and elements of stakeholder theory; the stakeholder theory in e-government research combined with user involvement theory; identification and characterization of stakeholders to part-take meaningfully in e-government; proposing the case study stakeholders; and finally presenting citizens stakeholders' involvement, engagement and participation process and the framework thereof.

4.3 E-government Adopition: Towards Developing a Citizens Stakeholder Centric Framework

The adoption of e-government by citizen-stakeholders is a key dimension of e-government success and a global topic that affects both developing and devloped countries worldwide (Al-Sobhi and Weerakkody, 2011). However, achieving success in e-government is not an easy task as implementation initiatives are often characterised by numerous challenges (as can be seen in the previous chapters) which often lead to higher failure rate of projects (Heeks, 2003). Most of the e-government adoption theories focus on innovation, organisational characteristics and environment (Attewell, 1992; Damanpour, 1991; Abrahamson, 1991; Everett and Rogers, 1995; Katz and Shapiro, 1986; Markus, 1987, Swanson, 1994).

A number of e-government studies have also examined factors that drive citizens' adoption of e-government by focusing on; (a) trust and related drivers (Bailey and Bakos, 1997; Gefen et al, 2005; Pavlou and Fygenson, 2006; Chirau and Kauffman, 1999); (b) computer literacy and user support (Farzana et al, 2009; Ehrlich and cash, 1999; Longe and Otti, 2007; Fountain, 2003; Belanger and Carter, 2006); (c) Availability of e-government services (Jaeger and Thompson, 2003; Weerakkody et al, 2007); (d) accessibility and usability of technology (Mpofu et al, 2009; Belanger and Carter, 2003; Longe et al, 2006); and (e) awareness of e-government services by citizens (Reffat, 2005; Weerakkody and Choundrie, 2005). This study focuses on the citizen-stakeholders' involvement process that can enable governments to better consult citizens, engage them facilitate and build citizens' understanding of e-government leading to acceptance, adoption and contunual use. Therefore answers the ''how and what'' questions. See chapter one (section1.3).

Many adoption frameworks have been discussed in chapter two (section 2.7.2).In spite of these extensive studies undertaken to understand drivers of e-government

adoption (Talukder et al, 2008; Frambach and Schillewaert, 2002), it is asserted that very little is known about the ways in which individuals adopt new technology and factors that drive individual adoption of the innovation (Bhattacherjee, 1998; Frambach and Schillewaert, 2002; van Everdingen and Wierenga, 2002; Venkatesh and Davis, 2000). For instance, (Rogers, 2003) asserts that adoption of innovation is a process based on knowledge, interest, decision, implementation and confirmation, when (Warkentin et al, 2002) argues that adoption is based on citizens' intention to engage in e-government activities. (Spence, 1994) states that adoption comes as a result of a personal mental engagement process, while (Moon and Norris, 2005; Fichman and Kemerer, 1993) argue that there is no unified and predictive adoption model for all cases. This presents the need for further research on processes affecting individuals' adoption of innovation (Talukder et al, 2008; Frambach and Schillewaert, 2002; Schepers and Wetzels, 2007). Through anticipated framework this research intends to contribute in bridging this gap.

The motivations for e-government implementation are many and include inter alia; convienient way of delivering services to citizens, cost reduction and enhancement of public service effiencies, increase in the transparency and public service accountability. The realisation of the benefits is facilitated by the use of ICTs, web and internet technologies. As in chapter two (section 2.3.2), e-government is intended to improve citizens access to information, services and participation in the government processes. Hence makes citizens the key stakeholder and centre of e-government success (ASPA, 2001). Therefore, the use of stakeholder theory is necessary to motivate concretized discussions towards proposing the initial citizens' stakeholders engagement process and framework.

Stakeholder theory has been widely used in a number of research fields including management literature (Freeman et al, 2004; Clement, 2005; Wicks et al, 1999); Information Systems (Ruohonen, 1991; Benjamin and Levinson, 1995; Shankar et al, 2002); management accounting (Brignall and Ballantine, 2004); organisational science (Donaldson and Preston, 1995). Therefore stakeholder theory is seen as set of management principles that incorporates ethical, descriptive and normative aspects (Flak and Rose, 2005). Where normative focuses on; treating stakeholders with respect; incorporating some stakeholders in the governance of the corporation and participation for all stakeholders in corporate decision making processes (Henry, 2001).

4.3.1 Categories and Elements of Stakeholder Theory

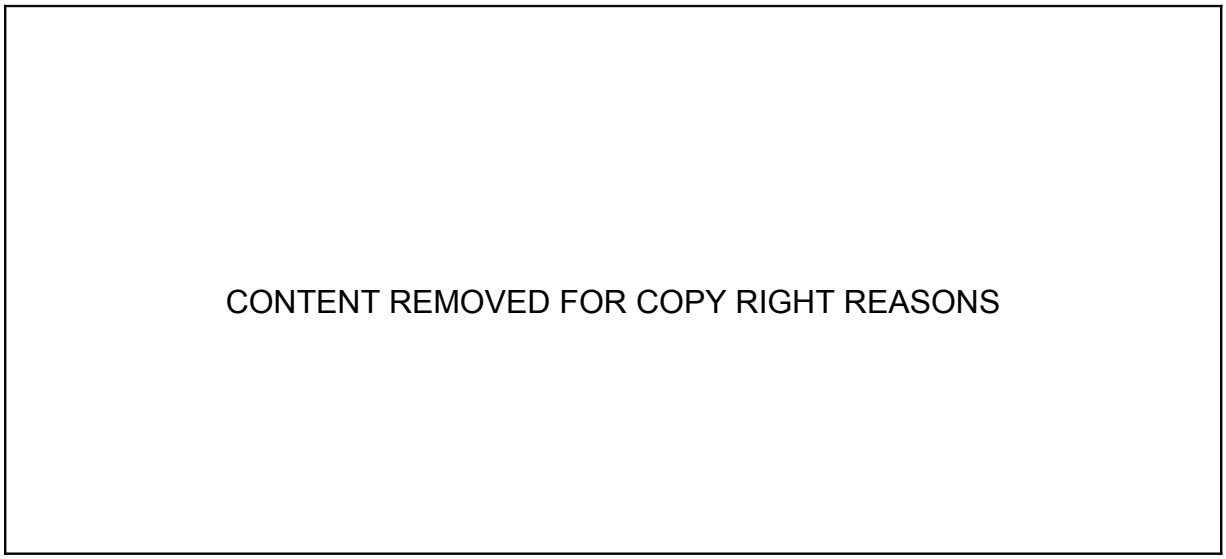
One of the most important tasks of managers in strategy development is the complex management of the interface between the many demands of organisation's stakeholders in realtion to the strategic objectives (Ackermann and Eden, 2011), hence (Freeman, 1984) views the business environment as having evolved into a stakeholder society. This brings into context the view that the business world has changed and that managers must also be responsive to all stakeholders (Pedersen

and Bartholdy, 2004). The argument is that maximization of the long term market value of an organisation cannot be achieved when any important stakeholders are neglected (Jensen, 2002), thus, propels the need for organisations to broaden their value maximization beyond just shareholders to include a wide range of stakeholders as they emerge.

To some extent, the change management transition from shareholder to stakeholder is not yet legitimately grounded (Pedersen and Bartholdy, 2004) suggesting that (Freeman, 1984) presented a management theory that was not empirically tested and validated (at the time), thereby leaving it to others to justify and validate the theory. In that regard, (Donaldson and Preston, 1995) proposed a classification framework defining three aspects of stakeholder theory, namely; descriptive. Instrumental and normative (Papazafeiropoulou and Pouloudi, 2003).

The clasification was complemented and validated by a further review of approximately 50 articles on the stakeholder theory (Flak and Rose, 2005) which adopted the same management categorisation of stakeholders (Donaldson and Preston, 1995) as presented in Figure 4.2 below

Figure 4.2 Categorisations of Stakeholder Theory



There is a nested relationship between the descriptive, Instrumental and normative categories of stakeholder theory. The model demonstrates the relationship between stakeholders; who is the stakeholder, how the stakeholder relationship is managed, purpose of this relationship and how the relationship is ethically sourced (Mitchell et al, 1997). It can therefore be said that stakeholder theory is a composition of three interrelated and muttually supportive elements (Flak and Nordheim, 2006). These elements are discussed as follows:-

- **Descriptive Elements**

The outer descriptive ring provides a theory of the organisation's relationships with the external world (Mitchell et al, 1997). This theory is therefore used to describe and anlayse specific corporate characteristics and behaviours, for example, it has been used to describe (a) the nature of the firm, (b) the way managers think about managing the corporation, and (c) how the board members think about the interests of corporate constituencies, refering to investors, employees, customers, suppliers and local communities (Donaldson and Preston, 1995); Jensen, 2002; Dewhirst, 1992; Clarkson, 1991).

The key aspects of the descriptive stakeholder theory involves defining stakeholders and as well serves as a tool to identify stakeholders, for example, stakeholder analysis and concepts that represent stakeholder salience towards managers (Flak and Nordheim, 2006). This theory appears to be rooted in the organisational behaviour literature and explains the features and behaviour of stakeholders involved in a system and how an organisation interacts with its stakeholders (Bailur, 2006; Brenner and Cochran, 1991; Jawahar and Mc Laughlin, 2001).

Notwithstanding, the theory is perceived as being simply descriptive, too impractical and lacking a clear objective (Trevino and Weaver, 1999; Argenti, 1997; Barry, 2002; Marcoux, 2003) and it is admitted that (Mitchell et al, 1997) identifying stakeholders without a jusitifiable explanation undermines the theory (Frooman, 2002, Winn, 2001; Jones and Wicks, 1999). Contrary to the criticisim, (Donaldson and Preston, 1995) argue that blending the descriptive process with instrumental perspective offers a better aspect in understanding the link between identifying (descriptive) and organising (Instrumental) stakeholders.

- **Instrumental Elements**

The instrumental stakeholder theory identifies connections or lack thereof between management of stakeholders and the attainment of corporate objectives (Donaldson and Preston, 1995). Primarily the instrumental approach strifes to connect stakeholder theory with superior financial performance (Pedersen and Bartholdy, 2004). Instrumental stakeholder theory differs from descriptive stakeholder in that while descriptive deals with how managers act, instrumental theory deals with the financial effects if managers act towards stakeholders in certain ways (Egels, 2004; Rodgers and Gago, 2004).

In a corporate governance context, some stakeholders (like employees and customers) are more significant than others as they provide the organisation with essential resources for its coporate survival (Lozano, 2005; Spitzeck and Hansen, 2010), hence instrumental theory provides a rationale for why stakeholder concerns should be considered in the way in which an organisation is directed and controlled. Simply put, the theory advocates that the organisation needs to pay attention and give a voice to only stakeholders who can vitally affect the value of the firm (Ulrich, 2008; Jensen, 2001; Mitchell et al, 1997).

- **Normative Elements**

The normative theory has its origions in the social entity conception of the corporation and the theory regards the corporation as a public entity constituted through political and legal processes and a social entity for pursuing collective goals with public obligation (Ayuso et al, 2007; Letza et al, 2004; Gamble and Kelly, 2001).

The normative aspect means the theory is used to interpret the function of the corporation, including the identification of moral guidelines for the operations and management of corporation's stakeholders (Donaldson and Preston, 1995). Fundamentally the theory is based on ethics, morality, utilitarianism and corporate social responsibility (Papazafeiropoulou and Pouloudi, 2003; Pedersen and Bartholdy, 2004). Here, it is asserted that the standard of a corporation's usefulness is not whether it creates individual wealth but whether it helps society gain a greater sense of the meaning of the community by honoring individual dignity and promoting overall welfare (Sullivan and Conlon, 1997). The normative theory therefore is rooted in fairness, reasonableness and accountability to others. This suggests three aspects of stakeholder involvement under the normative theory, which are; moderate, demanding and intermediate (Flak and Nordheim, 2006; Hendry, 2001)

The descriptive , instrumental and normative elements of stakeholder theory can better be understood by looking at the stakeholder salience and attributes underpining the relationship between stakeholders and the organisation (see section 4.3.2) below.

4.3.2 Identification and Characterisation of Citizens' Stakeholders to Part-take in E-government

A number of stakeholder identification approaches that have been developed and applied for example, (Hill and Jones, 1992; Richardson and Robinson, 1992; Wallace, 1995) suggest for the characterisation of stakeholders into broad categories of internal and external actors that are acceptable for all corporations. When (Wood et al, 1995) argue that analysis is useful for business process re-engineering. On the other hand models have also been suggested such as power / interest matrix (Olander and Laudin, 2005); stakeholder circle model (Bourne and Walker, 2006) and stakeholder grid (Boddy and Paton, 2004).)

The e-government projects are often criticized for focusing too much on creating internal benefits for the government, and neglecting citizens' needs and priorities (Goldkuhl, 2007; Heeks, 2006; Jupp, 2003). Equally, the stakeholder identification approaches and model have been criticized for lack of specificity on who is a stakeholder (Galliers, 1995) and these models are considered static and overly dependent on project management ability to identify key stakeholders (Pedersen and Bartholdy, 2004; Assudani and Kloppenburg, 2010).

In view of the importance of stakeholder characterisation and criticisms thereof, (Mitchell et al, 1997) developed the idea of identifying stakeholders based on salience, where 'salience is the degree to which managers give priority to competing stakeholders' claims. The model (Mitchell et al, 1997) provides three attributes upon which stakeholders can be characterised as follows:

Power - A relationship among social actors in which one social actor, A, can get another social actor, B, to do something that B would ordinarily not have done. The power can be based on coercion (force/threat), utilitarianism (material/incentives), and/or normative (symbolic influences).

Legitimacy - A generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs and definitions. The bases of legitimacy can be individual, organizational and societal.

Urgency - The degree to which stakeholders' claims call for immediate attention. Urgency is based on time sensitivity (the degree to which managerial delay in attending to the claim or relationship is unacceptable to the stakeholders), and criticality (the importance of the claim or the relationship to the stakeholder).

Within these salience attributes, types of stakeholder topologies have been classified as the (a) latent stakeholders comprising of dormant, discretionary and demanding stakeholders and they display only one attribute of salience; (b) expectant stakeholders comprising of dominant, dangerous and dependent displaying two attributes of salience; and (c) definite stakeholders possessing all the three attributes of power, legitimacy and urgency (Mitchell et al, 1997). The definite stakeholders are a significant group with higher degree of salience as shown in table 4.1 below.

Table 4.1 Stakeholder Topologies and Classes

Number of Attribute	Class	Sub-Class	Attribute	Degree of Salience
1	Latent Stakeholders	Dormant	Power	Low
1		Discretionary	Legitimacy	
1		Demanding	Urgency	
2	Expectant Stakeholders	Dominant	Power, Legitimacy	Moderate
2		Dependent	Legitimacy, Power	
2		Dangerous	Power, Urgency	
3	Definite Stakeholders	Definite	Power, Legitimacy, Urgency	High

The following descriptions are given for stakeholder classes (Mitchell et al, 1997):-

Latent stakeholders

- Dormant stakeholders possess power to impose their will on a firm, but do not have a legitimate relationship or an urgent claim, consequently their power remains unused. Dormant stakeholders have little or no interaction with the firm. Their power is held by those who have a loaded gun (Coercive), those

who spend a lot of money (Utilitarian) or those who command the attention of the media (Symbolic). Notwithstanding, if dormant stakeholders acquire urgency or legitimacy will become more salient.

- Discretionary stakeholders possess the attribute of legitimacy, but they have no power to influence the firm and no urgent claims. Although they can be engaged, managers see no obligation to engage in an active relationship with these stakeholders.

- Demanding --- Demanding stakeholders are those with urgent claims but having neither power nor legitimacy, are the “mosquitoes buzzing in the ears” of managers: irksome but not dangerous, bothersome but not warranting more than passing management attention, if any at all.

Expectant Stakeholders

- Dominant stakeholders have both power and legitimacy, their influence in the firm is assured as they often have some formal mechanism in place that acknowledges the importance of their relationship with the firm. Examples include representatives of the firms’ owners, significant creditors and community leaders. Dominant stakeholders expect and receive much of managers’ attention, but they are by no means the full set of stakeholders to whom managers should or do relate.

- Dependent stakeholders lack power, but have legitimacy and urgency, as a result they depend on others (other stakeholders or the firm’s managers) for the power necessary to carry out their will and they depend on advocacy and guardianship of others.

- Dangerous stakeholders have both power and urgency, but lack legitimacy, hence tend to be more coercive and possibly violent to the firm. “Coercion” is suggested as a descriptor because the use of coercive power often accompanies illegitimate status. Examples of unlawful, yet common, attempts at using coercive means to advance stakeholder claims (which may or may not be legitimate) include wildcat strikes, employee sabotage and terrorism.

Definite Stakeholders (possess all attributes)

- Stakeholders exhibiting both power and legitimacy already form a firm’s dominant coalition. When such stakeholders’ claims become urgent, managers have a clear and immediate mandate to attend to and give priority to such claims. Any expectant stakeholder (dominant, dependent and dangerous) can become a definite stakeholder by acquiring the missing

attribute. The most common occurrence is likely to be the movement of a dominant stakeholder into the definite category.

This model (Mitchell et al, 1997) is considered more comprehensive and is widely used (Frooman, 2002; Kolk and Pinkse, 2006; Reynolds et al, 2006; Mc Adam et al, 2005; Reed, 2002; Lamberg et al, 2003). In comparison with other models it has the attribute of urgency and is perceived better in helping managers to classify the relative importance of stakeholders and take the appropriate action (Pajunen, 2006; Jawahar and Mc Laughlin, 2001: Frooman and Miles, 2002). In e-government implementation, urgency seem to be most important as it equates to citizens seeing the need to use (urgency) the system (Saebø et al, 2011) and the power and legitimacy seem to be more institutionally based. However, all the three attributes of power, legitimacy and urgency have been extensively used and adopted predominantly in their original context and scope (Mitchell et al, 2011; Agle et al, 2008; Parmar et al, 2010).

It therefore necessary to identify and categorise citizens' stakeholders descriptively, instrumentally and normatively based on power, litigimacy and urgency as characteristics of stakeholders' salience (Donalson and Preston, 1995; Mitchell et al, 1997). The stakeholder power, legitimacy and urgency degree of salience will differ exponentially, this may be in a number of aspects inter alia; (a) readiness levels for e-government, (b) expectations of e-services based on their priorities and needs (c) influence, (d) level of trust and awareness, (e) internet access and use, skill and employment levels as well as other peculiarities.

Identification topologies have been proposed (e.g. Heeks, 2006; Flak et al, 2007 and Saebø et al, 2011) as in table 4.2 and table 4.3 respectively. These provide an important framework for differentiating various e-government stakeholders. The e-government stakeholders can be identified based on the stakeholders' power and ability to make the project and system fail in some way (Heeks, 2006). The roles can then be categorised into stakeholder groups involved with the development of the e-government system; and those involved with operation of the e-government system. On the other hand, (Flak et al, 2007 and Sein, 2011) proposed a finer grained conceptualization of two fundamental entities of e-government (citizens and government) stakeholders and consequently classified stakeholders into subgroups within these broad entities and further outlined the interaction within the entity subgroups and between the entities (Sein, 2011).

As for (Lindgren, 2012) categorisation is based on; service, process and technology, when (Axelsson, 2011) proposed categories of ; decision maker, management, service provider, user, engaged user, consultant and vendor. Arguably, stakeholder salience is subjective, relative and socially constructed (Mitchell, et al, 1997) therefore any stakeholder can accupy multiple categories (Tennert and Schroeder, 1999) an example could be government employees who would fall in categories of service providers; consumers and direct decision makers.

Table 4.2 Stakeholders Role in e-government

Stakeholder role	Description
Project manager/team	They analyze, design, and build the e-government system.
Supplier(s)	They technology and other resources required by the e-government system.
Operators	They carry out the activities and processes that make the e-government system work.
Clients	Primary clients - immediate receivers' of e-government system outputs. (E.g. citizens and public servants) may be secondary clients indirectly affected by the system, (e.g. citizens served by public servants).
Champion(s)	The person (or group) who drives the project on and seeks to justify its implementation.
Sponsor(s)	The person (or group) who pays for the expense and effort required to develop the new e-government system.
Owner	The manager of the organization or department that will own and use the system, who is ultimately responsible for the system.
Other stakeholders	They significant influence on the project such as politicians and influencers.

(Adapted from Heeks, 2006)

Table 4.3 Entities of E-government

Basic entity	**Sub-categories**	**Description**
Government (G)	Politician (GP)	Publicly elected decision and policy maker (e.g. Mayor, councillor, parliament member)
	Administrator (GA)	Middle and higher level salaried career employees executing politicians' policies (City manager, health department head).
	Service provider (GS)	Lower level salaried career employees carrying out day to day government jobs directly or indirectly interacting with citizens (E.g. case officers in school department, advisors and information providers in taxation office)
Citizens (C)	Consumer (CCon)	Uses services offered by the government.
	Activist (CAct)	Citizens involved in efforts to affect specific government policies and decisions through civil action, often individually or in groups.
	Direct Decision makers (CDD)	Citizens are directly responsible for the decisions being made in a direct democracy system.

(Adapted from Flak et al, 2007 & Sein, 2011)

Stakeholders' identification and characterisation is very important, (Nutt, 2002) after an analysis of 400 strategic decisions (projects) that were implemented (Bryson, 2004) discovered that decisions failed mainly due to failure to address the interests of key stakeholders. Hence taking the concerns and views of stakeholders into account is critical to successful implementation of projects (Burby, 2003; Aldrich and Whetten, 1981; Margerum, 2002).

Failure to appropriately do stakeholder analysis can result in omission of significant stakeholders on whom the realization of the e-government rests (Scholl, 2004). However stakeholders' characterisation is essential as all citizens have or enjoy certain constitutional rights such as fair distribution of social resources and equitable access to government services and information (Fountain, 2001). In view of the reality that not all citizens' stakeholders can be involved and not all important stakeholders are obvious, characterisation therefore helps to identify common

clusters or groups of the population that can well articulate citizens' needs and priorities.

4.3.3 Stakeholder Theory in E-government Research

The multiplicity of the various e-government stakeholders has been established and there is a generally accepted view that the public sectors is very complex and these inherent complexities have been translated into e-government (Boyne, 2002; Flak and Nordheim, 2006; Scholl, 2004 Tan et al, 2005).

Based on both the complexities of e-government development and adoption notwithstanding the dissenting views and caution associated with the application of stakeholder theory to e-government, (e.g. Heeks, 2006). Many scholars have identified a need for a more systematic analysis of the various actors who are affected by the development of e-government (Flak et al, 2007; Bailey, 2007; Kamal, et al, 2011; Scholl, 2001; Flak and Rose, 2005; Saebø et al, 2011). These authors have acknowledged and recognised the value aspect of the conceptual base of applying stakeholder theory to e-government implementation (Rowley, 2011). Stakeholder theory is useful for encouraging the identification and characterisation of stakeholders (section 4.3.2 above) and developing stakeholder topologies to facilitate understanding of actors involved in e-government (Mitchell et al, 1997; Rowley, 2011; Flak and Rose, 2005; Scholl, 2004)

Apart from original profit focus of the stakeholder theory, it is asserted that there is no serious conceptual mismatch between the theory and the government's objective of providing policy and services for citizens and society's stakeholders (Flak and Rose, 2005). The authors (Flak and Rose, 2005) posit that every government entity has both internal and external stakeholders with legitimate claims and interests that the entity is ethically bound to respect albeit to varying degrees and respecting such claims and interests can lead to improved e-government project success, as e-government stakeholders' interests can be identified, described and analysed using appropriate approaches, tools and methods, resulting in trustworthiness in the agencies and political stability.

Amongst the main barriers to implementing e-government are social and cultural factors as opposed to technical factors (Li, 2003). In order to support the implementation of e-government, the process of identifying and managing broad range of constituent stakeholders must be considered to ensure success (Scott et al, 2004; Chan et al, 2003). Accordingly therefore, stakeholder theory broadens understanding of the importance of citizens in e-government and e-democracy governance systems (Scholl, 2001). The theory has also been tested in the context of major e-government initiative in New York (Pardo et al, 2000) and its usefulness has been identified equally appropriate for the public sector as is in the private sector, given its instrumental and normative considerations (Tennert and Schroeder, 1999; Prado and Scholl, 2002).

4.3.4 Proposing Case Study Citizens and Government Stakeholders.

For e-government, the most appropriate way to segment stakeholders is in terms of the people's roles rather than just groups, this is important as citizens play a multifaceted roles either concurrently or in sequence (Rowley, 2011), for example, they play the role of voters, educators, learners, employees, service user and customer, service providers, voter, champions, mentors opinion leaders, other representative and influential roles and as well as general citizenry. Also in e-government project stakeholder stances may change over time, hence to effectively evaluate the salience of e-government stakeholders characterisation should be in the context of inherent stance to e-government service relative to their roles, priorities, needs and relationships ((Scholl, 2004; Rowley, 2011; Mitchell et al, 1997; Kamal et al, 2011).

However in characterising stakeholders there ought to have been some inductive identification of potential stakeholders prior to applying the salience attribute (Tennert and Schroeder, 1999; Lindgren, 2012). As already captured that the stakeholder salience is socially constructed, relative and subjective (Mitchell et al, 1997) suggesting that the identification and categorisation can be done in a number of ways with no fast rule as each case may be unique.

- **The approach adopted:**

In this research the salience and identification of citizens and government stakeholders are applied based on the perculirities, dynamics and unique features of the Botswana population and relationship structures articulated in chapter one (section 1.5) and (Mitchell et al, 1997) types and classes of stakeholders discussed above. The relationships and representations necessitated by the administrative structures in the respective districts within Botswana facilitate better understanding of citizens' behaviour trends, attitudes, expectations, fears, interest, needs, abilities and priorities and have enabled citizens to trust on the representatives, leaders and mentors and value their judgement and opinions on wider spectrum of issues especially relating to governance. In addition combined categorisation models (Heeks, 2006; Flak et al, 2007; Sein, 2011) are used to propose and present the research case study stakeholders, herein listed, narrated and explained in table 4.4.

Table 4.4 Proposed Case Study Citizens and Government Stakeholders

Entity	Stakeholder	Description	Salience

Government (G)	Government Executives	Definite ------ (Definite Stakeholders) Likened to owners of the firm, have power to impose their will, legitimacy and urgency. They have autonomy and can choose to or otherwise inform, conuslt, engage and involve citizens, prioritise e-government stratetgy initiatives. Their bases of power can be coercive, utilitarian and normative. They can determine criticality and time sensitivity of citizens stakeholder claims (Urgency) Examples include cabinet ministers, permanent secretaries and equivalent	High
	Politicians	Dominant ------ (Expectant Stakeholders) Publicly elected decision and policy maker (e.g. Mayor, councillor, parliament member. They have representative power and legitimacy though lack the exclusivity of the definite status They are more likely to become definite stakeholders if they acquire the missing attribute	Moderate
	Project Team	Dormant ------ (Latent Stakeholders) They analyze, design, and build e-government systems, implement the e-government strategy as is given and determined. They have the mandated power to implement and impose the e-government system, but have no legitimate relationship or urgent claim and interaction with citizens' stakeholders.	Low
	Administrators	Dangerous ------ (Expectant Stakeholders) Middle and medium to high level salaried career employees executing politicians' policies (e.g. ministry Directors, Heads of Department and other seniors' staff within the government middle management). They have power and urgency but lack the legitimacy; they have coercive power especially over lower level employees and can generally sabotage the e-government initiatives as they are operational and functional. They implement (hands on) decisions and policies from above. They comprise or have elements of change champions, agents, mentors and have a significant degree of influence over lower staff and generally over government processes which may be critical for e-government implementation.	Moderate

		They are more likely to become definite stakeholders if they acquire the missing attribute	
	Employees-(Service Providers-GS)	Dependent ------ (Expectant Stakeholders) Lower level salaried career employees carrying out day to day government jobs directly or indirectly interacting with citizens (e.g. welfare officers, case officers in school department, advisors and information providers in taxation office). This category covers broad aspects of public service in terms of huge numbers, variety of day to day functional roles, interactions and direct contacts and services provision to citizens. These stakeholders have structurally and administratively facilitated relationships with general citizenry and can well articulated the concerns, experiences, needs and priorities of citizens. Also some work directly and closely with functional bodies such as village development committees and ward committees (VDCs/ WDCs), NGOs and Business Sectors. These stakeholders have legitimacy and urgency, but lack power, hence depend on administrators and other managers for power necessary to carry out their aspirations. However they are a critical stakeholder and because of relationships (direct contact) with citizens. They have a significant degree of opinion and influence over citizens' (clients, consumer, voters etc) adoption and continual use of the e-government systems. They are more likely to become definite stakeholders if they acquire the missing attribute.	Moderate

Citizens (C)	General Citizenry	Dormant ------- (Latent Stakeholders) • Primary clients - immediate receivers' of e-government system outputs. (E.g. citizens and public servants) may be secondary clients indirectly affected by the system, (E.g. citizens served by public servants). They have power to impose their will but do not use it Discretionary ------ (Latent Stakeholders) • Consumers - Users services offered by the government through e-government system. Dominant ------- (Expectant Stakeholders) • Direct Decision Makers - citizens are directly responsible for the decisions being made in a direct democracy system. They have the power and legitimacy but lack the urgency; they expect to receive government attention. • They have some formal mechanism in place that acknowledges the importance of their relationship with the government (e.g. constitutional and democratic right to consultation on e-government matters, right to express their needs and priorities, and how they want to be served) Demanding ------ (Latent Stakeholders) • Activist - citizens involved in efforts to affect specific government policies and decisions through civil action, often individually or in groups (e.g. trade union and association, human rights groups and business associations). • They have urgency without power and legitimacy can be irksome and bothersome.	Low Low Moderate Low
	Youth	Dominant ------- (Expectant Stakeholders) Generally would fall under general citizentry and just have a legitimacy attribute without power and urgency aspects. However, in the context of Botswana, they are a significant stakeholder (anticipated majority users of e-government) constituiting 57% of the population (see section 1.5). hence have power and legitimacy. Also may have more diverse needs, priorities and expectations than most the other elderly groups (e.g use of e-government pertaining to education, employment, social media). Therefore they expect to	Moderate

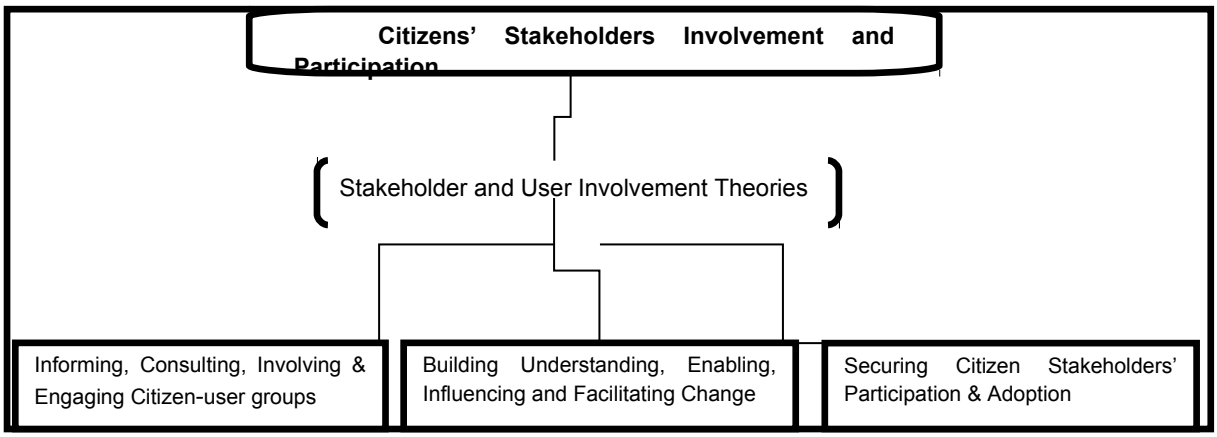
		receive much of government attention and are most likely to move into the definite category if they acquire the urgency attribute.	
	Students	Dependent ------- (Expectant Stakeholders) These stakeholders lack power, but have legitimacy and urgency. Similarly to the Youth above, their categorisation is specific to Botswana context. They also comprise of youth and below the youth age which combined are a critical population mass that can not be ignored, though those below youth age may not be effectivley able to articulate their needs and priorities, they depend on others (other stakeholders or the government) for the power necessary to carry out their will, that is, they depend on advocacy and guardianship of stakeholders.	Moderate
	Elderly Citizens	Dependent ------- (Expectant Stakeholders) Stakeholders have legitimacy and urgency, but lack power and depend on others for necessary power to carry out their will. This categorisation is also Botswana specific, given that the majority of them reside in the villages and form part of the local communities together with other youth and may have conflicting e-government needs and priority, thus need to be consulted and represented both separately. Some of the are into farming including rearing and keepin of cattle and small stocks, hence may be interested more into how the e-government service facilitate the activities they engaged in.	Moderate
	Representative and Influential groups	Dependent ------ (Expectant stakeholders) Citizens' Influential Groups--- they differ slightly from activists in that they comprise of members that have an influential voice and are well recognised by government and also form part of government committees. Examples are interalia; High Level Consultative Council (HLCC), Botswana Association of Local Authorities (BALA), Members of House of Chiefs, Citizens representing Private Internet Service providers (ISPs) District Multi-Sectoral Committees (DMSC) Disctrict Development Committees (DDC) and other representations. Stakeholders have legitimacy and urgency, but lack power attribute. Citizens representatives in this category have organisational legitimacy and urgency but lack power they depend on other government arms. but are a significant group with higher degree of opinion influence.	Moderate

(Source: Author Developed Based on Botswana Attributes and Mitchell et al, 1997)

4.3.5 Proposing Citizens Stakeholder Involvement and Participation Process and Framework.

It is noted already that the initial implementation and adoption framework (Figure 4.1) is in two fold, it encapsulates the (a) e-government strategy critical elements and (b) citizens involvement and participation elements, which basically deal with the engagement process facilitating the adoption framework. Therefore, the citizens' stakeholders involvement and engagement process (Figure 4.3) is the modus operand extracted from (figure 4.1) representing the ambit within which the citizens' engagement process is herein articulated.

Figure 4.3: Citizens Stakeholders Involvement and Engagement Process



(An Extract of Figure 4.1: Source: Author Developed Based on Applied Cases)

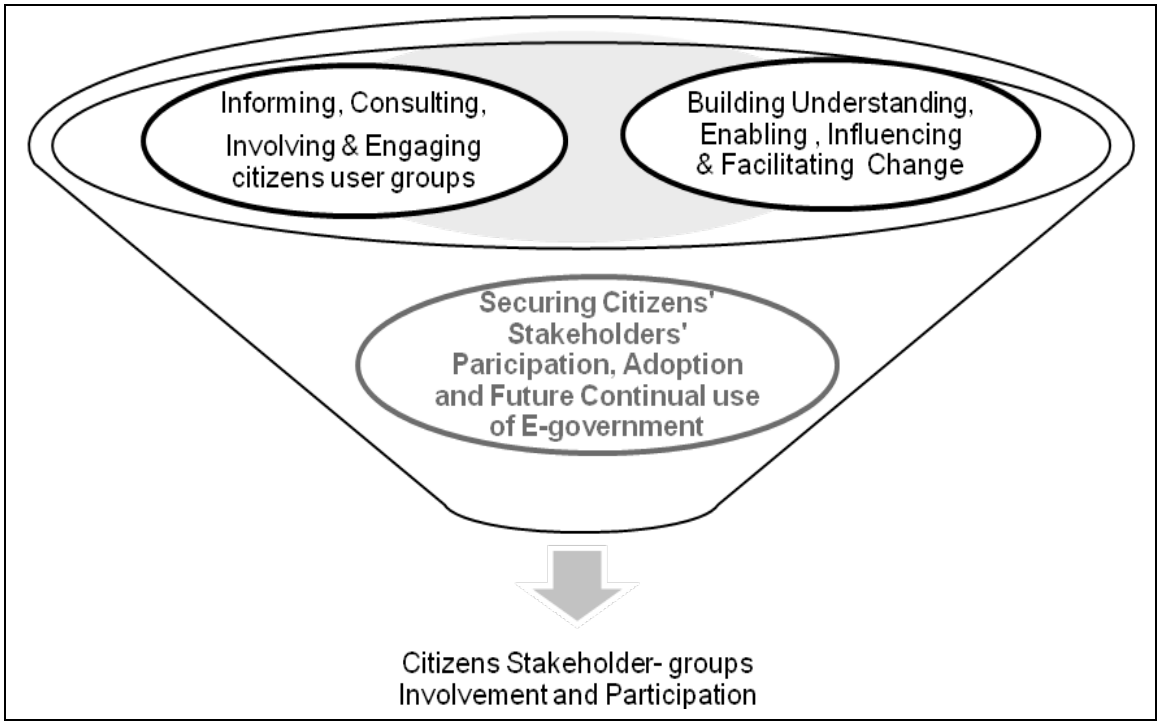
In order to maintain focus, the research problem and subquestions being addressed in this thesis, both the theoretical and applied (implementation experiences) justifications have been succinctly established, presented and supported in preceeding arguments and discussions in this chapter and the rest of the thesis. It is worth reiterating that people are not just citizens of government, they are parents, volunteers, neighbours, business owners and employees, people who share backgrounds, consumers, students, sports enthusiasts, senior citizens and children (Caldow 1999). Thus understanding, determining, classifying and actually engaging the citizens' stakeholder groups and the population e-government intend to serve is a critical phase of e-government initialization, development, implementation and adoption.

It is pointed out that the value of e-government is identifiable and defined by how well it achieves citizen centricity through connectedness, offering universal access and inclusivenness for all as well as the of use new technologies (UN, 2010). Therefore it is imperative for government to involve stakeholders in driving the e-government innitiatives (Wong et al, 2007). These stakeholders must be identified

and categorised (Caroll, 1989) in order to appropriately determine their level of involvement and role in the engagement process.

In reference to Chapter one (Figure 1.2 and section 1.6 subsection 2.7.2.8), citizens stakeholders involvement and participation is focused on the stakeholder and user involvement theories, herein discussed from a three fold approach as show in a funnel shape in Figure 4.4. below. Firstly the stakeholders are informed, consulted, involved and engage, secondly education and understanding is undertaken to enable, influence and facilitate citizens groups and representation thereof to appreciate the value of e-government and how it affects them and what they are required to do. Thirdly, citizen-groups' participation and adoption is secured through clustered and focused programmes and initiatives.

Figure 4.4 A Three Fold Citizens Involvement and Participation Process



(Source: Author Developed: Conceptual Framework Based)

4.3.5.1 Informing, consulting, involving and engaging citizens

E-government is not just about using the internet in performing administrative work, it is also more about re-engineering of administrative processes, re-organising and restructuring of public organization and shifting focus towards a citizen and customer centred service provision. Achieving participation of citizens in e-government and democracy has become a pivotal criterion (Wimmer, 2002). Facilitating the involvement of different sections of society in the process of government is recognised as a democratic prerequisite in the advanced and liberal democracies, for example (Fishkin, 1995) highlights the need for 'mass deliberation' and need for people and their representatives to be brought together to collaborate on issues of mutual interest.

It worth noting that while citizens' stakeholders involvement is advocated, it is acknowledged that not all stakeholders need to be involved equally in the decision process (Donaldson and Preston, 1995), however, it is required that all stakeholders' interests are identified and understood as failure to do so may result in the process failure (Clarkson, 1995). Preparing stakeholders for meaningful participation entails, identifying and recruiting stakeholders, providing appropriate education for active and engaged participation (Mallery et al, 2012). E-government project success requires initiatives to build citizens trust, confidence, and knowledge to encourage their involvement and ongoing engagement and also enhance their propensity to innovate and adopt the e-government.

Consulting and involving stakeholders can be done through multiple facets such as, public opinion, community forums, newsletters, survey and focused groups, exhibitions and use of widely acknowledged stakeholder media channels. In addition, (Kessler, 2004; Beierle and Cayford 2002; Ashford and Rest, 1999) have suggested more deliberative forms of involvement and engagement such as citizens' advisory committees, citizens' juries and panels, public hearings and meetings. Some examples of citizens' advisory establishments have been applied in Canada, Australia and South Korea (discussed in chapter three).

Based on the stakeholder theory identification, characterisation and classification processes (see also section 4.3.2) above, an appropriate citizens' engagement and communication strategy can be detemined. The strategy is helpful to enable implementers involve and manage different stakeholders to acquire information and knowdlege needed in the development process and for successful system design (Bødker et al, 2011; Artman, 2010), this therefore aligns to the user involvement theory which focuses on both the development of a system and the intended users of the system (Kappelman and McLean, 1994).

Lack of user involvement is amongst the main causes of failure in IT projects design and implementation (Schmidt et al, 2001) echoing the view that involvement of stakeholders leads to participation which also leads to increased legitimacy. When users feel the process was fair and their inputs were used, it will ultimately enhance their alignment with the process leading to compliance and adoption (Kessler, 2004). However, citizens' perceptions, communities' culture and attitudinal beliefs and experiences of various stakeholder groups need to be critically examined as they may have a significant bearing on citizens' trust on the agency advancing e-government change and the change process itself.

To facilitate successful diffusion of the innovation of e-government, it is imperative to study citizen-user groups, to determine ability and define their information services, priorities and needs, understand how the geographic (cities and towns, urban and sub urban villages, rural and remote areas), cultural and ethnic beliefs systems, communication structures, networks and persuasive influence structure can impact on the new change.

4.3.5.2 Building understanding, enabling, influencing and facilitating

The indentification and categorisation process discussed above is also helpful to detemine the degree of engagement at various stakeholder levels. The process informs on who are the most and least affected, most influential key players that must be thorougly consulted, partnered with, empowered, collaborated with and involved directly and to work with, also those that would need to be informed with minimal involvment.

E-government is strongly shaped and driven by social, cultural and political factors on local, regional and supra-natural levels (UN, 2005). It therefore calls for focus on programmes and policies aimed at the diversification of the ICT base such that those with low income, women, youth, disabled, disadvantaged and those living in rural areas are systematically included in the impending benefits of newer technologies (Caldow, 1999; UN, 2005).

It worth reiterating that people are not just citizens of government, they are parents, volunteers, neighbours, business owners and employees, people who share backgrounds, consumers, students, sports enthusiasts, senior citizens and children (Caldow 1999). Thus understanding and determining the population e-government intends to serve is a critical phase of e-government initialization. The one size fits all approach will not facilitate government services and information access equitably to all the diverse population of citizens' user groups. This can not be achieved by only focusing on the physical access, afforbability of hardware, software, connectivity e.g internet and ICT skills, focus should extend beyond to cover; what motivates individuals to become connected and familiarize themselves with government on line (Ranerup, 2007; Mofleh and Wanous, 2008).

Each community has its own mentors, networks of relationships, financial exchange and interactions. Inclusion of a community service dimension in the overall web strategy is the way to go, conducting seminars, educational programs, establishing outreach to citizens, underserved communities, community groups and non-governmental and civic organisations are also important aspects to an informed and participative community. Reflecting on the issue of contract between citizens and government (Magnette, 2003) and the ligitimacy thereof as mentioned in chapter one (section 1.3), The author (this research) contends that user involvement is neccessary to enable, influence, facilitatate and build understading and better awareness about e-government amongst targeted citizen user groups. This process may mean government having to use more resources to ensure citizens' stakeholders are brought to the level where they can confidently understand e-government and are able to inform meaningfully the development process. Apart from building trust and eliminating conflict, (Kessler, 2004) stakeholders should be involved because they have ligitimate rights be it formal of informal.

The paradigm in shifting from just a technology driven process to become more citizen centric and apparent recognition to promote greater inclusiveness in the

democratic, e-participation and decision making processes is evident in the strategies and priorities of the european i2010 e-government action plans (European Commission, 2006).

4.3.5.3 Securing citizens stakeholders' participation, adoption and continual use of e-government

Participation is the use of ICTs to involve citizens in the democratic and policy decision making (Rose et al, 2007; Macintosh, 2006), however this may entail other ancilliary and auxiliary benefits intended to motivate and secure citizens' participation. Both short term and lon term strategies must be employed to secure user groups' participation, adoption and continual use of e-government. The user involvement theory (Kappelman and McLean, 1993) conceptualises the components of engagement into behavioural user activities and attitudinal user involvement. These respectively cover (a) process participation, (b) sytem use, (c) process involvement and (d) system involvement thus linking participation and involvement (Kappelman and McLean, 1994). Whereas participatory process is not an easy undertaking, but in a participation process stakeholders see their involvement as meaningful when it makes a difference, hence meaningful participation occurs when people see that their contributions to the process have helped to shape the decision and are ligitimately and more likely to comply (Kessler, 2004; Sutinen and Kuperan, 1999). User differentiated participatory involvement is necessary as e-government stakeholders would differ not only in the aspects of power and ligitimacy, but also in the urgency attribute which is an important aspect (Saebø et al, 2011; Mitchell et al, 1997), where urgency is closely linked to the use or adoption of the system.

The adoption of e-government is percieved to occur through the approach of knowledge accumulation, persuasion, decision, implementation (trying the innovation) and confirmation (decision on continual use or otherwise) of the innovation (Rogers, 1995; 2003) where citizens adopters are at differing levels to adopt the e-government innovation with the innovators who are few adopting first, followed by early adopters, the early majority, with late majority sceptically adopting and lastly, the laggards after all other members groups have adopted. The adoption process is influence by perceptions of how confidently and well citizens adopters perceive the e-government once implemented as relatively adavantage, compatible with their values, less complex to adopt, experiment and derive observable value out of it. Aligned to Rogers adoption process, the author posits that, unless citizens user groups understanding of e-government is built, enabled and influenced, e-government adoption is very unlikely to effectively occur. Hence, the big question posed by (Heeks, 2006) as to whom is the e-government meant for, would largely remain unresolved.

As argued in chapter one (section 1.6), adoption is not a momentary irrational act, but a continuous and ongoing process where citizen-user adopters have an opportunity to be consulted, engaged, participate, learn about e-government, be

convinced, motivated and persuaded to try it out before making a decision to adopt or reject it. This emphasizes further that e-government adoption is a process that must highly be facilitated and supported over a period of time to yield the desired adoption levels by citizen-users, this is also evident in the implementation experiences discussed in chapter three. The next section presents the research model process step guide to citizens' involvement and participation.

4.4 Research Model Process Guide

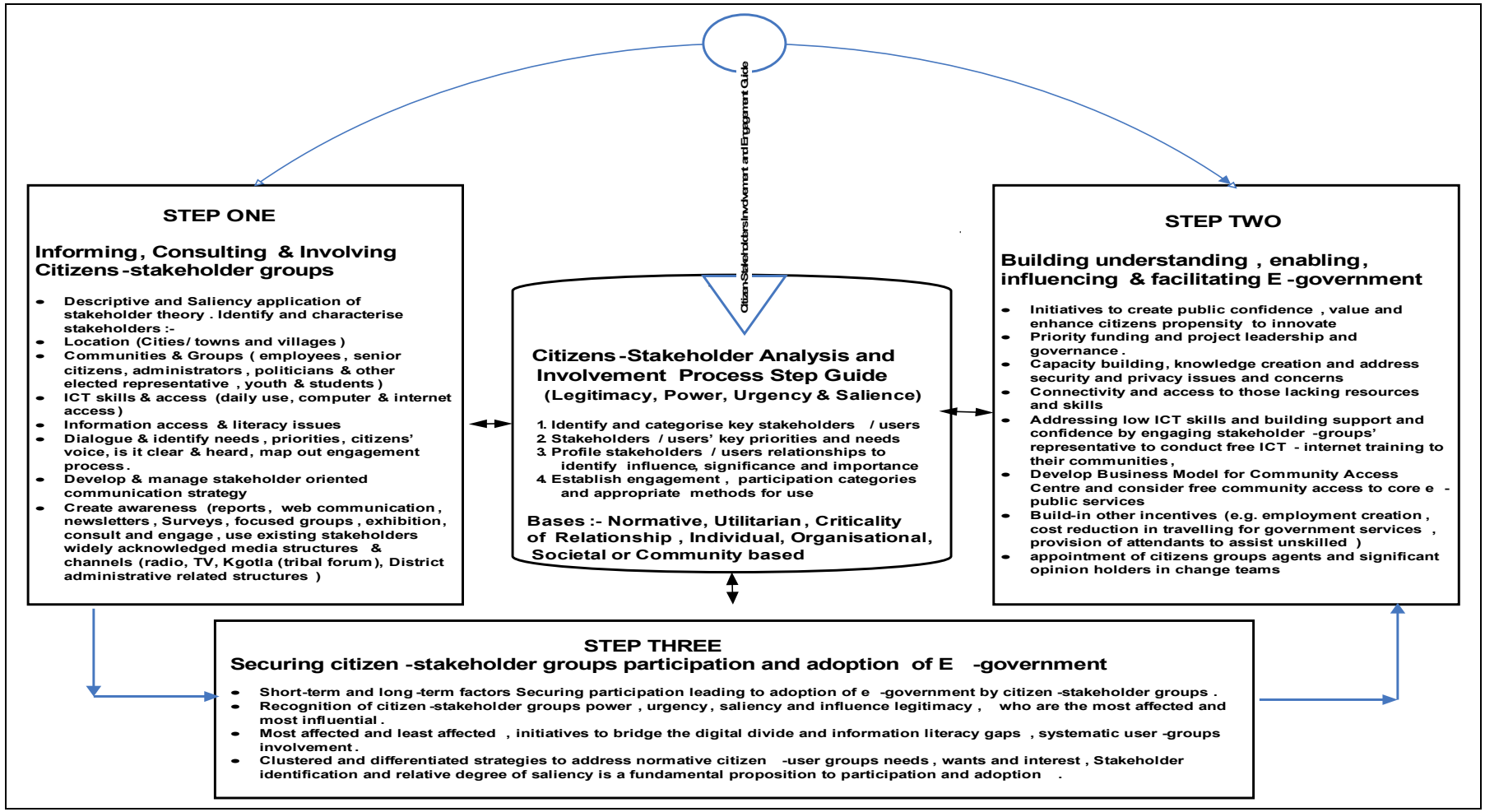
E-government is a necessary change and to convince people that it is necessary, it takes strong leadership and visible support from key people, here reference is made to change leaders which (Rogers, 1995) define as falling in categories of change agents, champions and opinion leaders. However to implement change successfully the agency advancing change must start honest, give dynamic and convincing reasons to get people talking and thinking (Kotter, 1995). These entails (a) canvassing support from stakeholders and identify people to strengthen the change advocacy, (b) identifying true leaders and representative among stakeholder groups to get their commitment and form change partnerships, (c). Identify stakeholder weaknesses and strong areas and achieve a good mix of stakeholder groups from various ethnic, cultural, economic, societal, geographic, professional and other backgrounds and at differing levels. For instance, in Botswana (see section 1.5 and chapter 6) there are various committees such as VDCs, DDC, DMSC comprising of various representatives groups within tribal administration, government departments, non government organisation and ordinary citizens with significant skills and influence.

While the top leadership is needed for change to succeed, a convincing change agenda requires creation of a change vision and a change strategy to execute the vision (Kotter, 1995). The view is that when people are engage and participate they get a different perspective as they see for themselves what the change aims to achieve. In order to well articulated and determine central values for the change vision and strategy instead of imposing restrictive perimeters around stakeholders' actions, a stakeholder change agenda should in fact empower stakeholders to exercise their judgements and be embraced as partners of the governance system (Donaldson and Davis, 1994). It is therefore timely and relevant to examine the fundamental purpose of e-government through adoption of stakeholder perspectives in order to develop strategies that can support stakeholders' participation and align e-government implementation to their interests (Tan et al, 2007). In this regard, the citizens' stakeholder involvement and engagement (initial process guide) is advocated and presented.

The intial citizen stakeholder-groups' involvement, engagement and participation process guide for Botswana is herein proposed (Figure 4.5) below and subsequently discussed (section 4.4.1) building up on discussions made earlier in section 4.3.5 and subsection 4.3.5.1 to 4.3.5.3. This process guide details out the citizen-

stakeholder groups' categorisation characterisation and classification processes and steps to follow to perform stakeholder analysis for involvement in the e-government development and implementation. In addition, the stakeholder involvement process is also based on the stakeholder theory salience and attributes of legitimacy, power and urgency in line with the preceding discussions and critical arguments advanced earlier in this chapter.

Figure 4.5 Citizen-Stakeholder Groups Involvement Engagement and Participation Process Guide for Botswana



(Source: Author Developed Based on Stakeholder and User Involvement theories)

4.4.1 Discussion on Research Model Process Steps

The involvement process guide above (Figure 4.5) focuses on four areas of; (a) Identifying and categorising stakeholders; (b) Understanding stakeholders' needs and priorities; (c) profiling the stakeholders' relationships taking into account their significance and influence, and then (d) establishing engagement, involvement and participation categories and methods upon which the whole process could be executed.

Establishing the involvement and engagement would then be centred on strategies, methods and processes followed to fulfil the factors of: (a) Informing, consulting, involving and engaging citizens; (b) Building understanding, enabling, enabling, influencing and facilitating, and (c) Securing citizens stakeholders' participation, adoption and continual use of e-government. However, elements of some tasks in all the three process steps can be carried out concurrently; it is not a fast rule that all tasks can be performed sequentially. In chapter five (section 5.5.5) guided by preliminary research conducted prior, the research model process guide is expanded into a framework for the anticipated citizen centric conceptual model (figure 5.5) and subsequently tested for validation in chapter seven.

The key constructs in the theory of stakeholder in addition to salience, is that other factors such as normative, utilitarian, criticality of relationship, individual, organisational (citizens in representative capacities), societal, community based or cluster groups are used to inform the characterisations of stakeholders.

It is noted in chapter two and three that e-government in developing countries, Africa especially, largely has not developed beyond the initial phase and majority of citizens may not understand what it is and its value and benefits. Therefore it is needful to assess the levels, roles and interests of citizens' stakeholder groups' participation in e-government and appropriately mobilise a process where actors are not only identified, but are also adequately prepared for meaningful involvement and participation in the e-government processes (Mallery et al, 2012; Papadopoulos and Merali, 2008).

Citizens are a primary e-government stakeholder (Flak et al, 2007) and preparing them adequately to participate in e-government is most essential for adoption. As already hinted, government may have to spend more resources to bring citizens stakeholders to the levels of understanding the value and benefits of e-government, their role in the development and implementation process and how their input will be used

Establishing citizens' stakeholder trust is a prerequisite (Hough, 1988) to building trusting relationships to ensure that all stakeholders appreciate benefits to participate in e-government (Hough, 1988; Stirman et al, 2010). This can be achieved through clustered groups and individualised contacts with stakeholders to listen and understand their needs, priorities, concerns, and expectations, as well informing

them about the expected benefits of e-government and how the change will affect their current position (Taut, 2008).

Citizens participation and involvement in government decision making entails (OECD, 2001); (a) consultation – government informs and consults with citizens (citizen's responses generally predetermined by government via multiple-choice, closed-question options); (b) deliberative involvement – government engages citizens in consultation process (citizens encouraged to deliberate over issues before final response); (c) government-led active participation – government instigates consultation and retains decision-making powers; (d) citizens-led active participation – citizens are actively engaged in decision-making processes, alongside government; citizens' decisions become binding; citizens share ownership and responsibility over outcomes (ITU, 2008; Kingston 2007). The emphasis (Webler et al, 2001) is that successful participation and involvement process must be legitimate, promote common values, realize democratic principles of fairness and equality, promote and accommodate all viewpoints of stakeholders and foster responsible leadership. While (Beierle and Cayford, 2002) posit that participation and involvement must; educate and inform the public; take in public values into the decision making; considerably improve the quality of decisions; manage and minimize conflicts and achieve effectiveness; and increase public trust in the institutions. A properly executed stakeholder involvement has multiple outcomes depending on the process employed and the stakeholders engaged (Kruja and Hasaj, 2010). These outcomes include inter alia;

- Information and education of the public about the topic and issues (Simrell et al, 1998)
- Public values and opinions are incorporated in the decision making processes (Beierle, 1998)
- New ideas are generated and rated to improve decisions on the initiative undertaken (Carmin et al, 2003; Fiorino, 1990)
- Ensures stakeholders are treated with respect and fairness as their needs, priorities, and expectations are taken into account (La Porte and Metlay, 1996)

It is concluded that stakeholder participation and involvement influence and intensify compliance as the consulted and engaged stakeholders become better informed about the change, committed and supportive, especially were processes are tailored to fit and meet their needs. Information empowers the public to become involved in and positively impact on the planning and execution process (Kessler, 2004). The view is that stakeholder involvement and participation has important benefits of increasing legitimacy of decisions in the eyes of stakeholders and drives compliance with initiatives undertaken.

4.5 Summary

In chapter two the research articulated the challenges facing e-government implementation and discussed the implementation frameworks and adoption models that have been identified to address the challenges. However, this study identified challenges and gaps in the already proffered models and frameworks and the need to bridge such gaps. Building on chapter two, in chapter three e-government projects implementation in developed and developing countries have been well discussed and factors that aided success in developed countries also articulated through critical review and analysis of individual countries' implementation experiences and a number of strategy critical success factors were identified as having contributed to both successes in developed countries and failures in developing countries. In this chapter, lessons from the implementation experiences were drawn and key strategy and adoption factors identified leading to initial proposal of e-government strategy critical success factors framework. Consequently, the stakeholder theory combined with user involvement theories elements have been applied towards proposing the citizens stakeholder involvement and participation process framework.

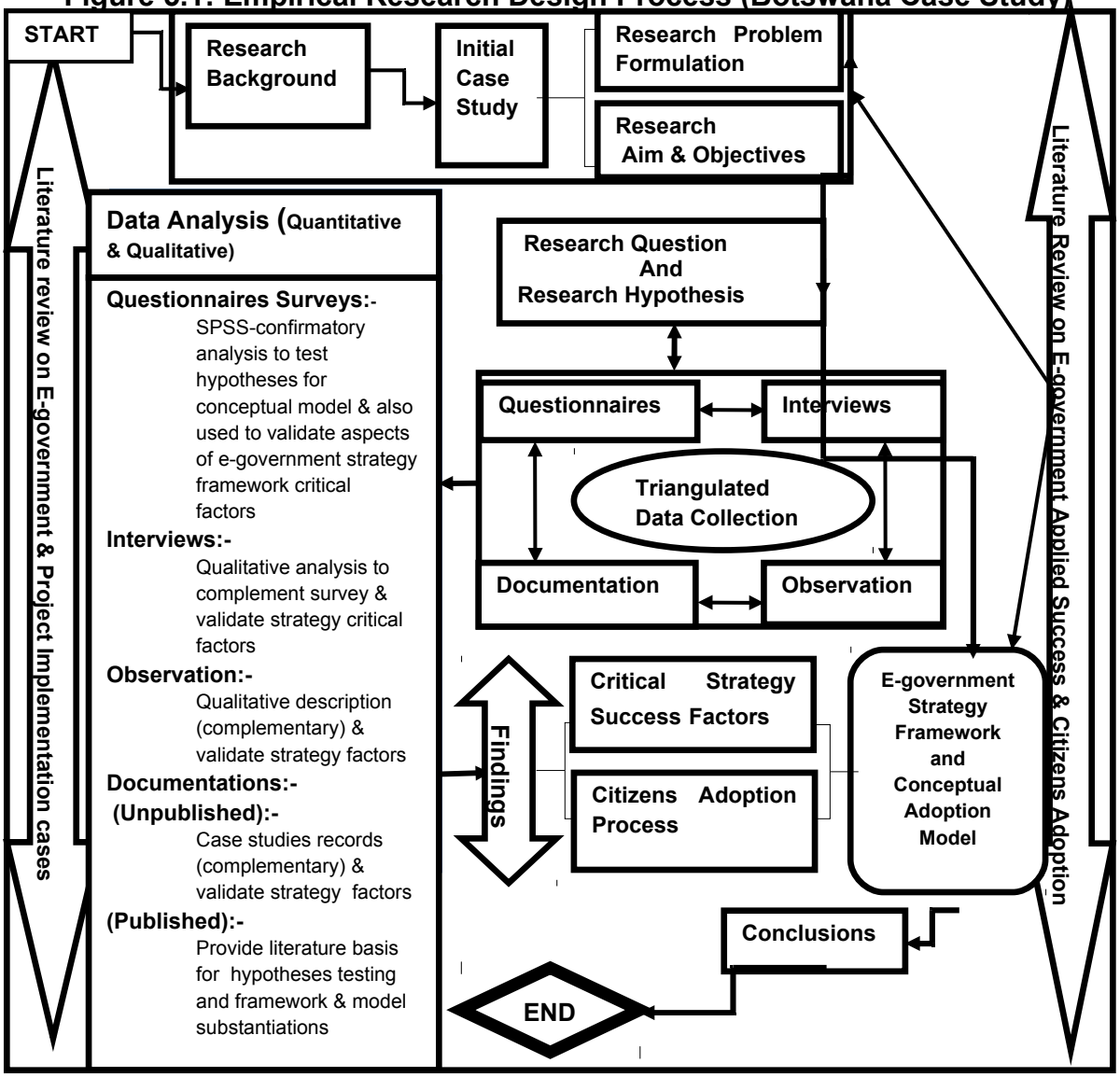
Involvement and participation of citizens in e-government starting with e-readiness assessment is fundamental to a successful e-government implementation as all citizens participants have a view of what they would like themselves, their children and their communities to have in the future. Understanding citizen-user groups' differentiation affords e-government vision to accommodate the needs and priorities of citizen groups, which could differ based on ICT skills levels, information literacy, economic factors, geographic and local factors, propensity to adopt change, culture and beliefs. The integrated disposition study of trust has revealed that lack of trust hinders citizens' adoption of Information Systems (IS) services (Carter and Belanger, 2005; Choudrie and Dwivedi, 2004). This is so, as technology continues to become ingrained in society. Citizens' perceptions of the accuracy and reliability of e-services will increase exponentially in importance (Belanger and Carter, 2008). When the change purpose is shared with citizens, they get a clearer picture and better understanding. This is necessary to avoid providing the e-government solution amiss, if the political leadership expects citizens' to provide sensitive information and complete personal transactions online, they must acknowledge and enhance citizens' views concerning the credibility of e-government services. Consequently, citizens' involvement becomes a critical component of both e-readiness and e-government processes.

CHAPTER 5: RESEARCH METHODOLOGY AND RESEARCH DESIGN

5.1 Introduction

The research methodology is a procedural process and framework within which research is conducted (Remenyi et al, 1998) and design is a logical sequence that establishes the empirical data to the research questions through to the conclusions of the study (Yin 1994). Research design provides necessary guidelines to follow in addressing research problem (see Figure 5.1). Whilst research is systematically undertaken to explore , unearth and discover knowledge about a phenomenon or science or nature or the society (Neuman, 1994), it is alleged that there is no single solution to research design (Galliers, 1992; Al-Shehry, 2008) and the design framework comprises of the research philosophy , research approach, research strategy and research data collection methods (Crotty, 1998).

Figure 5.1: Empirical Research Design Process (Botswana Case Study)



Selecting an appropriate research methodology, design and strategy is not simple, a number of factors such as research topic, the objectives, research questions and the nature of research problem are necessary to consider. These factors together with researcher's experience and skills, resource and time frame to conduct research and access rights will largely influence the design and strategy choices (Yin, 2003).

This chapter discusses an over view of the research philosophy; research choices and approaches; the strategy used and describes methods (data collection and data analysis) employed during the course of study. Validity and reliability issues, generalisability of results, ethical considerations and limitation of study are also presented.

5.2 Research Philosophy

Research philosophy relates to the development of knowledge and the nature of that knowledge (Saunders et al, 2009; LeCompte and Schensul, 1999). It examines belief on how data about a phenomenon should be collected and analysed (Levin, 1988). Therefore e-government researchers cannot escape the responsibility for critically examining and justifying the philosophical ideas that their investigations incorporate. Although, it may not be explicit sometimes research always conveys a commitment to the philosophical beliefs. The philosophical reflection and arguments are critical aspects of the methods of research (Carr, 1995). Hence understanding research philosophy is essential (Hughes, 1994), it enables the researcher to take a more informed decisions about the research design. It is the overall configuration of a piece of research, that is, what kind of evidence is gathered and from where, and how such evidence is interpreted in order to provide good answers to the research questions. It also helps to think about the research approaches that work and that do not work for the research, further it provides opportunity for innovation in selecting and adapting methods which may not have been within the research scope (Easterby-Smith et al, 2007; Evely et al, 2008; Dyson and Brown, 2006; Eigenbrode et al, 2007; Roebuck and Phifer, 1998).

Examination of the research philosophies cannot be adequately done without exploring the concept of research paradigms. A closer review of the literature on research philosophies reveals that there are two major opposing social science research paradigms of positivism and phenomenology with dominant superiority in business and management research, under which many authors have identified a number of different paradigms which largely depend on them as shown in Figure 5.2 (Chia, 2002; Burrell and Morgan, 1979; Pansiri, 2005; Laughlin, 1995; Baker, 2003; Saunders et al, 2000; Easterby- Smith et al, 1991; Lincoln and Guba, 2000; Hussey and Hussey, 1997; Hatch and Cunlife, 2006; Eriksson and Knovalainen, 2008).

A paradigm is a way of examining social phenomena from which particular understandings of the phenomena can be gained and explanations attempted (Saunders et al, 2009) or the basic belief system and set of shared assumptions about the aspects of the world (Oates 2006; Guba and Lincoln 1994). Paradigms are

important frameworks that function as maps or guides for scientific communities, determining important problems or issues for their members to address and define acceptable theories, methods and techniques (De Monticelli, 2007; De Monticelli and Conni, 2008).

Linked to decisions on where e-government research fits and philosophical perspectives are the issues of epistemology and ontology. Epistemology is defined as a theory of knowledge (Saunders et al, 2007) used to describe a stance, for example positivism or phenomenology, and within each stance or discipline lie underpinning principles and values, and associated procedures for capturing what may constitutes acceptable knowledge in a field of study and poses the questions of: What is the relationship between the knower and what is known? How do we know what we know? What counts as knowledge? (Bryman and Bell, 2008; Krauss, 2005; Trochim, 2000). Related to epistemology is the ontology, which is concerned with the nature of the existence of reality (Saunders et al, 2009) it encompasses claims about what exists, what it looks like, what units make it up and how these units interact with each other (Blaikie,1993). Precisely, ontology describes whether assumptions on the nature of reality, presents an objective reality that really exists, or is the reality that exists subjectively (Hatch and Cunliffe, 2006).

Epistemology and ontology are intimately related and impact on methodology, methods and sources (Crotty, 1998). Ontology involves the philosophy of reality that is out there to know, epistemology addresses what and how we come to know about the reality, methodology identifies the particular practices used to attain knowledge of reality; methods defines the procedures that can be used to acquire it, whilst sources is about which data to collect (Hay, 2002; Hatch and Cunliffe, 2006; Limpanitgul, 2009). Therefore in undertaking e-government research, it is important to consider different research paradigms and issues of ontology and epistemology as they describe perceptions, beliefs, assumptions and the nature of reality and knowledge of that reality, also can inherently, influence the way in which the research is undertaken, from design through to conclusions, (Rubin and Rubin, 2005).

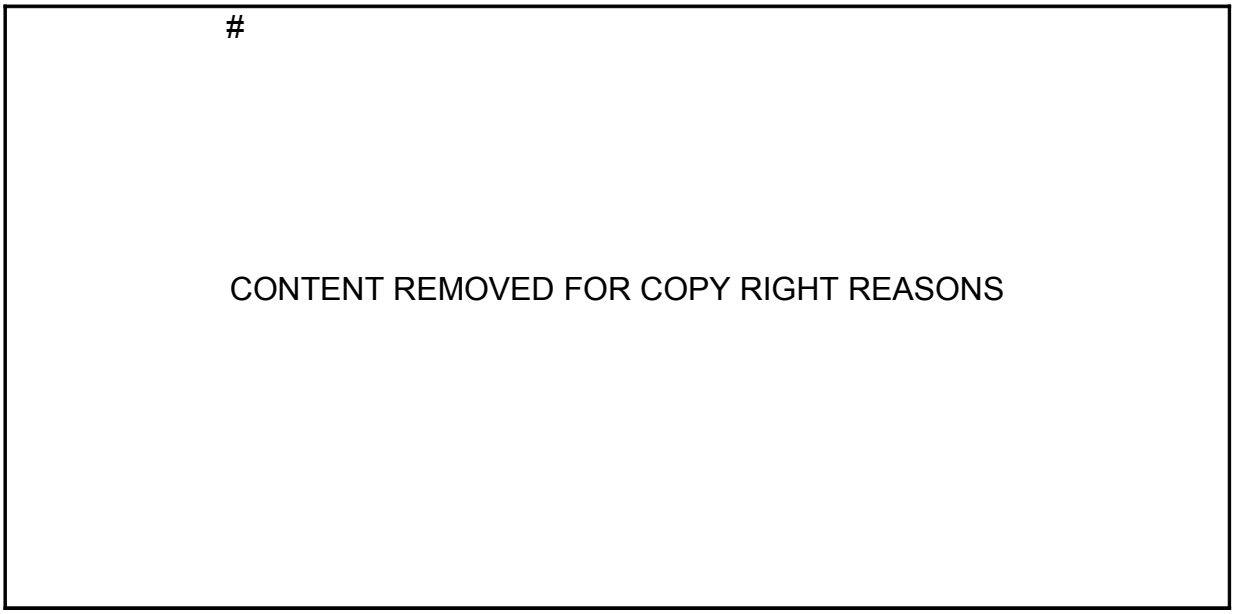
Positivist e-government studies hold a realist, objective ontology, where ontology refers to a set of assumptions about the nature of reality, (Heeks and Bailur, 2007; Tan et al, 2007). To a positivist, science provides the observer with an objective account of the world as a concrete entity, one that is separate from human intention and purpose (Dyson and Brown 2006). Positivist assumes the key variables in e-government (e.g. technology, skills, leadership involvement, work processes and culture) actually exist and that they are related by a set of causal relations explicable by underlying and generalizable “laws’. Positivism is a very structured approach strictly governed by the philosophy of constructing mathematically quantifiable relations between poor theoretically driven propositions and empirical realities, (Tan et al, 2007 citing Ngwenyama and Lee, 1997). The e-government positivism research is quantitative, relies on scientific method where measurements between

variables are systematic and statistical (Cassell and Symons, 1995; Bryman, 2008; Blaikie, 2009).

Parallel to e-government positivist ontology is the social constructionist e-government studies which holds a subjective ontology (Heeks and Bailur, 2007), while accepting the natural existences of physical objects, such as computer hardware, the social constructionist assume that what matters about any variable material or innovation is the particular meaning given to that variable by each individual and the meanings are subjective creations constructed through instructions with others. Therefore social constructionist e-government studies hold an epistemology that assumes the focus of finding out the particular constructions and meanings that individuals hold about facts of a phenomenon (Tan et al, 2007; Cassell and Symons, 1995; Bryman and Bell, 2008; Sanders et al, 2008). There is a strong assumption that the researcher's own perceptions, views, interests and contributions cannot be separated or detached from the research study.

Positivism and phenomenology are two extreme research philosophies (Bryman and Bell, 2008; Cassell and Symons, 1995; Bryman and well, 2008; Saunders et al, 2009; Rubin and Rubin, 2005). These extremes boarder on qualitative and quantitative research approaches, both approaches if looked at and applied independently in this research have shortcomings that could limit the research and resultant e-government study output. The discussions on how these opposing extremes have been dealt with in this research are presented in the next section (research approach).

Figure 5.2: Positivism and Phenomenology Research Stance



(Based on

5.3 Research Approach

The literature (Tashakkori and Teddlie, 2003; Caracelli and Greene, 1993; Jankowicz) suggest that there are three widely accepted and used types of research approaches, namely; qualitative, quantitative and mixed method (pragmatic). The differences between these approaches are presented herein Table 5.1.

Table 5.1: Quantitative, Qualitative and Mixed Method Approaches

	Quantitative	**Qualitative**	**Mixed Method**
Approach	Deductive	Inductive	inductive and deductive
Ontological perspective	a single reality or truth which is testable and provable	No existence of a single reality, but dependent on different interpretative contexts	Pragmatism (position in between)
Epistemology	Scientific testing (mathematical and statistical quantification) Objective existence (observable, measurable, variable existence and relations to others	Social construction (culture created through social interaction) Subjective (no objective existence, different construction.	Pragmatism (position in between)
Research Instruments	Questionnaires	Mainly interview (though it uses a variety of methods)	Utilises both approaches based on what works better
Sampling (time Horizon)	Cross sectional (shorter time to collect data c	Longitudinal (takes longer to collect data and tend to use smaller sample size	Maximises on both
Questionnaire format	Closed-ended	Open-ended	Utilises both
Data format	Assigning numerical values to obtain data	Data obtained through textual sources (audio and video, log, diary and field notes	Multiple forms
Data analysis	Statistical relationship	Patterns and themes	Quantitative and qualitative
Results	Generalizable	Limited generalisability, offers multiple perspectives	Corroborated finding and may generalise
Reporting of results	Mainly statistical	Narrative with contextual description	Eclectic and pragmatic

(Based on various literature sources)

The above (table 5.1) highlights the differences, strengths and limitations of both quantitative and qualitative research approaches, also the benefits of using the mixed methods research (both quantitative and qualitative) is highlighted as an approach to strengthen the quality of data collection and consequently the overall research outcome. Consequently, therefore a combination of qualitative and quantitative approaches is employed in both data collection and analysis. It is recommended (Heeks and Bailur, 2007) that researchers working in the e-government research domain should

(a) Provide clear statements on research methodology and methods, and on personal interest in any research artefacts

(b) Use research methods in manner that strengthens the qualities (such as validity, reliability and generalization of the research)

(c) Avoid inconsistent or weak use of perspectives and approaches and invalid generalization of findings

(d) Greater self awareness from e-government researches about the perspectives and approaches they adopt in their research, greater awareness about the implications and limitations of those perspectives and approaches and greater awareness about existence of alternative perspectives and approaches

(e) Use of broader range of research traditions, with incorporation of more critical realist, social constructionist, critical and other types of research into the e-government arena, citing Galliers 1993. This pluralism is considered necessary to help illuminate current blind spots in e-government research and may be more relevant to the current issues facing e-government practitioners.

On the basis of the foregoing, and given the scope and nature of this research (chapter one), It seem logical for this research to capitalise on both strengths of the positivism and phenomenology by adopting a pragmatic position in between qualitative and quantitative approaches, thus curtail the weaknesses inherent with the use of one paradigm. This position is supported by (Creswell, 2003; Spratt et al, 2004; Blaxter et al, 2003; Tashakkori and Teddlie, 1998) who assert that, it is common for researchers to use more than one method as an alternative to verify reliability and validity of information being collected. Hence a mixed methods / pragmatic research approach is adopted in this research.

E-government implementation is targeted to the citizens' as consumer and recipients of government services and citizens can adopt or not adopt e-government, hence this study is not about confirming the truth or reality that e-government can either be adopted or not, but rather the study bring to light factors that hinders and / or facilitates successful implementation and citizens' adoption of the e-government innovation. Thus neither alignment to the positivism alone nor phenomenology / interpretive would enable this study to sufficiently uncover factors necessary to deal with to bring about a successful e-government implementation for Botswana government.

5.4 Adoption of Mixed Method Research

Mixed method research is study where the researcher collects and analyses data integrates the findings and draws inferences using both quantitative and qualitative

approaches and methods in a single study (Tashakkori and Creswell, 2007). In order to legitimise multiple approaches in answering research questions, rather than restricting and constraining researchers' choices. The use of mixed research methods is considered effective, efficient and powerful as opposed to the use of a single method (Thomas, 2003; Stewart and Cash, 2006; Saunders et al, 2003). Over the years various attempts have been made to identify a range of mixed methods research designs (Blaikie, 2009) and in this context reference is made to (e.g. Green et al, 1989; Patton 1990; Morse 1991; Steckler et al 1992; Hammersley 1996; Greene and Caracelli 1997; Morgan 1998; Tashakkori and Teddlie 2003 b; Creswell et al 2004; Bryman 2006 b). In addition a number of published books reveal the increasing application of mixed research paradigm (Brewer & Hunter, 1989; Creswell, 2003; Johnson and Turner, 2002; Johnson & Christensen, 2004; Newman & Benz, 1998; Reichardt and Rallis, 1994; Tashakkori and Teddlie, 1998; 2003). Mixed methods research or pragmatism is therefore defined as the third research paradigm that helps to bridge the schism between quantitative and qualitative research (Johnson and Onwuegbuzie, 2004; Onwuegbuzie & Leech, 2004a). It is an expansive and creative, inclusive, pluralistic and complementary form of research, and it suggests that researchers take an eclectic approach to method selection and the thinking about the conduct of research, (Blaikie, 2009; Johnson and Onwuegbuzie, 2004). The appropriate mixture depends on the research questions, the situational and practical issues facing a researcher (Patton, 1990; Naoum, 1999). Thus, this research study aims to collect multiple sets of data using different research methods in such a way that the resulting mixture or combination has complementary strengths and non-overlapping weaknesses (Johnson and Christensen, 2004; Brewer and Hunter, 1989; Johnson and Turner, 2002).

Cognisant to critical views for selection of a methodology (Heeks and Bailur, 2007), comparisons and contrasts of the positivism and phenomenology (Sanders et al, 2008; Creswell, 2003; Spratt et al, 2004; Blaxter et al, 2003; Tashakkori and Teddlie, 1998), values of both qualitative and quantitative research (Thomas, 2004; Miles et al, 1994) and that this research investigates multiple e-government implementation and adoption factors, covering varied government and citizens stakeholder groups in Botswana. In order to identify critical key e-government strategy factors that contribute to a successfully implemented project that is likely to be adopted by citizens'. It is crucial to understand citizens' stakeholders' views of the value of e-government (Kolsaker and Lee-Kelley, 2008) and further capture determinants related to individuals' attitudinal, normative beliefs and situational factors impacting the success and use of e-government services. The use of mixed methods therefore strengthens and maximises the quality of data collected as it employs strengths of inductive and deductive research approaches.

5.5 E-government Case Study Research Strategy

Research strategy choice depends on the nature and complexities of the research problem (Noe, 2008). The e-government research requires making research study

decisions before conducting the project and research strategy provides a logical set of procedures for answering research questions, particularly “how, what and why” questions. The strategy can be both inductive and deductive (Blaikie, 2009)

The literature (Galliers, 1998; Creswell, 1998; Miles and Huberman, 1994; Hussey and Hussey, 1997; Cavye, 1996) reveal various research approaches and strategies ranging from; experimental, survey, ethnography, modelling, action research, grounded research, operational research and case study research. In research design, employment of multiple methods is necessary to gather data from entities such as people, groups and organisations (Yin, 1994).The case study is considered thorough and comprehensive in examining a project, program, group, or individuals as it exists in its environment (Yin, 2003). It enables researchers to investigate a phenomenon in depth getting close to the phenomenon, providing rich data and revealing its deep structure within the organizational context (Cavye, 1996, Darke et al, 1998; Welman and Kruger, 1999)

In order to answer research questions presented in chapter one and chapter four, (that is, How can factors that impede success e-government project be overcome and citizens’ stakeholder adoption of e-government enhanced to facilitate successful development of e-government in Botswana? and what are the elements that are vital for an e-government project to be successful?). The use of case study strategy is considered appropriate to gain full knowledge and understanding of the complex nature of e-government implementation and citizens’ adoption (Choudrie and Dwivedi, 2005; Remenyi, 1998), more over that the e-government concept is relatively new to Botswana and there are not much existing e-government studies on Botswana.

5.5.1 Justification for use of Case Study Approach

The use of case study has been explored by various authors (Stake, 1995; Darke et al, 1998; Cavye, 1996; Yin, 1994; Creswell, 1998). There has been a predominant use of case study approach over the years across a variety of disciplines based on its flexibility to allow detailed contextual analysis of limited number of events and inherent relationships (Choudrie and Dwivedi, 2005; Travers, 2001; Myers and Avson, 2002). A case study allows study of the phenomenon in its natural setting, where the researcher can ask "how" and "why" questions, so as to understand the nature and complexity of the processes taking place; it is appropriate where research is being conducted in an area where few, if any, previous studies have been undertaken, (Benbasat, 1984; Yin, 1984). This is so in the case of Botswana where there is limited evidence of existing studies on e-government (Bwalya. 2009)

Whilst case study approach had predominantly been used in qualitative research, it is however not limited to qualitative research only, it can also be used in the quantitative sphere and other forms (Travers, 2001; Klein man and Corp, 1993). Case study is particularly suited for use in the information system (IS) services, the discipline which e-government is classified as falling within (Benbassat et al, 1987; Orlikowski and Baroundi, 1991; Irani et al). The object of the discipline in the study of IS organisation and interest is shifted to organisational rather than technical issues (Choudrie and Dwivedi, 2005) and the case study allows for in-depth study through multiple sources and methods, focuses on relationships and processes (Denscombe, 2007; Al-Shehry, 2008). Hence, case study is considered ideal to carry out a holistic research (Collis and Hussey, 2003) especially for Botswana where there is lack of e-government knowledge and in-depth investigations are needed to gain deeper understanding of citizen-stakeholder groups' adoption of e-government.

5.5.2 Intial and Preliminary Case Study on Botswana

In pursuit of the study on e-government implementation in Botswana, the researcher carried out initial feasibility and investigative tasks to establish the research prospect and formulation of the research problem. The conduct of the initial study is herein discussed and outcomes presented in the subsequent sections.

An initial investigative case study was conducted between December 2009 and January 2010, where a questionnaire survey was administered among citizens, secondary data sources reviewed and discussions held e-government implementation project office in Botswana to establish; (a) long term plans, timelines and ascertain where the government considered they were with the project against where they planned to be; (b) how the government intended to reach where she wanted to be by targeted date; (c) emerging issues depicting the research problem; (d) government of Botswana preparedness and readiness for e-government implementation; and (e) broader issues affecting general public and their perception and adoption of e-government innovation.

The primary survey carried out in two urban villages of Mochudi and Molepolole and three surrounding sub villages in the southern part of Botswana within a 100km radius of Gaborone city. A total of 66 ordinary citizens in urban villages were randomly approached and probed on the level of ICTs and internet usage, frequency and type of use and further to establish awareness and gather citizens initial responses about the e-government project. A further 38 citizens were also randomly approached in Gaborone city. The choice of location was based on population densities of Botswana, where the majority of the population (over 50%) live in the southeast and mainly in Gaborone and within a 100km radius of Gaborone, (Botswana central statistics office, 2001)

Furthermore, a number of reports where perused through which include interalia; (Botswana E-readiness Assessment Report, 2004; Botswana National ICT Policy 2007; Botswana Budget Speech, 2009; ICT Development in Africa: Botswana Country Presentation; 2009; Modernising Botswana Government in the Digital Era -UNPAN Portal Project, 2009; Speech by the Botswana Minister of Science Communication and Technology-MCST,2010), and other Botswana government internal reports leading to e-government implementation decision and case studies by individual researchers, for example, (Bwalya, 2010).

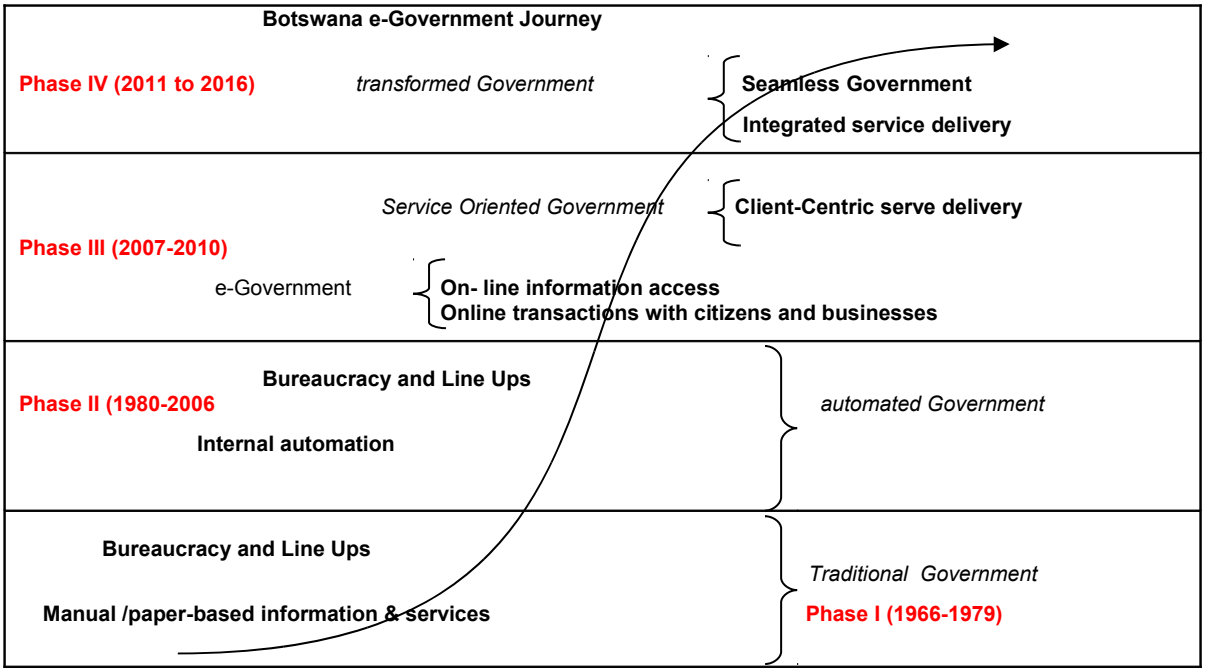
Based on the initial discussions with the implementation team representative, enquiries with members of the public, initial literature review on e-government in Botswana and perusal of other secondary data sources stated above, the situational analysis of e-government implementation in Botswana and progress thereto was facilitated and the outcomes are herewith presented:

5.5.3 Situational Analysis of E-government Initiatives in Botswana (2009/10)

The key outcomes, observations and analysis made from the abovementioned preliminary data sources enabled situational analysis of the e-government implementation progress as follows (as at 2009 and 2010);-

Botswana e-government journey in phases, In addition to government initiatives and e-government implementation targets**,** the Botswana e-government journey targets service oriented government (client centre service delivery) offering vertically integrated online transactions and information access to citizens by 2010, and further to be a fully transformed and seamless government providing a horizontal service delivery by 2016. See Figure 5.3: E-government Journey for Botswana Government.

Figure 5.3: E-government Journey for Botswana



(Source: Botswana Country Report, 2009)

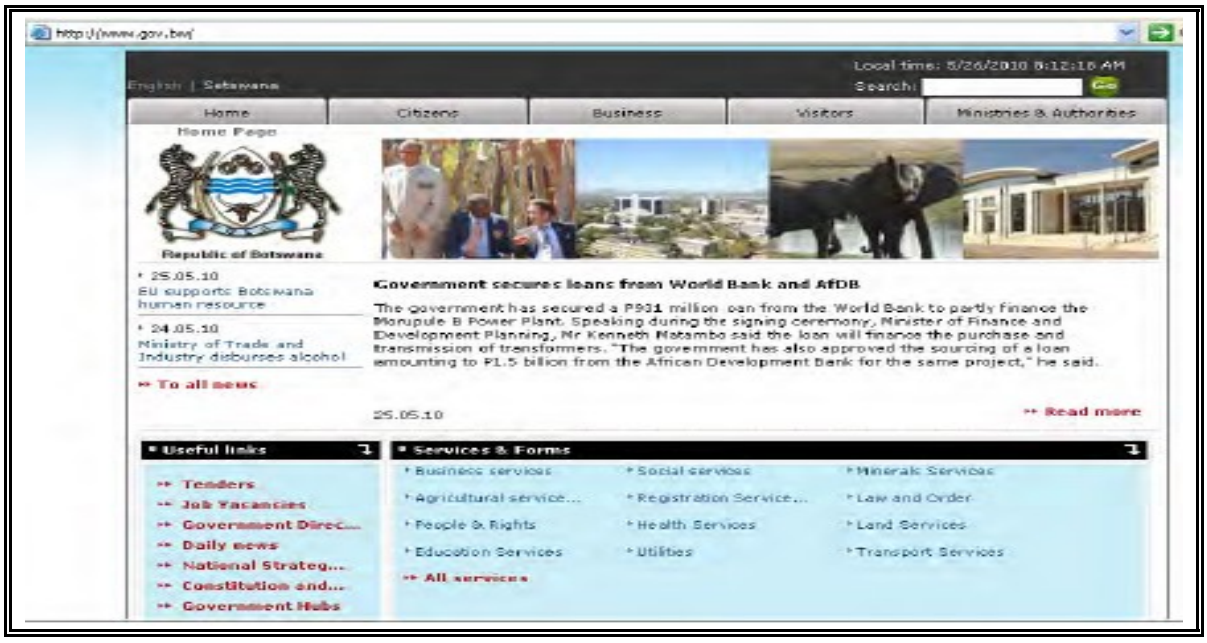
ICT Status, lower levels of ICT usage and penetration were revealed, however, the higher penetration was noticeable on mobile phones. Internet users of 120,000 people, giving a penetration level of 6%, mobile penetration of (2.28 million/ 1.8 million population) giving an over 100% penetration level though not evenly distributed, ADSL / broadband penetration of 20,000 to 30,000 giving a penetration level of 1% and PC penetration level was ranging between 2-3 %.

Legislation, the following legislation needed to be enacted; Data protection; Electronic commerce; Privacy; Electronic signatures; and Freedom of information/access to information

Other areas expected for further ICT development. E-government roll out by 2016 covering; education, agriculture, tourism, e-commerce and government services online; Broadband strategy implementation; and Hub for regional connectivity

E-Botswana Portal, the e-Botswana portal build up, UNPAN (2009) reflected a number of constraints such as, prolonged approval process may delay the delivery of e-government, e-government not adequately embraced in the highest level of government, lack of effective governance structure, lack of professional and effective promotion and awareness campaign, lack of content publishing standards for harmonization with UNPAN portal required for example font, style, sensitivity, Lack of training for content gatherers, need for full buy in from middle management for example, directors accountability for posted content, and lastly, lack of common understanding among change agents and project team members. Figure 5.4 presents the e-government webpage.

Figure 5.4: Botswana Government Portal (Webpage)



(Source: Botswana Government)

Speech by Minister of Communications, Science and Technology (MCST), government made an appeal to all stakeholders to come up with strategies, initiatives and processes that could ensure a better future for citizens through safe access to online resources. A concern was also expressed on disparities between people in urban and rural areas in the provision of ICT services and further appeal was made to policy makers, regulators, operators and related industries to encourage the adaptation of policies and strategies to help promote ICT in rural areas.

Survey conducted with members of the public, The investigations carried out by the researcher amongst members of the public in Botswana (southern part), notably in Gaborone, Molepolole, Mochudi and three sub villages revealed that; (a) Most people especially in villages did not have access to internet and other ICTs save for mobile phones, also majority of citizens were not aware of the e-government project, (b) People in Gaborone (city) generally had better ICT and internet with limited access due to lack of resources, those aware mostly had secondary and tertiary education and use ICT mostly at work place where such access is provided for employment purposes, (c) The three sub villages in south of Botswana did not have any internet facilities let alone privately run and only a few privately run internet cafes' existed in urban villages of Molepolole and Mochudi and the broadband speed was cited as a challenge together with the access costs, (d) Most consulted had not tried accessing e-government portal (website) and where not quite aware about the project and could not tell if e-government is any benefit to them, (e) The investigations further revealed lack of adequate user engagement and somewhat lack of trust and confidence in e-government project and broader government initiative, (f) Lack of ICT and internet skills were identified more in non urban areas.

(g) The main findings from public inquiry were that, e-government project appeared threatened by resistance owing to lack of user engagement, marketing and awareness campaign, lack of access, resources, skills and project somewhat considered not citizen centric.

Botswana dropping in ratings, The United Nations E-government Survey (2008), Botswana experienced a major drop from 90th position in 2005 to 119th in 2008. This was amongst others due to lower score in the web measure index in stage 2 and 3 of survey. Also in March 2010 study by Connectivity Scorecard Resources and Efficiency driven Economies, Botswana declined one place to finish 11th in the group of 25 resource and efficiency driven economies in the connectivity scorecard , however , lack of sufficient data was also an impediment. The scorecard considered; infrastructure and usage, and skills at consumer, business and government levels. The report highlighted the need for Botswana to invest in building a strong Information and Communication Technology (ICT) infrastructure to bring its performance level at par with leading nations in its group.

Other sources, complementing the above investigation included a snapshot study (Bwalya, 2010) conducted in the city of Francistown, northern Botswana and a couple of neighbouring villages within 30km radius and snapshot study outcomes were; (1) the majority of the ordinary individuals did not appreciate the value of e-government applications in as far as public service delivery is concerned, (2) few of the individuals had exploited public services offered mainly through the e-government web portal, and, (3) there was inadequate e-government awareness campaigns in Botswana.

Based on the above situational analysis there is evidence of emerging challenges and barriers facing the e-government project in Botswana and these challenges are outlined in the next section.

5.5.4 Botswana E-government Project's Initial Challenges and Barriers.

The Botswana e-government project's initial barriers and challenges have been identified and are presented and discussed in table 5.2 below.

Table 5.2: Initial E-government Project Challenges and Barriers in Botswana

Barrier and challenges	Indicators from based on the Situational Analysis
Design Reality Gap {where the e-government project was at the time} and	Unrealistic and non rational based targeting and most targets were not achieved at the time of conduct preliminary study in 2009 and 2010, for example: • It was targeted that the non mining would be 80% of GDP by 2009, the study revealed that there were no corresponding strategic initiatives and implementation plans including monitoring proffered to support the attainment of this ambitious target (as at 2009 and 2010)

{where it is intended to get Botswana to by 2010 and 2016}	• Development of policy and legislation dealing with electronic signature were target to be in place by end of 2005 and mid 2006. As at 2010 August and this had not been achieved together with other pieces of legislation to support e-government transactions. • It was targeted for all residents to have appropriate access to health information online; all appropriate health facilities connected and provide services remotely by December 31, 2010 and this was far from being achieved. • E-government journey in phases presented above section 5.5.3 (figure 5.3) reflect a serious reality gap challenge, the ICT status and implementation of the National ICT policy do not support the fulfilment the ambition targets within the give time frame.
Legislative and Regulatory	Lack of necessary legislation e.g. • Data protection, electronic commerce, privacy, electronic signatures and freedom of information targeted enactment dates were 2005 and 2006. • Lack of these laws raises fundamental issues of public trust in government activities including e-government services and has an impact on the public administration transparency, of which Freedom of Information Act is paramount. The targeted deadlines for e-government laws had passed and the memorandum were not even ready for presentation to either cabinet or parliament as at 2009 and 2010.
Inadequate high political leadership involvement	(As at 2009 and 2010) Botswana Internal reports, 2009 • There were concerns of the project not being embraced at the highest political level • And also that the project not being fully driven from office of the president
Digital Divide and e-illiteracy {rural and urban digital gap}	(As at 2009 and 2010) • Disparities between people in urban and rural areas in the provision of ICT services. • Low PC, internet and broadband penetration and biased towards urban areas. • Lack of access to ICTs and e-government, especially by citizens in rural areas. • Lack of strategies to bridge the gap (bridge the literacy gaps)
Organisational and Managerial	• Lack of effective governance structure { (i) Lack of common understanding among change agents and interim project team members, (ii) lack of implementation capacity, (iii) Inadequate project

This covered: Implementation capacity. Project management and technical skills. Partnership and collaboration with private sector. Education and Marketing. Change management	management and technical skills, (iv) lack of coordination and full ownership of the project} implementation team not assembled, only interim team existed at the time (2009 and 2010) • Inadequate Change Management strategies {(i) inadequate or lack of plans or strategies to manage resistance from public sector employees and citizens, (ii) Lack of project buy-in public sector middle management, (iii) lack of user involvement (iv) lack of training for information gatherers and under utilization of Public Relations Officers} no change management pursued at the time (2009 and 2010) and citizen involvement and engagement was non existent. • Inadequate Education and Marketing strategies { no ongoing e-government awareness campaign} • Lack of partnership and collaborative alliance with the private sector, voluntary initiatives were carried out by private sector (e.g. Sesigo project, Melinda Bill Gates project) with no formal engagement and targeted public private partnership model in place at the time (2009 and 2010) • Notwithstanding the ambitious targets, the E-government Strategy was not in place (2009 and 2010)
Funding	• Lack of public / private partnership • Unrealistic and non rational based targeting influenced the financing plan of the project. • Inability to implement project initiatives at the set timelines would lead to more funding required. • The budgeted 950 Million pula (approximately GBP 95 Million) over 5 years may not be sufficient given that e-commerce and e-business is not well developed and no other sources, than from government. And it was not clearly visible how the funds were going to be raised • Lack of high political leadership involvement may hamper the project financially, given that government is the only resource provider.
Access, Connectivity and Network Readiness	• Broad band penetration challenges • Low PC and internet user penetration • Lack of e-human capital ----- -vast majority of the population not e-ware and e-ready. • Inadequate supportive strategies, plans and enabling laws such as; Data protection and related e-commerce laws. • Low e-commerce and e-business climate

(Source: Author Developed Based on Preliminary Research)

5.5.5 **Need for Further Research and Research Hypotheses**

The above preliminary research (sub sections 5.5.2; 5.5.3 and 5.5.4) highlighted serious strategy framework and citizens' involvement pitfalls that threatened the successful implementation and adoption of the e-government project in Botswana. This propelled the need for a further extensive research to be conducted on a broader population spectrum including extended variables to reveal broader e-government strategy framework and citizens involvement and adoption issues as captured in chapter one (research objectives).

A two fold approach has been used to address the research objectives through;

(a) Applied implementation experiences of developed and developing nations to determine strategy factors that could effectively guide e-government strategy framework in Botswana, and;

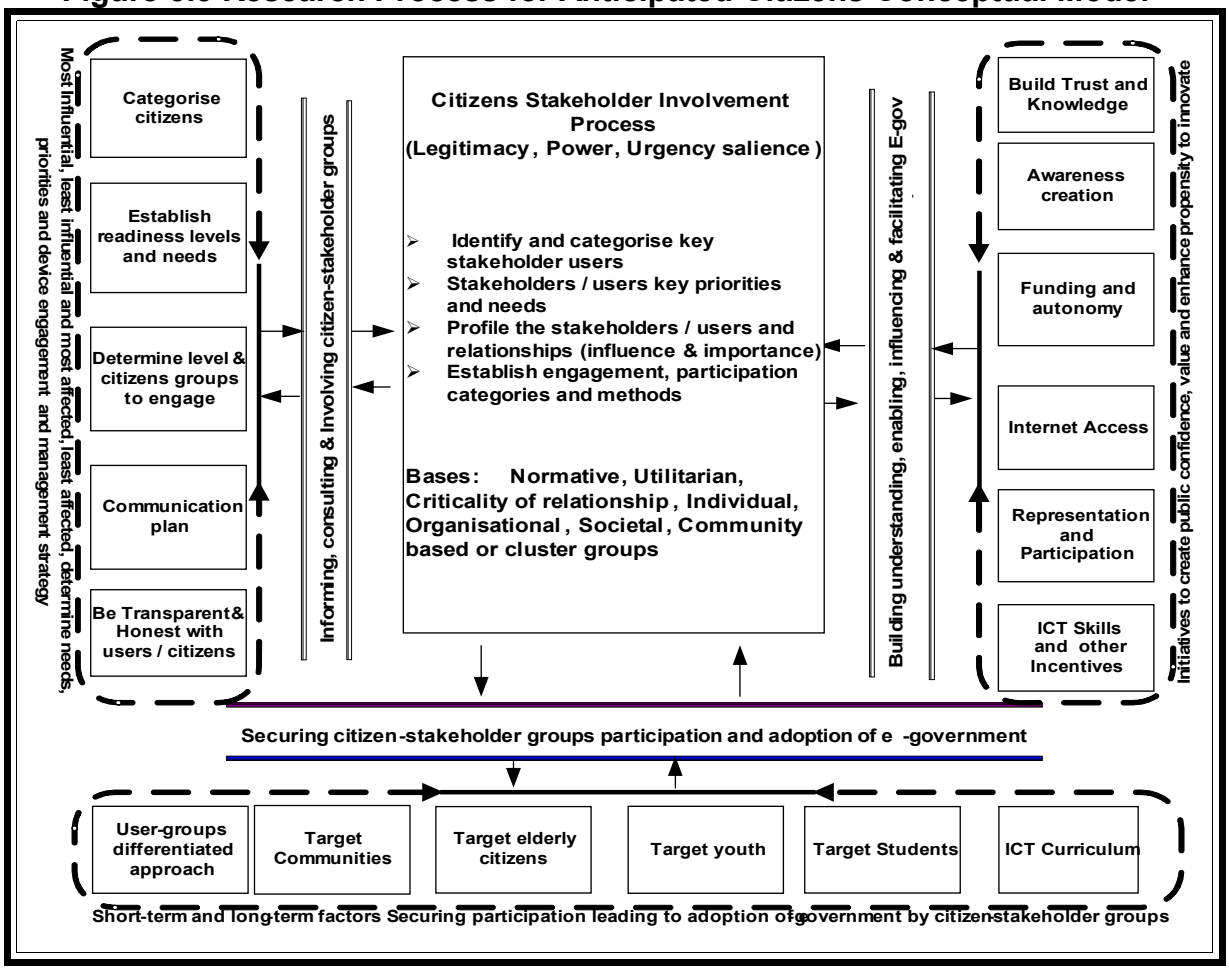
(b) Develop and propose conceptual citizens' stakeholders' engagement and involvement model for Botswana that can facilitate citizens' e-government adoption and apply elements of model to validate the e-government strategy critical factors identified and discussed in chapter four (section 4.2).

In chapter four (section 4.4) a detailed discussions of the stakeholder theory research model process guide and citizens- stakeholder involvement process guide (figure 4.5) for this research have been presented. In pursuing the extensive study, the research model process guide (figure 4.5) in chapter four is expanded in the next section to reflect citizens' involvement factors that are closely investigated and further to give a view of the expanded anticipated conceptual model.

5.5.6 Expanded Research Model for Anticipated Conceptual Framework

In the context of Botswana as outlined in chapter one (section 1.5) and chapter four (table 4.4), the e-government citizens stakeholder categories are largely; (a) youth, students, elderly citizens and these comprises of, communities, administrators, politician, employees, unemployed, self employed, influential groups and general citizenry; (b) there are many population community groups located and scattered across the country and they have different cultures, traditions, way of communication, own mentors, opinion holders, champions, tribal leaders and representatives. In order achieve the research objectives, based on these stakeholder categories in Botswana, aligned to the stakeholder theory and research model process guide in chapter four, figure 5.5 below presents an extended view of the anticipated citizens involvement and adoption model for Botswana

Figure 5.5 Research Process for Anticipated Citizens Conceptual Model



The anticipated model is intended to help policy makers and e-government implementers; (a) to appreciate the citizens' knowledge level of e-government and those groups likely to oppose and resist the e-government due to lack of understanding. Hence become aware of whether citizens will adopt or not; (b) help implementers to know citizens' vested interests in the e-government projects and that will afford implementers the opportunity to take necessary corrective actions; (c) provide government with a platform for possible alliances and partnerships with some citizens' groups to influence firstly the policy, then acceptance and adoption of e-government; (d) provide implementers with a realistic idea of the level of both human and monetary resources needed to mobilise citizens stakeholder groups to embrace e-government and finally adopt; and (e) also the implementers get an opportunity to identify and know if citizens groups have leadership that can help to better implement e-government and ensure adoption and continual use.

Citizens play a multifaceted users' role in e-government (Goldkuhl, 2008). They are direct and indirect users of e-government, customers and clients of the public administration (Ho, 2002; King, 2007; Denhardt and Denhardt, 2000), voters, and influencers (Alford, 2002; Olsen, 2005). Undoubtedly, largely heterogeneous users and major stakeholder in the e-government literature, e-democracy and e-

participation (Flak et al, 2007; Rose and Saebø, 2011), hence their engagement in e-government is a central part of the process of managing and organizing e-government projects. It must be acknowledged that e-government project initiative is different, has different stakeholders with different roles and such stakeholders have different interests and seek different benefits (Rowley, 2011). Some citizen groups have low ICT and information literacy, do not know what information is available, where and how to find it and use it (Sein, 2011). This position (variety of stakeholders) makes the public sector even more complex (Boyne, 2002; Hood, 1991). Therefore the extended research was conducted to proffer a fully tested conceptual model for citizens' engagement and adoption of e-government.

Subsequent to review and analysis of e-government implementation experiences in other countries (chapter three) and preliminary research conducted in Botswana. The following research hypotheses were formulated and empirically investigated to approve or otherwise the anticipated framework (figure 5.5);

Research Hypotheses (H1:H16)

H1: Citizens e-government readiness and awareness drivers

Country wide citizens' internet access where computer labs are provided in schools, ICT subsidies provided in the district (villages) areas with citizens and influential citizens' stakeholders being involved and participating in e-government change structures will positively influence citizens' e-government readiness and awareness levels.

H2: Citizens trust, knowledge and awareness influences

Categorising citizens' stakeholders and establishing communication processes through citizens' representation in change teams complemented by ICT skills enhancement initiatives like internet access and subsidies for rural areas will positively influence citizens' trust, knowledge and awareness in e-government.

H3: Countrywide citizens' internet access

Priority funding of e-government and autonomy of the e-government project team to embark on ICT, internet and related connectivity initiatives will positively influence countrywide internet access for citizens.

H4: Government openness and transparency in dealing with citizens

Government openness and transparency in involving citizens in e-government initiatives will culminate in targeted rural communities ICT programmes and ICT curriculum in schools and wider communication channels to achieve wider readiness and awareness amongst citizens

H5: Influential citizens' stakeholders' participation

Participation of influential citizens' stakeholders in e-government will motivate citizens focused communication channels and rural communities targeted ICT- internet initiatives with positive impact on readiness levels, knowledge and citizens trust.

H6: ICT-Internet subsidisation for citizens

ICT curriculum in schools, citizens countrywide internet access and established communication channels to build awareness and share information widely on e-government as well as effective use and engagement of influential stakeholders complimented by e-government project priority funding and project's team autonomy to initiate citizens focused programmes will positively influence initiatives for ICT and internet subsidisation for citizens outside the towns and cities.

H7: ICT curriculum (from primary to tertiary)

Provision of computer labs and internet in schools, subsidisation of rural communities supported by media channels and government openness to citizens regarding e-government will have a positive impact on the ICT curriculum from primary to tertiary levels.

H8: Established communication channels

Citizens' stakeholder groups' participation in e-government including rural communities, government transparency and provision of computer labs internet in schools as well as ICT curriculum will positively impact on the establishment of citizens media communication networks.

H9: Citizens' stakeholders' categorisation

Citizens' stakeholders' categorisation will culminate in the provision of citizens' targeted incentives to acquire ICT-internet gadgets which will enhance citizens' knowledge and e-government trust.

H10: citizens' stakeholders' representation in e-government

The representation of citizens' stakeholders in e-government initiatives will facilitate e-government communication channels, access and ICT skills in schools and communities resulting in positive impact of trust, knowledge, awareness and readiness on e-government.

H11: E-government project team autonomy and priority funding.

Project implementation team autonomy facilitated by priority funding to embark on e-government initiatives will culminate in citizens' trust in government and will facilitate countrywide internet access and subsidisation of rural communities.

H12: ICT Curriculum and computer labs in schools

Introduction of ICT curriculum from primary to tertiary education will positively influence provision of computer labs in schools and student access to internet.

H13: Citizens user involvement and differentiation

Youth targeted initiatives, training of communities and provision of community websites, catering for elderly citizens' priorities and initiatives to enhance low ICT skills, introduction of e-government and ICT syllabus content to cater for students will facilitate citizens users differentiated e-government involvement and provision.

H14: Youth targeted Initiatives

Botswana population is predominantly youth and inclusion of e-government and ICT syllabus will address low ICT skills and enhance employment creation both in the short and long run and will impact positively on youth targeted initiatives.

H15: Universal funding of community websites

Funding of communities and use of youth to training of communities and inclusion of elderly citizens priorities in e-government programmes will positively influence funding of community websites

H16: Citizens' users' e-government awareness

Initiatives enhancing ICT skills and targeting employment creation for citizens through e-government programmes will positively influence citizens' users' awareness of e-government.

Pursuing extensive research also involved further data collection and analysis of questionnaire surveys, interviews, observations and document artefacts data to validate key influential elements for e-government implementation and adoption, which have been identified and discussed in chapter three and chapter four (see figure 4.1).The goal was to support the proposal for an e-government strategy framework for Botswana alongside with the citizens' conceptual adoption model (figure 5.5). The data gathering approaches followed the triangulated data collection methods (section 5.6) to test the above hypotheses.

5.6 Triangulated Data Collection Methods

Data collection methods refer to the techniques or instruments used to collect data (Powell, 1997). While Triangulation refers to the use of more than one approach to investigate the research problem or question in order to enhance confidence in the ensuing findings where a researcher seeks to check validity of the findings by cross-checking them with another method (Webb et al, 1966; Denzin, 1978; Smith, 1986).

Triangulation can have other meanings and uses (Jick, 1979) and has come to assume a variety of meanings associated with combined use of two or more research methods within a strategy (Bryman, 2004), thus defining it as the use of multimethod research employing both qualitative and quantitative research method to provide a complete set of findings that could not be arrive at through the use of a single method alone (Hendry, 1995; Bryman, 2004). In this research triangulation approach applied is based on later assumption (Hendry, 1995; Bryman, 2004; Hughes et al, 1997) where mixing of methods (for example interviews and survey data) is a more profound form of triangulation often used to give diverse viewpoints on the topic being studied (Olsen, 2004). This type of triangulation is very similar to the mixed method approaches used in social science research, where the results from one method are used to enhance, augment and clarify the results of another.

However, the application of triangulated data collection methods herein extends to include observation and documentation sources of data collection and combined both quantitative and qualitative analysis of the data.

5.6.1 Types of Triangulation Utilized

Whilst there are various types of triangulation not all are applied, only methodological triangulation, data triangulation, environmental triangulation and analysis triangulation have been applied in this research. Utilization of these types triangulation aims to reveal complementarities among the data and findings (Erzerberger and Prein, 1997). The complementarities to a degree offer completeness where the researcher gains in-depth understanding of the phenomenon being investigated through use of multiple approaches (Shih, 1998).

Methodological Triangulation is the use of more than one method for gathering and analysis of data in studying the same phenomenon (Thurmond, 2001). The approach used in this study is the 'between-method triangulation' or across-method triangulation which involves combined utilization of both qualitative and quantitative methods in studying a single phenomenon (Denzin, 1978). Here quantitatively structured sets of questionnaires and qualitative interview have been used to gather data, also complemented by observation and documentation sources to understand the e-government strategy and adoption factors in Botswana.

Data Triangulation Data triangulation involves the use of different sources of data/information, where stakeholder groups' categorization strategy is employed to categorize each group or type of stakeholder for evaluation (Denzin, 1978; Guion, 2002) Data triangulation is in threefold, namely; time, space and person. It is acknowledged that data vary based on time collected, people involved and the setting from which the data has been sourced (Begley, 1996). Guided by the characteristics of the Botswana population clusters, administration structures and objectives of this study, a wide variety of data collection sources were used.

The targeted respondents were clustered into (a) key e-government decision makers, (b) key influential stakeholders with significant opinion holding and representative capacity, (c) general citizenry or ordinary citizens and (d) community users in the existing CACs. These groups were targeted for data collection through two different questionnaire sets and semi structured interview and also other complimentary sources of observation at CACs and documentary sources.

Environmental Triangulation This type of triangulation involves the use of different locations, settings and other key factors related to the environment in which the study took place, such as time of the day, day of the week or season of the year. The key is identifying which environmental factor, if any, may influence the information you received during the study (Guion, 2002; Guion et al, 2011). However, the significant factor used in this study relating to the environment was only limited to location and setting, were data was collected across multiple and variable population clustered locations and sectors of the economy in Botswana (refer to section 5.6.2).

Analysis (data analysis) Triangulation is the use of two or more approaches to the analysis of the same set of data for validation purposes (Kimchi, et al, 1991). However, the data analysis triangulation herein used is based on (Hussein, 2009) described as the use of more than two methods of data analysis in qualitative and quantitative paradigms within the same study for both validation and completeness purposes. The qualitative analysis of interview data was used to complement the quantitative analysis of data from questionnaire surveys and further augmented by elements of documentation and observation data for completeness of the findings.

The various types of triangulation (methodological, data, environmental and analysis) used in this study are noticeable in the discussions from sections 5.6.2 to 5.6.5 and also in chapter seven (section 7.2) where the analysis triangulation is clearly evident. Triangulation especially data and methodological triangulation strengthens the validity and credibility of the findings and provide a complete and comprehensive understanding by generating new insights into the studied phenomenon. Thus, considered as a major strength of the case study data collection with respect to validity of data being collected, (Hart, 1998; Yin, 1994; Creswell and Clark, 2007; Gillham, 2000). Infact, the idea of using a combination of methods of data collection goes back to the early years of social research in America and Europe (Creswell, 2007; Blaxter, 2003), where a variety of methods were used in the pioneering study that commenced in London in 1886, by Charles Booth and his associates (The life and labour of the people of London, published in seventeen volumes between 1891 and 1903. Others followed like Beatrice Webb, 1948; 210-12, thereafter interviews, participant observation and statistical data from secondary sources were used, followed by Lynd and Lynd, 1937; 1956) and Yankee City (Warner and Lunt, 1941).

It is admitted that the use of triangulation approach may be time consuming, however, it is highly credited for the increase in the confidence in research data, which allows creation of innovative ways of understanding a phenomenon, revealing

unique findings, challenges or interoperating theories, and providing a clearer understanding of the problems (Thurmond, 2001). However in collecting data through the use of triangulation, the whole population could not be surveyed and a sample selection process had to be adopted.

5.6.2 Adopted Sampling Selection

A sample is a unit that provides a practical and efficient means to collect data since it serves as a model of the population under study (Saunders *et al,* 2007) therefore sampling provides a valid alternative to a whole population because surveying an entire population was not feasible and practical for this study. However, the decision about a sample size is not simple and straight forward, it depends on a number of factors and there is no one definitive answer to that, (Bryman, 2008; Blaikie, 2009).

For instance (OECD/ Dumais, 2008) suggests that when preparing any large scale survey, it is desirable to do a feasibility study, as this will help to establish what survey step works well and what steps need improvement. Align to OECD is (Maxwell, 2008) view that sampling should be guided by the rest of the research design and should not be made in isolation and that the feasible sampling decisions often require considerable knowledge of the setting studied and decision should be based on what works best. The key emphasis is that the researcher must make decisions as to which variables should be incorporated in the sample and establish the level as a basis for sample size (Bartlett II, et al, 2001). The main characteristics of a high quality sampling frame must be based on; relevance, accuracy, timeliness and cost aspect (Statistics Canada, 2003).

On the other hand (Doherty, 1994; Penti, 2007) emphasize the aspect of location targeting, arguing that in some instances, geographical areas might first be selected, then dwellings within these areas, finally, people might be selected inside the dwellings. This subscribes to earlier position by (Watters and Biernacki, 1989) who posited that location sampling is the best known form of targeted sampling suitable when the target population is geographically concentrated. Here, the researcher ethnographically mapping the target population and conduct the study at the site identified.

E-government is targeted for adoption by all citizens groups irrespective of their significance, given the key facts already mentioned about the uniqueness of the Botswana case study (section 1.5). It became crucial to “achieve a balanced and representative sample comprising of most inclusion of the various clusters of the population.’’ In this view location sampling based on higher population numbers was used and subsequent steps recommended (Doherty 1994; Penti, 2007; Waters and Biernacki, 1989) were followed to achieve the attained sample. The local

government district administration structures and town council structures were used largely to reach citizens stakeholders at various locations of Botswana. Targeted sectorisation in the cities and towns was performed to ensure that most sectors of the economy are covered to achieve a realistic representative sample. Hence, a sample of citizens' participants in the cities and towns were drawn from the following sectors; (a) Manufacturing and Processing, (b) Banking and Financial Services Institutions (c) Health and Medical sector, (d) Security and Armed Forces, (e) Universities, Tertiary / Vocational Institutions, Primary and Secondary Education, (f) Telecommunications Sector (g) Other commerce and service sectors.

The population profiles showed significantly high population numbers concentration around the following major capital areas which also have surrounding sub areas; Gaborone, Francistown, Molepolole, Mogoditshane, Maun, Selebi-Phikwe, Serowe, Kanye, Mahalapye, Mochudi, Bobonong, Orapa, Tutume, Masunga, Boteti and Ramotswa (Table 5.3).

Table 5.3: Botswana Population by Administrative Units

Name	Capital	Area (sq.km.)	1991	2001	2011
Gaborone Township	Gaborone	169	133,468	186,007	227,333
Francistown Township	Francistown	79	65,244	83,023	100,079
Lobatse Township	Lobatse	42	26,052	29,689	29,032
Selebi-Phikwe Township	Selebi Phikwe	50	39,772	49,849	49,724
Orapa Township	Orapa	17	8,827	9,151	9,544
Jwaneng Township	Jwaneng	100	11,188	15,179	18,063
Sowa Township	Sowa	159	2,228	2,879	3,599
Southern District	Kanye	28,470	128,989	113,704	129,462
Barolong District			18,400	47,477	55,103
Ngwaketse-West District				10,471	13,697
South East District	Ramotswa	1,780	43,584	60,623	92,843
Kweneng-South District	Molepolole	31,100	170,437	189,773	256,833
Kweneng-West District				40,562	47,841
Kgatleng District	Mochudi	7,960	57,770	73,507	92,247
Central Serowe/Palapye District	Serowe	31,381	128,471	153,035	188,174
Central Mahalapye District	Mahalapye	16,507	95,433	109,811	117,492
Central Bobonong District	Bobonong	14,242	53,558	66,964	70,806
Central-Boteti District	Boteti	33,806	35,459	48,057	56,209
Central-Tutume District	Tutume	46,140	100,049	123,514	144,895
North East District	Masunga	5,120	43,354	49,399	59,829
Ngamiland-East District	Maun	86,400	57,811	75,070	96,356
Ngamiland-West District		22,730	36,723	49,642	61,748
Chobe District	Kasane	20,800	14,126	18,258	23,449
Ghanzi District	Ghanzi	117,910	24,719	33,170	43,370
Kgalagadi-South District	Tshabong	32,800	19,794	25,938	30,016

Kgalagadi-North District		72,400	11,340	16,111	20,484
Total		**581,730**	**1,326,796**	**1,680,863**	**2,038,228**

(Source: Botswana Central Statistics Office (CSO), 2011)

The final sample of representative participants was drawn from 18 locations comprising of; (a) Gaborone and Francistown (cities); (b) Lobatse (town); (c) Serowe, Palapye, Mahalapye, Maun, Molepolole, Ramotswa, Kanye, Mochudi, Mahalapye and Mogoditshane (urban villages); (d) Artesia, Mmathubudukwane, Mabalane, Sikwane and Mmanoko (sub and small villages). The areas selected are cover North West, North East, South West, South East and Central and Eastern areas of Botswana, giving a fairly representative location sample which give a generalizable view point of data collected (see also table 5.3) above for location specifics.

Post sample selection the data collection process was started and data gathering sources used covered; questionnaire surveys; direct observation; interviews; and documents artefacts including archival records and published literature on e-government (Yin, 2003; Benbasat, 1987)**.**

5.6.3 Questionnaires Surveys

The questionnaire surveys consisting of closed-ended and likert scale type (five point scale) questions and statements (Bryman, 2008; Sonnenwald et al, 2001) were used to establish the key issues that affect citizens' successful adoption of e-government. The questionnaire surveys were considered as the most popular instrument for collecting empirical data, (Vos et al, 2007; Daun et al, 2002; Miles and Huberman, 1994; Saunders et al, 2002; Vehovar and Lesjak, 2007; MaCgregor, 2004; Teo and Ranganathan, 2004; Pokharel, 2005; Ramsden and Bennet, 2005).

5.6.3.1 **Process of Defining Measured Factors and Questionnaires Design**

Defining Measured Factors (MF1, MF2, MF3): The process of defining measured factors set out in table 5.4 below was firstly guided by the outcome of the initial case study (see sections 5.5.2 and 5.5.3), secondly Botswana stakeholders' population characteristics and structures (section 1.5) and thirdly, in alignment to the stakeholder theory as the fundamental theory underpinning this study. The research needed to identify and determine citizens involvement and participation factors of; (a) How citizen-stakeholders can be informed, consulted and involved in e-government design and implementation in Botswana; (b) What are the factors that enable, influence, build understanding and facilitate citizen-groups adoption of e-government; and (c) How could citizen-stakeholder groups' participation, adoption and continuous use of e-government services be secured.

The stakeholder based involvement and participation process framework discussed in chapter four (see also section 4.3.5 and related subsections) focuses on characterisation of stakeholders, determining stakeholders' needs and priorities,

profiling stakeholders' relationships to determine level of influence and establish engagement methods (figure 4.5). Therefore the elements of the process of defining measured factors involved;

(a) Informing, consulting and involving citizens stakeholder groups as involving;

Identifying and recruiting stakeholders is a necessary process (Clarkson, 1995) and the process must recognise different section of society, that is, the least influential, whom to only inform and to partner with (Fishkin, 1995) in order to appropriately identify their interest and priorities (Donaldson and Preston, 1995). Then through various multiple facets (communication channels) the engagement process must begin (Kessler, 2004, Beierle and Crayford, 2002) to start honest discussions with citizens and to provide appropriate education, where necessary for active participation (Mallery et al, 2012).

This provided the basis for defining the measured factors (MF1) of; (i) Categorisation of stakeholders; (ii) Citizen-stakeholders readiness for e-government; (iii) Established citizens focused communication channels; (iv) Participation of influential stakeholders; and (v) Openness and transparency.

(b) Building understanding, enabling and facilitating e-government as involving;

Change is a process and ordinarily people fear change (Burns, 1996) and resistance to change is highlighted as amongst major e-government barriers (Willis, 2012), hence building understanding becomes a critical change process (Weick and Quinn, 1999). In a democratic set up citizens have a legitimate right to be equipped with knowledge and enabled to participate in the governance process (Kessler, 2004; Magnette, 2003) and this can enhance both trust and awareness levels. Citizens as large heterogeneous groups have community mentors, opinion leaders, agents and champions (Rogers, 1995) that they can trust to well represent them, hence citizens; stakeholders must be represented in e-government initiatives, for example, change teams. Awareness is critical for a change process (Menhravani et al, 20011) and the citizens' mentors and network of relationships provide a platform that can be specifically targeted for e-government awareness creation initiatives. There is advocacy for inclusion for all stakeholders in accessing government online (Caldow, 1999; UN, 2005), therefore e-government implementers have to be empowered and funded to initiate and facilitate these endeavours (Abu Ali, 2010) here internet, ICT infrastructure, connectivity, access and interoperable systems are needed to reach the underserved rural communities (UN, 2005; Reffat, 2006). There is evidence in chapter three that enabling citizens groups to gain understanding and focusing on skills capacity development and other initiatives facilitated e-government change process and led to better outcomes in the Singapore, South Korea and Canada experiences.

This also provided a basis for defining measured factors (MF2) of; (i) Trust, knowledge and awareness; (ii) Project Team autonomy and e-government priority

funding; (iii) Countrywide citizens internet access; (iv) Citizen-stakeholders' participation and representation; (v) Awareness creation initiatives; (vi) Initiatives to address low ICT skills and offer employment incentives through e-government.

(c) Securing citizen stakeholder groups participation, adoption and continual use of e-government as involving;

The e-government stakeholders' salience characterisation should be related to roles, priorities, needs and relationships (Scholl, 2004; Mitchell et al, 1997; Kamal et al, 2011). Informed by the Botswana population parameters and Section 4.3.4, the stakeholder theory characterisation approach was used to determine e-government citizens' stakeholders in Botswana (see table 4.4). E-government adoption is an ongoing process (Bush et al, 2009) that requires both short term and long term initiatives to consult, engage, motivate and support citizens to learn about e-government appreciate it, try it and continue to use it and develop to a level were they can in future co-create services like in case of Singapore. Therefore characterisation is needful to offer differentiated involvement to ensure citizens' groups with differing needs are appropriated catered for.

As in the above, this provided a basis for defining measured factors (MF3) of; (i) Citizen-user groups' involvement and differentiation; (ii) Universal funding of community initiatives; (iii) Elderly people priorities; (iv) Youth targeted initiatives e-government initiatives and training of communities; (v) ICT-internet subsidies for citizens in the villages; (vi) Student-computer labs and internet access in schools (including primary schools and non government schools); and (vii) ICT curriculum and e-government syllabus content at all levels education.

Questionnaire design: Subsequent to determining the measured factors the questionnaires were designed to test the same factors. It worth noting that e-government initiatives have not long started and may not be fully comprehended by all stakeholders, thus the use of a likert scale type (five point scale) questionnaires and all the factors weighed the same and had proportionately more or less variable points. In addition the e-government key influential success factors identified in chapter three and set out in chapter four to a degree influenced the actual questions asked (see both questionnaire sets in appendices 1 and 2).

The questionnaires broadly needed to; (a) investigate levels of citizens ICT and internet access in Botswana (b) e-government priority funding and the levels of autonomy of the e-government project implementation team, (c) issues relating to inclusion of ICT education in the curriculum and e-government syllabus content, (d) whether e-government initiatives have identified various citizens' cluster groups, determine their needs, consulted and engaged them, (e) whether citizens influential persons within private, government and village structures such as mentors, change agents, tribal leaders, representatives and opinion influences have been indentified and targeted to active participation and engagement in e-government, (f) utilisation of district local government structures, (g) e-government initiatives in place targeting

rural communities in the villages, (h) differentiations in strategies targeting youth, students and communities, (i) establish the citizens e-government awareness levels, (k) change management initiatives already undertaken and inclusion of citizens representations thereof, (l) appreciate citizens value for e-government and the access to operating initiatives, for example government website access, and (m) citizens' stakeholders attitudes in relation to (consultation, and involvement, value for transparency and openness).

A summary of measured factors with corresponding indicators to questions asked are presented in table 5.4 below, for actual questions asked see appendix 1 and 2 respectively.

Table 5.4 Factors Investigated through two sets of questionnaire to influential stakeholders and other citizens' groups

Measured Factors (MF)	**Targeted Stakeholder Group**	**Data Gathering Method**	**Empirical Questions Asked** (see appendices 1 and 2 for actual questions)
MF1 Informing, Consulting and Involving citizens			
a) Categorisation of stakeholders	C-1	OP-QS1	KK4, KK3, KK5, KK7, KK10
b) Citizen-stakeholders readiness for e-government	C-1	OP-QS1	FF1, BB1, BB3,CC8, GG1, GG4
c) Established citizens focused communication channels	C-1	OP-QS1	DD8, CC6, CC4, AA1
d) Participation of influential stakeholders	C-1	OP-QS1	II2, II3, II4, II6, II7, II10, II11
e) Openness and transparency	C-1	OP-QS1	EE2, EE3, EE7, EE11
MF2 Building understanding, enabling, influencing and facilitating adoption			
a) Trust, knowledge and awareness	C-1	OP-QS1	HH1, HH2, HH8, HH9
b) Project Team autonomy and e-government priority funding	C-1	OP-QS1	JJ14, JJ13
c) Countrywide citizens internet access	C-1	OP-QS1	FF3, FF2, AA5
d) Citizen-stakeholders' participation and representation	C-1	OP-QS1	CC1, BB5, CC3, JJ1, KK2
e) Awareness creation initiatives	C-2	CS-QS2	Q5, Q6, Q7
f) Initiatives to address low ICT skills and offer employment incentives through e-government.	C-2	CS-QS2	Q8, Q9, Q10
MF3 Securing citizen-stakeholder groups participation adoption and continuous use of e-government services			
a) Citizen-user groups involvement and differentiation	C-2	CS-QS2	Q14, Q15, Q26, Q27
b) Universal funding of community initiatives	C-2	CS-QS2	Q23, Q24, Q25,
c) Youth targeted initiatives through e-government and training of communities	C-2	CS-QS2	Q3, Q28, Q30
d) ICT-internet subsidies for citizens in the villages	C-1	OC-QS1	FF6, FF7, FF9, AA3
e) Student-computer labs and internet access in schools (including primary	C-1	OC-QS1	AA6, AA7

	schools and non government schools)			
f)	ICT curriculum and e-government syllabus content at all levels of education.	C-1	OC-QS1	DD4, DD2, DD1

C-1: Influential, employees, administrators and elected representative groups within and outside government

OP-QS1: Opinion holding respondents in questionnaire survey one

C-2 : Stakeholders (general citizenry)—youth, students, employees, local communities and elderly citizens

OC-QS2: Ordinary citizen respondents in questionnaire survey two

(Source: Author developed: Basis- Empirical Research Design)

A structured opinion leadership survey (OP-QS1) was conducted on the following persons and representatives within government and non government structures; welfare officers, education officers, central government employees, Police, customs, immigration, district councils staff, district land boards staff and members, health staff, church denominations, politicians across party lines, business community, industrial and trading, primary, secondary school teachers as well as senior secondary students, vocational, colleges, universities' staff and students, sporting bodies, tribal administration staff, including chiefs and headmen, village development committees (VDCs), village extension teams; district development committees, operators of information centres and reading rooms, village health workers, including home based care health service providers, various government ministries and departments, farmers groups, non governmental organisations (e,g. sports, youth, women); telecommunication and ICTs sectors. Individual citizens whose opinions are valued by societies and communities they live within, for examples; Intellectuals, professionals, retired civil servants, sports legends, retired politicians; former members of land board members and village development committees were also targeted and deemed significant to provide citizens' representation on e-government innovation by answering the research questionnaire survey one (appendix 1). The factors investigated are denoted as C1 and OP-QS1 in the table 5.4 above.

Both government and non government structures were used to identify the targeted participants, enabling the researcher to reach the target participants across wider demographies of Botswana. Mainly contact persons were established within the respective offices and questionnaires channelled through them. In some cases, questionnaires were emailed to the contact persons for distribution and also direct to the participants. Ordinary citizens with significant influence who may have retired or not falling within the contact persons established were identified through other representative sources, for examples, VDCs, councillors, landboard officers, tribal staff and welfare officers were used as pointers to such persons. Students were contacted through arranging with their school administration and universities and other tertiary institutions students' participants were located through established students' links, for example students' representative bodies, societies and clubs and other groupings. Although this was more exhausting, it was considered necessary to include most population groups' opinion representation in the sample. However, the

use of contact persons within the existing central and local government structures and other sectors compensated to ease the administrative hassles and minimised the non response risk, largely facilitated high responses rates of 954 responses for questionnaire survey OP-QS1.

Another questionnaire survey with ordinary citizens was later conducted (Appendix 2) to investigate issues denoted by C2 and OC-QS2. This was a relatively much shorter survey and similarly to Appendix 1 was a self completion questionnaire, consisted of closed-ended and likert scale type (five point scale) questions and statements for citizens to approve or disapprove (Bryman, 2008). However, the researcher was to a degree available to give clarity to citizens when required, as e-government in Botswana is still a relatively an unknown phenomenon amongst citizens. The survey was intended to validate, confirm, strengthen or even contradict the outcomes of the first survey, discoveries from documentary sources and interviews.

Although in some instances existing administrative structures were used to target participants, largely the targeting of general citizenry was random and was not widely distributed across geographies compared to the first survey, given the limited time and resources that were largely exhausted in the first survey. The focus was on areas covered during the initial preliminary research and a total of 673 questionnaire responses were obtained from general citizens.

5.6.4 Observations and Probing Discussions with Operators of Community Access Centres (CACs)

Observation is valuable data collection technique and complementary to interviews in a case study (Yin, 1994; Powell, 1997). As highlighted earlier observations were conducted on the already operating information centres operated by the village development committees (VDCs) and Botswana Post. Kgatleng District was chosen for conducting the observation endeavour for being a model of 2009 / 2010 excellent performance amongst all the district councils in Botswana and being the closest to Gaborone capital city. These observations and probing discussions with centre operators were conducted for a period of one week on the four (4) information centres run by VDCs and Post office, and six (6) private internet service providers (ISPs) in Kgatleng and Gaborone.

This aspect of study complimented and validated data obtained through questionnaire surveys and interviews by establishing the:-

- Utilization of the Community Access Centres (CACs) and private internet service providers (ISPs), that is, services citizens acquired and challenges encountered.
- The extent of any e-government services priorities that were influenced by activities of the communities.

- Probed the management structures, sustainability and generally the business models for CACs, which have the potentially significant impact on the citizens' awareness, adoption and continual use of e-government services.

5.6.5 Interviews with Key E-government Stakeholders

Interviews were conducted with the significant people directly and impactly responsible for the e-government project. Focused interviews use predominantly open structured approach to ask interviews questions about specific situations or events that are relevant to them and of interest to the researcher (Bryman, 2008; Fink, 1998; Lam, 2006). The use of interviews has been applied by various authors (Punch, 1998; Wellman and Kruger, 1999; Patton, 2002; Naoum, 1999; Saunders et al, 2000; Stake, 1995; Mouton, 2001; Collis and Hussey, 2003; Malhorta, 2004).

Focused interview technique is most appropriate where information base is broad and gives the interviewer unlimited freedom for further clarity and probing (Steward and Cash, 2006; Naoum, 1999; Lau, 2006; Robson 2002; Miller and Brewer, 2003; Saunders et al, 2003).

Citizen-groups adoption of e-government apart from consultation and stakeholder engagement is also largely facilitated by factors such as infrastructure, laws and policies, funding, information access and literacy, security and protection of privacy, organisational, managerial and technical factors. These factors are predominately driven by government stakeholder and policy implementers and are the foundation of the e-government strategy design. Therefore it was necessary to interview key government and associated partners' informants to establish the overall preparedness on these issues and further follow up on citizen stakeholder engagement issues raised through the questionnaire surveys. These issues were covered through the open interviewing structure that broadly sought to establish; (a) the main significant challenges facing the e-government implementation in Botswana; (b) establish main policy recommendations or strategic input to address the identified challenges; (c) whether such e-government implementation challenges are unique to Botswana; (d) establish with implementers, government and key stakeholders What have been the attitudes of Batswana (citizens) towards e-government since inception of the initiative? What has been done to bring them on board; and (e) establish the significant achievements made so far regarding the e-government implementation? The interview participants comprised of the following relevant e-government stakeholders;

- Project implementation team
- Ministry of Transport and Communication, which is responsible for e-government implementation

- Office of the president (public sector performance management) and e-government coordination office taking the overall oversight responsibility for all government performance and projects
- Botswana Telecommunication Corporation (BTC) which is a state owned corporation task with setting up the National ICT infrastructure and one of the official sits on e-government project meetings
- Botswana Telecommunication Authority (BTA) which is a regulatory body in the telecommunication industry
- Botswana Post, which is a semi-owned government entity currently housing the Kitsong infrastructure centres set up as part of the e-government initiative
- Kgatleng District Council chairperson, the Kgatleng Council was chosen as the best performing council 2009/2010 therefore was adopted as the local government model for purpose of this study, hence included amongst the interviewee participants

Follow up questions were asked during the interview and covered (a) e-government funding business model given that the country was operating at a budget deficit due to poor performance of diamonds as Botswana is largely mineral dependent. Major projects such as the Botswana International University of Science and Technology and other technical institutions had to be reviewed as candidates for down scaling due to limited funds; (b) political commitment to e-government and level of interest and engagement of political structure, for example, Members of Parliament (MPs) and Councillors some of whom during the questionnaire survey showed lack of awareness of e-government project; (c) the desk top view of the questionnaire survey with opinion leaders and other representative structures within government revealed change management issues mainly, lack of involvement government employees and citizens involvement showing general lack of e-government awareness.

The interviews with Botswana Post official probed the role of Botswana post in e-government implementation and investigated the business model of CACs run by Post Office comparative to the ones run by VDCs, also issues regarding pricing in comparison with ISPs were investigated which based on observation and discussions with CACs staff, where during data collection at CACs it was observed charges for internet in the villages were higher than ISPs. Save for CACs observations, the interviews were recorded and supplemented by note taking to minimise any occurrence that could hinder data collection through a single use of either note taking or recording (Saunders et al, 2003). The interviews lasted for 45-60 minutes per session.

5.6.6 Documentation and Artefacts

Documentation refers to the already existing secondary data in various forms. This is considered another rich source of empirical data sources which are both external and internal, it is maintained that answers to many problems lies within the organisational documents (Wilson, 2003; Chisnall, 1997). According to (Blaxter, 2003; Blaikie, 2009; Punch, 1998; Powell, 1997; Yin, 1994; Fink, 1998; Hart, 1998; Saunders et al, 2000) secondary data is useful because; (a) collecting primary data is difficult, time consuming and expensive, (b) research can never have enough data; (c) it makes sense to use them if the data needed for research already shed light on or complement the primary data that has been collected, (d) may confirm, modify or contradict the research findings, (e) allows researcher to focus his attention on analysis and interpretation, and, (f) research cannot be conducted in isolation from what had already been done. Documentation and artefact comprised of data sources from such as;

- Departmental correspondence, meetings minutes, internal updates on e-government, presentation reports (internal), news bulletins, public sector customer service reports, newspaper reports on e-government and related policies, speeches by government officials (ministers and other government officials), projects reports impacting on e-government, relevant stakeholders annual reports, statistics reports issued by government related to e-government.
- Botswana government website
- Botswana National ICT Policy of 2007 and Maitlamo National ICT Targets of 2004
- Botswana E-government Strategy, 2011
- Budget speeches, 2008/2009; 2009/2010; 2010/2011; 2011/2012, 2012/2013

The e-government documentations for Botswana were reviewed to (a) assess the government level of preparedness for e-government in terms of infrastructure, laws and policies, funding, information access and literacy, security and protection of privacy, organisational, managerial and technical factors. These factors are predominately driven by government stakeholder and policy implementers and are the foundation of the e-government strategy design; (b) assess documentation relating to stakeholder engagement and involvement, especially citizens (c) gain understanding of progress achieved and feasibility of timelines set for achievement of targeted National ICT policy milestones; and (d) also to assess the authority, and autonomy implementation of the e-government project team.

Another source of information used was the published literature on e-government which was extensively reviewed to guide this study as captured in chapter one, two

three and four of this research. A literature review is a systematic, explicit and reproducible method for identifying, evaluating and interpreting the existing body of recorded work produced by researchers, scholars and practioners (Fink 1998; Hughes et al 2003). The literature used served the following main functions in this research, namely;

- To give reasons why the topic is of sufficient importance for it to be researched (chapter one);
- To provider the reader with an overview up to date account and discussions on e-government applications the issues, benefits and challenges (chapter two);
- To provide factors or observation emanating from the analysis and review of e-government implementation experiences of developed and developing countries (chapter three)
- To provide a conceptual and theoretical context in which the topic for research can be situated (chapter four); and
- To provide a realistic guide on the research methodology processes, strategy, data collection, analysis techniques and approaches to enable this research achieve its objectives (chapters five and seven).
- To discuss the relevant research carried out on the same topic and related topics, (Stevens et al, 1993; Hart, 1998; Blaxter, 2003).

The literature review was important and without it this research would not have acquired an understanding of the e-government, the theories and concepts, the epistemology and ontology grounds for the e-government, what has already been done on it, how it has been researched, and what the key issues are.

5.7 Data Analysis

Data analysis is a process of examining, categorising and rearranging the collected data with the purpose of finding a solution to the research problem (Yin, 2003). The aim of this research is to propose a citizen centric e-government adoption model and the e-government strategy framework. Expounding on e-government implementation and adoption experiences of other countries (chapter three), in chapter four the research identified key influential elements that influences e-government implementation and citizens' adoption. The key influential elements as discussed in chapter four, are premised from the stand point that e-government cannot progress effectively to implementation stage without proper strategy and participation of both government and citizens stakeholders, hence, the influential elements unfold from the twofold domains of (a) e-government critical strategy success factors and (b) citizens involvement and participation in e-government design. This position

suggests that there is a relationship between e-government strategy factors and adoption by citizens. Data analysis is therefore useful to confirm the suggested correlation and validate the propose model.

On account of the mixed methods research approach adopted and multiplicity of sources of evidence used in data collection, the analysis of data employed both the use of quantitative (statistical analysis) and qualitative (non statistical) analysis (Tashakkori and Creswell, 2007) and the processes followed are discussed in the subsequent sub sections.

5.7.1 Statistical Analysis

The data collected through two sets of structured questionnaires rated participants' responses through the numerical likert-type scale for all variables measured. The data collected through both questionnaire sets was numerically captured into an excel spread sheet and transported into SPSS Statistics 20 for multiple standard regression analysis. The first test performed was to test for reliability correlation coefficient between sets of scores (Bruton et al, 2000; Weir, 2005). Subsequent to reliability testing, Data testing followed multivariate analysis procedures in order to perform multiple regression analysis this include testing for factors analysis, sampling adequacy, collinearity, linearity and normality diagnostics (Kaiser, 1970; Kachigan, 1991).

The statistical tools used to perform the multivariate tests (Schwarz, 2011; Starkweather, 2012; Schumacker, 2010) are: (a) factors analysis using the principal component analysis (PCA) for purposes of data reduction by seeking underlying unobservable (latent) variables that are reflected in the observed variables; (b) Kaiser Meyer Olkin (KMO) was used to measure the sampling adequacy of the population being studied, this indicates the degree to which the variable are related and is helpful to evaluate is the use of factor analysis is beneficial; (c) Kolmogorov-Smirnov and Shapiro-Wilk test of normality was used to test for normal distribution of data under examination and the testing of hypothesis. This sought to confirm the need for data transformation for removal of any skewness in the preliminary phase of data analysis; (d) linearity was used to check if there is linear relationships between the predictor and the outcome; (e) normality was used to detect the validity of the t-tests, meaning that errors should be normally distributed and the error variance should be constant (homoscedasticity); and (f) Bartlett's test of Sphericity was also used to test for the correlation matrix, if it is an identity matrix where all diagonal elements are one (1) and off diagonal elements are zero (0).

Post the performance of preliminary multivariate tests, multiple regression analysis was performed to predict the score on each hypothesized variable on the basis of scores on several other variables. The number of observation cases was enough in both questionnaire surveys data to run multiple regression since it requires large number of observations.

Multiple standard regression tests were used to; (a) explore linear relationships between the predictor variables and criterion (dependent) variable; (b) to measure how strongly each predictor variable influenced the dependent variable using beta values (standardised regression coefficients), this gives a measure of the contribution of each variable to the model; (c) the regression model summary provided the percentage of variance in the dependent variable explained by the collection of independent variables, it basically explains the percentage goodness of the model; and lastly, (d) ANOVA test was also performed on the hypotheses to assess the overall statistical significant of the model. For actual tests results refer to analysis of data and findings including the interpretations thereof in chapter seven.

5.7.2 Narrative Analysis

Analysis of qualitative data involves immersing oneself in the data to become familiar with it, looking for relationships various between data, patterns and themes that can enable the researcher understand data and write it up (Kawulich, 2004). Qualitative data gathered through semi structure interviews with eight (8) key e-government stakeholders, observation in selected operational e-government community access centre (CACs) and data obtained through perusal of documents relating to e-government (section 5.6) served to unearth new data that complemented and validated holistically the surveys empirical data collected .

The interview data was analysed through narrative analysis (Reisman, 1993). The narrative or text data come in many forms and from variety of sources such as few people, many people or single case study and may comprise of responses to open ended questions, transcript from interview, text from published report or field notes from observation (Taylor-Powell and Renner, 2003). The analysis herein followed a three step approach of (a) getting to know the data of which the interview were both captured through audio recording and note taking hence able to immerse more extensively on the data. Documents sources were perused through over and over to draw relationships and observe patterns and observation notes studied in details and related to other sources for validation; (b) focusing the analysis on key e-government and citizens adoption factors studied; and (c) categorising information into relevant themes as well as identify connection therein for interpretation.

5.7.3 Validity and reliability

According to (Creswell and Miller, 2000; Lincoln and Guba, 1985) validity and reliability can be achieved in different approaches such as but not limited to, pilot study, prolonged data gathering and use of multiple sources of gathered evidence. In this study validity and reliability were achieved through: (a) Initial case project study to establish both the feasibility of study and the key informants based on the bankable administrative structures of Botswana. This enabled the research to identify key appropriate informants who were targeted largely across wider geographic areas of Botswana including multiple clusters; (b) Triangulation process and consultation techniques used in gathering data improved the quality of study by

minimising inherent limitations, weaknesses and biases associated with the use of one approach. According to (Ngulubane et al, 2009), the use of multiple data collection sources and methods enables consistency of the outcome to the reality on the ground, resulting in enhanced validity and reliability of the results. Note taking and especially recording of interviews provided a permanent record that can be played over and over to capture the significant underlying statements made by the interviewees (Stuart and Cash, 2006); (c) Interviewees were selected on the basis of their official appointment in relation to their functional roles to e-government, hence deemed suitable to give bankable evidence; (d) Also responses were compared with some observation made from questionnaire responses and comparisons made to the interviewees' responses (Maxwell, 2009); (e) the questionnaires surveys covered a large sample, used well established structures to reach relevant respondents, categorised respondents with opinion influence (functional) from general citizenry and targeted them differently.(f) In addition the questionnaires instruments reliability was subjected to the Cronbach's Alpha test (Cortina, 1993; Andy, 2005).

5.7.4 Generalisability and Transferability

The multiple targeting of informants widely across country and across population of variable stakeholder segments and extended location sampling areas, utilisation of government and non government district administration structures that have been in place and used overtime, complemented by the diversity of evidence gathering sources, large sample size for surveys, geographic coverage of the sample, selection of information rich participants (key e-government stakeholders interviewed) and the validity rigour (section 5.7.3) all give confidence in the generalisability and transferability of results across population parameters (Patton, 2002; Lincoln and Guba, 1985, Robson, 2002)

5.8 Ethical Consideration

Ethical issues are present in any kind of research and ethical principles can be used to guide the research in addressing the initial and ongoing issues arising from research in order to meet the goals of study as well as to maintain the rights of the research participants (Orb et al, 2001). The ethical considerations require that issues of privacy, accuracy and confidentiality relating to participants should be treated with utmost care (Rogerson, 2007).

Prior to conducting the case study the research design application was prepared and submitted to the university for approval by the university Computing Ethics Committee (CREC) in June, 2011. In addition an approval was obtained from Botswana government to use the Botswana case study and the second approval was obtained to access both the records and personnel before commencing the field study in 2011 and the research was conducted according to the prescribed guidelines, including observing confidentiality to information observed and access during the conduct of research. The informants were informed of their rights to remain anonymous and to withdraw their participation whenever they so desired and

there was a statement in the questionnaire (appendix 1) advising them of such option and asserting their confidentiality.

5.9 **Limitations of Study**

E-government initiatives in Botswana are at the initial phase of development and may not have been well understood by research participants and general generalisation of results may be found limited. The limitations have been addressed through (a) detailed sample selection, multiple and structure question sets in both surveys were participants had to rate the extent their knowledge and awareness of variable investigated; (b) the multiple sources and multiple methods served to validate data and significantly minimised the limitations; (c) through utilisation of bankable local government administration structure and other avenues a larger sample of respondents was obtained and further data was gathered from multiple location across Botswana and this further minimised the limitations associated with generalisability; and lastly, (d) the preliminary research conducted enabled the research to minimise inherent pitfalls such as failing to target the right people and low response risk.

CHAPTER 6: THE REPUBLIC OF BOTSWANA: E-GOVERNMENT CASE SUDY

6.1 Introduction

Many developing countries recognise the power of ICTs and have started building and encouraging e-strategies and initiatives to address a wide range of economic, social, technological, infrastructural, legal and educational issues, (Ndou, 2004). Botswana is not left behind, the e-government initiatives started in 2004 with the Maitlamo Policy of 2004 culminating in the enactment of the National ICT Policy of 2007 and other e-government initiatives.

In examining and discussing the e-government developments in Botswana, the chapter looks at the Botswana ICTs sector, perusing connectivity development at both national and international levels. Most importantly the status of e-government in Botswana is also discussed, concluding with the critiqued overview of the status quo's inherent opportunities and challenges.

6.2 Information and Communication Technology (ICT) in Botswana

Botswana has a relatively young IT industry with about 200 registered IT companies. The scope of these companies cover: Training, database development, in-house software development, networking, hardware maintenance, website development, commerce service provision, multimedia as well as distribution of computers and their accessories. Given the government's intention to make Botswana the best location to do business in the Southern African region, it is quite apparent that the number of IT companies in Botswana is destined to increase significantly. The government of Botswana, through Botswana Telecommunication Corporation, has deployed a fully digital telecommunications network and infrastructure that span to all major cities (BEDIA, 2007).

On the hand Botswana is face with a number of challenges which include inter alia; declining rankings in global competitiveness, labour market and public sector inefficiencies, escalating unemployment and crime, declining quality of life and reduced trust in government (Botswana Country Presentation, 2009). These challenges compelled government to embark on e-government implementation. The decision was also propagated by 2002 Southern African Development Committee (SADC) Heads of State vision for Southern African Renaissance. Consequently, Botswana government conducted an e-readiness assessment in 2004 to serve as snapshot and a baseline when evaluating the feasibility of the desired ICT plans and to give an indication of the Botswana's level of connectivity and ICT preparedness to determine appropriate interventions to achieve the country's National ICT vision, goals and overall connectivity objectives (Botswana E-readiness Assessment, 2004).

As a consequence of the e-readiness assessment, the Botswana government took a deliberate step for digital age transformation and enacted the National ICT policy, popularly known as the Maitlamo National ICT Policy in 2005 which was later concluded in 2007. This policy is intended to position Botswana as a globally competitive, knowledge and information society where lasting improvement in social,

economic and cultural development are achieved through availability and effective utilization of the ICT platforms. The Maitlamo National ICT Policy is fundamentally focused on three specific outcomes of; (a) Creation of an enabling environment for the growth of an ICT industry in the country; (b) Provision of universal service and access to information and communication facilities in the country; and (c) Making Botswana a Regional ICT hub so as to make the country's ICT sector globally competitive.

The Maitlamo National ICT Policy facilitates Botswana's efforts towards the attainment vision 2016 and other national development agenda of significant importance for public sector transition. This policy sets the platform for e-government implementation for provision of e-information and e-services through government web portal and has the following objectives;

- A culture of lifelong learning that maximizes the potential for all citizens and accelerates innovation to develop a knowledge based system
- Availability of government services on line
- Increased economic diversification and foreign investment, including ICT enabled services based in Botswana.
- Access to relevant, localized and understandable information for all citizens.
- An ICT access point in every village.
- Enhanced disease control and health care programmes
- An efficient and cost-effective ICT infrastructure in place
- A clear ICT legal framework in place

The Botswana national ICT policy, called Maitlamo provides a roadmap to drive social, economic, cultural, and political transformation through the effective use of ICTs. The policy aims to provide a communications network that meets high international standards and ensure the country has the skills to be an ICT leader and also to create an enabling environment for the growth of an ICT industry nationally in order to provide universal service and access to information and communication facilities countrywide (Maitlamo National ICT Policy, 2007).

Though Botswana's ICT infrastructure is very good, it is however not fully utilised, Internet usage is still very low characterised by high usage charges, there is also considerable disparities between urban and rural citizens access to ICT services, relatively PCs acquisition costs are high and many rural areas still lack electricity. It is asserted that (Isaacs. 2007) Internet needs to be made more relevant to citizens, through the development of local on-line content tailored to the needs of the population. Arguing that high international bandwidth costs ranging between

USD$3,250 (satellite) to more than USD$6,000 (terrestrial) per 1 MB per month for 128 kbps, with the Botswana Telecommunication Communication (BTC) leased lines costing between five and twenty times more than in Namibia and South Africa being cited as the reasons why ICT is still not widely exploited by business sector in Botswana, albeit the extensive use in the retail and mining sectors within foreign-owned companies.

The rural communities in Botswana have varied levels of development ranging from developed to undeveloped with developments more in the eastern part of Botswana whilst the western part exhibit serious pockets of underdevelopment (Gatsha and Masalela, 2012). The development in the eastern part includes good roads and telecommunication network. Botswana population is largely concentrated in the eastern part, which also comprises of urban centres offering connectivity to big villages alongside and as a result the telecommunication investment is more viable and feasible in the eastern part than the western part where population segments are scattered in small villages across a wide area. Therefore ICT connectivity is uneven with some rural communities better connected than others. However, all citizens groups' need to access government services regardless of significance and geographic dispensation.

Currently the level of internet penetration is still an issue that should worry anyone interested in ICTs, according to the CEO of Botswana Telecommunication Authority (Pheko, 2011) Botswana in ICT access ranks 103, ICT use ranks 118 and ICT skills ranks 105 out of 152 countries. This suggests that there is a lot to be done for Botswana to achieve global competitiveness. These low rankings (Pheko, 2011) are as a result of interalia; affordability issues, computer literacy, computer penetration and power challenges.

A study conducted in a total of 117 different tertiary institutions (private and government) in Botswana (Batane, 2013) on internet usage amongst young people revealed that internet access is very low with the majority of access taking place at tertiary campuses, major disparities were noticeable between institutions themselves and also internet had not yet penetrated most homes. Another outcome is that the internet access amongst young people was predominantly on entertainment and communication at 75% with only 25% on school work and other uses. This aligns to other studies that have discovered that young people mostly use internet for entertainment and communication (Dunne et al, 2010; Shanahan and Elliot, 2009). It is therefore crucial for the e-government project to engage these groups and involve them to shape the design and implementation processes. The engagement process will also give educators the opportunity to use ICT to embed educational messages with entertainment (Bouman 1998; Singhal et al, 1993).

6.3 National and International Connectivity in Botswana

As may be the case with other countries, in Botswana government is the main provider of services and there is pressure that service delivery and performance must continually improve, the use of ICT therefore has proven to be the most effective way of improving service delivery for governments and private sectors, hence Botswana like other governments have joined the bandwagon to improve ICT infrastructure for e-government services (Mmegi, 2012). In the pursuit to make Botswana an ICT driven economy and a regional ICT hub under the ambit of the National ICT Policy, massive projects of high capital investment to connect (wireless) Botswana both at national and international levels were undertaken and these are discussed in the following sub sections.

6.3.1 Botswana National and Regional Connectivity

Successful deployment of optical fibre networks requires investment across the whole supply chain covering (a) worldwide connectivity, (b) regional connectivity, (c) national backbone connectivity that links major towns and villages and potential for rural connectedness including last mile connectivity to the universities and schools (UbuntuNet Alliance, 2009).

Botswana has a well developed backbone with fibre network available more in the densely populated eastern part of the country between major towns of Francistown and Gaborone. In 2008 Botswana rolled out a 2000km trans-Kalahari fibre network paving the way for the country to interconnect major towns and promote access to the then upcoming East Submarine Cable System (EASSy) and West Africa Cable System (WACS). The trans-Kalahari fibre network has fibre segments connecting Jwaneng, Maun, Ghanzi and Orapa and onward to Namibian boarder (see Appendix 11). Another connection runs from Francistown via Nata to Kasane and onward to Zambia boarder with other connectivity South Africa and Zimbabwe.

On other related matters Botswana is currently developing the national broadband strategy with the national consultative workshop recently (09 April, 2013) commissioned by the Minister of Transport and Communication (MTC Minister's Speech, 2013). Also the e-government strategy was approved by cabinet in September 2012 for implementation starting 2013 / 2014 (MTC- ICT Pitso, 2012).

6.3.2 Botswana International Connectivity

In the later part of 2007 out of the 14 SADC countries, only three (Angola, South Africa and Mauritius) had access to one international fibre (STA3/SAFE) and most countries international bandwidth was still below 100Mbps (SARUA Leadership Dialogue, 2010). However the situation has dramatically changed, Botswana government has made a major decision to invest heavily in both the East Africa Submarine Cable System (EASSy) and West Africa Cable System (WACS).

The EASSy and WACS provides high speed connectivity to African countries and the rest of the world particularly Europe and America. EASSy links countries on the east

coast of Africa and WACS on the western side (Appendix 12). The respective coastal countries have formed a consortium to implement the projects. Botswana partnered with Namibia in this endeavour. The launch and operation of the WACS in Namibia and Botswana was in June and September 2012 respectively. This development will greatly enhance Botswana's international connectivity by providing high quality and reliable internet and telephony services. The EASSy and WACS projects are expected to offer Botswana alternative connectivity on the west and east coasts of Africa at reasonable costs. A total of 16 STM-1s out of the more than 80 STM-1s have been activated resulting in wholesale international internet bandwidth tariffs reduction which is still expected to reflect on retail prices (MTC-ICT Pitso, 2012).

The EASSy and WACS network will primarily provide effective communication and connectivity among nations in the loop. It will also provide tele-education, tele-medicine and VoIP service. The project will inter-connect 11 Universities, 53 Learning Centres, 11 Super Specialty Hospitals and 53 Remote Hospitals in the membership of the e-Network project.

6.4 Initial E-government Targets for Botswana

In addressing the policy objectives mentioned in section 6.2, the Maitlamo National ICT policy deliberated on the seven focus areas to examine and develop key aspects of the ICT policy. These focus areas are (1) Community Access and development; (2) Government on line; (3) Thuto-Net / e-learning; (4) E-Health; (5) Economic Development and Growth of the ICT sector; (6) Infrastructure and Security, and (7) Legislation and Policy.

Subsequent to the policy deliberations the Botswana e-government targets known as ''Maitlamo National ICT Policy Targets'' were accordingly set guided by the Seven Task forces and Pillars (Botswana E-readiness Assessment, 2004; National ICT Maitlamo, 2004: 2007; Chepete, 2009). The initial targets are herein presented:

1) Connecting Communities (Community Access and Development)

The initial targets for the connecting communities programme were; (a) All communities over 2000 inhabitants to be connected to high speed network access by 2016; (b) To have 50 fully functioning Community Access Centres by December 31, 2010; (c) 100 fully functioning Community Access Centres by December 31, 2012; (d) All public libraries and / or book rooms connected to high speed network access by December 31, 2010; (e) Mobile Internet Units, with high speed satellite access deployed by December 31st, 2007, and (f) National radio and TV coverage by December 31, 2008.

2) Government On-line (GOL)

The initial national targets for government on line include; (a) All appropriate government information online by December 31, 2007; (b) All appropriate government services online by December 31, 2009, and (c) All government employees to receive formal e-government and customer service training within one year of joining the public service- starting January 1, 2008.

3) E- learning/ Thuto Net Botswana

This programme is intended to provide all schools in Botswana with modern computers and access to the internet. The objective was to provide the literacy, skills and knowledge required for both formal and non formal learners in the networked world. The initial national targets for school Net Botswana were for: (a) All schools and libraries to have computers and internet connectivity by December 31, 2010; (b) All teachers to receive ICT training by December 31, 2010; (c) ICT content and curriculum development to be available at all levels of the education system by December 31, 2010, and (d) A recommendation that a l: 7 computer to students ratio in all schools by December 31, 2012.

4) E-Health Botswana

The intial national e-health targets focused on; (a) All residents to have appropriate access to health information online by December 31, 2010; (b) All appropriate health facilities connected by December 31, 2010, and (c) provision and availability of health services remotely available across Botswana by December 31, 2010

5) Economic Development and Growth of the ICT Sector

National targets for ICT and Economic Diversification included; (a) An additional 15000 to 17000 new jobs created in International Financial Services Centre (IFSC) and Business Process Outsourcing (BPO) centres; (b) ICT sectors to double in size based on demand from Maitlamo driven initiatives; (c) Measurable growth in agriculture GDP and employments; (d) Measurable growth in tourism revenues and employment; (e) 30 export ready manufacturing SMEs operating, and Non-mining sector at least 80% of GDP by 2009.

6) Infrastructure

National targets for connecting Botswana included; (a) Competition in all areas of ICT implemented by December 31, 2010; (b) 50% of citizens to have access to reliable power and connectivity by December 31, 2010, and (c) Access to ICT technologies made available to all citizens by December 31, 2016

7) Legislation and Policy

National targets for the connectivity laws and policy programme aimed for; (a) Media neutral legislation to deal with electronic documents (e-commerce legislation) by the end of 2005; (b) Amendments to legislation such as the criminal procedure and

evidence act, the authentication of documents act, the foreign documents evidence act, and related other legislation by the end of 2005; (c) Development of policy and legislation dealing with electronic signature by end of 2005 and mid 2006, and (d) The development of policies, legislations and industry codes of conduct, for protection of personal privacy in the context of cross boarder data flow, healthcare and financial services by mid 2006.

An initial investment estimate of 950 Million Pula (approximately GBP 95 Million) was identified as being necessary to support the design and implementation of the National ICT Policy over the next five years (Botswana E-readiness Assessment Report, 2004). Fast track projects with investment of 35Million Pula (GBP 3.5 Million) in 12 months were earmarked and intended to provide foundations for the policy implementation. These projects were; Legislative Amendments; Health Portal; E-government Portal; Governance Structure; School Net Design; Community Access Design; and Promotion and Awareness.

6.5 Current Status of E-government in Botswana

Since inception of the Maitlamo National ICT policy of 2007, Botswana government has been pushing ahead with its e-government programme with most ministries now having websites, and a central government web portal introduced. Some forms have been made available online for users to print albeit very low compared to the targets, a number of networks and systems have been introduced to support the internal operation of government. But the progress has not been enough, currently, there are only a handful of government services online and citizens are becoming frustrated with the lack of e-government progress, wondering why they can carry out online transactions with private sector organisation, but still have to go through lengthy and bureaucratic paper driven procedures with government (Weekendpost Paper) citing the E-government Strategy 2011-2016).

6.5.1 Botswana E-government Readiness Index

The Index here refers to the generic capacity or aptitude of the public sector to use ICT for encapsulating in public services and deploying to the public, high quality information or explicit knowledge and effective communication tools that support human development (UNPAN, 2004). Botswana's e-government development index shows an improvement out of a score of 1 from 0.3637 in 2010 to 0.4186 in 2012 positioning the country amongst the top 10 countries in Africa though with a decline in the world e-government ranking from position 117 in 2010 to position 121 in the year 2012 (UN, 2012). The overall e-government development indices on Botswana reflect both slight improvements and declines in measured areas of (a) Human Resource Index where ICT skills and capacity improved on a score of 10 from 5.79 to 5.83 between 2008 and 2010 (ITU, 2011); (b) ICT Infrastructure Development Index shows a decline in the network readiness index on a score of 10 from 3.72 to 3.53 in 2008 and 2010 respectively, while on the infrastructure environment index Botswana moved on a score of 10 from 2.70 in 2008 to 2.75 in 2010 (WEF Global

Information Report, 2008:2011); (c) ICT Usage in the same period shows a better progress on a score of 10 from 0.23 in 2008 to 0.44 in 2010, however the base level still remains low (ITU, 2011); (d) Government Readiness Index shows gradual improvement on the index score of 10 from 3.97 in 2008 to 4.26 in 2010, while (e) the Political and Regulatory Environment Index on a score of 10 slightly declined 4.44 to 4.35 between 2008 and 2010 (WEF Global Information Report, 2008:2011).

These indices and measures are based on the coverage and sophistication of state provided e-service and e-product availability, corresponding to a numerical and progressive scale based classification. For example, the human capital index looks at a composite of the adult literacy rate and the combined primary, secondary and tertiary gross enrolment ratio. As for the Infrastructure index, a composite weighted average index of six primary indices, which are based on infrastructural indicators that define a country's ICT infrastructure capacity (UNPAN, 2004). The primary indicators are PCs, Internet users, online population and mobile telephones coupled with secondary indicators such as TVs and telephone lines. Notwithstanding an exceptionally higher mobile penetration in Botswana as can be seen in (Table 6.1: E-readiness parameters for Botswana), Relative to other countries in Southern Africa the major limitations impeding Botswana's progress are; low PC penetration, Internet and fixed broadband penetration levels.

Table: 6.1: E-readiness parameters for Botswana

Rank	Country	Index Value	Estimated internet users per 100 inhabitants	Main fixed telephone lines per 100 inhabitants	Mobile subscribers per 100 inhabitants	Personal computers per 100 inhabitants	Total fixed broadband per 100 inhabitants
93	Mauritius	0.3296	24.90	29.84	91.67	8.13	6.30
101	South Africa	0.2214	12.30	8.43	100.48	7.55	1.48
121	Botswana	0.1873	6.00	6.85	117.76	0.60	0.60
123	Namibia	0.1385	6.50	6.66	67.21	4.17	0.42

(Source: UN E-government survey 2012)

In order to enhance e-readiness and achieve citizens' stakeholders' participation in Botswana, the government is implementing various programmes to enhance universal access and also undertaking major service delivery reform programmes as part of the e-government to provide information and services electronically to citizens (Monaka and Mutula, 2010). In the next subsections progress updates for each targeted milestones are outlined.

6.5.2 Government On-line

Botswana government has embarked on major service delivery reform programmes aimed at improving service quality. This started with the development of government web portal targeted for information and e-services. The portal is believed to extend the "reach" of government and provides everyone with access to information and services, from virtually any location and at any time (National ICT Policy 2007).

It is reported that a few electronic services already exist such as the dissemination of school examinations results through SMS and the provision of downloadable business forms in some ministries' websites. The number of citizens able to access online services is reportedly growing, with recent surveys suggesting that 42% of Batswana (citizens) now go online several times a week, with an additional 23% making occasional use of the internet (Presidential Speech, 2012). In this context 59% are reported to have visited the government website. But, from such figures it was also clear that many still do not have online access. The Ministry of Transport and Communication (MTC) which is in charge of e-government project, confirmed that out of a target of over 300 information only services targeted online by 2009, only 69 information services had gone online as at 2012 with very limited downloadable services (MTC-ICT Pitso, 2012). Table 6.2 below presents some government online operations in Botswana.

Table 6.2 Some Computerization of Government Operations in Botswana

Ministry	Project	Project description
Attorney General Chambers	Computerized Case Management Computerization of Lobatse High Court	Case registration system that tracks case files Track court records to check the status of the case
DPSM	Computerized Personnel Management System	Runs across government to update the status of government employees, from appointments to retirements
Education	Computerization of Students Records and Grant Loan Scheme Computerization of Teaching Service Management	Registration of government sponsored students at Students Placement and Welfare Department. Computerization of personnel management for teachers
Finance	Government Accounting and Budget System	Runs across government, for budgeting, accounting and supplies.
Health	Integrated Patient Management System	Centralized database for patient data management to link all hospitals in the country. Patient registration, laboratory and wards management
MLHA	National Archives and Records Management Systems Computerization of Civil and National Registration Computerization of Labour and Social Security	Registration, classification, request, retrieval, tracking, destruction and transfer of e-records and manual records. Will ensure that records are not altered in order to preserve their integrity Registration of births, deaths and national identity cards Issue work permits and scanning factory plans
Local Government	Computerization of Human Resource Management Computerization of Social Benefit and Reconciliation System	Update status of local government employees from appointment through to retirement Registration of the needy, orphans and old-age pensioners in the country

(Source: ICT4D, 2010; Mutula et al, 2010; Nkwe, 2012)

6.5.3 Botswana Innovation Hub (BIH)

The creation of the Botswana Innovation Hub (BIH) according to the interview with the incumbent CEO (Botswana-BIH- Report) is an idea that was first conceived in 2008 as part of the National Development Plan and as a new excellence strategy for Botswana. BIH have secured land (approximately 57 hectors of land) that is used for the project. The hub once in full swing will offer services in the form of office space, land and state of the art telecom. Botswana Innovation Hub comes at a time when Botswana's ICT infrastructure is reportedly fast developing. The main difference between BIH and other real estates in Botswana is that BIH is paying attention into electricity, broadband, Wi-Fi connectivity and access and searches for co-developers in these key areas.

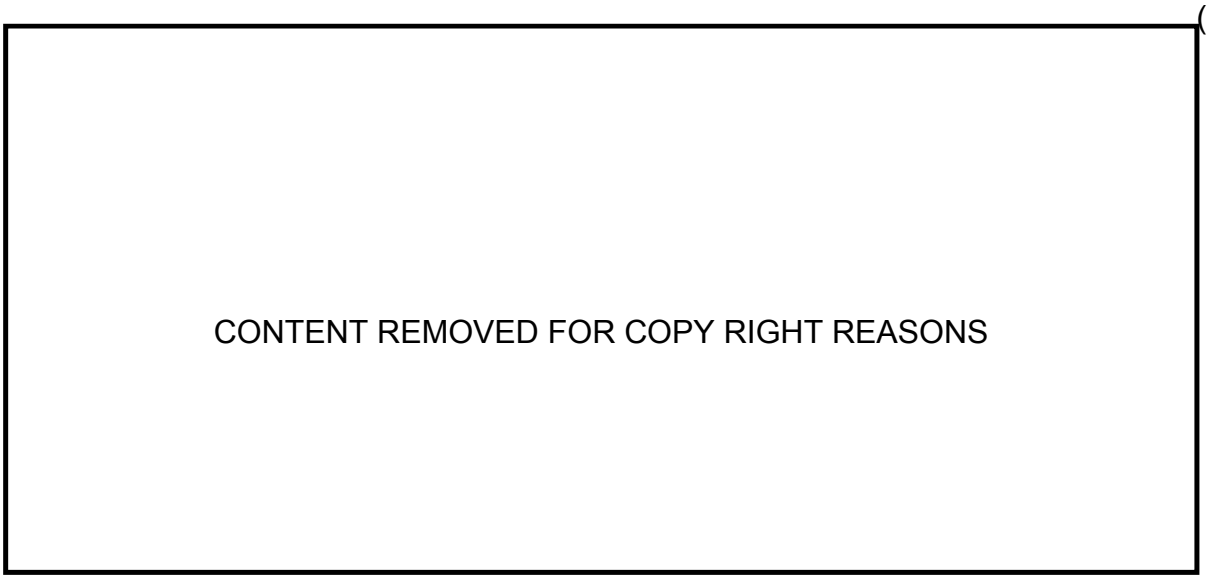
A massive Information and Communication Technology Cyber City is part of the grand projects that will be housed under the BIH new centre (Figure 6.1). However the construction of the BIH centre is still underway. Botswana Innovation Hub is responsible for stimulating start-ups and providing enabling environment for investors. Technology driven and knowledge intensive industry, researchers, higher education and the ICT industry, are provided with a forum to interact together to foster innovation and new businesses. The innovation hub has proposed qualification sectors through which sectors (businesses, research and training) could be explored. These include ICT, Bio-Technology, Energy and Mineral Technology (IST-Africa, 2012).

Figure 6.1 Proposed Botswana Innovation Hub Building

6.5.4 Connecting Communities Programmes

The communities have been grouped using 'Logical Zones' for a telecommunication network deployment. The logical zones were developed by grouping communities together based on geography and population. These zones have further been divided into regional networks or "underserved areas" to provide an economy of scale; the larger the area the greater the perceived business that will allow operators to prosper and grow. This consolidation of logical zones resulted in the creation of 4 underserved areas and the zones are referred to as Nteletsa (Figure 6.2).

Figure 6.2 Community (Nteletsa) Tele-centres in Botswana



Source: Research Photographs of Sikwane Information Centre (sub village)

Under the Nteletsa zoned projects Botswana government in partnership with Mascom Wireless Cellular Company and Botswana Telecommunications Corporation have deployed Community Access Centres in 197 villages, these centres are called Kitsong (Information) Centres and are established under the Rural Telecommunications Expansion Programme (MTC-ICT Pitso, 2012). This programme is providing essential infrastructure services in rural areas under Botswana Telecommunication Corporation (BTC) as part of government's obligation to integrate people into the economic and social development streams. Mascom Wireless Cellular Company is also partnering with government offering similar facilities in some areas, while other similar facilities are offered through the Botswana Post Office network.

6.5.4.1 Kitsong Centres

During the (President Speech to the Nation, 2012) it was reported that total of 197 rural villages have been connected through the Rural Telecommunications Programme with data and internet as well as voice services. The Nteletsa-I resuscitation project, which entails upgrading of older infrastructure to the Nteletsa II standard in 85 villages, was scheduled for completion by the end of 2012.The rollout of shared community information or Kitsong Centres through public private partnerships were also reportedly progressing well. As at 2012, a total of 248

Kitsong Centres had been delivered, 196 of which are run by Village Development Committees (VDCs) and 56 administered through Botswana Post (see figure 6.3) in the urban area.

Figure 6.3: Inside View of Post Office Tele-Centre in Gaborone

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Source: Research Photograph Taken in Gaborone City (River Walk Mall)

A closer look at internal view of both the post office Nteletsa facilities in the urban centre (figure 6.3) and the facilities in the villages (Figure 6.4) show a distinctive difference in the look and feel of facilities and sophistication of equipment which trend is likely to create disparities in the quality of services between the urban and non urban areas.

Figure 6:4: Inside View of Post Office Tele-Centre in the Village

(Source: Research Photograph taken in Sikwane (Sub-villages)

6.5.4.2 Sesigo Project

The Sesigo project is a unique private public partnership programme between the Bill & Melinda Gates Foundation and governments. The Bill & Melinda Foundation is Microsoft assistance to transitioning economies in Latin America, Eastern Europe and latterly Africa and Botswana in particular. It works by deploying technology in public libraries and partnering with beneficiaries (countries) to maintain and acquire broadband Internet connectivity. In the Botswana the project targeted to cover a total of 78 libraries with technology over a four year period effective 2009. As at 2010 there were 98 libraries that the Sesigo Project had identified, 69 of them being reading rooms in the rural areas, and the project was targeting 78 of the 98 libraries (Mmegi, 2010). These 78 libraries have all been equipped with computers and only 31 connected to internet while 16 being targeted for internet connection by end of 2013 (MTC-ICT Pitso, 2012).

ICT training has been taking place at these libraries for library staff, to equip them with requisite skills to assist the public, by May 2010, a total of 2677 members of the public had also been trained since the project started, and this however was lower than targeted due to delayed deployment of computers to the libraries. Despite the initial positive developments experienced, the project also faced some challenges such as unavailability of broadband Internet connectivity at some places particularly rural areas. This brought about questions as to how such communities will optimally benefit from the project (Sesigo Project, 2010).

6.5.4.3 I-Partnership Initiative

The Ministry of Communication, Science and Technology launched a project known as the I-Partnership. This is a computer ownership project for government employees and unemployed youth using a government scheme. Employees are encouraged to buy computers at reduced cost to enable them to take work home or work from home (Mutula et al, 2010; IST-Africa, 2012). However as at 2011 only 20 public officers had utilised the scheme since inception of the scheme (Moatshe and Mahmood, 2012).

6.5.5 E-legislation Initiatives

This is one major areas where there has been the least progress, there is still no legislative framework to facilitate and enable the provision of e-services, current laws tend to prohibit, rather than promote the use of ICT to provide services, for example, the Botswana legislation does not provide for recognition of electronic transactions, including electronic funds transfer (EFT), which practice is very common in the Botswana commercial banking systems including the Bank of Botswana (Government ICT report- Keetshabe, 2012). Further, there are no laws in place such as; e-signature, Data Protection, e-commerce law and authenticity of electronic documents and admissibility of electronic evidence. Other laws need to be reviewed, for example, the Electronic Evidence Bill, Cyber crime and Computer Related crimes Act. Botswana's competitiveness has been declining (Kereteletswe, 2009) and

whilst reasons may be variable, there is no doubt that in the absence of these legislations the position cannot change for the better (Keetshabe, 2012).

It worth noting that the need for these laws was identified in 2004 as part of the e-readiness assessment report that gave rise to the National ICT policy, hence the reason for the initial targets to have the laws enacted by 2006, notwithstanding the laws are still not in place. Since 2004 the need for these laws and other 22 laws that needed to be formulated and amended has been expressed with less output, for example, these have been mentioned in (Botswana country report, 2009; Botswana e-government strategy, 2011). The September 2012 Ministry of Transport and Communication (MTC) reported that the laws were still being drafted. The absence of these laws is a high risk area from the business view point, and is reflective a weak implementation capacity and e-government may inherently be affected.

6.5.6 Thuto-Net / E-learning

The Botswana government in the quest to achieve '' knowledge-based society'' has embarked on the school connectivity initiative under the Thuto Net project which is an expansive project that links all secondary schools to the internet. To date, 104 secondary schools in Botswana have internet access and the programme is rolling out to other secondary schools. All secondary schools in Botswana have computer laboratories comprising about 15-20 computers. This initiative is aimed at reducing literacy gaps between students in urban schools and rural schools (IST for Africa, 2012). To fast track the program, the department responsible for laying out the infrastructure is working together with the Department of Education to train teachers on using ICT as a classroom tool.

ICT training for computer teachers in schools is being provided through various institutions such as the Mochudi Media Centre, an urban centre located 45 kilometres northeast of Gaborone (Mutula et al, 2010). The centre provides training, advice, guidance and support to educational professionals including ICT training for the schools and Department of Teacher Training and Development. In addition professional development support for teachers is provided through a network of 12 education centres located countrywide to provide in-service activities. There is also an Internet Learning Trust (ITL) which is targeted to equip educators with enhanced internet skills.

6.5.7 E-health Initiatives

Projects on e-health require a lot of financial resource and human capital investments. In this regards Botswana government has seen the need to partner with other countries to get support on e-health, for example, Botswana / India partnership where India assisted Botswana with e-health high-tech machines (Nkwe, 2012).

Several e-health activities taking place in Botswana include the following (Mutula et al, 2010; IST-Africa, 2012);

- Installation of local area network (LAN) and Wide Area Network (WAN) in 22 facilities
- Integrated Patient Management System (IPMS) at four sites that are strategically identified including the only referral hospital
- Warehouse Management System (WMS) at Central Medical Stores to manage the procurement and distribution of drug supply
- MASA system in some hospitals and clinics to manage HIV/AIDS patient information where IPMS has not been implemented
- Blood management System (BMS) in the two cities to manage inventory and distribution of blood.
- Website for the Ministry Head-Quarters to inform the public on the objectives and performance of the ministry.
- The health Professionals Registration System which will maintain a database of all health practitioners and professionals in the country.
- Tele-medicine using radiology between distant hospitals with the main hospital in the city which will facilitate online services to low level facilities.
- District Health Information System to provide aggregated health information from health districts.
- Library Management System for Institutes of health Science (IHS) and provision of Internet services to students.

6.5.8 Botswana National E-government Strategy

At the time of conducting initial feasibility study in 2009 (chapter five), the e-government strategy for Botswana government was not in place, though the implementation of fragmented projects had already started. Based on (MTC-ICT Pitso, 2012) the e-government strategy was finalised and approved by cabinet in 2012 for implementation during the 2013 / 2014 financial year.

The e-government strategy is classified as an important contributor to the ongoing development of Botswana and seeks to accelerate the nation's transition to a knowledge society. In the implementation of e-government in Botswana most efforts have been viewed and pursued in isolation and primarily driven on a ministry by ministry and project by project basis, which approach resulted in a fragmented and uncoordinated e-government programme. The assessment of some project has highlighted significant number of projects that were similar in scope with duplicate infrastructure and application, where such duplication and lack of coordination have resulted in cost implications (Botswana National E-government Strategy, 2011-

2016). It has also been identified that some of the IT solutions do not cater for online customer service, hence found lacking in customer centricity.

The aim of the strategy is to move all appropriate government information online. (Botswana National E-government Strategy, 2011-2016), the focus of the strategy therefore is on the following:

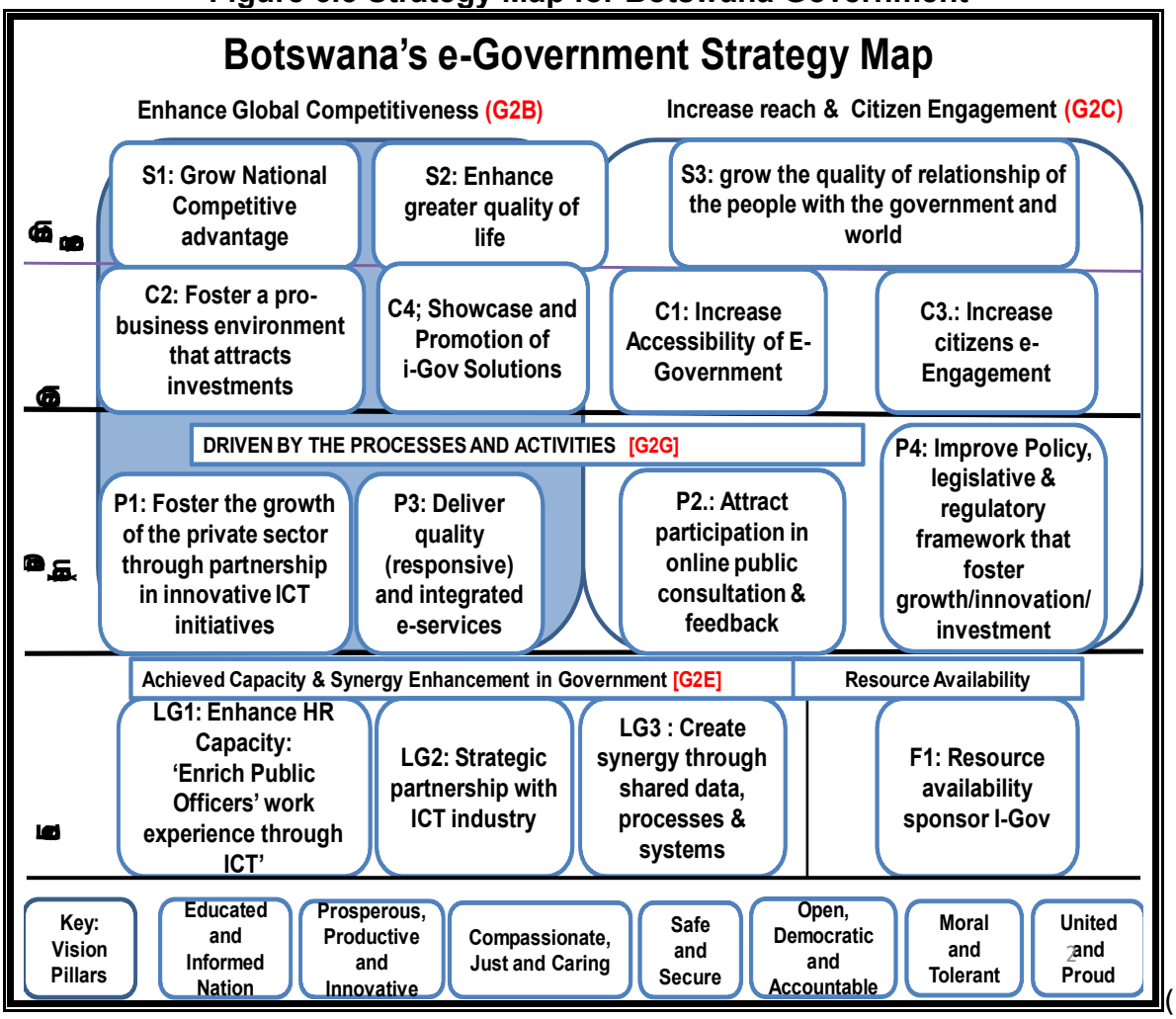
E-services programme (ESP) comprising of 14 projects that will be introduced in three (3) phases over the five year period. The aim is to strengthen the portal as the primary service delivery vehicle for identified 300 government services, also to implement service delivery to mobile phones.

The Multiple Access Programme (MAP) - The map will seek to deal with the fragmented projects by consolidating them for consistent and effective approach to the provision of government information and services through multiple delivery channels. Projects earmarked are (a) introduction of central government contact centre, (b) Introduction of government service centres countrywide, (c) integration and standardisation of e-government service delivery through CACs such as Kitsong and other access centres, (d) accelerating the introduction of important e-government services directly through ministries.

Botswana's e-government, Service Transformation, Reform, Organisational and Network Governance (Be STRONG) Programme, this aspect will deal with review and redesign of governance structure required to progress the national e-government programme. The role of government CIO will be considered to strengthen the project management office.

The Skills Transformation in Support of E-government Programme (STEP)- here both government and private sector training and skills development institutions, will comprehensively review the skills and training required in the public sector across all level of officers in government. The overall strategy map and alignment to Vision 2016 development pillars which also guide the National Development Plan is exhibited in Figure 6.5 below.

Figure 6.5 Strategy Map for Botswana Government



Source: Botswana E-government Strategy, 2011-2016)

6.6 Critique of the Botswana case study

The above discussions reveal that Botswana is indeed a unique case. A country with small population and massive land which is largely a desert (70%) though inhabited by scattered settlement groups who are legitimate users government services like others elsewhere in the population densely concentrated areas in eastern part. Largely, the population is within 100km radius of Gaborone city and around other major centres in the country. The densely populated areas also have smaller neighbouring cluster settlement groups. The segments groups have differing cultures, traditions and ethnic belief systems, ways of communication, way of life which also affect their priorities and needs. They have own mentors, opinion holders and champions, tribal leaders and representatives they align with and trust. Another unique element is the population structure that is mainly youth who are affected more by unemployment. It has been well established that Botswana is a prudently and well managed country both democratically and politically, with a special structure of district administration in the villages and a unique arm of tribal administration (Chiefs and the Kgotla systems) as well as the village development committees

(VDCs) and District Development Committees (DDCs) which are multi-sectoral. The administrative structure can effectively be exploited to achieve e-government engagement and involvement process with citizen- user groups.

However, Botswana economy is largely dependent on diamonds, which renders the economy more susceptible to global financial turbulence something very difficult to predict and control. The dependence of the Botswana economy on diamonds which are vulnerable to world economic financial risk became evident since 2008 economic recession started. Botswana economy suffered dismally, experiencing subsequent budgets deficits. Tourism at the lower end of diamonds is the second pillar which over the years has not emerged as a bankable and more sustainable solution to diamonds. The tourism attractions (nature and wildlife) are located diversely across the wider Botswana and in every place where there are tourism attractions there are ethnic groups near by making the Botswana settlement groups many and a complex society on aggregate. Another worrying trend is the poor performance generally in implementing national projects which often result in cost overruns due protracted delays in completing projects on time, refer to (AfDB Botswana Strategy, 2009; MFDP, 2013; Mmegi, 2013; African Aviation Tribute, 2012). Signs of poor implementation and non performance on initial e-government targets are noticeable from the outcome of the intial research conducted (sections 5.5.3 and 5.5.4). Even during latest extensive research a majority of the initially targeted initiatives had not been achieved examples are e-legislation, targeted delivery of government information on line, economic diversification (reduction of diamonds to GDP) through the use of ICTs as well as the e-government maturity targets, not much progress has been made within the initial phase. Infact from the above discussion, Botswana has not met the intial phase criterion for Phase I in the e-government maturity levels (see chapter two Figure 2.1).

However, Botswana has made strides in developing robust economic policies, ICT strategies and through wise leadership to prioritise ICT investment through the EASSy and WACS submarine projects, building a national backbone fibre ring network and a number of phenomenal initiatives to connect and at minimum ensure all citizens gain access to government on-line, examples are Sesigo projects, I-partnership, community access centre through post office, Mascom and Kitsong centres. Others remarkable efforts include the e-health initiatives and the on going school net projects.

In spite of these good policies, ICT investments and initiatives, Botswana's e-readiness rankings are not impressive, ICT access, usage and skills are very low. Ironically while PC and internet access remains dismally low relative to ICT programmes put in place, mobile penetration is amazingly high at 120%. Mobile ICT seems to have appeal for citizens, but not so with e-government and other ICT initiatives, citizens are not coming to the party. Could it be that government is pursuing policies and programmes that they (government) think citizens want without engaging them? Infact, the preliminary study revealed lack of citizens' awareness

and also change management programmes focused on citizens and government employees had not started then. The higher mobile penetration may well reveal that citizens have an understanding of ICTs they are ready for only if they are consulted and engaged will they better inform the process. Taking the view that e-government is new in Botswana and may not be fully understood by citizens. The question is whether they have been mobilised; motivated enough and carried on board to a level that they can confidently inform the e-government process? The existing supportive consultative administration and Kgotla structures can facilitate the process. In view of these challenges this research aims to develop an e-government strategy framework and citizens stakeholder engagement model to facilitate participation, adoption and continual e-government use. The model and framework are intended to support the initiatives in Botswana and could serve as a guiding framework to other venturing countries (albeit with variations as the case may be).

7.1 Introduction

This chapter presents the findings from data analysis (section 7.2). As mentioned in chapter five multiple sources of evidence were used to gather data and owing to mixed methods research the analysis of research data employed both statistical (quantitative) using SPSS Statistics 20 and narrative analysis (qualitative). The quantitative analysis was applied independently on the two questionnaire surveys used while the narrative was applied on data from interviews, observations and documentary sources to complement elements of quantitative analysis. The data analysis output both statistical and qualitative are detailed in the appendices titled ‘‘Descriptives and preliminary tests for multivariate analysis attachment note one’’ (appendix 4) and ‘‘Hypothesis testing’’ (appendix 5). The analysis of data (statistical) focused on factors investigated through both questionnaire surveys as presented in chapter five (table 5.4). While qualitative analysis focused on factors relating to infrastructure, laws and policies, funding, information access and literacy, security and protection of privacy, organisational, managerial and technical factors which are driven by government stakeholders and how these factors relate, inform and support the tested hypotheses.

7.2 Research Findings

This presents findings from analysis of data (statistical, interviews, observations and document analysis). The findings from the hypotheses tested and related qualitative analysis reveal that:

7.2.1 Citizens e-government readiness and awareness (H1)

The levels of citizens awareness and readiness for e-government is influenced by multiple interrelated factors of (a) countrywide accessibility of internet by citizens; (b) provision of computer labs in schools to facilitate students’ ICT and internet access; (c) provision of ICT and internet subsides to citizens in the non urban centres (villages); (d) engagement and participation of influential stakeholders (citizens’ mentors, opinion holders, champions and agents) in e-government planning and implementation processes; (e) representation and participation of citizens’ cluster groups in e-government change structures; and (f) transparency and openness of government in engaging citizens in e-government processes (see Appendix 5; hypothesis testing statistical analysis (H1).

These interrelated adoption factors are closely linked with e-government strategy factors of (i) Infrastructure development and connectivity (which yields internet access to citizens), (ii) Stakeholder inclusive change management and transparent process (which the engagement of citizens, mentors opinion holders and representatives thereof in e-government change process), (iii) Human capacity development (provision of computer labs in schools, ICT education and internet access), and (iv) Political commitment to democracy (to ensure citizens have access and participate in government online –through influential stakeholder engagement

and participation in e-government development, and also citizens representation in the e-government change teams), confirming that citizens' adoption of e-government is influenced by e-government strategy factors.

Notwithstanding the correlative relationship, the stakeholder inclusive change management has not been achieved and citizens' readiness level is doubtful coupled with existence of infrastructural and connectivity challenges due to the vastness of population settlement groups. When conducting investigation on initiatives change management initiatives to enable appropriate levels of readiness and awareness informants commented that;

> *"There is no strategy in place to bring government employees on board and the there is need for change management and mindset change"*

Further investigation revealed that not only government employees are left out equally citizens in the villages have not been consulted and majority of them lack understanding of what e-government is all about suggesting doubts on their readiness levels for e-government. The key e-government informants stated that;

> "*Engagements of employees and citizens in the villages have not been done"*

On whether other citizen- stakeholder groups, for example, private sector have been adequately consulted and engaged the informants responded that;

> *"If you look at the Maitlamo policy there is nothing to suggest that private sector has been engaged in e-government, the private must be engaged as government can not run e-government alone"*

Informants' added that even when the e-government portal was launched there it was not adequately launched and most citizens do not know about it or use it hence the perception that it is meant for few government employees and those who access it in the urban areas. Here both inadequacies in citizens' awareness and government transparency in engaging citizens are revealed, a position observable in the below informants views;

> *"The government portal in my view is only for government employees and those who access it in the urban areas, people in the villages have no clue about it"*

The lack of and/or inadequate change management (engagement and involvement of citizen- stakeholders) is deemed by key e-government informants as a direct result of low e-government awareness and readiness especially at districts levels. However, the districts structures are expected to cascade e-government change activities to the lower levels and villages through various structures such as DDC, VET, LDP and VET (see section 1.5). These structures are not adequately empowered alongside members of parliament and councillors mean while they are expected to have adequate knowing about e-government so as to engage those they represent. According to the informants;

"E-government awareness at district levels is vested on District Commissioners through committee structures like DDC, LDP, VDC and VET; they are responsible for creating e-government awareness.

While district structures are expected to should the responsibility for e-government awareness and to a degree the e-readiness, a key government policy informant admitted weaknesses in the decentralisation model and related committee structures. The informant highlighted that*:*

"However the decentralisation model, consolidation around the committees is very weak and awareness has suffered, including trust of local people on e-government"

Regarding infrastructure development and connectivity factors facilitating citizens' e-readiness and awareness for e-government, Botswana government is considered to have made good progress on a number of ICT initiatives to achieve both international and national connectivity and key informants narrated the milestones achieved so far as follows;

"Through the Maitlamo ICT Policy reasonable levels of infrastructure development have been carried out"

"A lot has been done through connecting communities; Nteletsa projects, Sesigo projects and Post office centres"

"We have launched eGovernment portal and we offer information services and have been doing quick wins e.g. use of mobile phones for students to check results and e-notifications for people to collect their passports"

"The EASSy and WACS international connectivity have been achieved"

However, while these key infrastructure milestones are commendable and will facilitate e-ready and e-ware citizenry, deployment has not been easy and is confronted by hurdles that may slow down the progress, for example key informants commented on the issue and said:

"Infrastructure is still a challenge the GDN (government Data Network) downtime is a serious issue"

In acknowledgement another e-government key policy informant said:

"There is need to upgrade fibre ring to G-clouding to improve different efficiencies and coverage"

Amongst the challenges Botswana faces is the complex and vast population settlement groups scattered across the country making it difficult to deploy infrastructure to every corner (citizens). This has been acknowledged by one informant who said:

"Vastness of the country, small island and not easy to roll out infrastructure within Botswana"

Also in spite of key milestones achieved so far e-readiness and awareness have not been achieved due challenges narrated by informants as including lack of funding,

last mile connectivity, accessibility of government website and performance of government data network, these challenges a notable in the below interview extracts;

> *''Government portal might prove difficult to navigate and needs improvement in terms of appearance and aspect of accessibility''*
>
> *''Mostly government work in the district is manually done so the big challenge is to convert from manual to online, again many government offices in the districts do not have computers''*
>
> *''I cannot say government employees are ready for e-government when only about 10% use computers, some do not know how to use emails, especially senior citizens' employees in government, so they are not ready for e-government unless you are talking about the youth in government who are more skilful than the elderly''*

Investigations further revealed political commitment to democracy is crucial to e-government success and will often impact on citizens' trust and increased e-government awareness and policy measures to achieve readiness levels required, which can influence adoption (see also chapter four). This is particularly so in a country like Botswana that has been known for good democracy and rule of law with a distinctive town councils, districts and villages structure that provide a back bone for citizens' consultation and engagement. On this aspect the informants assert that;

> *''We have 16 main districts councils and I can not believe it is difficult to call councillors, district council authorities, chiefs and all other district structures and engage them on e-government, it does not make sense why this has not been done''*

On the overall investigations have revealed that there are still challenges relating to citizens' e-government e-readiness drivers and awareness. Therefore citizens are not aware and not ready for e-government implementation in Botswana, also have not be consulted, engaged and involved in the design and implementation programmes, a position that admittedly has adversely affected the implementation process. The following extracts from key informants interviews support this conclusion;

> *''Anytime you invite people for a meeting or anything to do with e-government, they relegate it to IT, employees think e-government is just an IT programme. What I found when training people (government employees) on how to publish information on government website, people think both portal and e-government are another bother to increase their work load''*
>
> *''A very big no, citizens are not ready for e-government, there is so much work to teach communities about e-government''*
>
> *''Due to lack of ICT skills, employees (within government) hide around lack of awareness on e-government. Attitudes and behaviour on leadership and government employees are a problem to both the performance and e-government project''*

On the basis of the foregoing outcome, it is concluded that there is a close link between citizens' adoption factors and e-government strategy factors above.

7.2.2 Citizens trust, knowledge and awareness influences (H2)

Categorising citizens' stakeholders and establishing communication processes through citizens' representation in e-government change teams complemented by ICT skills enhancement initiatives like internet access and subsidies for rural areas will not alone positively influence citizens' trust, knowledge and awareness in e-government''. Hence, other factors as such e-legislation and information access will be necessary to motivate citizens to align with e-government. This relationship is however considered vital for e-government given that citizens are the primary stakeholders for e-government and therefore level of trust in e-government is crucial as discussed earlier in this thesis. However, e-government legislation has not yet been enacted despite being initially targeted for 2006/07 reflecting serious implementation lapses that can affect the e-government project similarly like other major projects (see Appendix 5; hypothesis testing statistical analysis (H2).

Interview investigations with key e-government officials and policy makers have revealed that e-legislation is still a challenge and there has been a significant delay in enacting the necessary legislation. This was even challenges was also identified in the initial case study conducted prior the extensive study (see sections 5.5.3 and 5.5.4). The legislations were initially targeted for 2006, but still in 2012 had not yet been enacted. The informants stated that;

> *''Three cabinet memos are going on circulation and expected to be passed into e-laws in November, 2012''*

> *''Legislation is a big challenge and lawyers are not communicating clear reasons for the delay in enacting legislation''*

7.2.3 Countrywide citizens' internet access (H3)

Countrywide citizens' internet access is influenced by related factors of priority funding of e-government and autonomy of the e-government project team to embark on ICT, internet and related connectivity initiatives that drive the citizens' level of e-government readiness and awareness (see appendix 5; hypothesis testing statistical analysis (H3). The tested relationships and correlation of these factors closely link adoption and e-government strategy factors of (i) E-government funding model, (ii) Project leadership and governance, and (iii) Human (citizens) capacity development (ICT and internet access) confirming that citizens' adoption of e-government is influenced by e-government strategy factors. However, challenges relating to connectivity exist in Botswana and are stifling countrywide internet access.

When investigating the impact of funding relative to adoption and ICT and internet access, the interview informants have revealed (below extract) that there are challenges relating to connectivity exists thus stifling countrywide internet access.

> *''on the band wave, yes government has catered international connectivity, but the last mile connectivity was not catered for and is still a challenge that is why about 200 centre are still not connected''*

It is therefore concluded that priority funding enhances project leadership and governance and as strategy factors will influence citizens' internet access (e-government adoption influencing factor) and consequently leads citizens capacity development in ICT access and use.

7.2.4 Government openness and transparency in dealing with citizens (H4)

Targeting of rural communities with ICT skills enhancement programmes together with public awareness and education campaigns on e-government, ICT curriculum in schools and use of citizens' focused communications channels to achieve wider readiness and awareness amongst citizens will enhance government stakeholder openness and transparency in dealing with citizens on e-government and further enable citizens to trust government and the e-government change process. (see appendix 5; hypothesis testing statistical analysis (H4).The tested relationships and correlation of these shows a close link between adoption and e-government strategy factors of (i) ICT policy and e-readiness initiatives (through ICT curriculum in schools). (ii) Society development (through rural communities ICT skills improvement and public awareness education), and (iii) Human (citizens) capacity development (ICT and internet access), confirming that citizens' adoption of e-government is influenced by e-government strategy factors.

While acknowledging the relationships interview informants indicated that government has not been transparent and open with citizens' stakeholders and / or representatives to adequately inform e-government design and implementation, and below are some extracts from interviews:

> *"No public campaigns done to launch the government portal which is already functional and also the same with e-government, the plan is to implement e-government and later launch to the public"*

> *"A plan or programme to engage citizens, provide information and public education has not yet started, a lacking aspect admittedly"*

> *"I have been heading this district council for the past 10years and there is no consultation that has been done with the people let alone with the council I am heading. So no consultation on e-government has been done"*

This has therefore resulted in citizens not being ready for e-government, propelling the need to teach communities on e-government. The informants expressed and acknowledged that

> *"Not majority of citizens understand e-government especially at district levels"*

7.2.5 Influential citizens' stakeholders' participation (H5)

Levels of citizens' trust, knowledge, awareness and readiness for e-government where rural communities are ICT skilled, citizens in the villages broadly provided with ICT-Internet subsidies and wider citizens' communication channels in place, will positively influence the participation of citizens' influential stakeholder in e-

government design and implementation (including future endeavours) (see appendix 5; hypothesis testing statistical analysis (H5). The tested relationships and correlation of these factors shows a close link between adoption and e-government strategy factors of (i) Information and data access (citizens empowered to access government online-information and services), and (ii) E-readiness action plans and strategy (ensure citizen stakeholders are facilitated to have access to ICT) on adoption, confirming that citizens' adoption of e-government is influenced by e-government strategy factors.

In e-government design and implementation, not all citizens can be involved; however, citizens' participation can still be achieved through Influential citizens' stakeholder, for example, mentors and agents who can inform the design on behalf of their communities. See (subsections 4.3.5.1 to 4.3.5.3 and sections 4.4 to 4.5), however, this has not been adequately achieved in Botswana and acknowledging the criticality of stakeholder participation, informants had this to say:

> *''The cornerstone of our country has been to consult people, get their feedback and incorporate their views in the decision making, but this has not been done with e-government''*
>
> *''The expectation is that MPs and councillors must know about e-government''*

7.2.6 ICT-Internet subsidisation for citizens (H6)

Provision ICT and internet subsides to citizens is closely linked and influenced by ICT curriculum in schools, citizens countrywide internet access and established communication channels to build awareness and share information widely on e-government as well as effective use and engagement of influential stakeholders to inform implementers on citizens priorities, complemented by e-government project priority funding and project's team autonomy to initiate citizens focused programmes (see appendix 5; hypothesis testing statistical analysis (H6). The tested relationships and correlation of these factors shows a close link between adoption and e-government strategy factors of (i) Information and data access (citizens empowered to access government online-information and services), (ii) E-readiness action plans and strategy (ensure citizen stakeholders are facilitated to have access to ICT), and (iii) Human capacity development (ICT curriculum in schools), confirming that citizens' adoption of e-government is influenced by e-government strategy factors.

Albeit, Botswana government's significant strides in connecting communities through the Kitsong centres and Sesigo projects (chapter six), it has been found that the broad band and internet connectivity challenges still exists resulting in delayed commissioning of projects and business model perspectives affecting the objective of subsidising citizens in the villages with ICT, on this informants said:

> *''As Botswana Telecommunications corporation (BTC) we wanted to only deploy 10 centres in strategic locations guided by profitability, but the government refused saying they wanted every citizens to have access and wanted over 200 centres".*

"Initial feasibility of e-government was not right and more work is needed"

Further investigation revealed that the projects (centres) run by VDCs have weak management structures which threaten the sustainability of the centres and eventually the good intentions of providing ICT and internet access to the villages; informants concurred by saying:

"E-village concept is a challenge, VDCs have a problem and this requires other strategies, there are management issues with VDCs"

"Community Access centre are functional (some) however it is difficult to guarantee sustainability as they are run by VDCs, some are next to each other where it is clear that making money for the centres is a big challenge"

Yes it is true that in some cases the VDC management in charge of these centres cannot read and write"

7.2.7 ICT curriculum (from primary to tertiary (H7)

Provision of computer labs and internet in schools, ICT and Internet subsides to rural communities supported by citizens' focused media channels and government honesty and openness with citizens will facilitate the quality of ICT curriculum in schools from primary to tertiary levels (see appendix 5; hypothesis testing statistical analysis (H5). The tested relationships and correlation of these factors shows a close link between adoption and e-government strategy factors of (i) Human Capacity Development, (ii) Information and data access (citizens empowered to access government online-information and services), and (iii) E-readiness and action plans strategy (ensure citizen stakeholders are facilitated to have access to ICT), confirming that citizens' adoption of e-government is influenced by e-government strategy factors.

The introduction of ICT and e-government syllabus content in all schools as a human capacity development (e-government strategy factor) is needed to facilitate both short term and long term development of ICT literate society and influence the continual future use and co-creation of e-government services. This was echoed by informants who said:

"Introduction of both e-government and ICT syllabus in schools is acceptable"

In addition informants argued that network of existing primary and secondary schools could be targeted for e-government rollout a view that aligns to clustering and categorization of stakeholders owing to their differing needs. One informant said;

"We have more than 1000 primary schools in Botswana and they should be targeted for introducing e-government together with secondary school, for future uptake guarantees"

A conclusion is therefore drawn is that ICT curriculum as e-government adoption influence and facilitation is linked to strategy factors of human development, E-readiness action plans and strategies as well as Information and data access.

7.2.8 Established citizens' media communication channels (H8):

The citizens' stakeholder groups' participation in e-government including rural communities, facilitated by government transparency and provision of computer labs internet in schools as well as ICT curriculum will impact and more readily facilitate the establishment of citizens media communication networks (see appendix 5; hypothesis testing statistical analysis (H8). The tested relationships and correlation of these factors establishes a link between adoption and e-government strategy factors of (i) Political Commitment to democracy (government's transparent involvement of citizens' groups in e-government processes); (ii) Information and data access (citizens empowered to access government online-information and services), (iii) Stakeholder Inclusive change management, and (iv) Human capacity development (ensuring citizen stakeholders are facilitated to have access to ICT), confirming that citizens' adoption of e-government is influenced by e-government strategy factors.

Echoing to importance of communication with citizens on e-government the informants (below extracts) highlighted communication challenges and supported the need to directly engage and empower citizens groups arguing that communication channels are very vital :

> *"Communication to the people on e-government is a challenge, is like e-government belongs to some people and it has not been taken to the people"*

> *"Backend users (in government) also need to be directly consulted and empowered"*

Further sentiments by informants (below) expressing the need for communicating with citizens with the view to empower then on e-government could be done through the use existing post office network to reach citizens across the country:

> *"Post office network is strategically positioned to reach every citizens in the country and strategic partnership with government will achieve satisfactory citizens reach"*

This aligns to the views that consulting and involving citizens can be down through multiple facets (Kessler, 2004; Beierle and Crayford, 2002) including the use of widely acknowledged stakeholder media channels (see section 4.3.5.1).

7.2.9 Citizens' stakeholders' categorisation (H9)

The categorization of citizens' stakeholders enables the provision of citizens' targeted programmes, for example, incentives to acquire ICT-internet gadgets which will enhance citizens' knowledge and e-government trust (see appendix 5; hypothesis testing statistical analysis (H9). The tested relationships and correlation of these factors shows a close link between adoption and e-government strategy factors of (i) Differentiated funding Initiatives; and (ii) Stakeholders involvement and participation focusing on (informing and engaging citizens; enabling and facilitating

citizens' access; and also securing participation and adoption). Thus, confirming that citizens' adoption of e-government is influenced by e-government strategy factors.

Categorization of stakeholders is very important (Nutt, 2002) and failure to characterise them can result in omission of significant stakeholders (Scholl, 2004). On this the informants had this to say:

> *"We can cluster villages and schools by establishing a centre where e-government can be experimented and accessed"*

Another informant argued that this can be realistically and effectively achieved through a centralised differentiated funding approach

> *"what can work for us is to centralise e-government function and funding"*

In addition to clustering of villages and schools, some informants advocated for modelling of e-government in selected areas before full swing:

> *"There is need to model e-government in select areas, test it and then roll out to other areas"*

This can enable implementers and policy makers to device ICT related incentives to motivate private sector to setup in places outside urban areas thus ensuring that all citizen groups have some form of access to government online.

7.2.10 Citizens' stakeholders' representation in e-government teams (10)

Citizens' stakeholders' representation is largely facilitated by availability of citizens' media and communication channels, ICT access and skills in schools and communities resulting in enhanced trust, knowledge, awareness and readiness for e-government (see appendix 5; hypothesis testing statistical analysis (H10). The tested relationships and correlation of these factors establishes a close link between adoption and e-government strategy factors of (i) Political commitment to democracy (citizens' access to government on line and representation); and (ii) Citizens' Inclusive change management, confirming that citizens' adoption of e-government is influenced by e-government strategy factors.

Informants' responses captured in section 7.2.1 reveal that citizens and government employees have not been consulted. In section 7.2.4 e-government policy makers acknowledged that the citizens' stakeholder engagement plan is lacking, further confirming citizens have not been involved, which development some informants argued that it is against the known cornerstones of the country to implement e-government without consulting citizens (section 7.2.5). This position has led to citizens and government employees remaining generally ignorant on e-government initiatives and benefits thereof. Linking the captured views to citizens' representation in e-government change teams, one informant had this to say:

> *"The key thing is to ensure that people are targeted to create awareness, e-government should be equally driven by the communities"*

Some informants while not in disagreement with need for involvement of citizens' stakeholders felt that citizens like to be consulted even unnecessarily

> *"Batswana (general citizenry) value consultation sometimes to the extreme"*

Section1.5 provides a description of the Botswana relational administrative, consultative and communicative structures that provide a good platform for e-government engagement and involvement programmes to leverage on, also the citizens' representatives and would be opinion holders, influential champions and agents are evident within these structures. It is therefore concluded that the use of citizens' representatives is not only a change management factor, but equally uplifts the principle of democracy and the commitment of political leadership to uphold same.

7.2.11 E-government project team autonomy and priority funding (H11)

Project implementation team autonomy facilitated by priority funding to embark on e-government initiatives that increase citizens' trust in e-government can facilitate countrywide internet access and subsidies to rural communities (see appendix 5; hypothesis testing statistical analysis (H11). The tested relationships and correlation of these factors shows a link between adoption and e-government strategy factors of (i) Funding; (ii) Project Leadership; and (iii) Political commitment to democracy, confirming that citizens' adoption of e-government is influenced by e-government strategy factors.

E-government project team needs to be empowered and supported to facilitate key initiatives, decisions and programmes that can accelerate and enhance the of success e-government project. When investigating the relationships, informants' had this to say:

> *"Yes and no for a regulatory body, I agree with strengthening the current quality assurance structures"*

> *"Silo structures within government are still a hurdle to overcome, they are for employment purpose creation and not for efficiency"*

These reflect uncoordinated efforts and lapses in project governance hence need for regulation, better coordination and empowering of the project team. For example informants acknowledged that:

> *"At the moment we have 53 government individual ministry websites, everybody is busy building a website to put their personal profiles, because there is no clear vision, objective for creating these websites"*

However, while giving project team autonomy, priority funding must also be availed to support and influence initiatives that target internet access and connectivity for communities across the country, however key e-government informants and policy makers have identified funding as a challenge and the following are extracts of their views:

"Funding is a challenge at the moment, there is lack of centrally managed budget"

"Funding is an issue, some key e-government related project cannot be done and the truth of the matter is that there is no money.

I sit on a number of e-government committees and I know the issues we discuss. I think we lost opportunity to do some things before recession.

At the moment we need XXX millions of pula to connect some centres, not all and there is no money to do that"

As already mentioned it has taken too long (from 2006 to date) for e-government legislation to be enacted and there is no accountability as to why such a delay. The uncoordinated efforts and lapses in project governance can effectively be addressed by empowering the project team and priority funding. Generally initial targets for e-government as discussed in sections 5.5.3 and 5.5.4 reflect project leadership challenges and here a key e-government informant commented that:

Timelines (e-government targets and maturity levels are not achievable by 2016, still a lot to be done"

Botswana faces problems relating to project implementation (Botswana Press Agency, 2010) and limited implementation capacity is a major constraint; it is asserted that unless capacity constraints are addressed at the national level and as a conscious development policy, Botswana will frequently encounter considerable challenges in the implementation of projects, programmes and policies (AfDB Botswana Strategy, 2009). The informants in support of this stated that;

"Batswana (referring to government officials) we are good at talking but to implement it is a problem, we have good policies but less results".

The history of major projects implementation in Botswana in various reports in literature sources, for example (The African Aviation Tribute, 2012; MFDP, 2013; Botswana Press Agency, 2011; MMEWR, 2013; President Address to the Nation, 2009; Mmegi, 2013) validates this view.

This outcome leads to the conclusion that funding, project leadership and governance as well as political commitment to democracy embracing citizens' rights and timely access to government online are critical to both adoption and project implementation success.

7.2.12 Internet and Computer Labs in Schools (H12)

Introduction of ICT curriculum from primary to tertiary education influences provision of computer labs in schools and student access to internet (see appendix 5; hypothesis testing statistical analysis (H12). The tested relationships and correlation of these factors shows critical link between adoption and e-government strategy factors of (i) Human capacity development (availability of critical ICT skills); (ii) ICT Policy and E-readiness (ICT access in school with foster and ICT literate society which yields critical skills necessary to accelerate e-government adoption (iii) Society

development (ICT education and internet access) confirming that citizens' adoption of e-government is influenced by e-government strategy factors. Investigating this further, informants concurred and had this to say:

> *"Through the school net project all school have been provided with computer labs even where there is not internet connectivity"*

7.2.13 Youth targeted Initiatives (H13)

Botswana population is predominantly youth and inclusion of e-government and ICT syllabus and other initiatives to address low ICT skills of citizens in the villages, including funding of community websites and employment incentivising opportunities through e-government both in the short and long run will enable specific youth targeted e-government programmes (see appendix 5; hypothesis testing statistical analysis (H13). The tested relationships and correlation of factors establishes a close link between adoption e-government strategy factors of (i) Human capacity development; (ii) Citizen-users' differentiated funding initiatives; and (iii) Youth Economic empowerment (employment incentives), confirming that citizens' adoption of e-government is influenced by e-government strategy factors. The youth need to be targeted systematically for current and future uptake of e-government endeavours. Agreeing with this one informant suggested that:

> *"Skill level is zero and skills development is a key area as infrastructure development alone will not help, there is need to up skill people on ICT and e-government"*

7.2.14 Universal funding of community websites (H14)

The use of youth to train communities and inclusion of elderly citizens' priorities in e-government programmes have an influence on funding of community websites (see appendix 5; hypothesis testing statistical analysis (H14).The tested relationships and correlation of these factors shows a link between adoption and e-government strategy factors of (i) Citizen-users literacy and education on adoption, confirming that citizens' adoption of e-government is influenced by e-government strategy factors. It is believed that community funding of websites will bridge the ICT disparities between the rural and urban children and one informant commented that:

> *"The rural child is mostly disadvantaged when it comes to ICT and related technology and this becomes evident as they enter the university and other colleges"*

7.2.15 Citizens' users' e-government awareness initiatives (H15)

Initiatives that enhance ICT skills and targets employment creation for citizens through e-government programmes will stimulate and influence citizen-users' e-government interest and awareness (see Appendix 5; hypothesis testing statistical analysis (H15). The tested relationships and correlation of these factors shows a link between adoption and e-government strategy factors of (i) citizens economic empowerment (job opportunities) and (ii) Citizen- stakeholders inclusive change

strategy (ICT skills for inclusion in government online), confirming that citizens' adoption of e-government is influenced by e-government strategy factors.

7.2.16 Citizens' users' Involvement and differentiation (H16)

Specific differentiation initiatives targeting youth, communities (e.g. provision of community websites), elderly citizens and citizens in general to enhance their low ICT skills, introduction of e-government and ICT syllabus content to cater for students will facilitate citizens' users differentiated e-government involvement and provision (see Appendix 5; hypothesis testing statistical analysis (H16).The tested relationships and correlation between these variables validate the impact of e-government strategy factors of (i) categorizing stakeholders, (ii) long term and short term strategies securing adoption and continual use on adoption, confirming that citizens' adoption of e-government is influenced by e-government strategy factors. This aligns to the literature review, contribution and discussion in section 4.3.4.

7.2.17 Observations at Operating Centres:

Observations and discussions conducted with some operators of CACs and private operators on (a) Utilization of the Community Access Centres (CACs) and private internet service providers (ISPs), that is, services citizens acquire and challenges encountered; (b) e-government services priorities and activities of the communities, and (c) management structure, sustainability and generally the business models for CACs, which CACs have the potential and significance to influence citizens' awareness, adoption and continual use of e-government services were revealing. The findings are:

The centres (CACs) that are run by VDCs have very weak management and financial structures. Most operators in the villages both private and government provided centres did not have understanding of what e-government is and even the kind of government services that citizens would normally come for. The records of sales in some of the VDC run centres revealed that most people use the centre for photocopying, buying mobile phone top ups, faxing, few for typing and very limited number for internet. These centres (in the villages) operate on prepaid internet top up meters and do not always top up due to frequent insufficient funds hence do not offer continuous internet access. In some centres when comparing the top up costs and total minutes relative to what they charge their customers, this research revealed that they were operating at a lose on the internet transactions and if they were to break-even they had to charge double though they were already charging more than private providers in urban centres. Generally the business model and sustainability for the centres is questionably unsustainable.

However the centres operated by post offices have a better strategy and higher volumes with ongoing internet access compared to the VDCs operated centres. As for private centres in the city and major villages, they had far better volumes and mostly had been operating over 5 years and seem profitable ventures with varied

services such as typing business plans, students assignment and research work, higher internet volumes, photocopying, photo printing, passport photo, scanning, sales of refreshments. Although the pricing varied across operators, they charged lower than government centres operated by the VDCs and post offices. Further inquiries reveal that the VDCs internet pricing structure was suggested by BTC employees, while the post office officials reveal they were following government recommended pricing as they are administering the centres on behalf of government at a fee. The pricing structure in the villages' coupled with other factors was cited by centre operators as an impediment to ICT and e-government adoption by the rural population.

7.2.18 Document Artefacts:

The e-government documentation assessed relating to stakeholder engagement and involvement (citizens' engagement especially); to gain understanding of progress achieved; to establish the feasibility of timelines set for achievement of targeted National ICT policy milestones and further to assess the authority and autonomy of the e-government implementation team. There was no documentary records availed to suggest that employees and citizens have been consulted, that citizens have been trained on e-government and that there was progress relating to expedient enactment of legislation. The funding model involving the private sector could not be established leaving it to the government alone to fund e-government. The necessary legislation critical to e-government had not been enacted and there were no signs (evidence) of major progress.

7.3 SUMMARY

It is evident from the above findings that there are varying levels of correlational relationships between e-government strategy and adoption factors and these relationships have also been highlighted in the e-government implementation literature (see chapters three and four). In chapter eight a Table 8.1 Matrix is presented to show the link between these factors.

In addition, the above findings demonstrate the use of mixed methods research (triangulated data analysis) using both the SPSS statistical multiple regression analysis and qualitative narrative analysis from interviews to complement and confirm some elements of the statistical results. Furthermore, observation and documentation outcomes have been to a degree used to verified and validated the findings from the surveys and interview data. Asserting the validity and reliability of the research data and results obtained from the data complemented by the rigorous process employed in sample selection (see chapter five) where a lot of careful decisions were made employing existing Botswana structures to achieve a reasonably balanced sample.

In the process both transferability and generalisability of the results have been strengthened to an acceptable extent. In the next chapter a summary of findings and recommendations are presented.

CHAPTER 8: SUMMARY OF RESEARCH FINDINGS AND RECOMMENDATIONS

8.1 Introduction

The overall objective of this research was identifying the key e-government strategy and design elements influencing both the implementation and citizens' adoption of e-government and also to unearth enabling and facilitating factors for informing, consulting and involving citizen-stakeholders in e-government design and implementation towards securing active participation and adoption by citizen-user groups. This chapter therefore presents the summary of research findings, outcomes and recommendations (section 8.2) and the proposed framework and adoption model to guide the e-government initiatives in Botswana (section 8.3). Then chapter summary is presented in section 8.4.

8.2 Findings, Outcomes and Recommendations

This section summarises the outcomes of the empirical research from the triangulated data sources and analysis. Therefore the findings and outcomes have been both derived from the literature analysis and empirical research.

The results of the preliminary study conducted in 2009/2010 revealed lack of citizens' engagement and involvement, low readiness levels, unrealistic targeting, funding issues, access issues and lack of necessary legislation (Chapter five, section 5.5.3). Extended Empirical research conducted end of 2011 and onwards also revealed lack of awareness campaign and lack of citizens' involvement and participation in e-government development. The interviews outcome with the key e-government informants and government stakeholders in Botswana and the document analysis discussed in chapter seven confirmed that citizens have not been consulted on e-government, they are not informed and involved to the extent that government employees are reported as classifying e-government project as an IT project which is there to increase their work load. The levels of ICT and computer utilisation within government and generally across the population is till very low, with interview informants asserting the computer skills capacity usage at 10% in the public sector. The interview informants have stated that at the moment there is no evident strategy in place to bring government employees on board and that there is need for a tangible change management strategy which ideally should have been running parallel with implementation initiatives currently ongoing.

The lack of meaningful citizens and government employees' consultation and engagement including influential stakeholders for example, councillors and other representatives such as chiefs, has resulted in low levels of citizens' awareness and readiness for e-government. E-government awareness at district levels including

villages and rural areas is vested on district administration and related committees structures; ironically, low awareness levels have been revealed within the same structures expected to raise awareness, consult, inform and engage citizens. While the deployed CACs and other initiatives such as I-partnership, Sesigo project (see chapter six) are good efforts by government, however, they have not been utilised to capacity due to lack of awareness and citizens engagement.

Even though the Botswana government has made tremendous progress for both national and international connectivity, significant challenges are still revealed around the last mile connectivity consequently delaying the commissioning of a large number of Community Access Centres (CACs) and Government Data Network (GDN) downtime was also identified as a challenge. There are e-government project coordination issues resulting in delayed legislation which was initially targeted for enactment on 2006, but still not in place (2013). Uncoordinated funding has also resulted in increasing silo structures within government for example officials in charge of government portal and other interview informants confirmed the existence of 53 individual ministry portals created since the start of e-government project.

The deployment of CACs does not reflect a viable financially sound and sustainable management strategy. The current centres, especially community run centres lack viability, management capability and generally the business model is deficient. Upon follow up in July 2013, it has transpired that some centres in Kgatleng district that were operational in 2011 have now ceased operating due to financial and management constraints.

The research findings answered the main research question; How can influences upon success in e-government project be better understood and citizens' stakeholder adoption of e-government enhanced to facilitate successful development of e-government in Botswana? The findings and outcomes are in two fold, firstly, e-government success is driven by key strategy influential factors presented in (section 8.2.1) and secondly by citizens involvement and participation adoption influences presented in (section 8.2.2).

8.2.1 Key Influential E-government Strategy Factors Impacting on Adoption

In chapter three the applied e-government implementation experiences have been discussed to understand factors that led to both the successes and failures of e-government projects in the respective developing and developed countries. This enabled the study to identify key strategy design influential elements that influence e-government implementation and citizens' adoption which have been presented and discussed in details in chapter four. The data collection (chapter five) and the analysis of data were performed to validate these key implementation and adoption elements. The key findings and from the analysis of data relating to strategy factors are and their significant impact on adoption revealed that;

Citizens' stakeholder inclusive change management strategy factor, Influences the citizens adoption factors of categorising and identifying citizens cluster groups, offering user groups involvement differentiation through participative representation of these different cluster groups in e-government change teams which then motivates the establishment of citizens' focused communication and media channels. That is, stakeholder inclusive change management has impact on the citizens' adoption factor processes of; (a) informing, consulting and involving stakeholders, and (b) securing citizen-stakeholder groups' participation and adoption of e-government and future continual use.

On human capacity development strategy factor, that is, ICT human (citizens) capital development has a direct impact on citizens' e-government adoption factors of ICT curriculum, provision of computer labs and internet in schools including internet subsidies for rural people and communities as well as youth targeted initiatives to facilitate and secure e-government adoption. The human capacity development strategy factor through these adoption initiatives broadly impact on the adoption process of; securing citizen-stakeholder groups' participation and adoption of e-government and future continual use; and building understanding, enabling, influencing and facilitating citizens to adopt e-government.

The Infrastructure development connectivity and technical issues (strategy factors) are directly related to countrywide Internet access to citizens which influences user-groups differentiated involvement, for example, funding differentiated initiatives targeting youth, school computer labs targeting students, subsidies for villagers targeting communities. Similarly, these have an impact on the broad adoption factor processes of; securing citizen-stakeholder groups' participation and adoption of e-government and future continual use; and enabling, influencing and facilitating citizens to adopt e-government.

Project leadership and governance strategy factor has a direct impact on the e-government project team's autonomy to drive citizens' targeted e-government project initiatives that can motivate citizens' adoption. The project team must therefore be empowered and priority funding afforded to achieve successful e-government. Closely link to project team autonomy is the impact political commitment to democracy as an e-government strategy factor on citizens' stakeholders' involvement and participation, with resulting impact in enhancing autonomy of the project team and prioritised e-government funding, and also established citizens' communication and media channels to ensure all citizens are well informed and consulted to inform the design and finally adopt e-government and also participate in future innovation endeavours. Legislation and policy strategy factor also has a direct impact on adoption factors of building citizens trust, knowledge and awareness. Trust and privacy issues are important for citizens to use any e-government services, therefore have significant impact of facilitating e-government adoption and usage.

Sustainable Funding (short term and long term) strategy factor has a direct impact on the adoption factors of countrywide citizens' internet access and project team empowerment and funding priority. The more autonomy and e-government funding priority implementers have the more likely influence to embark on initiatives that drive universal internet access. Undoubtedly citizens' internet access is a necessity for citizens' e-government adoption and funding as a strategic factor is crucial to facilitate access of ICT and internet by citizens.

ICT policy and e-readiness action plans strategy factors directly impact on adoption factors of providing Internet subsidies to citizens in the villages, introducing ICT curriculum in school and securing participation of influential citizens' stakeholders to motivate adoption across a wide population spectrum. When ICT and E-readiness action plans are focused to providing access to citizens, this enhances and promotes awareness and use of ICT which ultimately leads to high e-readiness levels for e-government services and also ICT literate and information society which are crucial for global economy.

Information and data access strategy factor directly impact on adoption factor of citizens' trust, knowledge and awareness as well provision of citizens' communication and media channels. E-government is about provision of government information and services to citizens offering 24/7 access. The extent to which citizens can trust government in providing information and data access and availability of citizens' focused media communication and media channels, will have impact on how citizens align with e-government and finally adopt it.

Another key influential strategy finding and outcome is that a successfully implemented and adopted e-government is driven by the strategy design factor of achieving citizens' stakeholders' involvement and participation in the development and implementation processes of the e-government project, herein presented in section 8.2.2 below.

8.2.2 Citizens Involvement, Participation and Adoption Influences

This research has revealed that citizens' adoption of e-government is informed by a number of interrelated and very closely correlated factors and the key outcomes are that;

- Youth targeted initiatives, training of communities and provision of community websites, catering for elderly citizens' priorities and initiatives to enhance low ICT skills, introduction of e-government and ICT syllabus content to cater for students will facilitate citizens users' differentiated e-government involvement and provision (appendix 6 statistical attachment ST10)

- Botswana population is predominantly youth who are largely affected by unemployment hence the inclusion of e-government and ICT syllabus and initiatives to address low ICT skills of citizens in the villages, including funding

of community websites and offering employment opportunities and incentives (both in the short and long run) that come with e-government implementation and adoption will have a positive impact on youth and build up adoption capacity for current and continual use (future use) of e-government (see appendix 6 statistical attachment ST1)

- Citizens' user- groups' e-government awareness initiatives are largely influenced by Initiatives enhancing ICT skills and targeting employment creation for citizens through e-government programmes (see appendix 5 statistical attachment ST13). ICT skills lead to human development capacity needed for e-government and employment creation contributes to economic and human development

- Use of youth to train communities on ICT and e-government and inclusion of elderly citizens' priorities in e-government programmes is positively related to the funding of community websites. This ensures that all citizens groups participate in the democratic and governance process through e-government and also empower the societies to partake in global information society as well as build capacity towards information literacy through ICT access as core leverage.

- Introduction of ICT curriculum from primary to tertiary education, provision of computer labs and student access to internet in schools will lead to an ICT literate society which is critical for e-government adoption and future citizens driven innovative endeavours (see appendix 6 statistical attachments ST 6). This reflects the criticalness of e-government strategy factors of; human capacity development both in the short and long term and ICT access and connectivity to empower of citizens through e-government and alongside fulfil a critical democratic mandate.

- Prioritised funding of e-government will enable and empower project implementation team to embark on e-government initiatives that drive citizens' trust, knowledge and facilitate countrywide internet access (see appendix 6 statistical attachment ST9). Funding is the life blood of e-government and adoption cannot be achieved without resources to mobilise the citizens to align with e-government, have trust on both the initiative and agency propelling change and gain wider knowledge on e-government. Funding also facilitates and provides countrywide ICT and internet access for all citizens groups irrespective of their socio-economic and political significant. Therefore, funding as an e-government strategy factor impacts heavily on adoption.

- The representation of citizens' stakeholders in e-government initiatives and change teams and availability of citizens' media and communication channels together with ICT syllabus in schools and enhancing ICT skills of the communities will result in citizens trust, knowledge, awareness and readiness

for e-government (see appendix 6 statistical attachment ST 8). Hence, there is a correlative relationship to the e-government strategy factors of Human development (ICT skills and syllabus), Change management (citizens' representation in change teams), Information and Data Access (citizens' access channels).

- Citizens' stakeholders' categorisation facilitates the provision of citizens' targeted incentives to acquire ICT-internet gadgets which ultimately enhances citizens' knowledge and e-government trust (see appendix 6 statistical attachment ST 7).

- Citizens' stakeholder groups' participation in e-government including rural communities, together with government transparency and provision of computer labs and internet in schools as well as ICT curriculum will positively impact on the establishment of citizens media communication networks (see appendix 6 statistical attachment ST 14).

- Provision of computer labs and internet in schools, subsidisation of rural communities supported by media channels and government openness to citizens regarding e-government will have a positive impact on the ICT curriculum from primary to tertiary levels (see appendix 6 statistical attachment ST 10).

- ICT and internet subsidies for citizens in the villages is influenced by ICT curriculum in schools, citizens countrywide internet access and established communication channels to build awareness and share information widely on e-government as well as effective use and engagement of influential stakeholders complemented by e-government project priority funding and project's team autonomy to initiate citizens' focused programmes (see appendix 6 statistical attachment ST 5).

- Levels of citizens' trust, knowledge, awareness and readiness for e-government where rural communities are ICT skilled, citizens in the villages broadly provided with ICT-Internet subsidies and wider citizens' communication channels in place, will facilitate and influence the participation of citizens' influential stakeholder in e-government current and future design and implementation processes (see appendix 6 statistical attachments ST 4).

8.2.3 Matrix Relationship between Adoption and Strategy Influential Factors

As highlighted in section 7.3 the matrix table 8.1 below is presented to highlight the established correlations and dependent relationships linking 'e-government critical strategy factors' and 'citizens' involvement, participation and adoption factors' influencing e-government project's success and the empirical validation methods used to establish the correlations and overall impact thereof.

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Table 8.1 Matrix Relationships between Adoption Factors and Strategy Key Influential Factors

Adoption and Strategy Key Influential Factors Matrix

Relationship keys:

- ✓ Identified relationship and correlation between citizens' adoption factors and e-government strategy factors
- ●● Relationship both statistically and qualitatively validated
- ● Relationship only validated statistically
- ◘ Existing literature evidence

Citizens' Stakeholders Involvement and Participation Adoption Factors	Critical E-government Strategy Success Factors (E-government Design, Implementation and Adoption Success Factors)										Citizens' Involvement and Participation			Research Validation	
	Infrastructure Development, Connectivity and Technical Issues	Human Capital Development	ICT Policy and E-readiness Plans	Legislation and Policy	Political Commitment to Democracy	Project Leadership and Governance	Economic Development	Information and Data Access	Sustainable Funding	Stakeholder Inclusive change Management	Informing, consulting and consulting citizen-stakeholder groups	Building understanding, enabling, influencing and facilitating E-gov	Securing citizen-stakeholder groups participation & adoption	Statistical and Qualitative (Chapter seven)	four)Analysis of countries' applied experiences (Chapters three and
Informing, consulting and consulting citizen-stakeholder groups															
Categorisation and Identification of citizen-Stakeholders					√					√	✓			●●	◘
Citizens' Stakeholders Readiness levels for e-government	√	√			√					√	✓			●●	◘
Influential Stakeholders' Engagement and Participation		√	√		√			√		√	✓			●●	◘
Establish Citizen Focused Communication and Media Channels		√			√			√		√	✓			●●	◘
Government Stakeholder Openness and Transparency in involving citizens in e-government	√	√	√		√					√	✓			●●	◘
Building understanding, enabling, influencing and facilitating citizen-groups' involvement in e-government															
Building Citizens' Trust, knowledge and Awareness				√	√					√		✓		●●	◘

Embark on Citizens' Awareness Initiatives					√		√			√		✓		●	◘
Grant Project Team Autonomy to Drive Citizens initiatives and Prioritise E-government Funding					√	√			√			✓		●●	◘
Provide Countrywide Citizens' Internet Access		√	√			√			√			✓		●●	◘
Citizens Representation in E-government Change Teams		√			√					√		✓		●●	◘
Enhance ICT Skills and Offer Incentives (Employment)		√					√					✓		●●	◘
Securing citizen-stakeholder groups participation, adoption of E-government and continual use															
Offer Differentiated User-groups Involvement								√		X			✓	●	◘
Universal Funding for Communities Initiatives		√						√		√			✓	●●	◘
Youth Targeted Initiatives and Training of communities		√					√						✓	●●	◘
Internet Subsidization for Villagers	√	√	√					√					✓	●●	◘
Cater for Students-Computer Labs and Internet Access in Schools		√	√										✓	●●	◘
ICT Curriculum at all levels starting from primary schools		√	√										✓	●●	◘

The main highlight of the matrix is that the 'ticks' and the fact that a factor is both statistically and qualitatively validated leads to the conclusion that a significant dependent relationship exists between citizens adoption and e-government strategy design factors. However, the actual number of ticks per factor is not necessarily used as the basis of identifying the significance of the relationship. The fact that there is statistical and / or qualitative validation and considered sufficient.

Aligned to the section 8.2.1 and the matrix table above it is herein concluded that e-government project's success is a composite of key strategy factors of; (a) Stakeholders inclusive change management; (b)Infrastructure Development and Technical issues; (c) Project Leadership and governance; (d) Human Capacity Development; (e) Economic Development; (f) Political Commitment to Democracy; (g) Legislation and Policy; (h) Sustainable Funding (short term and long term); (i) ICT Policy and E-readiness Action Plans; (j) Information and Data Access; (k) Citizens Stakeholders involvement and Participation. These factors then have a significant impact on citizens' adoption of e-government, that is, adoption is an output of key strategy inputs and the two are closely related.

Further, within the key strategy factor of; citizens' stakeholders' involvement and participation, citizens will or not adopt e-government and align with the change process based on whether or not and also how they have been (a) informed, consulted and involved in e-government design and implementation; (b) citizens adoption of e-government is a process that needs to be enabled, influenced and facilitated through building understanding amongst citizens before they can act; (c) the citizens' stakeholder groups' participation and adoption of e-government can be secured through a citizen-centric e-government strategy and rollout of same strategic milestones.

E-government adoption therefore is seen as a collaborative process of closely interrelated and correlative strategy engagement processes and initiatives delivered and implemented, through partnerships of both government and citizen-groups or representatives thereof. This affirms that successful adoption is synonymous with both government and citizens' stakeholders' involvement and participation in the design and implementation. A theoretical and conceptual basis for this development has already been established through analytic review of e-government implementation experiences in chapter three and subsequently discussed in more depth in chapter four. The e-government strategy as a business plan is indeed the required enterprise area that needs to be given special and continual attention to attain the required design and implementation output.

In section 4.2.1 on the contextual e-government implementation factors observed in the implementation experiences of developed and developing countries, it has been noted that there is lack of clarity on what constitutes critical or key e-government strategy factors. This summary of findings herein presented shed light and guidance into the key elements of e-government strategy that developing countries need to be

aware of and seek to incorporate in their strategic plans in order to enhance the implementation successes in their respective projects.

8.2.4 Recommendations for E-government Development Implementation and Citizens' Adoption in Botswana

Consequent to the above conclusion on the key e-government strategy factors based observations made from the research findings presented in chapter seven (sections 7.2.1 to 7.2.16) and summarised discussion of findings in sections 8.2.1; 8.2.2 and 8.2.3 including the matrix table 8.1, the following recommendations are suggested in order to address the challenges facing e-government implementation in Botswana;

- The e-government 'key strategy framework factors' set out in Figure 4.1 and captured in table matrix 8.1 as ''critical e-government strategy success factors'' are suggested as fundamental to e-government design, implementation and adoption success and are worth incorporating when implementing e-government programmes

- There is need for engagement, involvement and participation of citizens; stakeholders in e-government, their expectations, needs, priorities and fears must be understood and inform the process.

- The e-government engagement and involvement process must offer differentiation for different citizens cluster groups.

- Development and execution of citizens focused change strategy including employees engagement and exploring the concept of community websites

- Develop a coordinated structure for training citizens, communities and government employees in the villages including mentoring and monitoring e-government related initiatives in schools

- Consider e-government funding as an independent item in the National budgets allocation and explore the concept of having a dedicated regulatory body reporting to the state president's office or parliament.

- Give more autonomy and funding to the e-government project team to drive the project implementation and citizens focused initiative.

- Compulsory ICT education at all levels of education (from pre-school and cover private institutions and schools).

- Identify media houses and communication channels with wide population access and readership and use same to continuously disseminate e-government and ICT information to citizens groups, (avenues such as freely

provided government owned newspaper, radio, TV, and other avenues can be used).

Based on other findings from the analysis of observations made at existing operating centres in Botswana (section 7.2.17) and document artefacts analysis outcome (section 7.2.18) the following additional recommendations are suggested;

- Botswana government should consider outsourcing of the public education, change initiatives, business model and mentoring of CACs to private entities.
- Develop a bankable proposition to encourage and motivate the private sector to participate in district areas
- Restructure the district administrative structures and committees (DVC, LDP, DMSC, VDC and VET) to incorporate the e-government dimension.
- Harmonise the pricing structures of the various CACs run by communities and post offices and prioritise some centres for free public access on selected services.
- Map a strategy to motivate politicians and key officials' interest and active participation in e-government.
- Identify citizens' employment programmes and device execution strategy to motivate targeted adoption responses.
- Consider having a strategy around e-government project monitoring and evaluation.
- Develop a business model for Community Access Centres. The model could focus around (a) Desktop publishing services, (b) Tele centre services (c) Government services, (d) Community cultural services, (e) Sectoral information access guided by economics of the respective regions, (f) Training services; Business support services, and (g) other services.

8.3 Proposed Strategy Framework and Conceptual Model

To fulfil the overall research aim of the study this section presents both the proposed (a) an e-government strategy framework, and (b) citizen-stakeholders centric e-government implementation and adoption model within the Botswana context.

In the review of literature in the preceding chapters and discussions on the preliminary investigation conducted at the beginning of this research (chapters five), the current e-government status in Botswana (chapter six), the statistical and narrative analysis, document analysis, observation outcomes and overall findings as in chapter seven . It is evident that there are inherent gaps that need to be mitigated to support the successful implementation of e-government in Botswana. For example

it is notable from the interviews analysis and findings that there is no appropriately coordinated budget for e-government, citizens and government employees have not been appropriately engaged, e-government has not been appropriately rolled out to the core district administrative structures, there is no e-government legislation in place and generally the e-government coordination is fragmented with no defined funding model. In a nutshell the project is challenged by governance and leadership issues, change management, legislation and policy, information and data access issues, funding, connectivity and access issues in spite of infrastructural milestones achieved. The applied experiences of e-government implementation discussed in chapter three identified key strategy influential elements that drive e-government success. These elements have been discussed in details in chapter four and simultaneously tested with the citizens' involvement and participation factors.

In chapter one and two it is presented that citizens are the primary stakeholders and the e-government project like in the traditional governance setup where a government exists to serve the citizens, therefore e-government cannot be successfully implemented and adopted without the citizens' engagement and involvement in the design and implementation processes, starting with e-readiness throughout the implementation to adoption and future innovations. Based on overall research findings an E-government Strategy Framework is proposed in figure 8.1 bridging together the various conceptual elements of citizens' stakeholders' perspective of e-government with key elements for developing e-government, which elements are predominantly driven by government stakeholders. Further, in figure 8.2 a Conceptual Citizen-Stakeholder Centric Implementation and Adoption (CSCEI) Model for Botswana is also proposed. This confirm the research premise that the stakeholder theory is core to influencing citizens' adoption of e-government, and therefore validates Figure 5.5 in chapter five that citizens' involvement and participation in e-government development is a key strategy influential success factor as discussed chapters three and four (Figure 4.1).

Figure 8.1 Proposed E-government Strategy Framework for Botswana

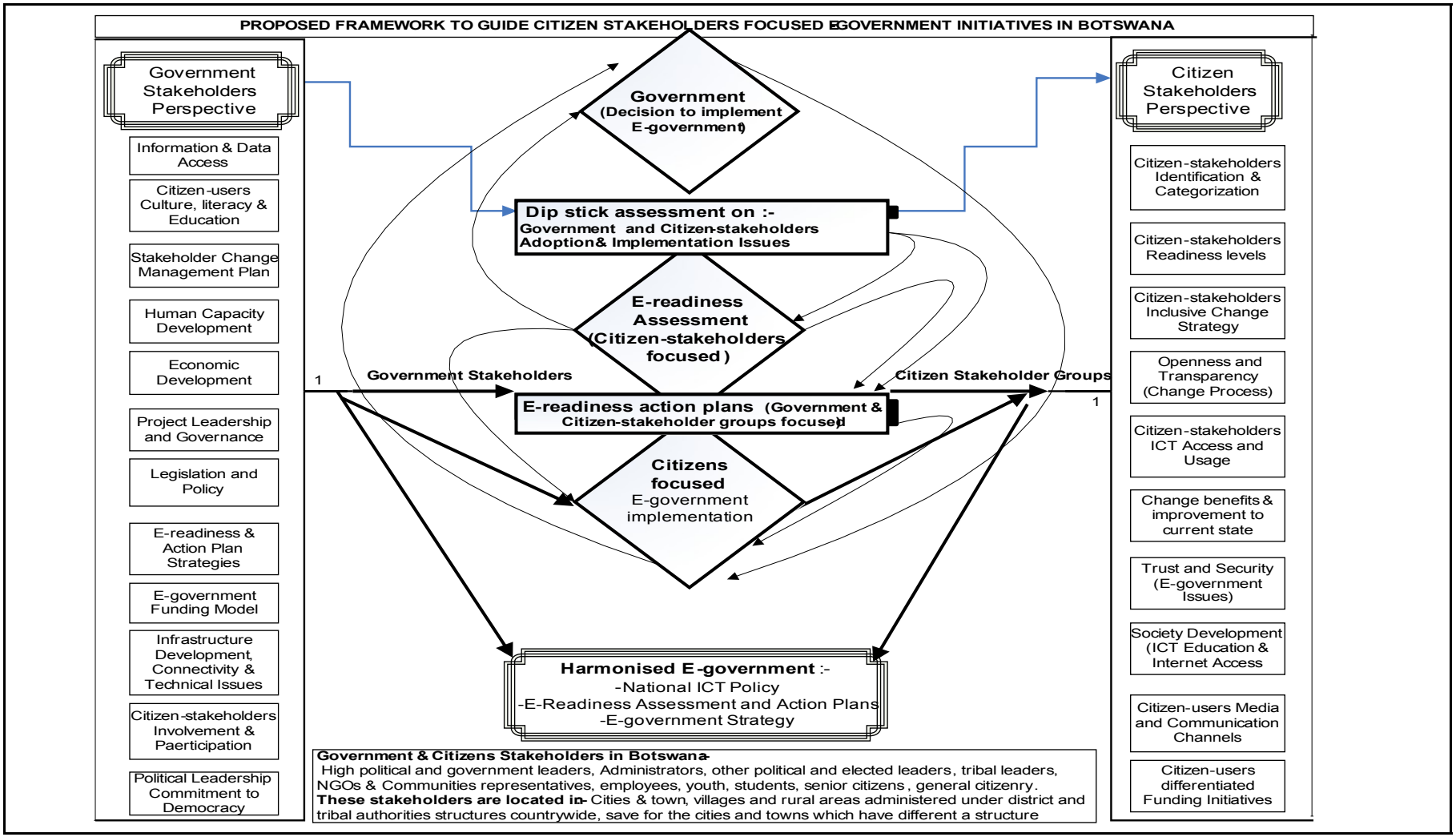
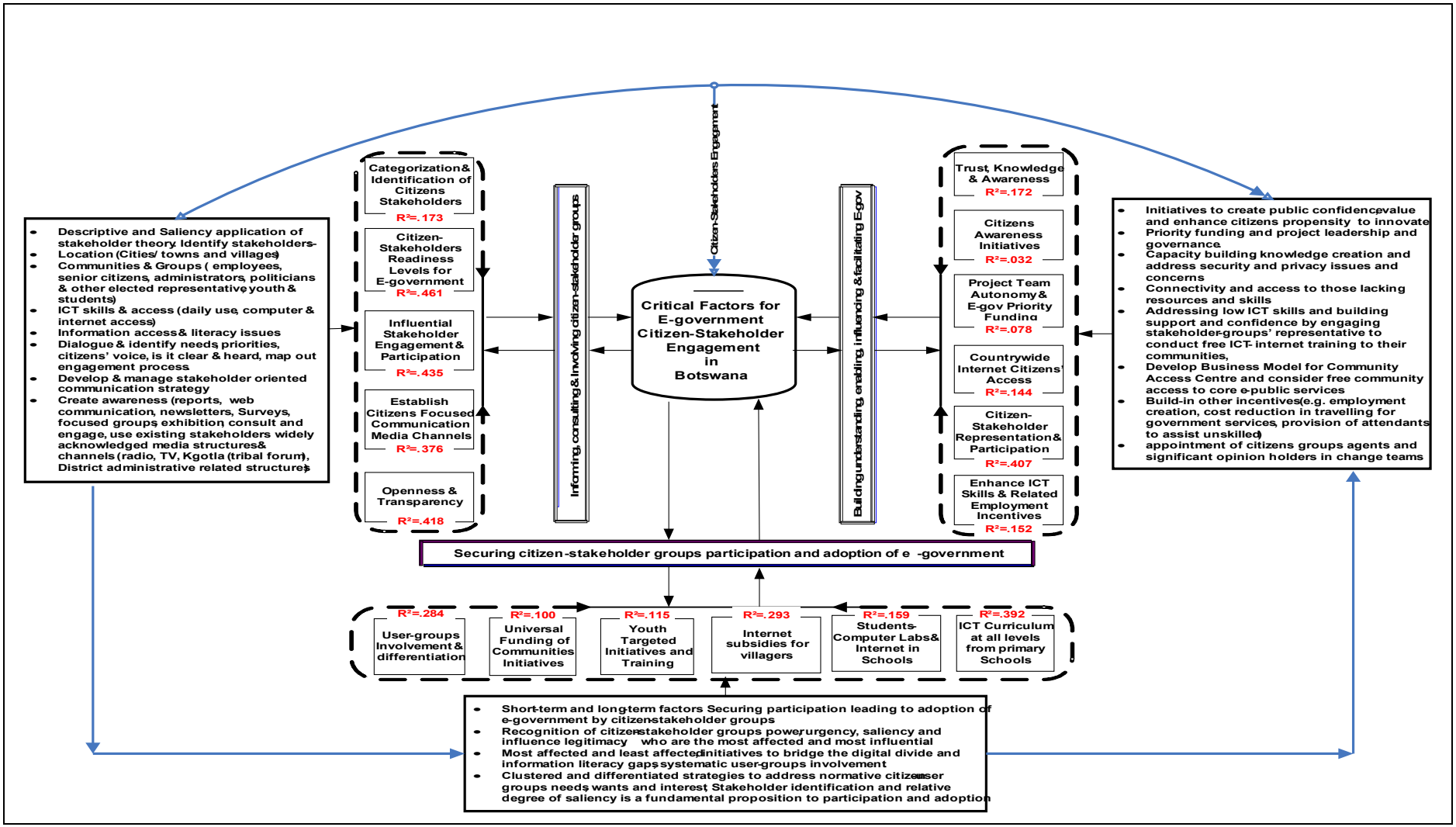


Figure 8.2 Proposed Conceptual Citizen-Stakeholder Centric E-gov Implementation Adoption (CSCEI) Model for Botswana


Citizen-Stakeholders Engagment
Descriptive and Saliency application of stakeholder theory Identify stakeholders-
Location (Cities/ towns and villages)
Communities & Groups (employees, senior citizens, administrators, politicians & other elected representative, youth & students)
ICT skills & access (daily use, computer & internet access)
Information access & literacy issues
Dialogue & identify needs, priorities, citizens' voice, is it clear & heard, map out engagement process
Develop & manage stakeholder oriented communication strategy
Create awareness (reports, web communication, newsletters, Surveys, focused groups, exhibition, consult and engage, use existing stakeholders widely acknowledged media structures & channels (radio, TV, Kgotla (tribal forum), District administrative related structures)
Categorization & Identification of Citizens Stakeholders
R²=.173
Citizen-Stakeholders Readiness Levels for E-government
R²=.461
Influential Stakeholder Engagement & Participation
R²=.435
Establish Citizens Focused Communication Media Channels
R²=.376
Openness & Transparency
R²=.418
Informing, consulting & involving citizen-stakeholder groups
Critical Factors for E-government Citizen-Stakeholder Engagement in Botswana
Building understanding, enabling, influencing & facilitating E-gov
Trust, Knowledge & Awareness
R²=.172
Citizens Awareness Initiatives
R²=.032
Project Team Autonomy & E-gov Priority Funding
R²=.078
Countrywide Internet Citizens' Access
R²=.144
Citizen-Stakeholder Representation & Participation
R²=.407
Enhance ICT Skills & Related Employment Incentives
R²=.152
Initiatives to create public confidence value and enhance citizens propensity to innovate
Priority funding and project leadership and governance
Capacity building knowledge creation and address security and privacy issues and concerns
Connectivity and access to those lacking resources and skills
Addressing low ICT skills and building support and confidence by engaging stakeholder-groups' representative to conduct free ICT- internet training to their communities,
Develop Business Model for Community Access Centre and consider free community access to core e-public services
Build-in other incentives (e.g. employment creation, cost reduction in travelling for government services, provision of attendants to assist unskilled)
appointment of citizens groups agents and significant opinion holders in change teams
Securing citizen-stakeholder groups participation and adoption of e -government
R²=.284
User-groups Involvement & differentiation
R²=.100
Universal Funding of Communities Initiatives
R²=.115
Youth Targeted Initiatives and Training
R²=.293
Internet subsidies for villagers
R²=.159
Students-Computer Labs & Internet in Schools
R²=.392
ICT Curriculum at all levels from primary Schools
Short-term and long-term factors Securing participation leading to adoption of e-government by citizen-stakeholder groups
Recognition of citizen-stakeholder groups power, urgency, saliency and influence legitimacy who are the most affected and most influential
Most affected and least affected initiatives to bridge the digital divide and information literacy gaps, systematic user-groups involvement
Clustered and differentiated strategies to address normative citizen-user groups needs, wants and interest, Stakeholder identification and relative degree of saliency is a fundamental proposition to participation and adoption

As mentioned, the involvement and participation of citizens in e-government initiatives, starting with e-readiness assessment is fundamental to a successful e-government citizens' adoption as all citizens' participants have a view of what they would like themselves, their children and their communities to have in the future and it enables government to (a) Prioritise citizens awareness as a critical component of the change model, notably so with e-government; (b) Provide information and education for citizens to make evaluation of the e-government change process; (c) Identify, define and classify citizens' segments groups' information needs and prioritise accordingly; (d) Identify and effectively use the communication media within the population social networks; and (e) Appropriately gauge citizens' capacity and propensity to accept an innovation and maximise the use of opinion leaders, change agents and other citizen organs likely to be effective in disseminating information across a wider societies and communities. The greater awareness amongst citizen-users creates understanding, trust and accelerates adoption.

Adoption is a continuous and ongoing process where citizen-user adopters have an opportunity to be consulted, engaged, participate, learn about e-government, be convinced, motivated and persuaded to try it out before making a decision to adopt or reject it. This emphasizes that e-government innovation is a process that must highly be facilitated, supported over a period of time to yield the desired adoption levels by citizen-users. Understanding and determining the population (citizen-user groups) e-government intends to serve is a critical phase of e-government initialisation. Governments have to employ all efforts to provide user focused e-government services equitably. This can not be achieved by only focusing on the physical access, afforbability of hardware, software, connectivity e.g internet and ICT skills, focus should extend beyond to cover; what motivates individuals to become connected and familiarize themselves with government on line.

8.4 Summary

This chapter has outlined in a summarised form the key research findings from the analysis of data performed in chapter seven and provided recommendations to address the identified implementation pitfalls. In fulfilling the aim of study, the strategy framework for designing and implementing a citizen centric e-government and the citizen-stakeholder centric adoption model to guide the initiatives in Botswana have been proposed. The next chapter is the final conclusions chapter

CHAPTER 9: CONCLUSION, CONTRIBUTION AND FUTURE RESEARCH

9.1 Introduction

This final chapter presents the significant contribution made by the research to the field of knowledge and a brief note on both the limitations of the research and potential avenues for future research and finally the summarised concluding remarks marking the end of the thesis.

9.2 Contribution to Knowledge

This study has conducted an extensive review of the literature based implementation frameworks and adoption models and determined the extent to which the models and framework more or less inform e-government design and development from the strategy context and further identified the citizens' involvement and participation as a critical strategy (key influential design) factor. It has been noted that in spite of the many frameworks and models, e-government implementation in developing countries still continued to encounter significant challenges leading to failing projects (chapter two) propelling the need for empirically validated models and frameworks.

The applied implementation experiences of both developed and developing countries have been utilised to identify the key elements that influenced the successes and failures of e-government projects in the respective countries (chapter three). Through this analytic process, the study determined and identified the strategy critical factors that influence the e-government implementation and adoption success. Consequently the identified success factors have been well discussed to support the theoretical proposition thereof (chapter four). Therefore the research has made significant contribution to e-government implementation and citizens' adoption literature.

The identified factors were further subjected to a triangulated empirical testing, resulting in the development of an empirically validated and verified e-government strategy framework (Figure 8.1) to guide the citizens' focused e-government design and implementation in Botswana (chapter seven and chapter eight). Through this the study has contributed to both new knowledge and practice in the e-government field.

A further significant contribution to knowledge in this study is the development of the proposed citizen-centric stakeholder adoption model (Figure 8.2). The model provides a practical process to support the e-government implementation endeavours in Botswana and draws relationships and influences between the strategy critical success influencing factors in (figure 8.1) to the adoption process model itself. See table 8.1 Matrix Relationships between Adoption Factors and Strategy Key Influential Factors. The conceptual model through the use of stakeholder theory details the process through which citizens' stakeholders' can be identified, categorised, involved and supported to participate in e-government development, implementation and ultimately secure their adoption of e-government

and continual use. The model provides specificity in the Botswana context with regard to identifying and engaging the various citizens' stakeholders' such as youth and students to build current and future usage capacity for e-government.

In chapter six a detailed discussion and analysis of the Botswana case study has been articulated to reflect on how the (a) society (different citizens cluster groups across the broader Botswana); (b) the cultures and traditions of population segments; (c) complexities of the population structures; (d) diamond dependent economic structure of Botswana; (e) history of major projects implementation; and (f) the district governance structures and related committees, have a significant impact on the e-government implementation in Botswana which can support or impede the success of the project. This also contributes significantly to the knowledge in the specific context of Botswana which can be a pointer to other implementing nations to identify peculiarities that are unique in their context impacting on the project success.

Lastly the data collection and analysis approaches (data triangulation, methodological triangulation, environmental triangulation and analysis triangulation) and the innovative utilisation of the Botswana administrative structures to achieve a reasonably balanced multiple clustered samples of stakeholders' representation in the final sample equally provides a significant insight into how a representative sample selection can be achieved, through the effective application of research methods, thus a practical contribution to the research methodology knowledge and application. See chapter five.

9.3 Research Limitations

Whilst the identification of the key e-government strategy influential factors emanated from applied implementation experiences of both developed and developing countries and would seem to provide more generalised findings. However, the proposed research adoption model and the strategy framework have been contextualised in the Botswana case and may not be generalised to a wider degree to other countries without conducting further research studies in such countries. However, the framework and model can be used as a background theory and guide for researchers in similar endeavours.

9.4 Future Research

The research is focused on citizens and government stakeholders and did not include government to businesses (G2B) participatory involvement, hence, an avenue for future research. Further research is also needed to validate the framework and models presented here in different contexts of other developing countries neighbouring Botswana.

E-government is relatively new in Botswana as is traceable from 2004 with the e-readiness assessment which was followed by the National ICT policy of 2007, so there is need for research on the evaluation and monitoring strategies for the

implementation processes in Botswana and the sustainability and business model for Community Access Centres.

9.5 Concluding Remarks

The research planned to propose both the e-government strategy framework and citizens' adoption model for Botswana a developing country. This intended to provide theoretical and practical understanding on how can influences upon success in e-government project be better understood and citizens' stakeholder adoption of e-government enhanced to facilitate successful development of e-government in Botswana. It has been noted from the various literature reviewed in this study that even though many developing countries have established promising e-government initiatives, with the view to enhance accessibility of government services and information to their citizens, the biggest challenge was that, governments tended to design and launch online services based on what they assume citizens need without consulting and engaging citizens hence projects implemented without measuring what increases citizens' willingness to adopt e-government services. This then resulted in increasing failures of what would otherwise be successful initiatives.

The adoption of e-government requires an integrated citizen-groups engagement approach and strategy framework to build and facilitate e-government understanding and finally secure citizens' access and adoption. This study therefore intended to fill this gap. Involving and engaging the citizens at the initial stage of e-government process starting with the e-readiness assessment is a high priority to ensure e-government reaches all the citizens regardless of geographic dispensations, economic, social and political status, age, language, or access to the Internet. People with low income, women, youth, disabled, disadvantaged and those living in rural areas should systematically benefit from newer technologies.

The proposed strategy framework and adoption model provide findings from a combination of the literature evidence, applied implementation experiences of countries that have implemented e-government projects and mixed methods research case study was utilised to address the gaps between e-government strategy design, implementation and adoption in theory and practice.

The evidence found in this study is helpful to focus the e-government implementation and adoption in Botswana, both at strategy implementation and citizens' participatory involvement levels, moreover that e-government is relatively new in Botswana with no study at this level and focus been carried out to date. This research therefore has made a novel contribution to e-government field and knowledge. Though the model and framework are Botswana based, they can however, with necessary variation be used to guide e-government initiatives in other countries, especially within the SADC region (neighbouring Botswana).

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Appendix 1

Questionnaire Survey One

(OP-QS1)

By Racious Moilamashi Moatshe (PhD E-government research student (UK)

*This questionnaire survey is part of my doctoral research project on the **E-government Implementation and Adoption, the case of Botswana government. The purpose of the** research is to determine, establish and to critically evaluate key issues that can support or impede citizens' acceptance of an e-government innovation, and the challenges and barriers facing e-government establishment in Botswana. This is done with the view to determine the appropriate approach and /or a model for e-government and consequently recommend best implementation strategies for Botswana government.*

Please note that your participation is voluntary and you are at liberty to withdraw from the survey at any point in time should you so elect. In addition, the information provided will be kept strictly confidential and in all responses, neither your identity will be divulged to any individual, body or authority, nor the individual nor work organization will be identified in any report or release. The information will only and only be used by the researcher for the research purpose mentioned above.

NOTE: Respondents' confidentiality is a critical ethical factor taken seriously in this research.

PART ONE

The following statements assess issues, barriers and challenges confronting e-government implementation in Botswana. Please circle the most appropriate option.

Strongly Agree (5)

Agree (4)

Neutral (3)

Disagree (2)

Strongly disagree (1)

		D				A			
SECTION A: Access & connectivity									
AA1	There is sufficient, reliable and secure ICT networks to facilitate data and media communication access to all citizens.	1	2	3	4	5			
AA3	There are sufficient government subsidies for citizens in the villages to access ICTs and internet	1	2	3	4	5			
AA4	Vast majority of citizens in towns and cities are e-ware and e-ready	1	2	3	4	5			
AA5	There is sufficient ICT, internet access and skills by government employees	1	2	3	4	5			
AA6	All secondary schools have computer labs and internet connections	1	2	3	4	5			
AA7	All students in government secondary schools have computer access	1	2	3	4	5			
SECTION B: Government Website Access									
BB1	There is adequate citizens awareness about the existence of government website	1	2	3	4	5			
BB2	All government information is provided online	1	2	3	4	5			
BB3	Citizens are able to download government information online with ease	1	2	3	4	5			
BB4	Citizens are able to acquire government services online and perform transactions	1	2	3	4	5			
BB5	Citizens are able to participate and contribute to government policy discussions online	1	2	3	4	5			
SECTION C: E-government project awareness									
CC1	All citizens are aware about e-government projects	1	2	3	4	5			
CC2	There is enough widely shared information on e-government benefits to citizens	1	2	3	4	5			
CC3	Citizens' representatives are part of the e-government marketing, campaign and change advocacy teams.	1	2	3	4	5			
CC4	Sufficient and targeted e-government awareness campaigns have been made to all people in the villages including remote areas	1	2	3	4	5			
CC5	There is a specific unit task with creating awareness on e-government and ensuring citizens buy-in.	1	2	3	4	5			
CC6	There are well established media channels updating progress on e-government	1	2	3	4	5			
CC7	Citizens in urban areas are more aware about e-government than those in the villages	1	2	3	4	5			
CC8	Government has made significant effort in creating e-government awareness amongst all citizens	1	2	3	4	5			

SECTION D: ICT Training & Education									
DD1	Teaching in primary and secondary education encourages ICT and other use of information technology innovations.	1	2	3	4	5			
DD2	Teaching in primary and secondary education provides adequate instruction in ICTs and other web technologies.	1	2	3	4	5			
DD8	There is adequate trained personnel to assist citizens in each village to access and use ICT, internet and web technologies.	1	2	3	4	5			
SECTION E: Culture of Batswana (citizens) towards change									
EE2	Batswana's decision making on the new change is influenced by value and benefits derived from the innovation	1	2	3	4	5			
EE3	Batswana value consultation and involvement in all changes that affect them to embrace and identify with the change process better.	1	2	3	4	5			
EE4	Batswana in the villages, largely depend on opinion leaders' e.g. councillors, land board members, VDCs, extension officers, trusted peers and other change agents to make informed decisions about innovation.	1	2	3	4	5			
EE7	Batswana in the villages and remote areas generally accept change once it has been tried, tested and proved sufficiently that it works.	1	2	3	4	5			
EE11	Batswana highly value openness and transparency	1	2	3	4	5			
EE12	Batswana like to be given the autonomy to make their own decisions without any interference and influence.	1	2	3	4	5			
SECTION F: Society's readiness									
FF1	Most citizens use internet for banking, email, web browsing , payment of bills and online chats	1	2	3	4	5			
FF2	There is sufficient internet access for most citizens in the public domain in all the 9 districts of Botswana	1	2	3	4	5			
FF3	There are plenty ISPs in most villages and people have access to.	1	2	3	4	5			
FF4	Citizens prefer to do transactions electronically than manually	1	2	3	4	5			
FF5	Citizens are used to sharing information electronically	1	2	3	4	5			
FF6	Citizens with low income, women , youth and disadvantaged have access to ICTs and internet	1	2	3	4	5			
FF7	Most citizens participate in online study, online purchase and sale of goods and service both locally and externally	1	2	3	4	5			
FF9	Most citizens living in rural areas lack resources, internet and ICT skills and private internet access costs are a major hinder them from using the ICTs and web technologies.	1	2	3	4	5			
SECTION G: Overall government preparedness									
GG1	All members of parliament and counsellors are aware about e-government and they update their constituencies regularly on same	1	2	3	4	5			
GG3	There is a high political support and drive to see the project through and the project is a top government priority	1	2	3	4	5			

GG4	All district heads and tribal leaders are aware about e-government and fully embrace the change	1	2	3	4	5			
SECTION H:Innovation adoption & acceptance									
HH1	Citizens adoption of e-government is depended on level of knowledge they have about initiatives	1	2	3	4	5			
HH2	The more citizens are engaged, they become aware, understand e-government better, gain enhanced knowledge and likely to adopt faster the e-government	1	2	3	4	5			
HH8	Citizens will need to trust e-government, internet and web technologies in order to share personal information and complete personal transactions online	1	2	3	4	5			
HH9	Lack of knowledge can lead to citizens mistrust and lack of trust can hinder citizen adoption of the e-government innovation	1	2	3	4	5			
SECTION H: Position within society (degree of influence)									
II2	I consider myself a change champion and I fully understand, support and embrace the e-government initiative.	1	2	3	4	5			
II3	I hold a degree of opinion leadership and have been part of the e-government change process from inception and I fully understand the benefits of e-government	1	2	3	4	5			
II4	I am rightly placed and confident to sell and market e-government to citizens within my area with ease and I am motivated and equipped to do so.	1	2	3	4	5			
II6	There has been enough citizens awareness creation on e-government	1	2	3	4	5			
II7	E-government innovation is highly valued by citizens in the villages and other remote areas	1	2	3	4	5			
II8	E-government innovation is highly valued by most citizens in cities and towns.	1	2	3	4	5			
II10	I am a leader or committee or board member within my society and my views are respected	1	2	3	4	5			
II11	I have between have over 5 and 10 years in the role of influence over government employees and / or members of the public (citizens)	1	2	3	4	5			
II12	Government employees are open to embrace e-government and have a full understanding of what it entails.	1	2	3	4	5			
II13	E-government implementation is on schedule and is more likely to be a success	1	2	3	4	5			
SECTION J: E-government driving factors									
JJ1	There has been all stakeholders consultation and inclusion since e-government inception and all stake holders individual, business and service needs form a key part of e-government strategies	1	2	3	4	5			
JJ11	E-government is acknowledged and embraced as a high priority and there is sufficient knowledge on e-government amongst all government employees, all government officials and political leaders	1	2	3	4	5			
JJ13	The e-government project team has full autonomy and authority to manage implement, allocate resources and initiate processes without waiting on government official.	1	2	3	4	5			
JJ14	E-government project enjoys a sustainable funding priority	1	2	3	4	5			
SECTION K: Other critical success factors									
KK2	Involvement and active engagement of citizens groups through appropriate change management structures and consultative processes has been established and	1	2	3	4	5			

	pursued since conceptualisation of the e-government idea								
KK3	Engagement of opinion leaders, change champions and other influential people within and outside government in each community within the nine (9) districts has been achieved and stimulated interest and appreciation of the e-government value amongst citizens.	1	2	3	4	5			
KK4	The e-government efforts have identified citizens groups (e.g. employees, parents, senior citizens, youth, students, consumers, business owners, disabled, sports, NGOs etc) and defined their information and public service needs and tailored the e-government solutions accordingly.	1	2	3	4	5			
KK5	Programmes are sufficiently in place to achieve computer literacy amongst majority of citizens' especially in the rural areas and are bearing fruits.	1	2	3	4	5			
KK6	Provision of funds and /or incentives (e.g. VAT exemptions) to assist people in the acquisition of internet gadgets can best help the e-government implementation and acceptance process	1	2	3	4	5			
KK7	Government has put in place strategies that fully encourage, support and facilitate the communities to have their own websites	1	2	3	4	5			
KK8	The government has created an operational universal fund to assist underserved areas	1	2	3	4	5			
KK9	The youth are specifically targeted through e-government initiatives for employment creation opportunities	1	2	3	4	5			
KK10	To facilitate the development and deployment of ICT and related infrastructure in the underserved areas, government must offer tax holidays and other incentives to ISPs and ICT companies that establish presence in certain designated rural areas.	1	2	3	4	5			
KK11	Education and use of community leaders, other opinion leaders and change champions to disseminate information to a wider society can speed up citizens' perception and acceptance	1	2	3	4	5			
KK12	Alternative sources of ICTs e.g. mobile phones should be considered given their wide spread countrywide.	1	2	3	4	5			
KK13	E-government project team should be autonomous and not placed under the Department of Information technology (DIT)	1	2	3	4	5			
KK14	Implementation of e-government should be done in phases given that national priority projects are competing for the same limited resources	1	2	3	4	5			
KK15	The phased implementation can start in areas and communities that have adequate e-readiness levels this must be done with timelines to graduate the implementation rapidly to other areas	1	2	3	4	5			
KK16	Given the long-term nature of the e-government initiative and level of resources needed both in the short and long rum, there is need to appoint a regulatory and statutory body to implement, oversee, monitor , evaluate and maintain e-government across all arms of government.	1	2	3	4	5			

Part two

Open responses: Please state six issues /areas that are constraining (C1-C6) and that fostering (F1-6) successful e-government implementation and suggest recommendations (R1-R6) to improve the initiative.	
	Starting with the most important, list below six issues / areas that in YOUR VIEW are constraining (C1—C6) e-government implementation

C1	
C2	
C3	
C4	
C5	
C6	
	Starting with the most important, list below six issues or areas that in YOUR VIEW are fostering (F1—F6) e-government implementation.
F1	
F2	
F3	
F4	
F5	
F6	
	Starting with the most important, list below six main recommendations (R1—R6) that in YOUR VIEW can improve e-government implementation
R1	
R2	
R3	
R3	
R4	
R5	
R6	

Personal & Background Data

Please **answer** the following questions:

Gender	Male (0)	Female (0)

What year were you born?	

Primary & Secondary education	Yes	No
Vocational or technical training	Yes	No
University or College degree	Yes	No
Professional training (MSc, MPA, MBA, MIS, CIMA etc…)	Yes	No
Graduate Scholarly work (MA, PhD etc)	Yes	No

Which year did you complete your most recent education?	Year:
Nature of your professional training	
Current work role {e.g. director, DC, CS, Chief, VDC member, Land board member, court clerk, secretary, youth officer / leader, councillor, church minister, Business sector Manger / representative, Principal, PTA member, disable persons and farmers representative etc}	

I thank you for participating in this study. Please enter your personal information below. **Please note that all personal details will remain confidential and will only be used as described above.**

Name:

.....
.....

Address: .....
.....

.....
.....……..

Telephone
(+267): .....

E-
mail: .....
..…….

Contact Details:

Telephone : (+44) 1332 591060

Fax : (+44) 1332 5917761

Email : R.Moatshe@derby.ac.uk.

Postal address: University of Derby, England, UK.

For completion by the researcher
Date completed (dd/mm/yy):_____Respondent unique ID: |__|__|__|__|__|__|__|__|

Appendix 2 (OC-QS2)

Citizens Questionnaire Survey Q2

By Racious M Moatshe (PhD E-government & E-business research student (UK)

Globalization and privatization of the world societies, cultures, politics and economies is requiring organizations world-over to be more competitive, more productive and, most importantly, even more customer centric and agile. In this scenario, the world is seen as one huge global market and service centre. As a result, organizations of all types - large, medium and small, private or public are challenged to aggressively and efficiently re-focus their businesses in the way they serve their customers and constituents. During the last two decades, a revolution in information and communication technologies (ICTs) has been prevalent and is not only changing the daily lives of people but equally changing the characteristics of the interaction between governments and their citizens. Nations around the world are therefore transforming the way they operate to reinvent government systems in order to deliver efficient and effective services, using the current (ICTs) and other accessible technological innovations. This transformation by governments worldwide brings into perspective the e-government concept, which concept is being initiated in Botswana. This questionnaire survey is therefore, **part of multiple** doctoral research data collection approaches on the ***e-government implementation and adoption in Botswana.***

E-Government refers to the provision of government information and services through use of information technologies, Wide Area Networks, the Internet, and mobile computing- that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions.

In view of the above you are requested to answer in a scale of (1 to 5) the statements and/or questions in the next **one and half pages.** These statements and/or questions assess issues, barriers and challenges confronting e-government implementation in Botswana and provide suggested solutions for participants to approve or disapprove.

Section one

The following statements and questions assess issues, barriers and challenges confronting e-government implementation in Botswana. Please circle the most appropriate option in a scale of 1—5 (**where 1 is strongly disagree; 2 disagree; 3 neutral; 4 agree and 5 strongly agree).**

No	Probing Statements and /or Questions	Rating Scale 1	2	3	4	5
Q1	ICTs and Computing must be included in the curriculum and cover all levels of education including primary and non formal education	1	2	3	4	5
Q2	E-government and e-business must form part of the syllabus in all level of education with more emphasis on economic, political and social benefits that come with the initiatives	1	2	3	4	5
Q3	There is a high rate of unemployment amongst youth in Botswana and The youth must specifically be targeted through e-government initiatives for employment creation opportunities	1	2	3	4	5
Q4	All schools should be provided with internet and computer labs including primary and non formal	1	2	3	4	5
Q5	As a citizens I am aware about the government website and do access it	1	2	3	4	5
Q6	As a citizens I am aware about e-government project	1	2	3	4	5
Q7	I am aware about the value and benefits of e-government	1	2	3	4	5
Q8	Lack of basic necessities like water, electricity, roads, health facilities etc. can hinder e-government as citizens in such areas will not see the e-government value add vis basic needs	1	2	3	4	5
Q9	Lower populations and high unemployment in rural areas result in low disposable income which impede citizens capacity to access ICTs and internet, thus a constraint to e-government	1	2	3	4	5
Q10	Lower levels of general education in amongst citizens in rural areas coupled with lack of ICT and internet skills impedes acceptance and success of the e-government project	1	2	3	4	5
Q11	Other sources of power and energy should be considered where national grid is not available	1	2	3	4	5
Q12	Majority of citizens in the villages are the elderly people and are more resistant to change than the youth and consider the use of technology of less importance to them.	1	2	3	4	5
Q13	The elderly people in the villages mostly prefer physical contact as opposed to technology use when acquiring government services	1	2	3	4	5
Q14	Most elderly people have outgrow training and change process in spite of their relatively sizable numbers in the villages	1	2	3	4	5
Q15	Government should foster strong and bankable business case for ISPs to set up in rural and underserved areas (e.g. offer tax incentives and subsidies etc.)	1	2	3	4	5

Q23	Strategies that fully encourage, support and facilitate the communities to have their own websites can propel e-government success	1	2	3	4	5
Q24	There is need for government to create a universal fund to assist underserved areas and e-government given it economic, social, political and administrative value and benefits must enjoy priority funding.	1	2	3	4	5
Q25	E-government must first identify various citizens groups (e.g. students, senior citizens, business people, disabled etc.), their information and service need and provide the solutions accordingly.	1	2	3	4	5
Q26	Prime radio and television slot to inform and educate people on e-government must be employed to achieve greater e-government aware and encourage acceptance.	1	2	3	4	5
Q27	Education and use of community leaders, other opinion leaders and change champions to disseminate information to a wider society can speed up citizens' perception and acceptance	1	2	3	4	5
Q28	Accredited private consulted can also be used to teach communities, and all citizens about the e-government, its value and importance.	1	2	3	4	5
Q30	Quarterly e-government reports, bulletins and briefs must be shared publicly on the achievements and progress through establish media channels with a wider publicity and readership.	1	2	3	4	5
Q32	E-government must have an independent budget in the national budget and must be amongst the priority funding projects.	1	2	3	4	5

Personal & Background

Gender	Male (0)	Female (0)

Age group (Years)	18-- 25
	26---35
	36---45
	46---55
	56---65
	66 and above

Primary & Secondary education	Yes	No
Vocational or technical training	Yes	No
University or College degree	Yes	No
Professional training (MSc, MPA, MBA, MIS, CIMA etc…)	Yes	No
Graduate Scholarly work (MA, PhD etc)	Yes	No

Which year did you complete your most recent education?	Year:
Nature of your professional training	
Current work role {e.g. secondary, vocational, college or university	

Student, parastatal, private sector, government employees, self employed, not employed etc.	

Additional comments/ contributions/ issues (if any) _____

_____

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Appendix 3

Interviews with key e-government stakeholders in Botswana

Interview Guide Questions and Supplementary Questions

The purpose of the research (interviews) is to establish the following:

1) Significant developments and initiatives so far undertaken by Botswana government regarding e-government implementation.
2) Significant challenges confronting the e-government implementation
3) The uniqueness of the challenges to Botswana case
4) The citizens perception and readiness level for e-government
5) Government employees level of preparedness
6) Strategies in place to address the challenges and build momentum on the significant achievements made to date.

The following supplementary questions were also posed to interviewees

a) What structure of private sector active participation in e-government is being envisaged
b) What structure is in place for Batswana in the villages to accept and access e-government, bearing in mind that they are significant consumers of government services and information

c) There is generally a worrying rate of unemployment amongst youth, are there any plans to target youth focused employment programmes through e-government.

d) What is the general level of acceptance , active participation and involvement of ministries leadership (permanent secretaries, deputies and other ministries senior officers)

e) What is being done to empower government employees to embrace e-government

f) Are you satisfied with the skill level within e-government project team, and other stakeholders critical to bring about successful implementation and what key strength do you consider to support your answer, if not what action is been taken to address the position.

g) Should there be a statutory and regulatory body for e-government

h) Should e-government have a centrally managed budget, than to have independent ministries having votes for e-government?

Appendix 4

DESCRIPTIVE AND PRELIMANRY MULTIVARIATE ANALYSIS

Data Descriptives (Questionnaire Surveys)

The data descriptives were performed for the two questionnaire surveys; namely first survey herein referred to as Opinion holding questionnaires survey (OP- QS1) and second questionnaire survey referred to as citizens 'questionnaire survey (OC-QS2).

Opinion Holding Questionnaire Survey (OP-QS1) Descriptives

This questionnaire was targeted to citizens with representative opinion within government and non government structures. The questionnaire respondents were government and citizens stakeholders comprising of; (a) government executives; (b) employees and service providers within central and local government structures and private sector organisations; (c) politicians; (d) administrators; (e) project team; and (f) other influential representative stakeholder groups. In most cases the degree of salience for many participants was moderate save for government for government

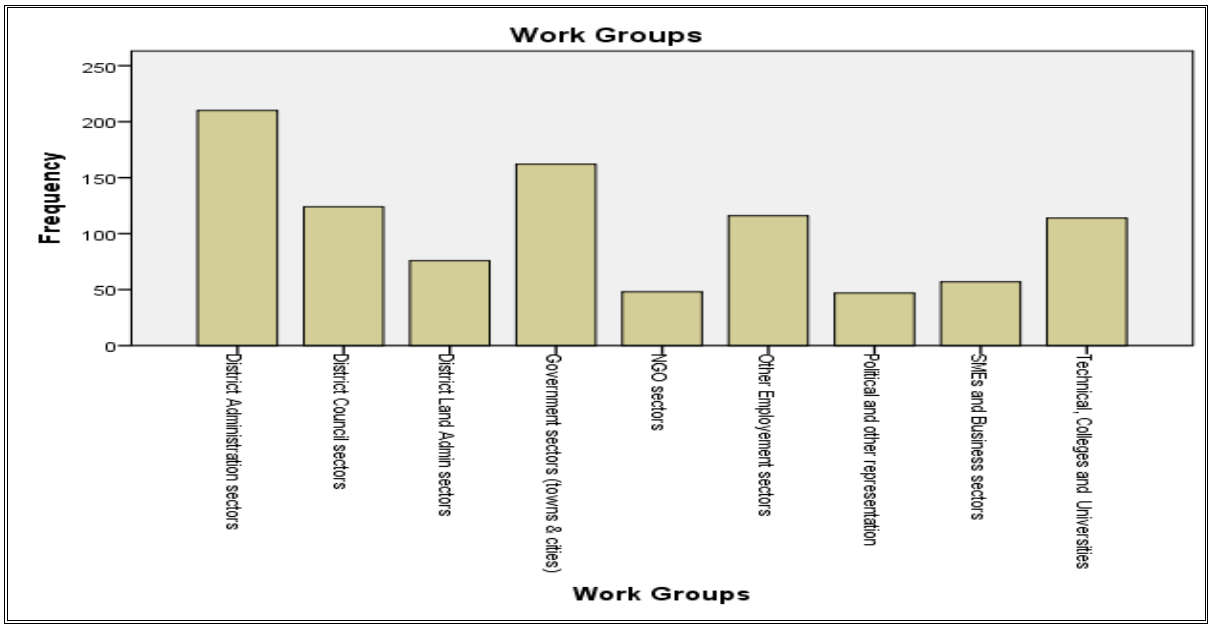
executive which had some participants with high degree of salience (see chapter four and table 4.4) for the definition and description of salience.

The OP-QS1 questionnaire attracted a total of 954 responses from 18 location clusters of Botswana as presented in chapter five. The sectors surveyed and the respondents per sector are given in the descriptive analysis in table and figure below.

Frequency of Respondents by Work Groups (OP-QS1)

	Frequency	Percent	Valid Percent	Cumulative Percent
District Administration sectors	210	22.0	22.0	22.0
District Council sectors	124	13.0	13.0	35.0
District Land Admin sectors	76	8.0	8.0	43.0
Government sectors (towns & cities)	162	17.0	17.0	60.0
NGO sectors	48	5.0	5.0	65.0
Other Employment sectors	116	12.2	12.2	77.1
Political and other representation	47	4.9	4.9	82.1
SMEs and Business sectors	57	6.0	6.0	88.1
Technical, Colleges and Universities	114	11.9	11.9	100.0
Total	954	100.0	100.0	

The highest responses came from the district administration sectors being the largest local government sector cluster followed by government sectors in towns and cities and the district councils. Majority of responses come from government sector and this was considered normal as government is the largest employer with a very wide local government structure, especially at district level (section 1.5). See chapter six (table 6.1) in relation to chapter one (section 1.5) explaining the administrative structures of Botswana.



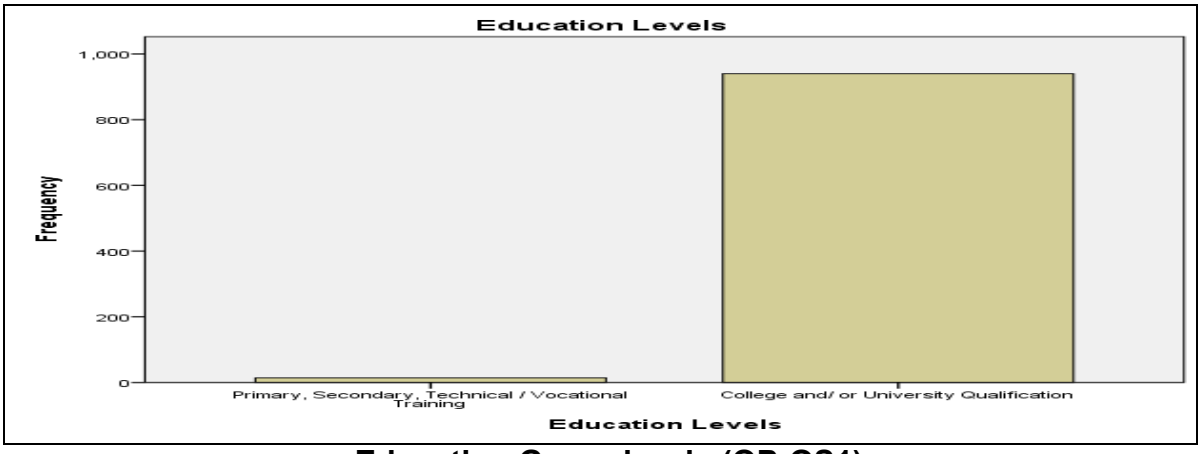
Employement Groupings of Respondents (OP-QS1)

In the below table and figure the descriptive results are presented by education level of respondents, where 98.5% of the people possess college and university qualifications. College qualification covers tertiary diploma and higher diplomas, while university covers both junior and senior degrees including professional qualifications. On the other hand 1.5% of the respondents had qualifications lower than the college diploma.

Education Levels Groupings of Respondents (OP-QS1)

		Frequency	Percent	Valid Percent	Cumulative Percent
	Primary, Secondary, Technical / Vocational Training	14	1.5	1.5	1.5
	College and/ or University Qualification	940	98.5	98.5	100.0
	Total	954	100.0	100.0	

The distribution of respondents by education levels reveal that most who responded to the questionnaire were of a higher literacy levels, which gives a picture of the literacy levels within the Botswana employment sectors. This coincides with the adult literacy rate which is at 83% of the population, chapter six (table 6.2).



Education Group levels (OP-QS1)

The following subsection presents data descriptives for the second questionnaire which was conducted on ordinary citizens who were targeted without any specificity for opinion holding as with the first survey.

Citizens Questionnaire Survey (OC-QS2)

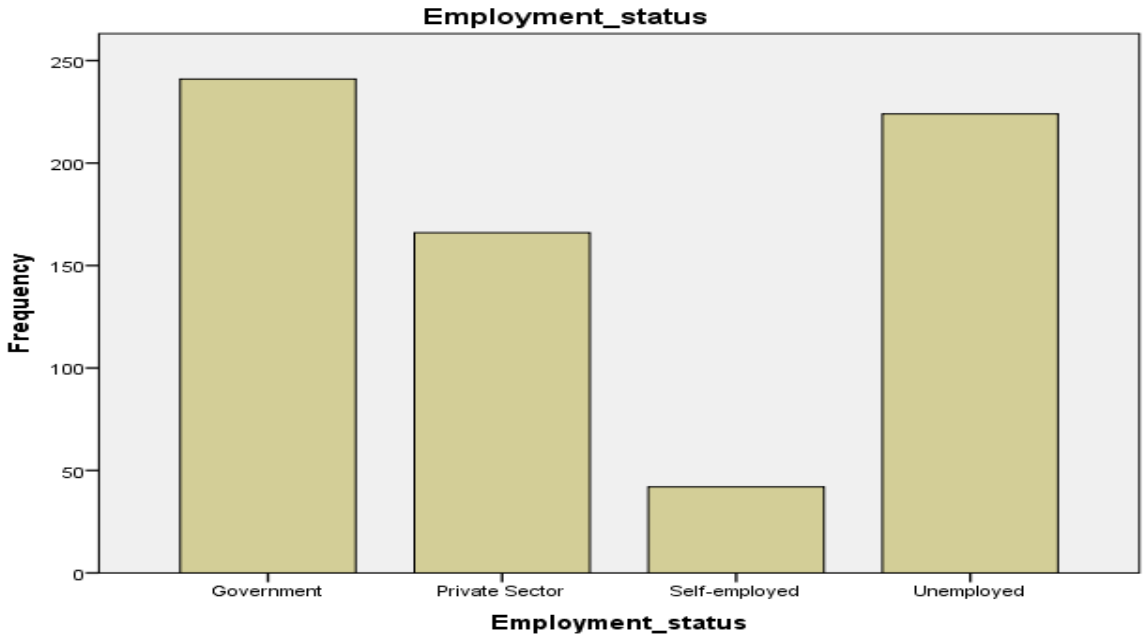
The ordinary citizens' survey is herein referred to as OC-QS2. As mentioned in chapter five, this survey was not widely distributed as the first survey and it only targeted general citizenry comprising of the youth, students and citizens' communities. The respondents' degree of salience ranged from low to moderate salience, refer to chapter four (table 4.4). This survey only attracted a total of 673

responses. To some extent government and non government structure were used to target government employees with no opinion holding while other respondents were randomly targeted in areas surveyed with minimal use of the existing structures. Also see chapter five for issues investigated through this survey.

Employment Status (OC-QS2)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Government	241	35.8	35.8	35.8
	Private Sector	166	24.7	24.7	60.5
	Self-employed	42	6.2	6.2	66.7
	Unemployed	224	33.3	33.3	100.0
	Total	673	100.0	100.0	

Likewise, in table above and figure below government still dominated in the employment status followed by high unemployed number then private sector employees. The position on unemployment is expected as Botswana is faced with predominant problem of unemployment, especially amongst the youth (section 1.5). However, the unemployed herein comprised of students largely at colleges and universities.



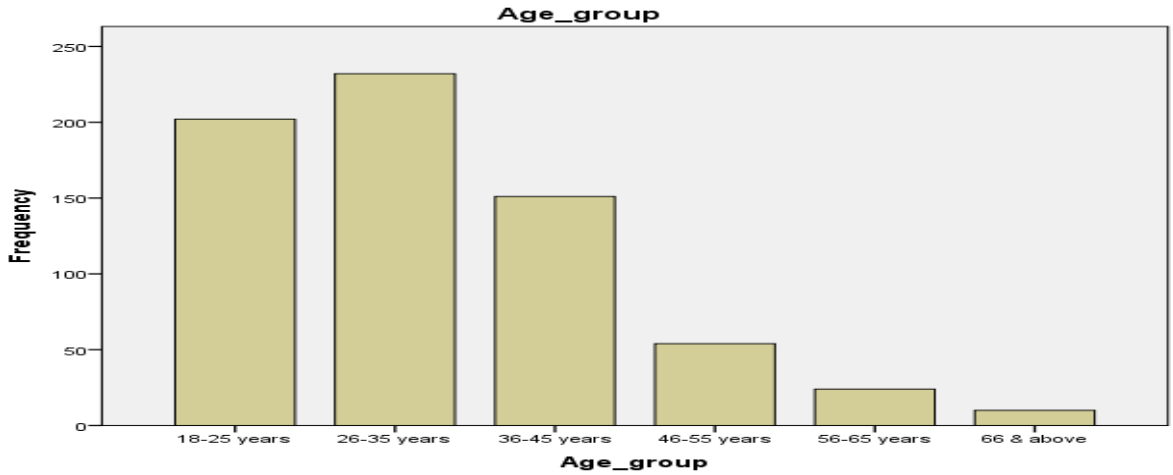
Employment Groupings by Respondents (OC-QS2)

In chapter one (section 1.5) it has been highlighted that the Botswana population is mainly youth at 57%, where youth are people between the ages of 12 and 29 years), this position is reflected in the descriptive results in the table below. Most respondents are within the age range of 18 years to 35 years constituting 64.5 %. Age ranging from 56 years to 66 years and above only accounted for 5.1% of the respondents, which also aligns to the Botswana population age structure.

Age Groups (OC-QS2)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25 years	202	30.0	30.0	30.0
	26-35 years	232	34.5	34.5	64.5
	36-45 years	151	22.4	22.4	86.9
	46-55 years	54	8.0	8.0	94.9
	56-65 years	24	3.6	3.6	98.5
	66 & above	10	1.5	1.5	100.0
	Total	673	100.0	100.0	

The age structure in both in the table above and the figure below give an indication that youth are a significant stakeholder and a major segment cluster of groups that e-government implementation has to strategically target. The youth comprises of students at both senior secondary and tertiary institutions, employees, unemployed and self employed and also are scattered across Botswana (see chapter 6)



Age Groups of Respondents (OC-QS2)

PRELIMINARY TESTS FOR MULTIVARIATE ANALYSIS

As in the above descriptives, the preliminary tests results of multivariate for both questionnaire surveys were done accordingly and herein presented respectively for surveys (Opinion Holding Questionnaire Survey OP-QS1 and Citizens Questionnaire Survey (OC-QS2)).

Preliminary Multivariate Tests and Analysis (OP-QS1)

E-government key influential strategy elements and citizens involvement process discussed in chapter four comprises of sets of both dependent variables and independent variables. As mentioned in chapter five multiple regression analysis has been used to evaluate the relationships between variable sets and test the study hypotheses to determine the predictive accuracy of the proposed conceptual model and e-government strategy framework for Botswana government.

Kaiser Meyer Olkin (KMO) was used to measure the sampling adequacy to evaluate the extent, to which variables are related so as to evaluate if using the factor analysis

makes sense and also to determine if the partial correlations among variables were small. In statistical analysis KMO should not be less than 0.5 on all the analysed data sets and as a thumb of rule KMO should be 0.60 or higher in order to proceed with a factor analysis (Kaiser, 1970). This rule has been met as per table below

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.677
Bartlett's Test of Sphericity	Approx. Chi-Square	51737.290
	Df	2556
	Sig.	.000

KMO and Bartlett's Test (OP-QS1)

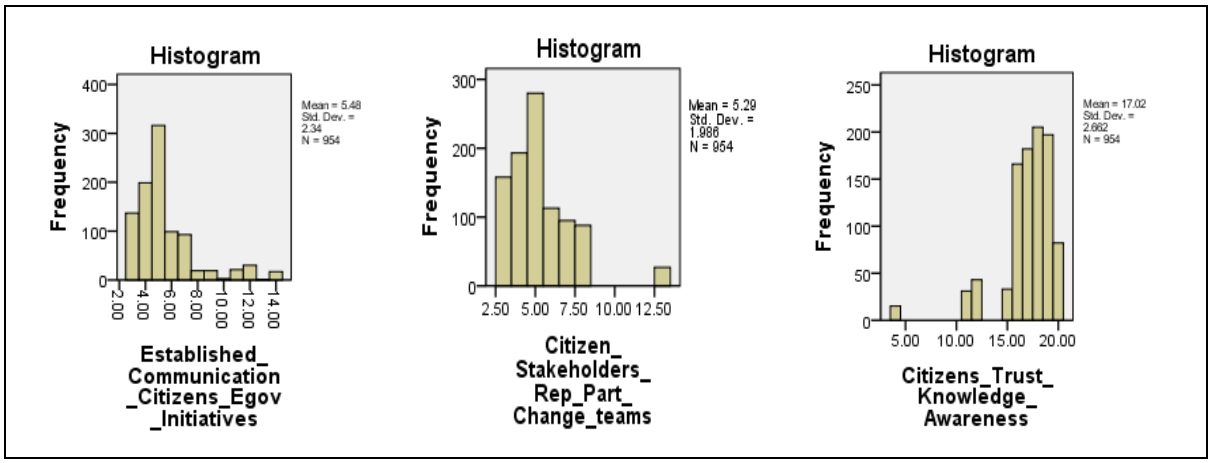
The normality of data was checked using the Kolmogorov-Smirnov and Shapiro-Wilk normality test. The tests conducted on all the data sets revealed varying extent of the kurtosis and skewness of the measured variables (table below).

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Established_Communication_Citizens_Egov_Initiatives	.265	954	.000	.792	954	.000
Citizen_Stakeholders_Catergorization	.163	954	.000	.945	954	.000
Citizen_Stakeholders_Rep_Part_Change_teams	.219	954	.000	.834	954	.000
Citizens_Trust_Knowledge_Awareness	.223	954	.000	.769	954	.000
Countrywide_Citizens_Internet_Access	.197	954	.000	.875	954	.000
Influential_Stakeholders_participation	.210	954	.000	.921	954	.000
Gov_Stakeholders_openness_Transparency_Citizens_Involvement	.129	954	.000	.918	954	.000
Rural_Communities_ICTskills_Resour_PAE	.266	954	.000	.767	954	.000
ICT_Internet_Subsidies_Citizens_Villages	.314	954	.000	.845	954	.000
Project_Impl_Auto_Egov_Priority_Funding	.204	954	.000	.884	954	.000
Students_Sch_CompLABS_Internet_Access	.155	954	.000	.932	954	.000
All_Citizens_Incentives_Internet_ICT_Gadgets	.251	954	.000	.891	954	.000
Primary_Sec_Tertiary_ICT_Curriculum	.157	954	.000	.947	954	.000
Citizens_Egov_Readiness_Awareness	.145	954	.000	.928	954	.000
a. Lilliefors Significance Correction						

Test for Normality on all Measured Items (OP-QS1)

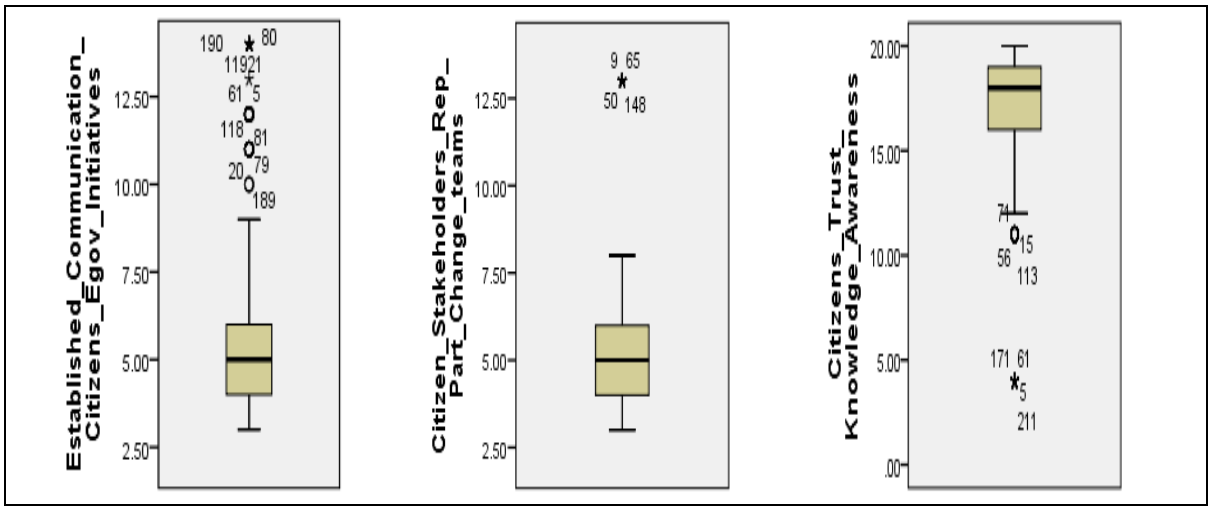
When conducting preliminary test on all variables (listed in table above), some variables as shown in the histograms below, Data on these variables were skewed to the right and left reflecting the negative and positive skewness, not fulfilling the

generalized normal distribution (the area of statistics including the study of effects of measurement error) rule by (Lehmann, 1997).



Histogram on Positively and Negatively Shifted Data Sets (OP-QS1)

To address this anomaly, the box plots below were generated to identify the negative skewness in data to depict the outliers.



Boxplot on shifted Data sets (OP-QS1)

After satisfying the KMO rule of 0.60 value cut off, factor analysis was run to re-confirm the reliability and face validity of the questionnaire, using the Kaiser Meyer Olkin. Factors analysis was used to find factors amongst observed variables and to group together variables with similar characteristics. Here inter-correlated variables were brought together, under more general and underlying variables that explained a pattern of correlations. In other words factor analysis was used for data reduction to identify a smaller number of factors that explained most of the variance observed in a much larger number of manifest variables.

Factors (components) as per the table below reflect common variance of variables and the unique variance. These components seek to reproduce the total variable as well as the correlations. The Kaiser criterion (Eigenvalues >1) indicates how much of

the total variance of all variable is covered by the factor and the rule is to drop all components with Eigenvalues under 1.0. In this case factor 1 explains 15.641% of the variance with 21 factors extracted with Eigenvalues more than 1.

Total Variance Explained

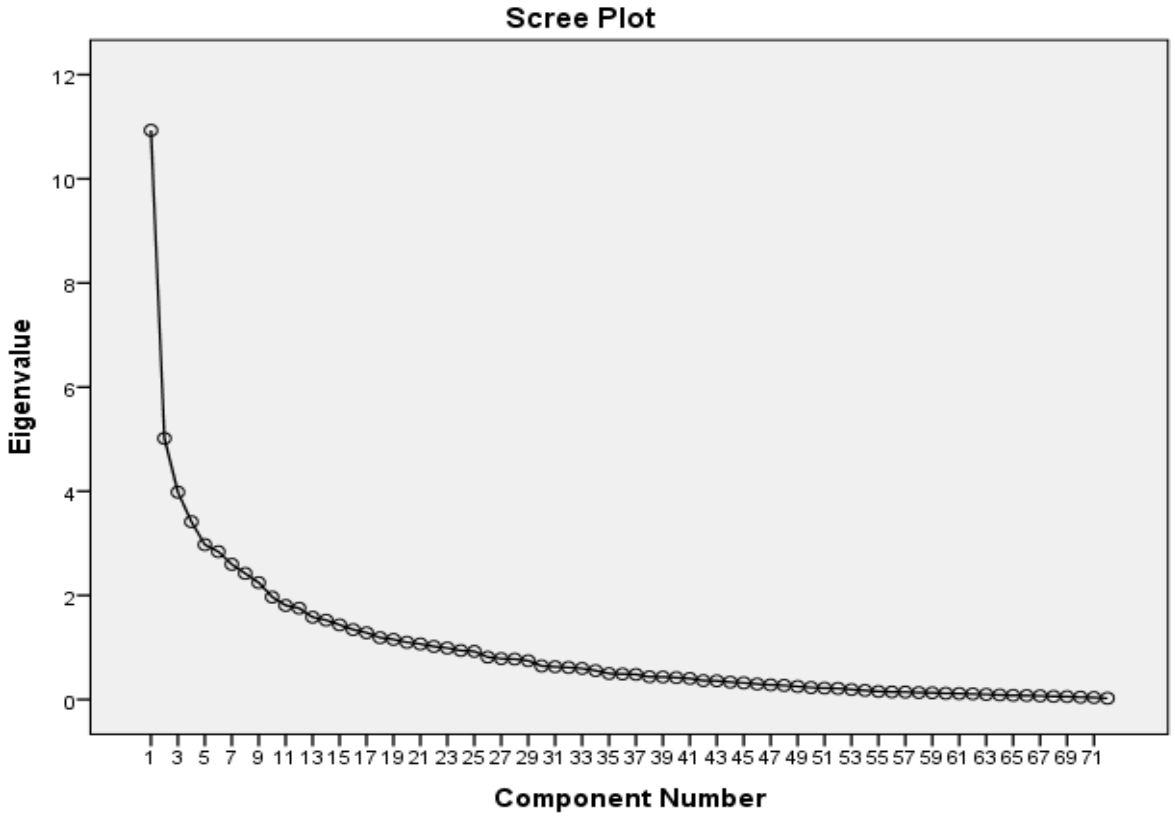
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	11.262	15.641	15.641	11.262	15.641	15.641	6.367
2	4.852	6.739	22.380	4.852	6.739	22.380	3.240
3	3.997	5.552	27.931	3.997	5.552	27.931	2.922
4	3.335	4.631	32.563	3.335	4.631	32.563	2.361
5	3.008	4.177	36.740	3.008	4.177	36.740	3.379
6	2.832	3.933	40.673	2.832	3.933	40.673	2.096
7	2.630	3.652	44.325	2.630	3.652	44.325	3.625
8	2.450	3.403	47.729	2.450	3.403	47.729	2.268
9	2.291	3.182	50.911	2.291	3.182	50.911	2.672
10	1.925	2.674	53.584	1.925	2.674	53.584	4.789
11	1.783	2.476	56.061	1.783	2.476	56.061	1.963
12	1.749	2.429	58.489	1.749	2.429	58.489	4.667
13	1.550	2.152	60.642	1.550	2.152	60.642	2.378
14	1.516	2.105	62.747	1.516	2.105	62.747	2.840
15	1.425	1.979	64.726	1.425	1.979	64.726	3.932
16	1.395	1.937	66.663	1.395	1.937	66.663	2.387
17	1.276	1.772	68.435	1.276	1.772	68.435	1.983
18	1.161	1.612	70.047	1.161	1.612	70.047	3.994
19	1.151	1.598	71.645	1.151	1.598	71.645	1.928
20	1.088	1.511	73.156	1.088	1.511	73.156	1.995
21	1.074	1.492	74.648	1.074	1.492	74.648	4.067
22	1.011	1.404	76.052	1.011	1.404	76.052	3.786
23	.992	1.377	77.429				
24	.941	1.307	78.737				
25	.884	1.228	79.964				
26	.812	1.127	81.092				
27	.782	1.086	82.178				
28	.762	1.058	83.236				
29	.744	1.033	84.269				
30	.673	.935	85.204				
31	.620	.861	86.065				
32	.605	.840	86.905				
33	.596	.827	87.732				
34	.538	.747	88.479				
35	.501	.696	89.175				
36	.494	.687	89.862				
37	.479	.665	90.526				
38	.434	.602	91.128				
39	.432	.600	91.729				
40	.411	.571	92.300				
41	.385	.535	92.835				
42	.370	.514	93.349				
43	.345	.479	93.829				
44	.335	.466	94.295				
45	.326	.452	94.747				
46	.294	.408	95.155				
47	.273	.380	95.534				
48	.263	.365	95.900				
49	.245	.340	96.240				
50	.241	.335	96.575				
51	.217	.301	96.876				
52	.212	.295	97.171				
53	.194	.270	97.441				
54	.170	.237	97.677				

55	.158	.219	97.897				
56	.152	.211	98.108				
57	.145	.201	98.309				
58	.141	.195	98.504				
59	.123	.170	98.674				
60	.120	.167	98.841				
61	.113	.157	98.997				
62	.108	.150	99.147				
63	.089	.123	99.271				
64	.087	.120	99.391				
65	.078	.108	99.499				
66	.071	.099	99.598				
67	.066	.091	99.689				
68	.058	.080	99.770				
69	.054	.075	99.845				
70	.039	.054	99.899				
71	.038	.053	99.951				
72	.035	.049	100.000				

Extraction Method: Principal Component Analysis.

Total Variance Explained (OP-QS1)

In addition the Principal Component Analysis was used to extract factors and simultaneously examining and validating communalities for variable variance accounted for and lower communalities of less than <0.5 were excluded. The Scree plot below shows the proportion of variance for each factor component (lower line), while the upper shows the cumulative variance explained by the first factor components and the components appear in decreasing order of variance depicting the order of importance in ranking.



The Screeplot (OP-QS1)

In the use of multiple regression analysis, steps on model development and model selection it is recommended that if the theory tells the researcher that certain variables are too important to exclude from the model, they should be included even though their estimated coefficients are not significant (Lin, 2007). However, whilst variables with non significant coefficients were NOT included, the main objective of using factor analysis was to investigate the underlying correctional pattern shared by variables in order to test theoretical model (in chapter four and hypotheses in chapter six), hence the goal was to address the theoretical (research) question as apposed to calculating factor scores. Therefore factors were explored and summarised with underlying correlational structure for a data set and also considering the mixed methods research used in this study, the theoretical perspectives of the study, total variance explained, communalities and the Principal Component Analysis (PCA) process used for explaining Eigenvalues were used to determine factors that impacted most on explaining the e-government strategy key influential factors and citizens involvement process in the context of Botswana. The table shows the factors selected and their nonparametric correlations

Correlations Between factors (OP-QS1)

Correlations

		Established_Communication_Citizens_Egov_Initiatives	Citizen_Stakeholders_Catergorization	Citizen_Stakeholders_Rep_Part_Change_teams	Citizens_Trust_Knowledge_Awareness	Countrywide_Citizens_Internet_Access	Influential_Stakeholders_participation	Gov_Stakeholders_openness_Transparency_Citizens_Involvement	Rural_Communities_ICTskills_Resour_PAE	ICT_Internet_Subsidies_Citizens_Villages	Project_Impl_Auto_Egov_Priority_Funding	Students_Sch_CompLABS_Internet_Access	All_Citizens_Incentives_Internet_ICT_Gadgets	Primary_Sec_Tertiary_ICT_Curriculum	Citizens_Egov_Readiness_Awareness
Established_Communication_Citizens_Egov_Initiatives	Correlation Coefficient	1.000	.010	.296**	-.286**	.048	.144**	.045	-.021	.248**	-.025	.362**	-.060	.207**	.155**
	Sig. (2-tailed)		.754	.000	.000	.140	.000	.168	.508	.000	.432	.000	.065	.000	.000
	N	954	954	954	954	954	954	954	954	954	954	954	954	954	954
Citizen_Stakeholders_Catergorization	Correlation Coefficient	.010	1.000	.015	-.093**	-.044	-.030	-.061	.044	-.002	.059	.001	.411**	.055	-.028
	Sig. (2-tailed)	.754		.651	.004	.170	.348	.059	.170	.941	.070	.981	.000	.089	.395
	N	954	954	954	954	954	954	954	954	954	954	954	954	954	954
Citizen_Stakeholders_Rep_Part_Change_teams	Correlation Coefficient	.296**	.015	1.000	-.224**	.053	.304**	-.210**	-.104**	.107**	.012	.516**	-.010	.253**	.141**
	Sig. (2-tailed)	.000	.651		.000	.099	.000	.000	.001	.001	.715	.000	.761	.000	.000
	N	954	954	954	954	954	954	954	954	954	954	954	954	954	954
Citizens_Trust_Knowledge_Awareness	Correlation Coefficient	-.286**	-.093**	-.224**	1.000	-.110**	-.256**	.042	-.020	-.262**	-.043	-.101**	-.005	-.048	-.052
	Sig. (2-tailed)	.000	.004	.000		.001	.000	.197	.529	.000	.188	.002	.887	.139	.109
	N	954	954	954	954	954	954	954	954	954	954	954	954	954	954
Countrywide_Citizens_Internet_Access	Correlation Coefficient	.048	-.044	.053	-.110**	1.000	.157**	-.034	.105**	-.078*	-.100**	.119**	-.047	.045	.299**
	Sig. (2-tailed)	.140	.170	.099	.001		.000	.297	.001	.015	.002	.000	.149	.167	.000
	N	954	954	954	954	954	954	954	954	954	954	954	954	954	954
Influential_Stakeholders_participation	Correlation Coefficient	.144**	-.030	.304**	-.256**	.157**	1.000	-.377**	.172**	.298**	.042	.539**	-.003	.413**	.481**
	Sig. (2-tailed)	.000	.348	.000	.000	.000		.000	.000	.000	.191	.000	.922	.000	.000
	N	954	954	954	954	954	954	954	954	954	954	954	954	954	954
Gov_Stakeholders_openness_Transparency_Citizens_Involvement	Correlation Coefficient	.045	-.061	-.210**	.042	-.034	-.377**	1.000	-.055	-.201**	-.210**	-.460**	-.115**	-.504**	-.473**
	Sig. (2-tailed)	.168	.059	.000	.197	.297	.000		.090	.000	.000	.000	.000	.000	.000
	N	954	954	954	954	954	954	954	954	954	954	954	954	954	954
Rural_Communities_ICTskills_Resour_PAE	Correlation Coefficient	-.021	.044	-.104**	-.020	.105**	.172**	-.055	1.000	-.066*	.028	.085**	-.001	.012	.138**
	Sig. (2-tailed)	.508	.170	.001	.529	.001	.000	.090		.042	.396	.009	.970	.703	.000
	N	954	954	954	954	954	954	954	954	954	954	954	954	954	954
ICT_Internet_Subsidies_Citizens_Villages	Correlation Coefficient	.248**	-.002	.107**	-.262**	-.078*	.298**	-.201**	-.066*	1.000	-.010	.131**	.044	.325**	.327**
	Sig. (2-tailed)	.000	.941	.001	.000	.015	.000	.000	.042		.765	.000	.178	.000	.000
	N	954	954	954	954	954	954	954	954	954	954	954	954	954	954
Project_Impl_Auto_Egov_Priority_Funding	Correlation Coefficient	-.025	.059	.012	-.043	-.100**	.042	-.210**	.028	-.010	1.000	.124**	.007	.082*	.033
	Sig. (2-tailed)	.432	.070	.715	.188	.002	.191	.000	.396	.765		.000	.835	.011	.304
	N	954	954	954	954	954	954	954	954	954	954	954	954	954	954
Students_Sch_CompLABS_Internet_Access	Correlation Coefficient	.362**	.001	.516**	-.101**	.119**	.539**	-.460**	.085**	.131**	.124**	1.000	-.004	.472**	.510**
	Sig. (2-tailed)	.000	.981	.000	.002	.000	.000	.000	.009	.000	.000		.907	.000	.000
	N	954	954	954	954	954	954	954	954	954	954	954	954	954	954
All_Citizens_Incentives_Internet_ICT_Gadgets	Correlation Coefficient	-.060	.411**	-.010	-.005	-.047	-.003	-.115**	-.001	.044	.007	-.004	1.000	.075*	.004
	Sig. (2-tailed)	.065	.000	.761	.887	.149	.922	.000	.970	.178	.835	.907		.020	.890
	N	954	954	954	954	954	954	954	954	954	954	954	954	954	954
Primary_Sec_Tertiary_ICT_Curriculum	Correlation Coefficient	.207**	.055	.253**	-.048	.045	.413**	-.504**	.012	.325**	.082*	.472**	.075*	1.000	.397**
	Sig. (2-tailed)	.000	.089	.000	.139	.167	.000	.000	.703	.000	.011	.000	.020		.000
	N	954	954	954	954	954	954	954	954	954	954	954	954	954	954
Citizens_Egov_Readiness_Awareness	Correlation Coefficient	.155**	-.028	.141**	-.052	.299**	.481**	-.473**	.138**	.327**	.033	.510**	.004	.397**	1.000
	Sig. (2-tailed)	.000	.395	.000	.109	.000	.000	.000	.000	.000	.304	.000	.890	.000	
	N	954	954	954	954	954	954	954	954	954	954	954	954	954	954

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Preliminary Multivariate Tests and Analysis (OC-QS2)—Citizens survey

As in above **(OP-QS1)** same multivariate tests and analysis procedure was used to analyse second questionnaire survey data **(OC-QS2)** which was targeted to citizens as already mentioned and the KMO was used to measure the sampling adequacy on all the analysed data sets stood at 0.76 (below) allowing the study to proceed with a factor analysis.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.760
Bartlett's Test of Sphericity	Approx. Chi-Square	3430.173
	Df	253
	Sig.	.000

KMO and Bartlett's Test (OC-QS2)

The normality of data was checked using the Kolmogorov-Smirnov and Shapiro-Wilk normality test. The tests conducted on all the data sets revealed varying degree of kurtosis and skewness in all variables measured (table below).

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Citizen_Users_Inolvement_differentiation	.139	673	.000	.945	673	.000
Citizen_Users_Egov_Initiatives_Awareness	.090	673	.000	.956	673	.000
Uni_Fund_Website	.138	673	.000	.929	673	.000
Elderly_Citizens_Priorities	.174	673	.000	.864	673	.000
Low_ICT_Skills_Employ_Initiatives	.159	673	.000	.896	673	.000
Comp_Egov_ICT_Syllabus	.223	673	.000	.808	673	.000
Youth_Targeted_Initiatives_Training_Communities	.165	673	.000	.894	673	.000

a. Lilliefors Significance Correction

Tests of Normality (OC-QS2)

Factors (components) as per (table below) reflect common variance of variables and the unique variance. In this case factor 1 explains 19.250% of the variance with 7 factors extracted with Eigenvalues more than 1. PCA were also used to extract the factors and examining communalities to indicate the variance accounted for in each variable and factors rotated using the structure matrix.

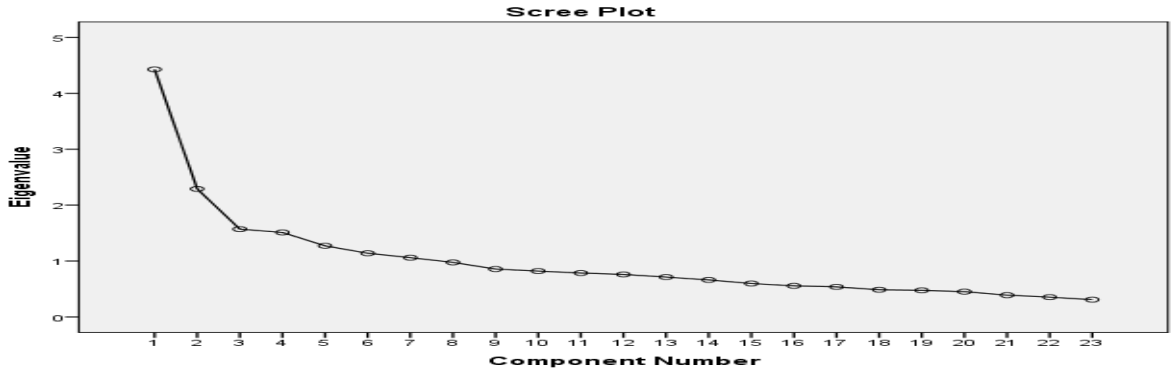
Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	4.427	19.250	19.250	4.427	19.250	19.250	2.515
2	2.290	9.955	29.205	2.290	9.955	29.205	2.143
3	1.570	6.826	36.031	1.570	6.826	36.031	2.584
4	1.511	6.568	42.599	1.511	6.568	42.599	2.195
5	1.272	5.530	48.129	1.272	5.530	48.129	2.294
6	1.139	4.952	53.081	1.139	4.952	53.081	2.009
7	1.060	4.607	57.688	1.060	4.607	57.688	2.028
8	.975	4.241	61.929				
9	.856	3.724	65.652				
10	.820	3.566	69.219				
11	.786	3.416	72.635				
12	.760	3.305	75.939				
13	.713	3.100	79.039				
14	.662	2.879	81.918				
15	.598	2.601	84.519				
16	.556	2.418	86.938				
17	.538	2.337	89.275				
18	.486	2.114	91.389				
19	.476	2.069	93.458				
20	.452	1.965	95.423				
21	.390	1.695	97.118				
22	.354	1.537	98.656				
23	.309	1.344	100.000				

Extraction Method: Principal Component Analysis.

Table 7.9 Total Variance Explained (OC-QS2).

The Scree plot below similarly shows the proportion of variance for each factor component (lower line), while the upper shows the cumulative variance explained by the first factor components and the components appear in decreasing order of variance depicting the order of importance in ranking.



The Scree plot (OC-QS2)

Similarly, theoretical model of the study, total variance explained communalities and the Principal Component Analysis (PCA) process used for explaining Eigenvalues and bearing in mind mixed methods research adopted were used to determine factors that impacted most on explaining the e-government strategy key influential factors and citizens' involvement process in the context of Botswana, all the factor components (7) were selected as shown in the table below with nonparametric correlations.

Correlations between factors (OC-QS2)

Correlations

		Citizen_Users_Inolvement_differentiation	Citizen_Users_Egov_Initiatives_Awareness	Uni_Fund_Website	Elderly_Citizens_Priorities	Low_ICT_Skills_Employ_Initiatives	Comp_Egov_ICT_Syllabus	Youth_Targeted_Initiatives_Training_Communities
Citizen_Users_Inolvement_differentiation	Correlation Coefficient	1.000	.050	.300**	.332**	.326**	.287**	.347**
	Sig. (2-tailed)		.197	.000	.000	.000	.000	.000
	N	673	673	673	673	673	673	673
Citizen_Users_Egov_Initiatives_Awareness	Correlation Coefficient	.050	1.000	-.045	.005	.107**	-.052	-.184**
	Sig. (2-tailed)	.197		.241	.894	.005	.181	.000
	N	673	673	673	673	673	673	673
Uni_Fund_Website	Correlation Coefficient	.300**	-.045	1.000	.196**	.300**	.265**	.237**
	Sig. (2-tailed)	.000	.241		.000	.000	.000	.000
	N	673	673	673	673	673	673	673
Elderly_Citizens_Priorities	Correlation Coefficient	.332**	.005	.196**	1.000	.275**	.195**	.250**
	Sig. (2-tailed)	.000	.894	.000		.000	.000	.000
	N	673	673	673	673	673	673	673
Low_ICT_Skills_Employ_Initiatives	Correlation Coefficient	.326**	.107**	.300**	.275**	1.000	.284**	.281**
	Sig. (2-tailed)	.000	.005	.000	.000		.000	.000
	N	673	673	673	673	673	673	673
Comp_Egov_ICT_Syllabus	Correlation Coefficient	.287**	-.052	.265**	.195**	.284**	1.000	.307**
	Sig. (2-tailed)	.000	.181	.000	.000	.000		.000
	N	673	673	673	673	673	673	673
Youth_Targeted_Initiatives_Training_Communities	Correlation Coefficient	.347**	-.184**	.237**	.250**	.281**	.307**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	673	673	673	673	673	673	673

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix 5

Hypothesis Testing Statistical Analysis results

Hypotheses Testing (H1:H16)

In chapter one the uniqueness of Botswana case study has been explained, also in chapter four and chapter six it has been clearly stated that e-government citizens stakeholder-groups are many and complex, hence the use of multiple research approaches discussed in chapter five. In light of these complexities and peculiarities, multiple hypotheses have been generated to test the validity and impact of the anticipated conceptual model (figure 5.5) and simultaneously to validate the key e-government strategy success factors identified in chapter four. The hypotheses were tested with both extracted factor variables from both questionnaire surveys, with twelve (12) hypotheses tested based on opinion holding questionnaire data (OP-QS1) and four (4) on the survey with general citizenry (OC-QS2). As stated earlier, the main purpose of using multiple regression analysis was to establish relationship between several independent or predictor variables and a dependent or criterion variables (see appendix 4). This means in testing each hypothesis a set (number) of predictor variables have been evaluated and examined against each single dependent variable.

H1: Citizens e-government readiness and awareness drivers

> **Government transparency in involving citizens together with country wide citizens' internet access where computer labs are provided in schools, ICT subsidies provided in the district (villages) areas with citizens and influential citizens' stakeholders being involved and participating in e-government change structures will positively influence citizens' e-government readiness and awareness levels**.

In testing hypothesis H1 multiple regression was processed, with first table being the descriptive statistics (table below) showing the centres of distribution of the scores (mean) and square root of variance in the scores (standard deviation).

Descriptive Statistics of Citizens' E-government Readiness and Awareness and other Independent Variables

	Mean	Std. Deviation	N
Citizens_Egov_Readiness_Awareness	9.6122	2.90141	954
Influential_Stakeholders_participation	6.1656	1.95431	954
Citizen_Stakeholders_Rep_Part_Change_teams	5.2872	1.98613	954
Gov_Stakeholders_openness_Transparency_Citizens_Involvement	15.7432	2.88355	954
ICT_Internet_Subsidies_Citizens_Villages	3.3616	1.03771	954
Countrywide_Citizens_Internet_Access	3.5419	1.40783	954
Students_Sch_CompLABS_Internet_Access	6.2149	2.31491	954

The below table gives details of the correlation between each pair of variables, showing existing correlations between most variables with acceptable values between the dependent variable and other independent variables, in most cases revealing a higher statistical significance. The dependent variable was 'citizens' e-government readiness and awareness'. The number of respondents who answered the questions amounted to 954 sufficient to provide a reasonable measure of statistical procedural validity.

Correlations Between Pairs of Predictors and Dependent Variables

Correlations

		Citizens_ Egov_ Readiness_ Awareness	Influential_ Stakeholders _ participation	Citizen_ Stakeholders _Rep_Part_ Change_ teams	Gov_ Stakeholders_ openness_ Transparency _Citizens _Involvement	ICT_Internet _ Subsidies_ Citizens_ Villages	Countrywide _Citizens_ Internet_ Access	Students_ Sch_ CompLABS _Internet_ Access
Pearson Correlation	Citizens_Egov_Readiness _Awareness	1.000	.454	.129	-.387	.349	.313	.460
	Influential_Stakeholders_ participation	.454	1.000	.289	-.244	.367	.099	.527
	Citizen_Stakeholders_Rep _Part_Change_teams	.129	.289	1.000	-.175	.031	.053	.584
	Gov_Stakeholders_ openness_Transparency_ Citizens_Involvement	-.387	-.244	-.175	1.000	-.178	.011	-.335
	ICT_Internet_Subsidies_ Citizens_Villages	.349	.367	.031	-.178	1.000	-.067	.122
	Countrywide_Citizens_ Internet_Access	.313	.099	.053	.011	-.067	1.000	.137
	Students_Sch_CompLABS _Internet_Access	.460	.527	.584	-.335	.122	.137	1.000
Sig. (1-tailed)	Citizens_Egov_Readiness _Awareness		.000	.000	.000	.000	.000	.000
	Influential_Stakeholders_ participation	.000		.000	.000	.000	.001	.000
	Citizen_Stakeholders_Rep _Part_Change_teams	.000	.000		.000	.169	.052	.000
	Gov_Stakeholders_ openness_Transparency _Citizens_Involvement	.000	.000	.000		.000	.367	.000
	ICT_Internet_Subsidies_ Citizens_Villages	.000	.000	.169	.000		.020	.000
	Countrywide_Citizens_ Internet_Access	.000	.001	.052	.367	.020		.000
	Students_Sch_CompLABS _Internet_Access	.000	.000	.000	.000	.000	.000	
N	Citizens_Egov_Readiness _Awareness	954	954	954	954	954	954	954
	Influential_Stakeholders_ participation	954	954	954	954	954	954	954
	Citizen_Stakeholders_Rep _Part_Change_teams	954	954	954	954	954	954	954
	Gov_Stakeholders_ openness_Transparency_ Citizens_Involvement	954	954	954	954	954	954	954
	ICT_Internet_Subsidies_ Citizens_Villages	954	954	954	954	954	954	954
	Countrywide_Citizens_ Internet_Access	954	954	954	954	954	954	954
	Students_Sch_CompLABS _Internet_Access	954	954	954	954	954	954	954

The 'variables entered' table provides a list of the variables and the method used in testing for citizens' e-government readiness and awareness. The testing herein used the 'enter method'' were all the variables were entered simultaneously.

Dependent Variable and Independent (Predictors) Variables entered

Model	Variables Entered	Variables Removed	Method
1	Students_Sch_CompLABS_Internet_Access, ICT_Internet_Subsidies_Citizens_Villages, Countrywide_Citizens_Internet_Access, Gov_Stakeholders_openness_Transparency_Citizens_Involvement, Citizen_Stakeholders_Rep_Part_Change_teams, Influential_Stakeholders_Participation	.	Enter

a. Dependent Variable: Citizens_Egov_Readiness_Awareness, b. All requested variables entered.

The model summary table below gives the predictive value of listed independent variables on the overall variance of Log_ citizens' e-government readiness and awareness levels (dependent variable). This output shows the goodness of fit of the regression model with the good fit R value of multiple correlations between the predictors and the outcome (that is, the relationship between the set of independent variables and the dependent variable is 0.679, a strong statistical relationship).

The R squared equals the coefficient of variation and is the proportion of variation on the Log_ (citizens' –e-government readiness and awareness) explained by variations in the independent variables. That is, R^2 = 0.461 entailing 46.1% of variation explained by the model (meaning, the prediction capacity of the regression model obtained from data set entails that 46.1% of the variation in the outcome is determined by the predictor variables). The adjusted R^2 adjusts for the number of explanatory terms (independent variables) in the model and increases only if the independent (new) variables improve the model more than would be expected by chance. The difference (shrinkage) between R^2 and Adjusted R^2 (0.461-0.458=0.003 or 0.3%) means that if the model were derived from the population instead of a sample it would account for approximately 0.3% less variance in the outcome.

The R square change statistics for the increase in citizens' e-government readiness and awareness associated with the added variables (independent) is 0.461. When using a proportional reduction in error interpretation for R^2, the predictors (Independent variables) reduce the error in predicting citizens' e-government readiness and awareness by 46.1%. The standard error of the estimate measures the dispersion (variability) in the predicted scores in a regression, hence provides the accuracy of the statistics (precision with which the regression coefficient is measured).

Model Summary Predictive value of Readiness and Awareness and other Independent Variables

Model Summary[b]									
					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.679[a]	.461	.458	2.13678	.461	135.013	6	947	.000

a. Predictors: (Constant), Students_Sch_CompLABS_Internet_Access, ICT_Internet_Subsidies_Citizens_Villages, Countrywide_Citizens_Internet_Access, Gov_Stakeholders_openness_Transparency_Citizens_Involvement, Citizen_Stakeholders_Rep_Part_Change_teams, Influential_Stakeholders_participation

b. Dependent Variable: Citizens_Egov_Readiness_Awareness

The analysis of variance (ANOVA) in the table below assesses the overall significance of the model. It tests whether the model is significantly better in predicting the outcome than using the mean as a 'best guess'. The F ratio represents the ratio of the improvement in prediction from fitting the model (labelled 'Regression' in the table) relative to the inaccuracy that still exists in the model (labelled 'Residual' in the table). This explains the overall relationship between independent variables and dependent variable. The probability of the F statistic (135.013) for the overall regression relationship for all independent variables is <0.001. (F statistics, F (1) = 135.013, P<.001) which is very unlikely to have happened by chance. The hypothesis is therefore supported that there is a statistically significant relationship between the set of all independent variables listed 'b' and the dependent variable (citizens' e-government readiness and awareness).

ANOVA on Readiness & Awareness and other Variables

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3698.666	6	616.444	135.013	.000[b]
	Residual	4323.832	947	4.566		
	Total	8022.499	953			

a. Dependent Variable: Citizens_Egov_Readiness_Awareness

b. Predictors: (Constant), Students_Sch_CompLABS_Internet_Access, ICT_Internet_Subsidies_Citizens_Villages, Countrywide_Citizens_Internet_Access, Gov_Stakeholders_openness_Transparency_Citizens_Involvement, Citizen_Stakeholders_Rep_Part_Change_teams, Influential_Stakeholders_participation

In the below table the coefficients *b* for each predictor variable are given together with estimates for the *b* values and the values indicate the individual contribution of each predictor to the model. The b values are indicative of the relationship between Log- (citizens' e-government readiness and awareness levels) and each predictor variable. The *b* tells to what degree each predictor affects the outcome if the effects of all other predictors are held constant.

The coefficient standardized column (table below) of the b values are not dependent on the units of measurement of the variables, they are provided by SPSS and the tell the number of standard deviations that the outcome will change as a result of one standard deviation change in the predictor. Therefore they provide a better insight into the importance of predictors in the model. The standardised beta values for (a) Influential stakeholders participation is .0159, (b) ICT internet subsidies to citizens in the villages is 0.233, (c) Countrywide citizens internet access is 0.278, and for (d) Computer labs in school including ICT and internet access to students is 0.335. This shows that predictor (d) has more impact in the model followed by (c), (b) and (a).

Coefficients of Each Independent (Predictor Variable)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	6.286	.608		10.332	.000	5.092	7.480			
	Influential_Stakeholders_participation	.236	.045	.159	5.265	.000	.148	.324	.454	.169	.126
	Citizen_Stakeholders_Rep_Part_Change_teams	-.255	.043	-.174	-5.917	.000	-.339	-.170	.129	-.189	-.141
	Gov_Stakeholders_openness_Transparency_Citizens_Involvement	-.230	.026	-.228	-8.903	.000	-.280	-.179	-.387	-.278	-.212
	ICT_Internet_Subsidies_Citizens_Villages	.652	.073	.233	8.938	.000	.509	.796	.349	.279	.213
	Countrywide_Citizens_Internet_Access	.574	.050	.278	11.470	.000	.476	.672	.313	.349	.274
	Students_Sch_CompLABS_Internet_Access	.420	.043	.335	9.762	.000	.336	.505	.460	.302	.233

a. Dependent Variable: Citizens_Egov_Readiness_Awareness

The t-statistic in the above table shows the associated standard error in the extent to which beta values vary across the sample and the standard error determines whether or not the b values differ significantly from zero (In the column labelled 'Sig.'). The smaller the Sig. the larger the t value the greater contribution of the predictor. For Log_ (Students and schools provision of computer lab and internet access, t (947) = 9.76, p < .01; Countrywide citizens' internet access, t (947) = 11.47, p < .001; ICT internet subsidies for citizens in the villages, t (947) = 8.94, p < .01; and Influential stakeholders participation, t (947) = 5.27, p < .01) are significant predictors of Citizens' e-government readiness and awareness levels. It can be noted that countrywide citizens' internet access has more impact than others. In order to write equation, predictors are (constant), x1, x2….x6 and dependent variable is denoted by 'y'. The regression equation is *(Y=7.683),* comprising of;

$$Y=.236(x1)-.255(x2)-.230(x3)+.652(x4)+.574(x5)+.420(x6)+6.286.$$

The collinearity of correlations amongst the independent variables were checked and as per the table below, there were no strong correlations found and the condition index column shows that all indices are less than 15 save for one condition slightly above 26 which is acceptable (below 30) .

Collinearity Diagnostics amongst Predictors

Collinearity Diagnostics[a]

Model		Eigenvalue	Condition Index	Variance Proportions						
				(Constant)	Influential_ Stakeholders _participation	Citizen_ Stakeholders_Rep_Part _ Change_ teams	Gov_ Stakeholders _openness_ Transparency_Citizens_ Involvement	ICT_Internet _Subsidies_ Citizens_ Villages	Countrywide _Citizens_ Internet_ Access	Students_ Sch _ CompLABS _ Internet_ Access
1	1	6.541	1.000	.00	.00	.00	.00	.00	.00	.00
	2	.156	6.483	.00	.01	.12	.02	.00	.27	.09
	3	.123	7.294	.00	.01	.05	.01	.22	.42	.03
	4	.085	8.790	.01	.14	.22	.09	.07	.15	.03
	5	.050	11.408	.01	.21	.31	.08	.50	.12	.08
	6	.036	13.454	.00	.61	.29	.00	.08	.01	.70
	7	.009	26.478	.98	.01	.01	.79	.13	.03	.06

a. Dependent Variable: Citizens_Egov_Readiness_Awareness

The residual statistics table below shows that the mahalanobis has an acceptable value for the independent variable and is within the Chi-square critical value for the degree of freedom.

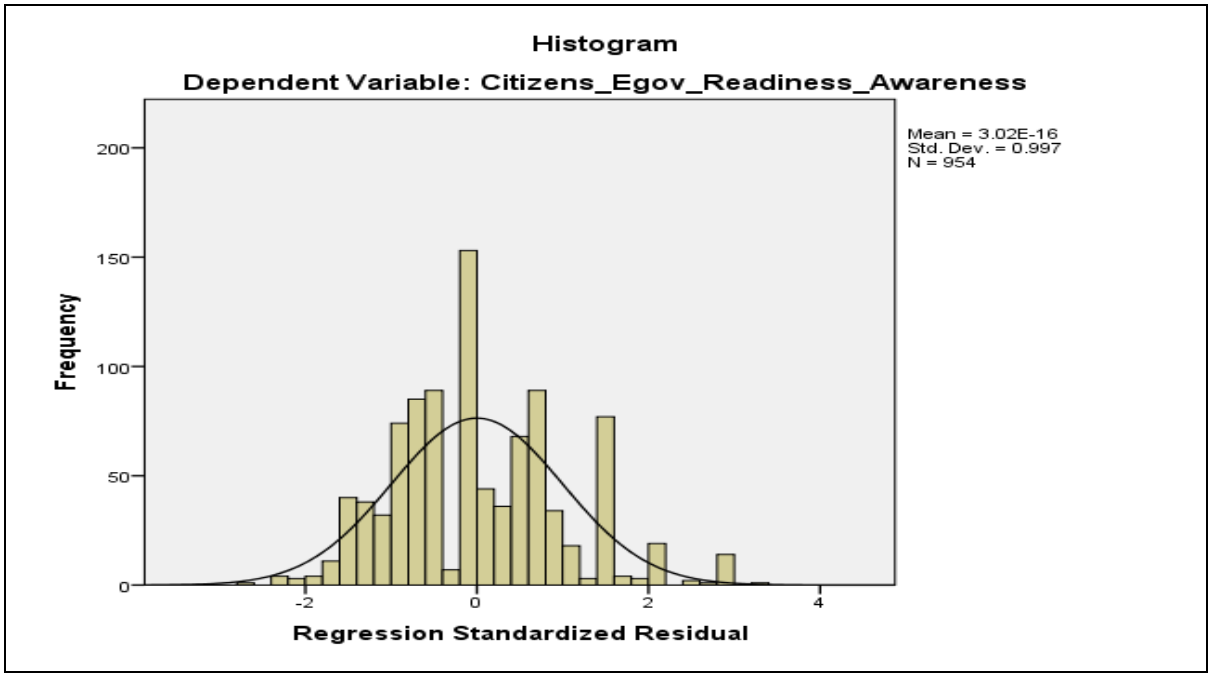
Residual Statistics for Model Selection

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	5.5383	16.0610	9.6122	1.97004	954
Std. Predicted Value	-2.068	3.273	.000	1.000	954
Standard Error of Predicted Value	.087	.403	.176	.051	954
Adjusted Predicted Value	5.5280	16.1033	9.6112	1.97220	954
Residual	-5.61840	6.94674	.00000	2.13004	954
Std. Residual	-2.629	3.251	.000	.997	954
Stud. Residual	-2.638	3.262	.000	1.001	954
Deleted Residual	-5.65500	6.99254	.00093	2.14739	954
Stud. Deleted Residual	-2.646	3.278	.000	1.002	954
Mahal. Distance	.594	32.968	5.994	4.195	954
Cook's Distance	.000	.028	.001	.003	954
Centered Leverage Value	.001	.035	.006	.004	954

a. Dependent Variable: Citizens_Egov_Readiness_Awareness

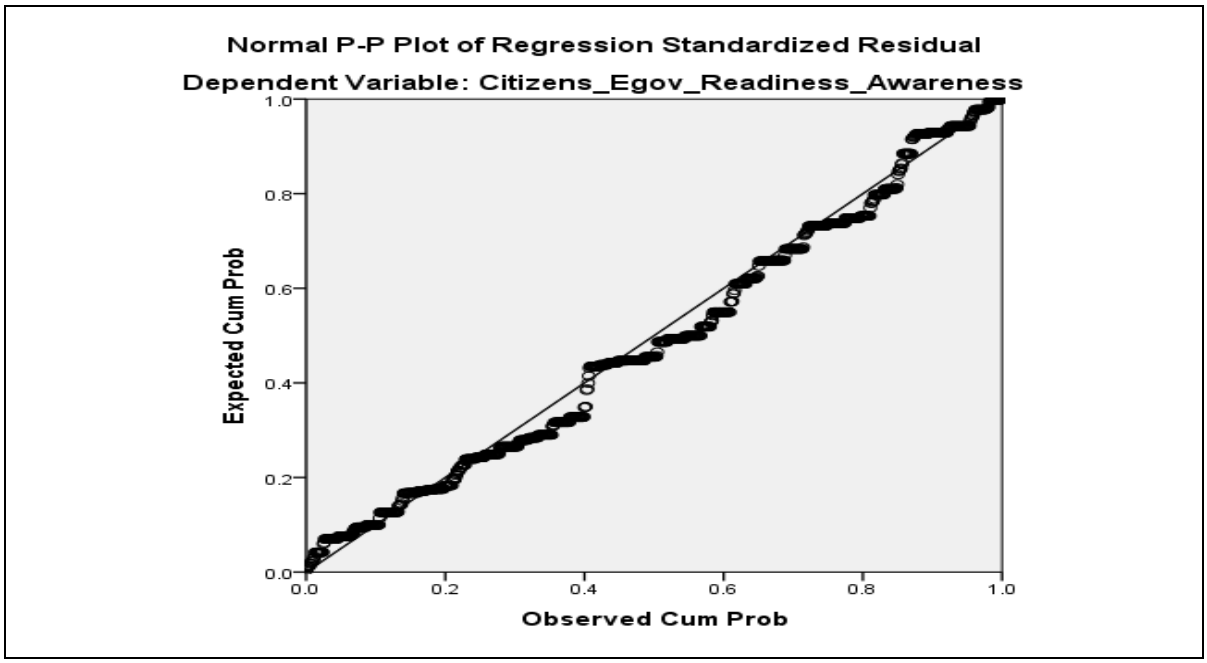
A further validity of results is seen in the figure below giving a graphical demonstration of normality, where the data set follows both the normal distribution and probability with just an insignificant straits falling outside the cone shape, however normality is still demonstrable to a reasonable and acceptable extent.

Generalized Normal Data Fit of Dependent Variable and Predictors



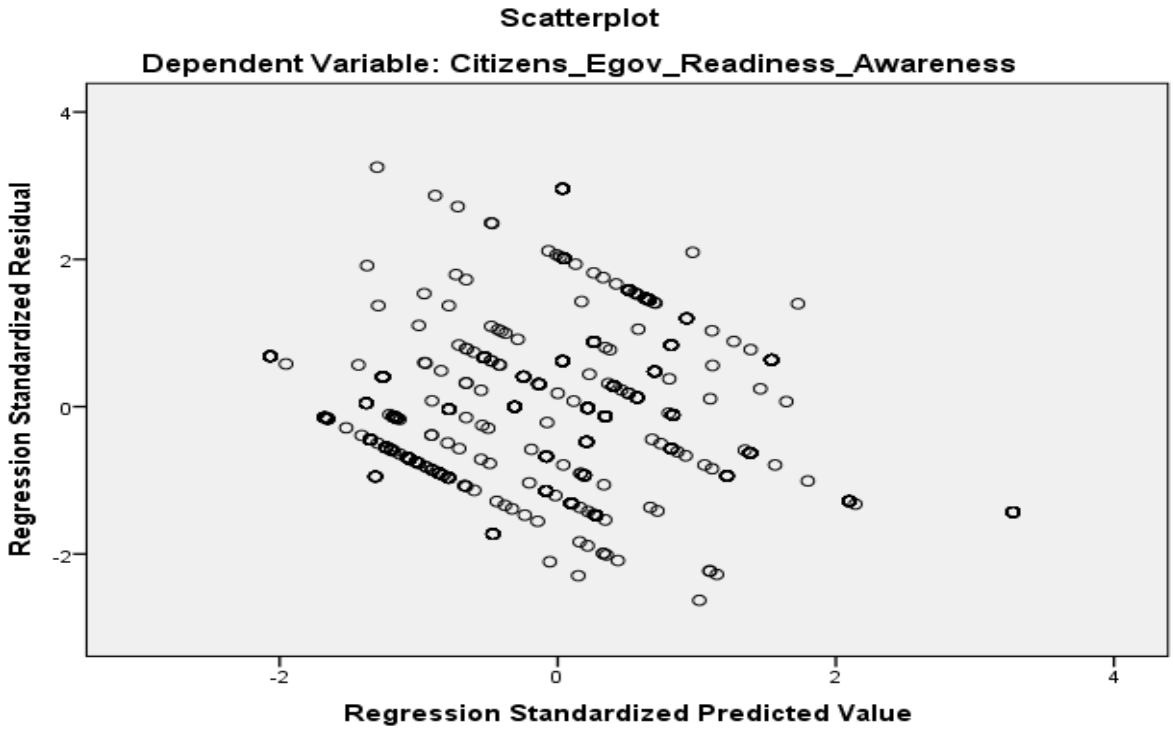
In the figure below linearity of the data set of variable measured shows normality in both the expected and observed values falling along the regression line, also confirming the mahalanobis chi-square degree of freedom.

P-P plot for Standardised Residue of Dependent and Predictor



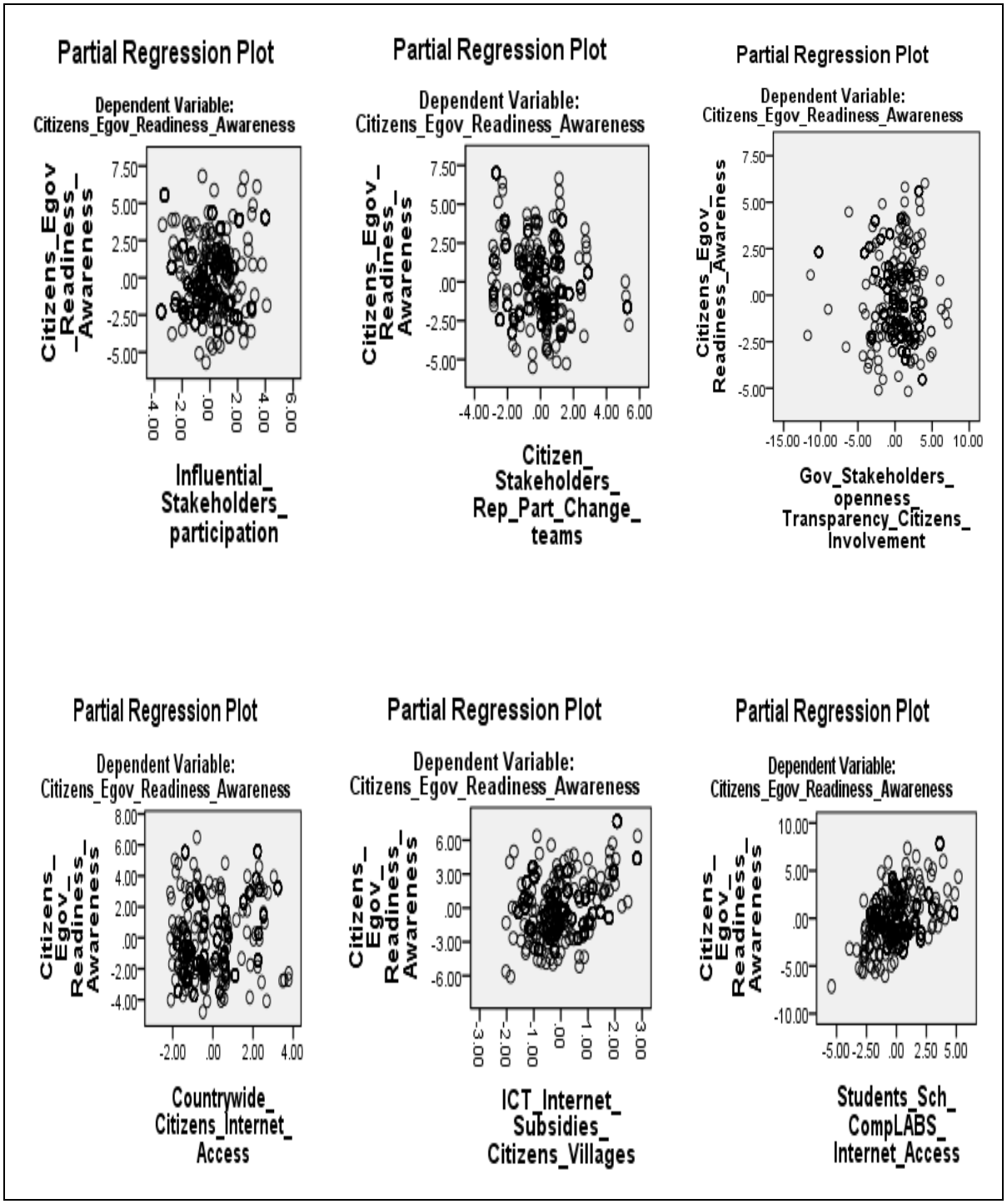
The Scatter plot below confirms the values of the mahalanobis distance of the Chi-square critical value for the degree of freedom. It can be observed that the results obtained from the data set are highly valid.

Mahalanobis Scatter plot Distances of Dependent and Predictors



The Scatter plots in below exhibit the spread on partial regression plots of the Mahalanobis distances within different cases of the predictor variables on citizens' e-government readiness and awareness levels.

Scatter plot of the Mahalanobis distance of selected factors of Citizens E-government Readiness and Awareness



Conclusion on HI: the statistical results reveal that –the citizens' level of e-government readiness and awareness is influenced by the following key factors of: (a) countrywide accessibility of internet by citizens; (b) provision of computer labs in schools to facilitate students' ICT and internet access; (c) provision of ICT and internet subsides to citizens in the non urban centres (villages); (d) engagement and participation of influential stakeholders (citizens' mentors, opinion holders, champions and agents) in e-government planning and implementation processes; (e) representation and participation of citizens' cluster groups in e-government change

structures; and (f) transparency and openness of government in engaging citizens in e-government processes.

The tested relationship between the predictor variables and dependent variable validates the impact of key e-government strategy factors of (i) Infrastructure Development and connectivity, (ii) Stakeholder inclusive change management and transparent process, (iii) Human capacity development (, provision of computer labs in schools, ICT education and internet access), and (iv) Political commitment to democracy (to ensure citizens have access and participate in government online – through influential stakeholder engagement and participation in e-government development, and also citizens representation in the e-government change teams).

- Therefore the relationships should be considered in the proposed conceptual model and strategy framework for Botswana.

H2: Citizens trust, knowledge and awareness influences

Categorising citizens' stakeholders and establishing communication processes through citizens' representation in change teams complemented by ICT skills enhancement initiatives like internet access and subsidies for rural areas will positively influence citizens' trust, knowledge and awareness in e-government

The statistical tests for hypothesis H2 and all other subsequent hypotheses (H3:H16) were performed following the same multiple regression process and procedure as in hypothesis H1 above using the original data set (variables)

Model Summary Predictive value of Citizens Trust Knowledge and Awareness and other Independent Variables

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.414[a]	.172	.167	2.42941	.172	39.293	5	948	.000

a. Predictors: (Constant), Citizen_Stakeholders_Rep_Part_Change_teams, Citizen_Stakeholders_Catergorization, ICT_Internet_Subsidies_Citizens_Villages, Rural_Communities_ICTskills_Resour_PAE, Established_Communication_Citizens_Egov_Initiatives

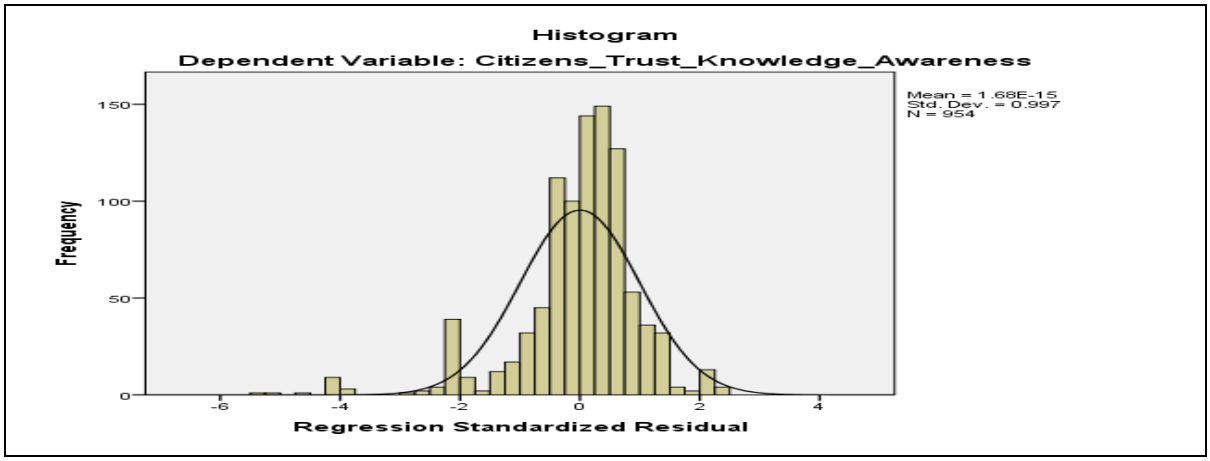
b. Dependent Variable: Citizens_Trust_Knowledge_Awareness

The R^2 square change statistics for the increase in citizens' trust, knowledge and awareness associated with the added variables (independent) is 0.172, which means the prediction capacity of the model obtained from the data constitutes 17.2% of the variation determined by the predictor variables.

The probability of the F statistic (39.293) for the overall regression relationship for independent variables is <0.001. (F statistics, F (1) = 39.293, P<.001) which is very unlikely to have happened by chance. The hypothesis is therefore supported as

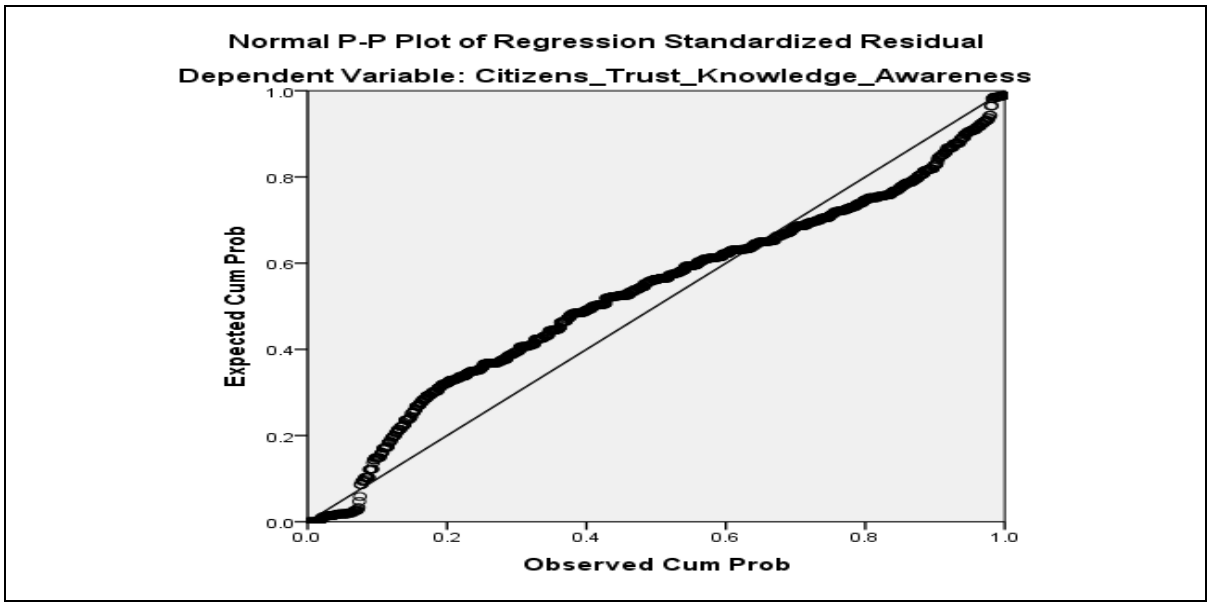
there is a statistically significant relationship between the set of all independent variables listed ‘a’ and the dependent variable (citizens’ trust, knowledge and awareness).

Generalized Normal Data Fit of Dependent Variable and Predictors



In the Figure above there is graphical normality of the data set with small straits falling outside the cone-shape, however normality is still demonstrable to a reasonable and acceptable extent. In spite of the F statistic significance, good fit model and prediction capacity in the below table (model summary), conversely the P-P plot below shows nonlinearity of the data set of variable measured.

P-P plot for Standardised Residue of Dependent and Predictor



Conclusion on H2: ‘‘Categorising citizens’ stakeholders and establishing communication processes through citizens’ representation in e-government change teams complemented by ICT skills enhancement initiatives like internet access and subsidies for rural areas will not alone positively influence citizens’ trust, knowledge and awareness in e-government’’. Hence, other factors as such e-legislation and information access will be necessary, this relationship is however considered vital for

e-government given that citizens are the primary stakeholders for e-government and therefore level of trust in e-government is crucial as mentioned previously.

H3: Countrywide citizens' internet access

Priority funding of e-government and autonomy of the e-government project team to embark on ICT, internet and related connectivity initiatives will positively influence countrywide internet access for citizens.

Model Summary Predictive value of Countrywide citizens' internet Access and other Independent Variables

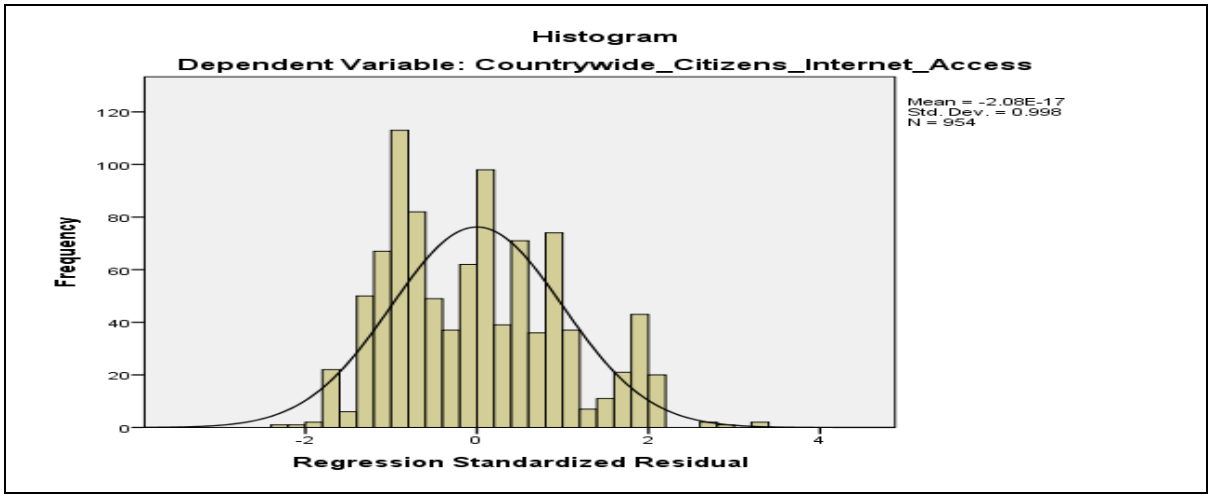
Model Summary[b]									
				Std. Error	Change Statistics				
Model	R	R Square	Adjusted R Square	of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.379[a]	.144	.141	1.30483	.144	53.132	3	950	.000

a. Predictors: (Constant), Citizens_Egov_Readiness_Awareness, Project_Impl_Auto_Egov_Priority_Funding, ICT_Internet_Subsidies_Citizens_Villages

b. Dependent Variable: Countrywide_Citizens_Internet_Access

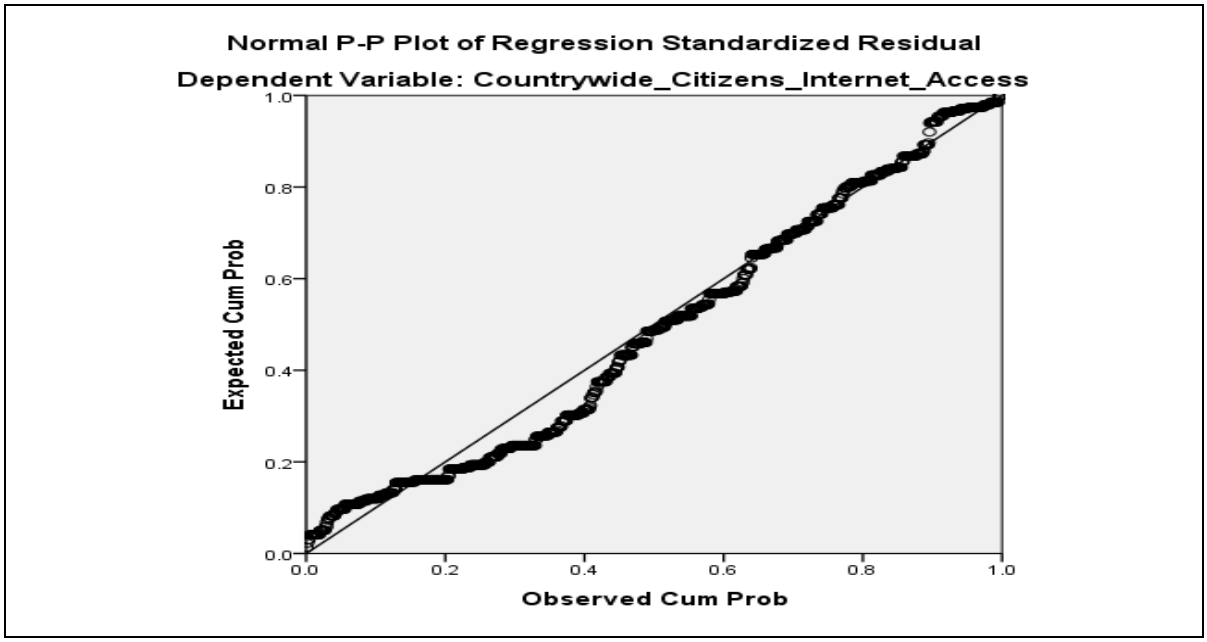
The R^2 value in the table above is .144 meaning that the prediction capacity of the regression model obtained from the data, 14.4% of the variation therein is determined by the predictor variables. The overall F statistics is significant, F (1) = 53.132, P<.001), which is very unlikely to have happened by chance. The hypothesis is therefore supported that there is a statistically significant relationship between the set of all independent variables listed 'a' and the dependent variable (countrywide citizens' internet access).

Generalized Normal Data Fit of Dependent Variable and Predictors



The validity of results is seen in the figure above giving a graphical demonstration of normality that the data set follows both the normal distribution and probability. Normality is therefore demonstrable to a reasonable and acceptable extent. The P-P plot below shows the linearity with just small straits not falling directly on the line, but acceptable though.

P-P plot for Standardised Residue of Dependent and Predictor



Conclusion on H3: the statistical results show that; citizens' countrywide internet access is influenced by priority funding of e-government and autonomy of the e-government project team to embark on ICT, internet and related connectivity initiatives that drive the citizens' level of e-government readiness and awareness.

The tested relationships between the predictor variables and dependent variable validates the key e-government strategy factors of (i) Prioritised and sustainable e-government funding, (ii) Project leadership and governance, and (iii) Citizens (human) capacity development (ICT and internet access).

- Therefore the relationship should be considered in the proposed conceptual model and strategy framework for Botswana.

H4: Government openness and transparency in dealing with citizens

Government openness and transparency in involving citizens in e-government initiatives will culminate in targeted rural communities ICT programmes and ICT curriculum in schools and wider communication channels to achieve wider readiness and awareness amongst citizens.

Model Summary Predictive value of Government Openness and Transparency in dealing with citizens and other Independent Variables

Model Summary[b]									
					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.647[a]	.418	.415	2.20533	.418	136.26	5	948	.000

						1			

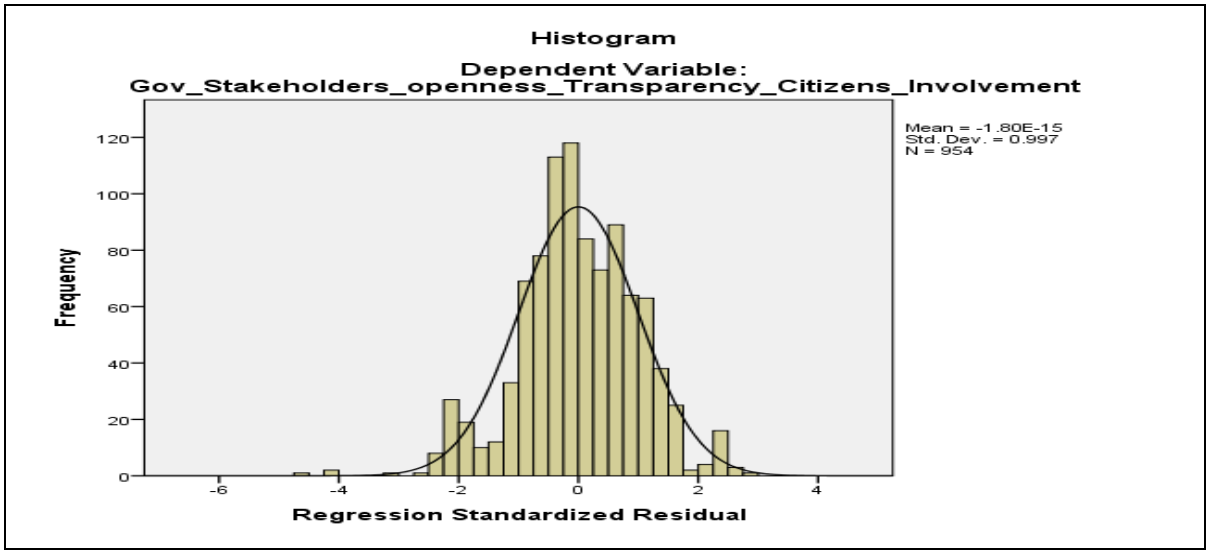
a. Predictors: (Constant), Rural_Communities_ICTskills_Resour_PAE, Project_Impl_Auto_Egov_Priority_Funding, Established_Communication_Citizens_Egov_Initiatives, Citizens_Egov_Readiness_Awareness, Primary_Sec_Tertiary_ICT_Curriculum

b. Dependent Variable: Gov_Stakeholders_openness_Transparency_Citizens_Involvement

In the above model test table 41.8% of the variation in outcome is determined by the predictor variables, with the R^2 value of .418 giving a good fit of prediction capacity of the regression model obtained from the data set. The F statistics is highly significant, F (1) = 136.261, P<.001) very unlikely to have happened by chance. The hypothesis is therefore supported and there is a statistically significant relationship between the set of all independent variables listed 'a' and the dependent variable (government stakeholder openness and transparency in involving citizens on e-government process).

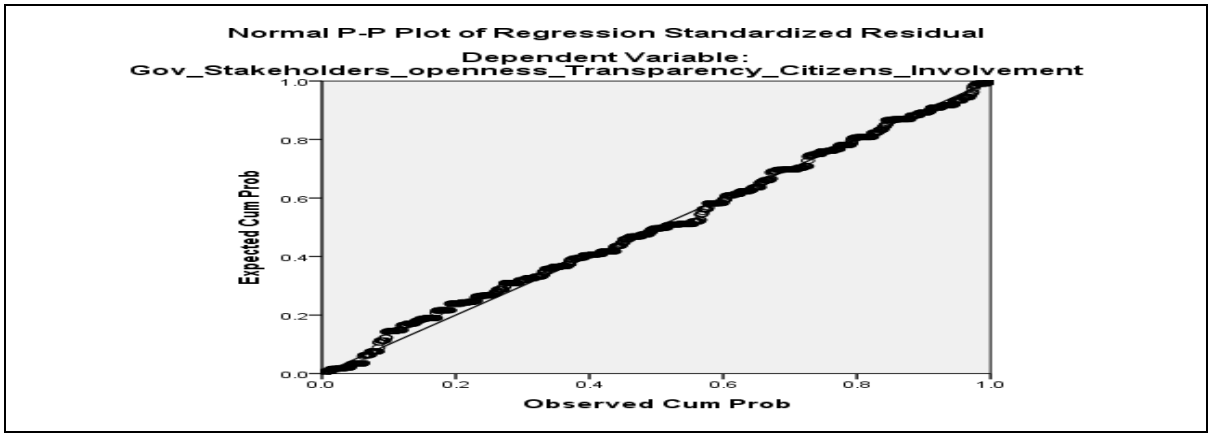
A further validity of results is seen in the figure below that the data set follows both the normal distribution and probability distribution.

Generalized Normal Data Fit of Dependent Variable and Predictors



In the P-P plot below linearity of the data set of variables measured shows normality in both the expected and observed values falling along the regression line, also confirming the mahalanobis chi-square degree of freedom. This therefore confirms that the results obtained from the analysis are highly valid.

P-P plot for Standardised Residue of Dependent and Predictor



Conclusion on H4: targeting rural communities with ICT skills enhancement programmes together with public awareness and education on e-government, ICT curriculum in schools and wider communication channels to achieve wider readiness and awareness amongst citizens will positively result in government stakeholder openness and transparency in dealing with citizens on e-government

The tested relationships validate the key e-government strategy factors of (i) ICT policy and e-readiness initiatives (through ICT curriculum in schools). (ii) Society development (through rural communities ICT skills improvement and public awareness education), (iii) Citizens (human) capacity development (ICT and internet access), and (v) Citizen-users media and communication strategy (through multiple and cluster focused (wider) communication channels).

- Therefore the relationships should be considered in the proposed conceptual model and strategy framework for Botswana.

H5: Influential citizens' stakeholders' participation

Focused communication channels and rural communities' targeted ICT- internet initiatives have impact on readiness levels, knowledge and citizens trust, that ultimately influence the participation of influential stakeholder in e-government implementation.

Model Summary Predictive value of Influential Stakeholders' Participation and other Independent Variables

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.660[a]	.435	.432	1.47329	.435	121.648	6	947	.000

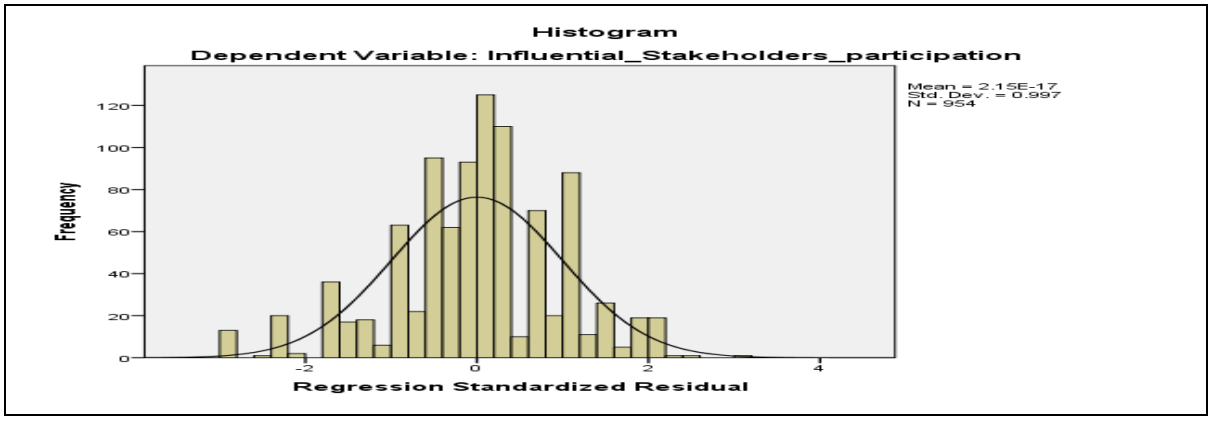
a. Predictors: (Constant), Citizens_Egov_Readiness_Awareness, Citizens_Trust_Knowledge_Awareness, Rural_Communities_ICTskills_Resour_PAE, Established_Communication_Citizens_Egov_Initiatives, ICT_Internet_Subsidies_Citizens_Villages, Students_Sch_CompLABS_Internet_Access

b. Dependent Variable: Influential_Stakeholders_participation

The R^2 value is .435 giving a good fit of prediction capacity of the regression model obtained from the data set at 43.5% of the variation in the outcome being determined by the predictor variables. A regression analysis, predicting Log_ Influential stakeholders' participation from predictors shows a highly significant F statistics at F (1) = 121.648, P<.001), thus very unlikely to have happened by chance. The hypothesis is therefore supported and there is a statistically significant relationship between the set of all independent variables listed 'a' and the dependent variable.

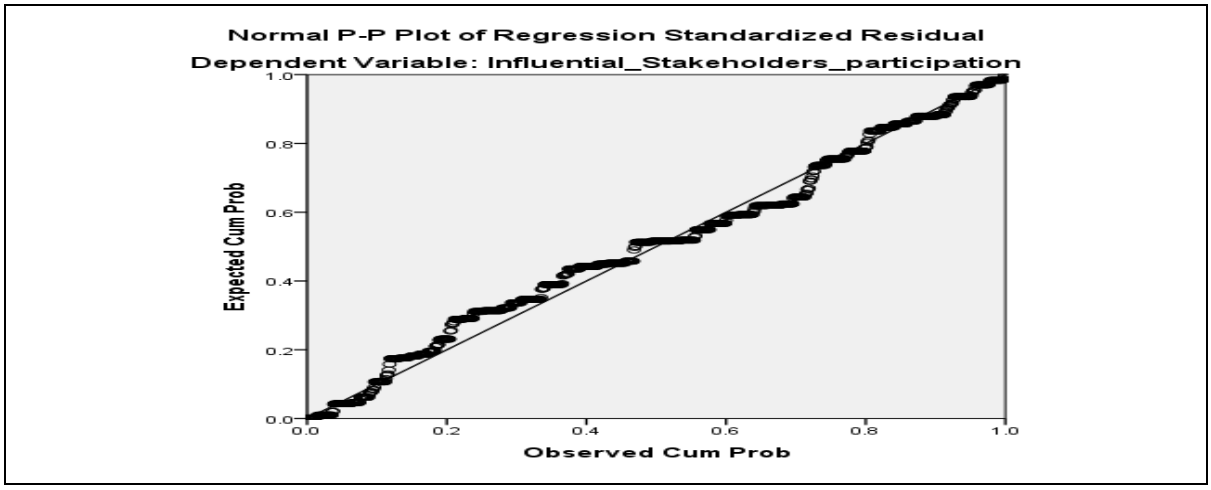
The chart below further shows graphical demonstration of normality that the data set follows the normal and probability distribution.

Generalized Normal Data Fit of Dependent Variable and Predictors



The linearity figure below shows the P-P plot of regression standardised residual with influential stakeholders' participation as the standardised residual dependent variable with no substantial divergence from normality, rendering the results obtained from the analysis highly valid.

P-P plot for Standardised Residue of Dependent and Predictor



Conclusion on H5: levels of citizens' trust, knowledge, awareness and readiness for e-government where rural communities are ICT skilled, citizens in the villages broadly provided with ICT-Internet subsidies and wider citizens' communication

channels in place, will positively influence the participation of citizens' influential stakeholder in e-government design and implementation.

The tested relationships validate the key e-government strategy factor of (i) Information and data access (citizens empowered to access government online-information and services), and (ii) E-readiness and action plans strategy (ensure citizen stakeholders are facilitated to have access to ICT).

- Therefore the relationships should be considered in the proposed conceptual model and strategy framework for Botswana.

H6: ICT-Internet subsidisation for citizens

ICT curriculum in schools, citizens countrywide internet access and established communication channels to build awareness and share information widely on e-government as well as effective use and engagement of influential stakeholders complimented by e-government project priority funding and project's team autonomy to initiate citizens focused programmes will positively influence initiatives for ICT and internet subsidisation for citizens outside the towns and cities.

Model Summary Predictive value of ICT Internet Subsidies for Citizens in the Villages and other Independent Variables

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.542[a]	.293	.287	.87594	.293	49.064	8	945	.000

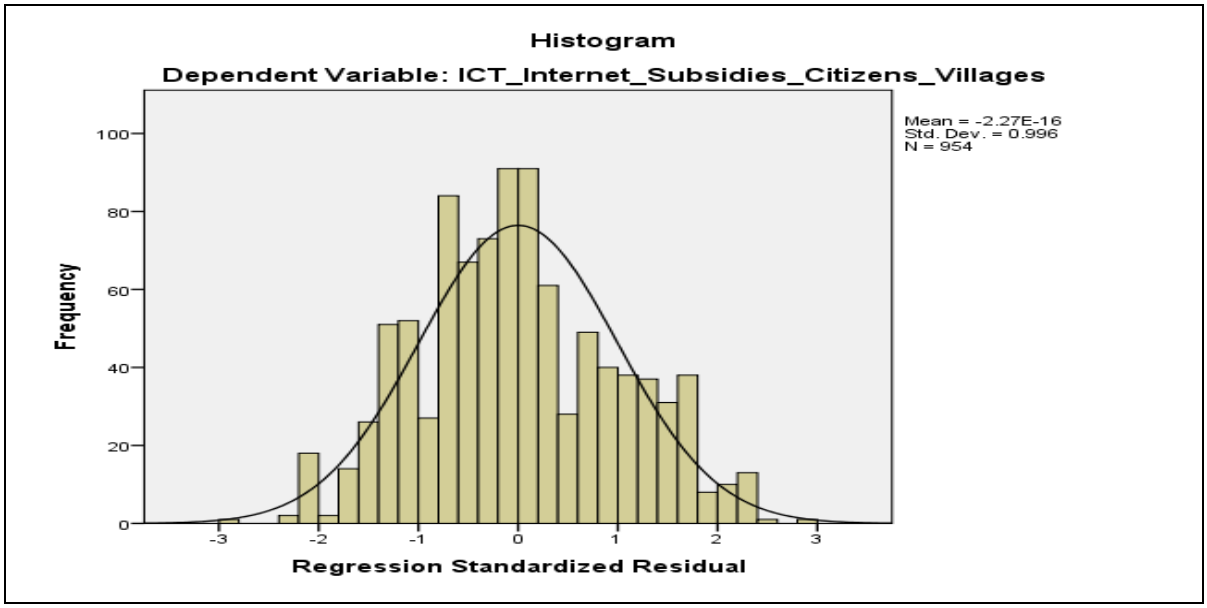
a. Predictors: (Constant), Countrywide_Citizens_Internet_Access, Primary_Sec_Tertiary_ICT_Curriculum, Citizens_Trust_Knowledge_Awareness, Project_Impl_Auto_Egov_Priority_Funding, Established_Communication_Citizens_Egov_Initiatives, Citizens_Egov_Readiness_Awareness, Influential_Stakeholders_participation, Students_Sch_CompLABS_Internet_Access

b. Dependent Variable: ICT_Internet_Subsidies_Citizens_Villages

The R^2 value is .293 giving a good fit of prediction capacity of the regression model obtained from the data set at 29.3% of the variation in the outcome being determined by the predictor variables. A regression analysis, predicting Log_ ICT and internet subsidies for citizens in the villages from predictors (table below) shows that the F statistics is highly significant, F (1) = 49.064, P<.001), thus very unlikely to have happened by chance. The hypothesis is therefore supported and there is a statistically significant relationship between the set of all independent variables listed 'a' and the dependent variable.

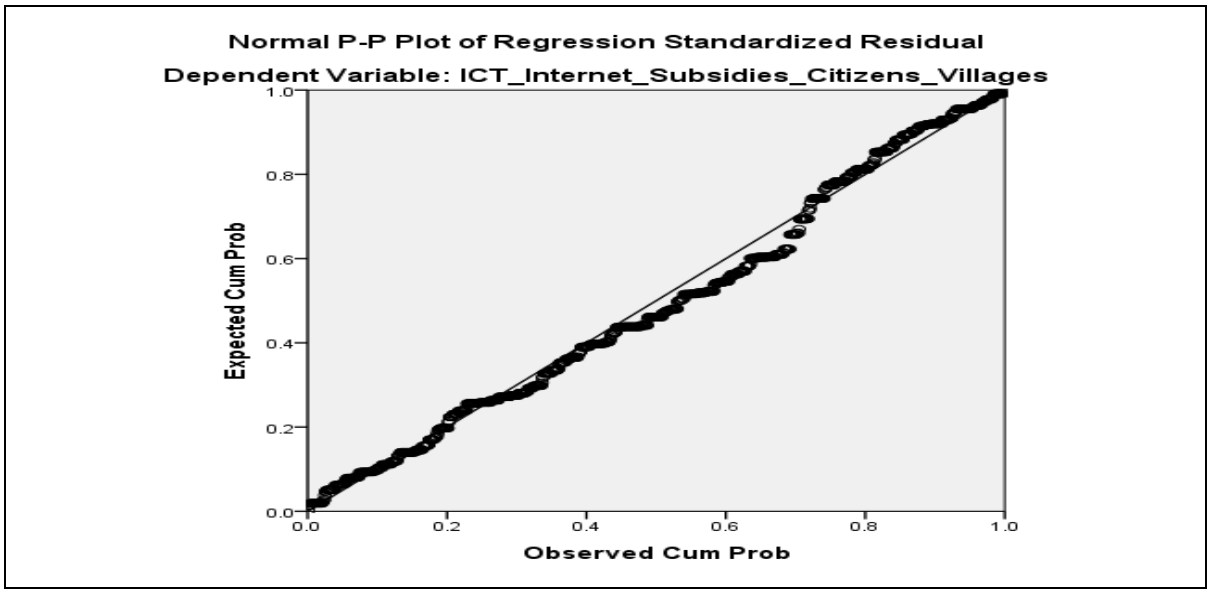
The chart below further shows graphical demonstration of normality that the data set follows the normal and probability distribution.

Generalized Normal Data Fit of Dependent Variable and Predictors



The linearity figure below shows the P-P plot of regression standardised residual with ICT and internet subsidies for citizens in the villages as the standardised residual dependent variable with no substantial divergence from normality, rendering the results obtained from the analysis highly valid

P-P plot for Standardised Residue of Dependent and Predictor



Conclusion on H6: ICT and internet subsidies for citizens in the villages is influenced by ICT curriculum in schools, citizens countrywide internet access and established communication channels to build awareness and share information widely on e-government as well as effective use and engagement of influential stakeholders complemented by e-government project priority funding and project's team autonomy to initiate citizens focused programmes.

The tested relationships validate the key e-government strategy factor of (i) Information and data access (citizens empowered to access government online-information and services), (ii) E-readiness and action plans strategy (ensure citizen stakeholders are facilitated to have access to ICT), and (iii) Human capacity development (ICT curriculum in schools).

- Therefore the relationships should be considered in the proposed conceptual model and strategy framework for Botswana

H7: ICT curriculum (from primary to tertiary)

Provision of computer labs and internet in schools, subsidisation of rural communities supported by media channels and government openness to citizens regarding e-government will have a positive impact on the ICT curriculum from primary to tertiary levels.

Model Summary Predictive value of ICT Curriculum from Primary to Tertiary Education levels and other Independent Variables

Model Summary[b]

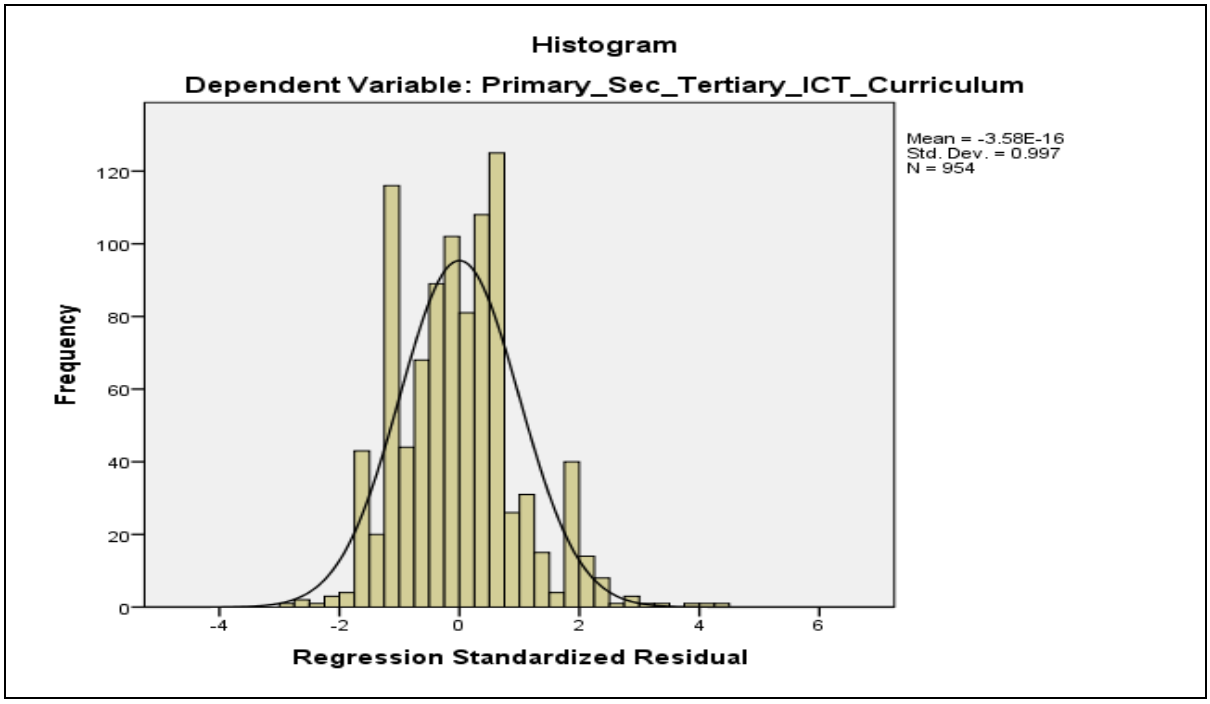
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.626[a]	.392	.389	1.77671	.392	122.176	5	948	.000

a. Predictors: (Constant), Students_Sch_CompLABS_Internet_Access, ICT_Internet_Subsidies_Citizens_Villages,Gov_Stakeholders_openness_Transparency_Citizens_Involvement, Established_Communication_Citizens_Egov_Initiatives, Citizen_Stakeholders_Rep_Part_Change_teams
b. Dependent Variable: Primary_Sec_Tertiary_ICT_Curriculum

The R^2 value of .392 giving a good fit of prediction capacity of the regression model obtained from the data set at 38.9% of the variation in the outcome being determined by the predictor variables. A regression analysis, predicting Log_ ICT curriculum from primary to tertiary levels from predictors shows a highly significant F statistics at F (1) = 122.176, P<.001), thus very unlikely to have happened by chance. The hypothesis is therefore supported as there is a statistically significant relationship between the set of all independent variables listed 'a' and the dependent variable.

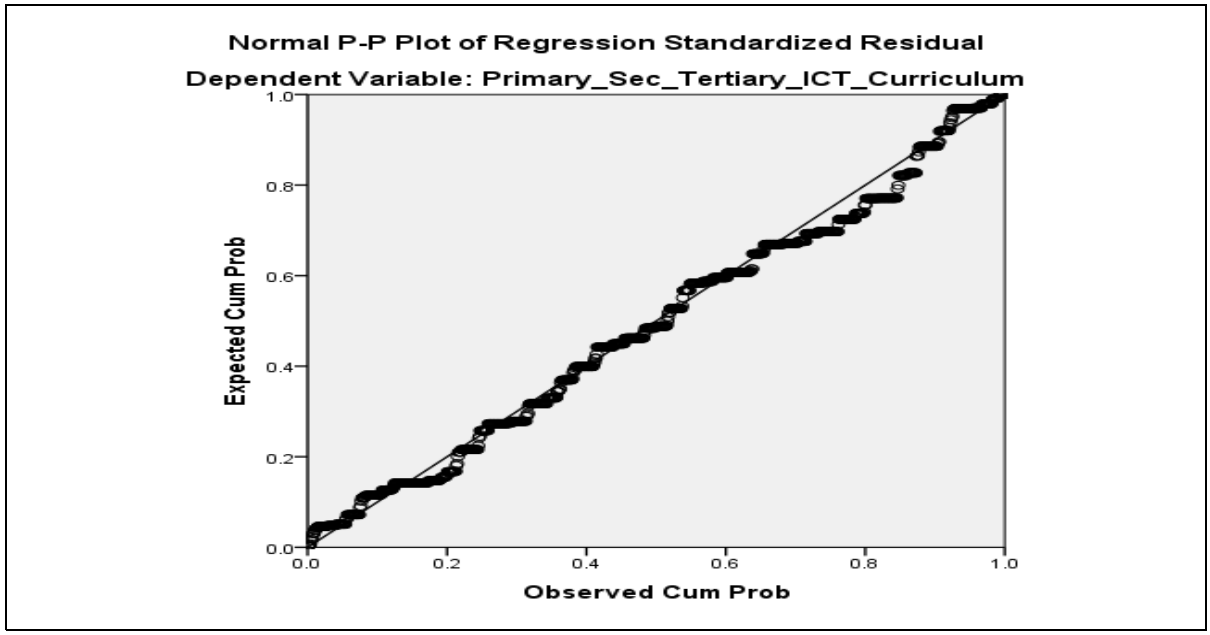
The chart below further shows graphical demonstration of normality that the data set follows the normal and probability distribution.

Generalized Normal Data Fit of Dependent Variable and Predictors



The linearity in the figure below shows the P-P plot of regression standardised residual with ICT curriculum from primary to tertiary levels as the standardised residual dependent variable with no substantial divergence from normality, rendering the results obtained from the analysis highly valid.

P-P plot for Standardised Residue of Dependent and Predictor



Conclusion on H7: Provision of computer labs and internet in schools, subsidisation of rural communities supported by media channels and government openness to citizens regarding e-government will have a positive impact on the ICT curriculum from primary to tertiary levels.

The tested relationships validate the key e-government strategy factor of (i) Human Capacity Development, (ii) Information and data access (citizens empowered to access government online-information and services), and (iii) E-readiness and action plans strategy (ensure citizen stakeholders are facilitated to have access to ICT).

- Therefore the relationships should be considered in the proposed conceptual model and strategy framework for Botswana

H8: Established citizens media communication channels

Citizens' stakeholder groups' participation in e-government including rural communities, government transparency and provision of computer labs internet in schools as well as ICT curriculum will positively impact on the establishment of citizens media communication networks.

Model Summary Predictive value of Established Citizens' Communication Channels and other Independent Variables

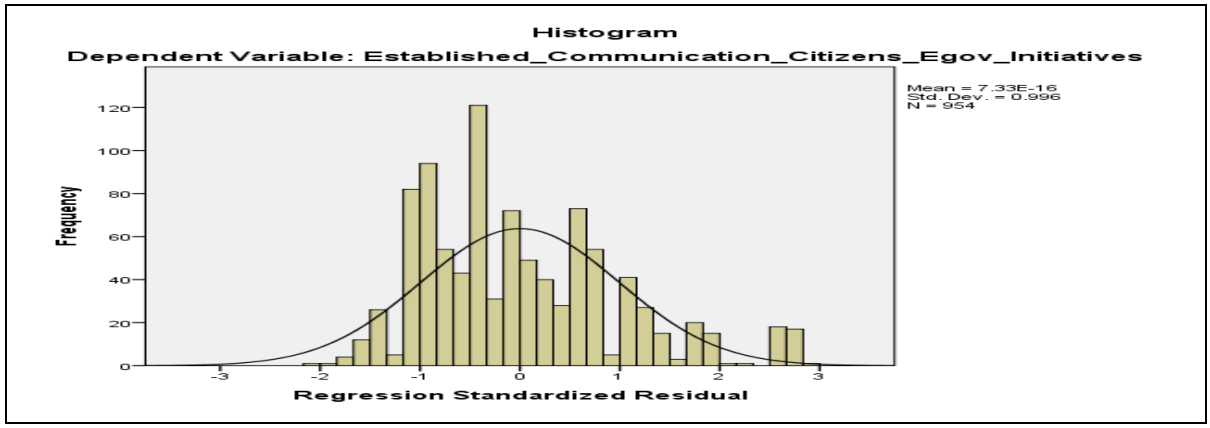
Model Summary[b]									
					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.613[a]	.376	.371	1.85619	.376	71.113	8	945	.000

a. Predictors: (Constant), Influential_Stakeholders_participation, Rural_Communities_ICTskills_Resour_PAE, Citizens_Trust_Knowledge_Awareness, Gov_Stakeholders_openness_Transparency_Citizens_Involvement, Citizen_Stakeholders_Rep_Part_Change_teams, ICT_Internet_Subsidies_Citizens_Villages, Primary_Sec_Tertiary_ICT_Curriculum, Students_Sch_CompLABS_Internet_Access
b. Dependent Variable: Established_Communication_Citizens_Egov_Initiatives

The R^2 value of .376 gives a good fit of prediction capacity of the regression model obtained from the data set at 37.1% of the variation in the outcome being determined by the predictor variables. A regression analysis, predicting Log_ establishment of citizens' media communication networks from predictors shows a highly significant F statistics at F (1) = 71.113, P<.001), thus very unlikely to have happened by chance. The hypothesis is therefore supported as there is a statistically significant relationship between the set of all independent variables listed 'a' and the dependent variable.

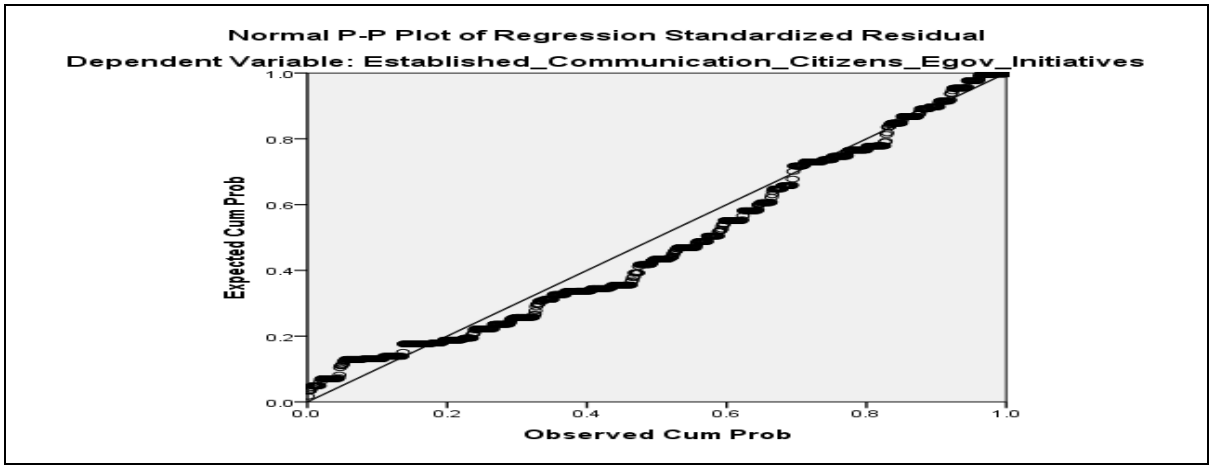
The chart below further shows graphical demonstration of normality that the data set follows the normal and probability distribution.

Generalized Normal Data Fit of Dependent Variable and Predictors



The linearity figure below shows the P-P plot of regression standardised residual with establishment of citizens' media communication networks as the standardised residual dependent variable with no substantial divergence from normality, rendering the results obtained from the analysis highly valid.

P-P plot for Standardised Residue of Dependent and Predictor



Conclusion on H8: Citizens' stakeholder groups' participation in e-government including rural communities, government transparency and provision of computer labs internet in schools as well as ICT curriculum will positively impact on the establishment of citizens media communication networks.

The tested relationships validate the key e-government strategy factor of (i) Political Commitment to democracy; (ii) Openness and Transparency; (iii) Information and data access (citizens empowered to access government online-information and services), and (iv) Stakeholder Inclusive change management, (v) Human capacity Development (ensure citizen stakeholders are facilitated to have access to ICT).

- Therefore the relationships should be considered in the proposed conceptual model and strategy framework for Botswana. The interview informants stated that;

H9: Citizens' stakeholders' categorisation

Citizens' stakeholders' categorisation will culminate in the provision of citizens' targeted incentives to acquire ICT-internet gadgets which will enhance citizens' knowledge and e-government trust.

Model Summary Predictive value of Citizens Stakeholder Categorization and other Independent Variables

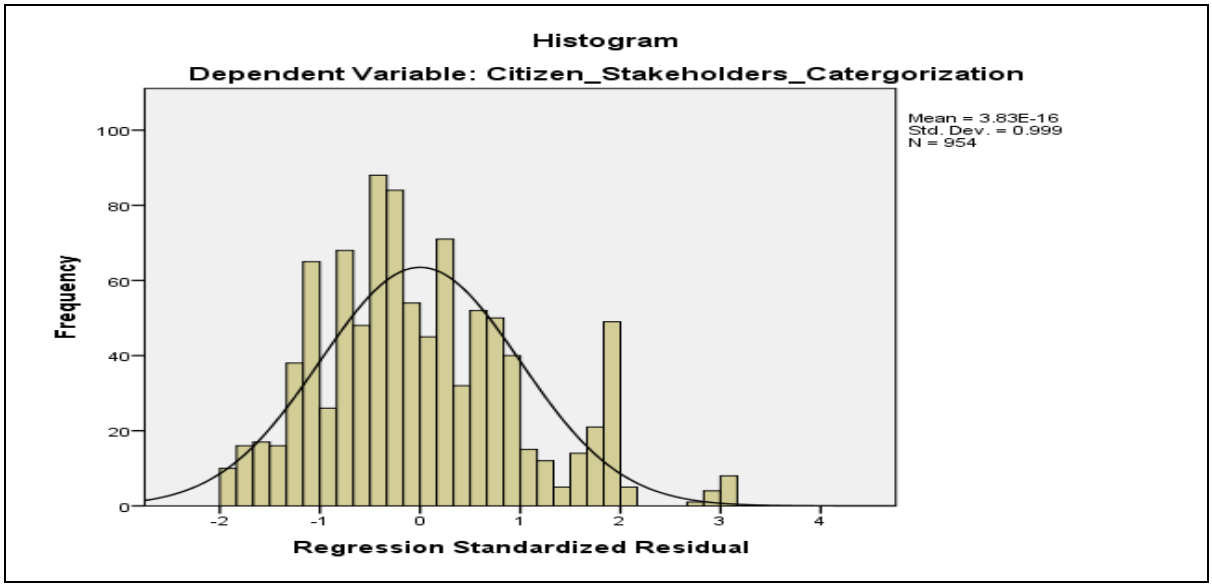
Model Summary[b]									
					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.416[a]	.173	.172	1.85342	.173	99.697	2	951	.000

a. Predictors: (Constant), All_Citizens_Incentives_Internet_ICT_Gadgets, Citizens_Trust_Knowledge_Awareness
b. Dependent Variable: Citizen_Stakeholders_Catergorization

The R^2 square change statistics for the increase in citizens' stakeholders' categorization associated with the added variables (independent) is 0.173, which means the prediction capacity of the model obtained from the data constitutes 17.3% of the variation which is determined by the predictor variables.

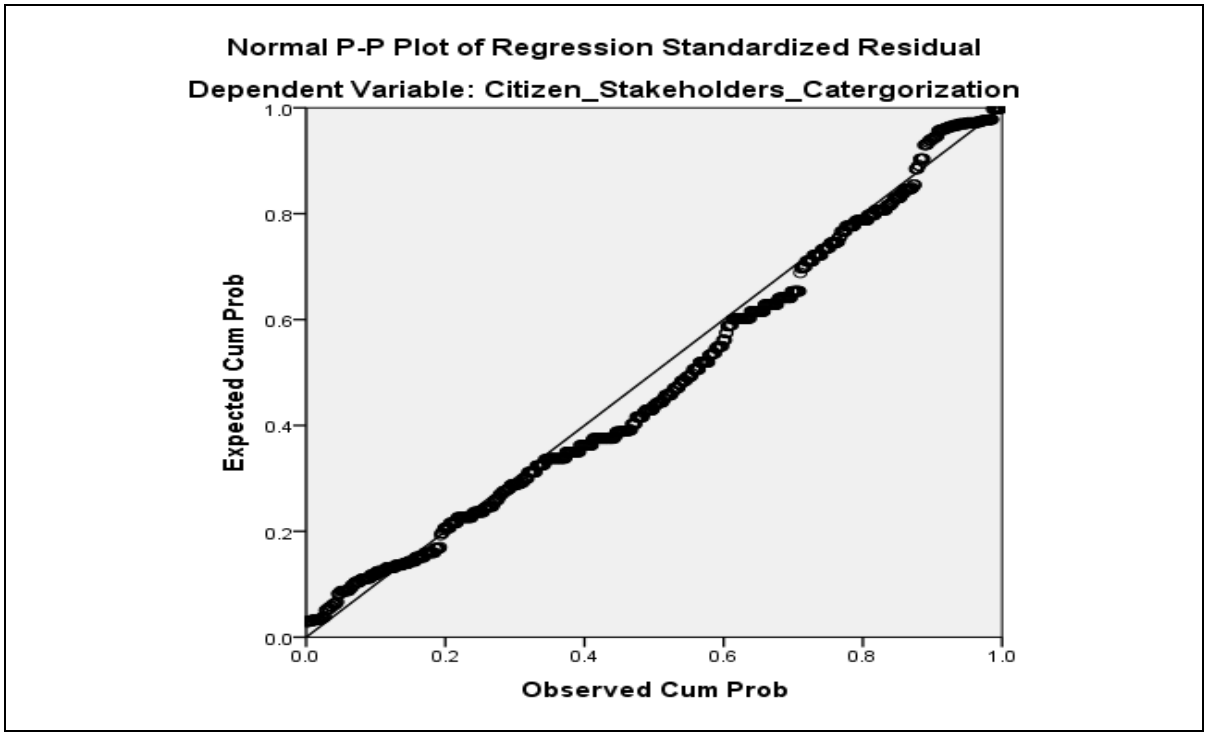
The F statistics for the overall regression relationship is significant, F (1) = 99.697, P<.001) which is very unlikely to have happened by chance. The hypothesis is therefore supported as there is a statistically significant relationship between the set of all independent variables listed 'a' and the dependent variable (citizens' stakeholders' categorization).

Generalized Normal Data Fit of Dependent Variable and Predictors



The linearity figure below shows the P-P plot of regression standardised residual with citizens' stakeholders categorization as the standardised residual dependent variable with no substantial divergence from normality, rendering the results obtained from the analysis are highly valid.

P-P plot for Standardised Residue of Dependent and Predictors



Conclusion on H9: Citizens' stakeholders' categorisation will culminate in the provision of citizens' targeted incentives to acquire ICT-internet gadgets which will enhance citizens' knowledge and e-government trust.

The tested relationships validate the key e-government strategy factor of (i) Differentiated funding Initiatives; and (ii) Stakeholders involvement and participation focusing on (informing and engaging citizens; enabling and facilitating citizens' access; and also securing participation and adoption).

- Therefore the relationships should be considered in the proposed conceptual model and strategy framework for Botswana. The informants had this to say;

H10: citizens' stakeholders' representation in e-government teams

The representation of citizens' stakeholders in e-government initiatives is facilitated by availability citizens' media and communication channels, access and ICT skills in schools and communities resulting in trust, knowledge, awareness and readiness on e-government.

Model Summary Predictive value of Citizen Stakeholders' Representation in Change Teams and other Independent Variables

Model Summary[b]									
					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change

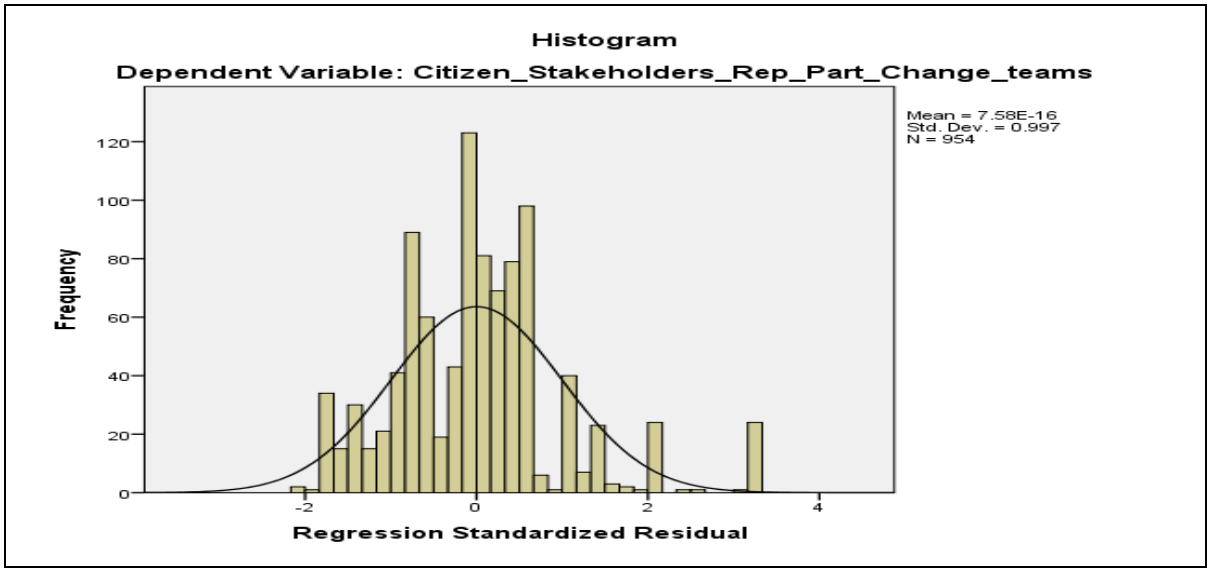
1	.638[a]	.407	.404	1.53387	.407	129.964	5	948	.000

a. Predictors: (Constant), Established_Communication_Citizens_Egov_Initiatives, Rural_Communities_ICTskills_Resour_PAE, Citizens_Egov_Readiness_Awareness, Citizens_Trust_Knowledge_Awareness, Students_Sch_CompLABS_Internet_Access
b. Dependent Variable: Citizen_Stakeholders_Rep_Part_Change_teams

The R^2 value of .407 giving a good fit of prediction capacity of the regression model obtained from the data set at 40.7% of the variation in the outcome being determined by the predictor variables. A regression analysis, predicting Log_ citizens' stakeholders' representation in e-government teams from predictors (table 7.17), shows a highly significant F statistics at, F (1) = 129.964, P<.001), thus very unlikely to have happened by chance. The hypothesis is therefore supported that there is a statistically significant relationship between the set of all independent variables listed 'a' and the dependent variable.

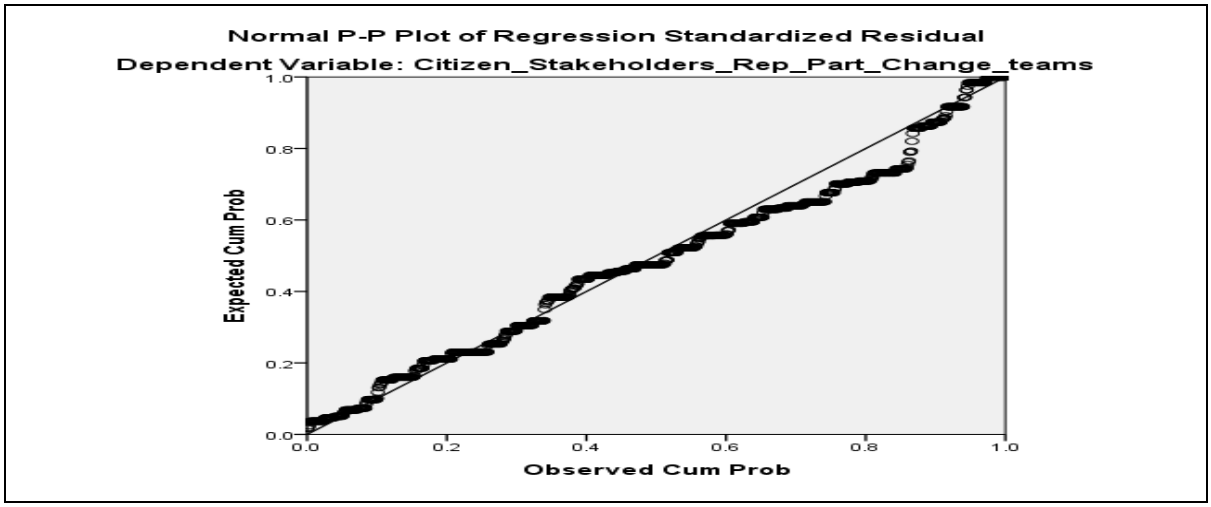
The chart below further shows graphical demonstration of normality that the data set follows the normal and probability distribution

Generalized Normal Data Fit of Dependent Variable and Predictors



The linearity figure below shows the P-P plot of regression standardised residual with citizens' stakeholders' representation in e-government as the standardised residual dependent variable with no substantial divergence from normality, rendering the results obtained from the analysis highly valid.

P-P plot for Standardised Residue of Dependent and Predictor



Conclusion on H10: The representation of citizens' stakeholders in e-government initiatives is facilitated by availability of citizens' media and communication channels, access and ICT skills in schools and communities resulting in trust, knowledge, awareness and readiness on e-government.

The tested relationships validate the key e-government strategy factor of (i) Political Commitment to Democracy; and (ii) Citizens' Inclusive Change Management.

- Therefore the relationships should be considered in the proposed conceptual model and strategy framework for Botswana

H11: E-government project team autonomy and priority funding.

> **Project implementation team autonomy facilitated by priority funding to embark on e-government initiatives will culminate in citizens' trust in government and will facilitate countrywide internet access and subsidisation of rural communities**.

Model Summary Predictive value of Project team Autonomy and E-government Priority Funding and other Independent Variables

Model Summary[b]									
				Std. Error of the Estimate	Change Statistics				
Model	R	R Square	Adjusted R Square		R Square Change	F Change	df1	df2	Sig. F Change
1	.280[a]	.078	.074	.85700	.078	20.139	4	949	.000

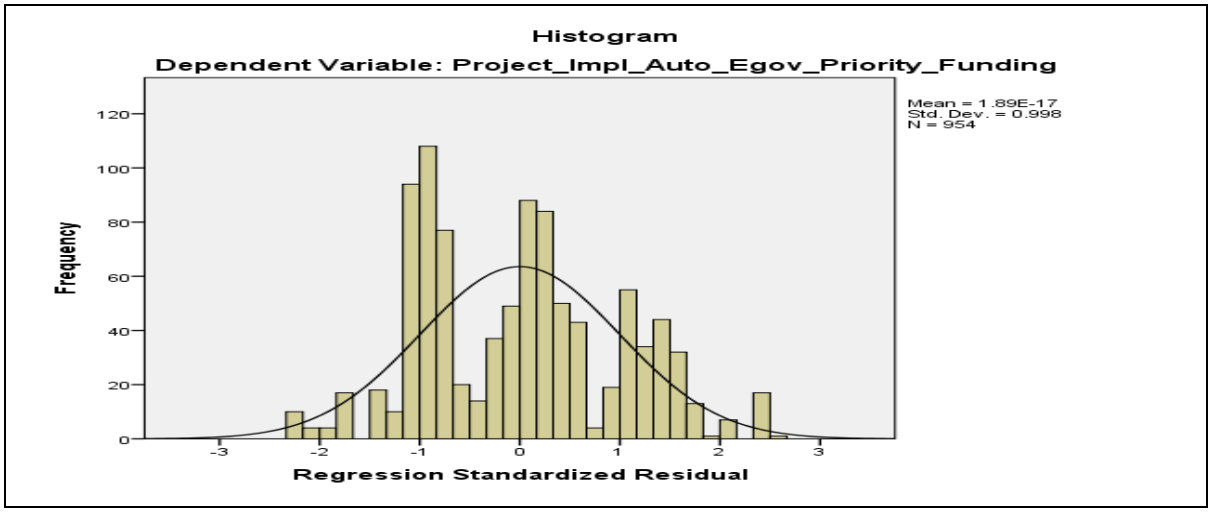
a. Predictors: (Constant), Citizens_Trust_Knowledge_Awareness, Gov_Stakeholders_openness_Transparency_Citizens_Involvement, Countrywide_Citizens_Internet_Access, ICT_Internet_Subsidies_Citizens_Villages
b. Dependent Variable: Project_Impl_Auto_Egov_Priority_Funding

The R^2 value of .078 giving a good fit of prediction capacity of the regression model obtained from the data set at 7.8% of the variation in the outcome being determined by the predictor variables. A regression analysis, predicting Log_ project implementation team autonomy and priority funding from predictors (table 7.18), shows a highly significant F statistics at F (1) = 20.139, P<.001), thus very unlikely to

have happened by chance. The hypothesis is therefore supported as there is a statistically significant relationship between the set of all independent variables listed ‘a’ and the dependent variable.

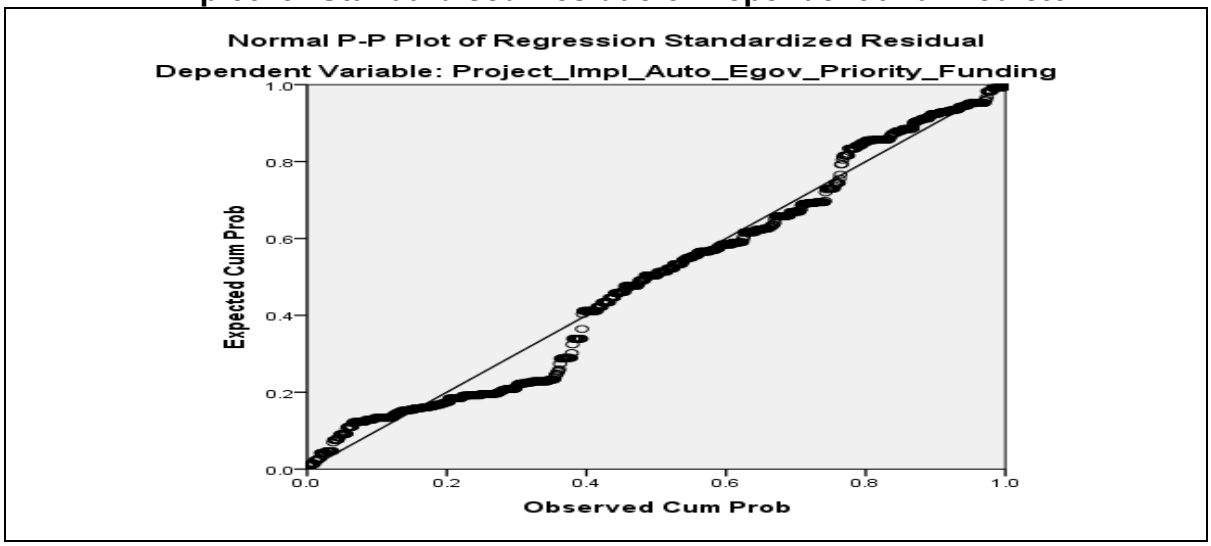
The chart below further shows graphical demonstration of normality that the data set follows the normal and probability distribution

Generalized Normal Data Fit of Dependent Variable and Predictors



The linearity figure below shows the P-P plot of regression standardised residual with project implementation team autonomy and priority funding as the standardised residual dependent variable with no substantial divergence from normality, rendering the results obtained from the analysis highly valid

P-P plot for Standardised Residue of Dependent and Predictor



Conclusion on H11: Project implementation team autonomy facilitated by priority funding to embark on e-government initiatives will culminate in citizens’ trust in government and will facilitate countrywide internet access and subsidisation of rural communities.

The tested relationships validate the key e-government strategy factor of (i) Funding; (ii) Project Leadership; and (iii) Political commitment to democracy.

- Therefore the relationships should be considered in the proposed conceptual model and strategy framework for Botswana

H12: Internet and Computer Labs in Schools

Introduction of ICT curriculum from primary to tertiary education will positively influence provision of computer labs in schools and student access to internet.

Model Summary Predictive value of Internet & Computer Labs in Schools (Students) and other Independent Variables

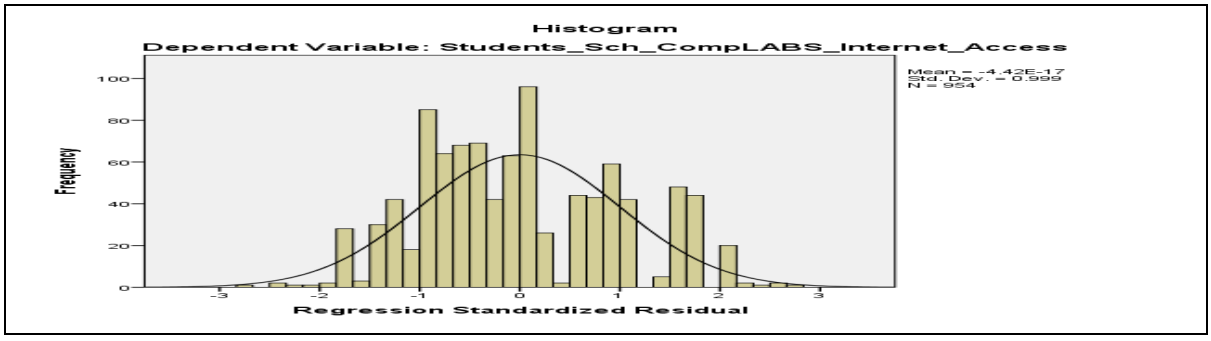
Model Summary[b]									
					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.399[a]	.159	.158	2.12421	.159	179.790	1	952	.000

a. Predictors: (Constant), Primary_Sec_Tertiary_ICT_Curriculum
b. Dependent Variable: Students_Sch_CompLABS_Internet_Access

The R^2 value of .159 giving a good fit of prediction capacity of the regression model obtained from the data set at 15.9% of the variation in the outcome being determined by the predictor variables. A regression analysis, predicting Log_ internet and computer labs in schools from predictors shows a highly significant F statistics at F (1) = 179.790, P<.001), thus very unlikely to have happened by chance. The hypothesis is therefore supported as there is a statistically significant relationship between the set of all independent variables listed 'a' and the dependent variable.

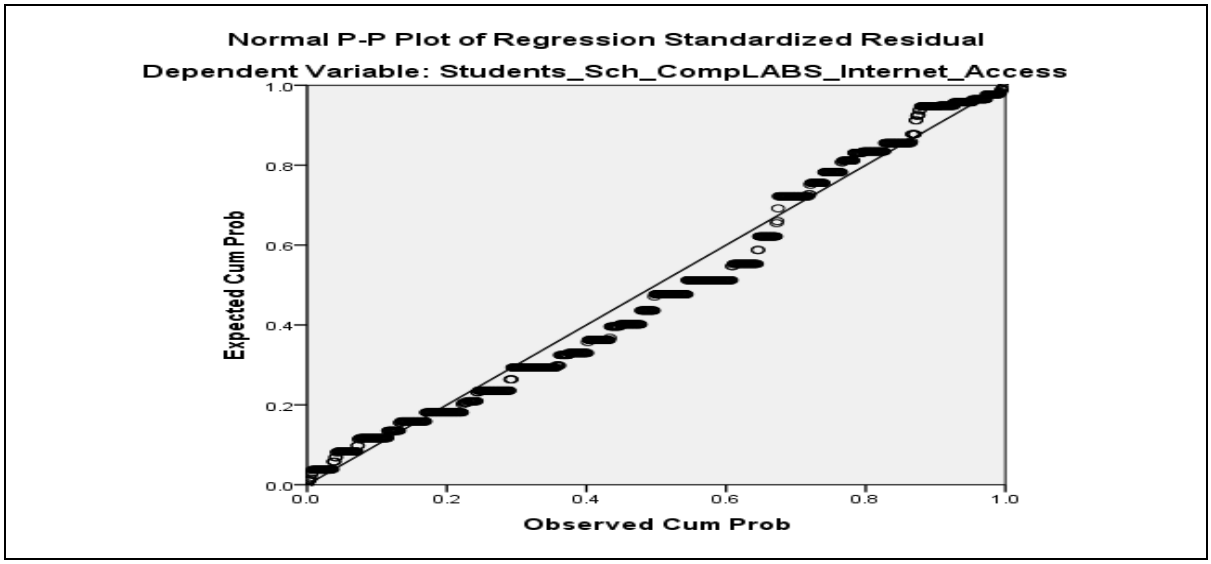
The chart below further shows graphical demonstration of normality that the data set follows the normal and probability distribution

Generalized Normal Data Fit of Dependent Variable and Predictors



The linearity figure below shows the P-P plot of regression standardised residual with internet and computer labs in schools as the standardised residual dependent variable with no substantial divergence from normality, rendering the results obtained from the analysis highly valid.

P-P plot for Standardised Residue of Dependent and Predictors



Conclusion on H12: Introduction of ICT curriculum from primary to tertiary education will positively influence provision of computer labs in schools and students' access to internet.

The tested relationships validate the key e-government strategy factor of (i) Human capacity Development; (ii) ICT Policy and E-readiness (iii) Society Development (ICT Education and internet Access)

- Therefore the relationships should be considered in the proposed conceptual model and strategy framework for Botswana and the informants asserted that;

H13: Youth targeted Initiatives

E-government and ICT syllabus and initiatives to address low ICT skills of citizens in the villages, including funding of community websites and employment opportunities both in the short and long run and will impact positively on youth targeted initiatives.

Model Summary Predictive value of Youth Targeted Initiatives and other Independent Variables

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.339[a]	.115	.111	1.69558	.115	29.050	3	669	.000

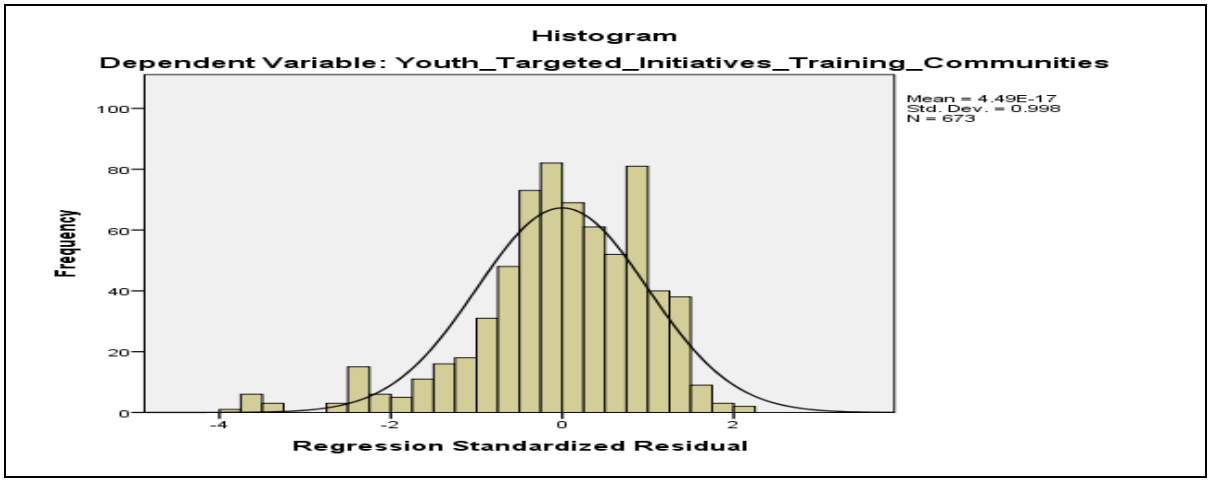
a. Predictors: (Constant), Comp_Egov_ICT_Syllabus, Low_ICT_Skills_Employ_Initiatives, Uni_Fund_Website
b. Dependent Variable: Youth_Targeted_Initiatives_Training_Communities

The R^2 value of .115 giving a good fit of prediction capacity of the regression model obtained from the data set at 11.5% of the variation in the outcome being determined by the predictor variables. A regression analysis, predicting Log_ youth targeted

initiatives networks from predictors shows a highly significant F statistics at F (1) = 29.050, P<.001), thus very unlikely to have happened by chance. The hypothesis is therefore supported as there is a statistically significant relationship between the set of all independent variables listed ‘a’ and the dependent variable.

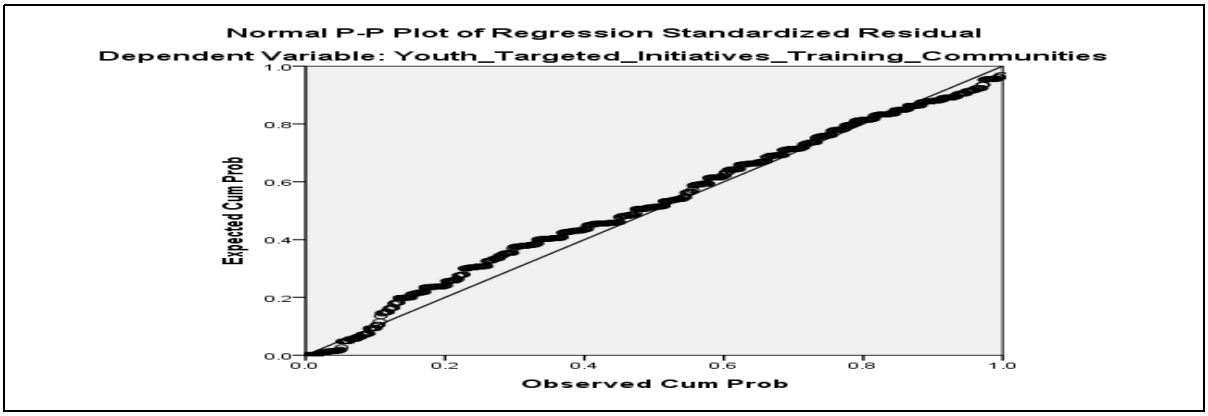
The chart below further shows graphical demonstration of normality that the data set follows the normal and probability distribution

Generalized Normal Data Fit of Dependent Variable and Predictors



The linearity figure below shows the P-P plot of regression standardised residual with youth targeted initiatives as the standardised residual dependent variable with no substantial divergence from normality, rendering the results obtained from the analysis highly valid.

Plot for Standardised Residue of Dependent and Predictors



Conclusion on H13: Botswana population is predominantly youth and inclusion of e-government and ICT syllabus and also initiatives to address low ICT skills of citizens in the villages, including funding of community websites and employment opportunities both in the short and long run and will impact positively on youth targeted initiatives.

The tested relationships validate the key e-government strategy factor of (i) Human capacity development; (ii) Citizen-users' differentiated funding initiatives; and (iii) Youth Economic Empowerment.

- Therefore the relationships should be considered in the proposed conceptual model and strategy framework for Botswana.

H14: Universal funding of community websites

Use of youth to training of communities and inclusion of elderly citizens' priorities in e-government programmes will positively influence funding of community websites.

Model Summary Predictive value of Universal Funding of Community Websites and other Independent Variables

Model Summary[b]

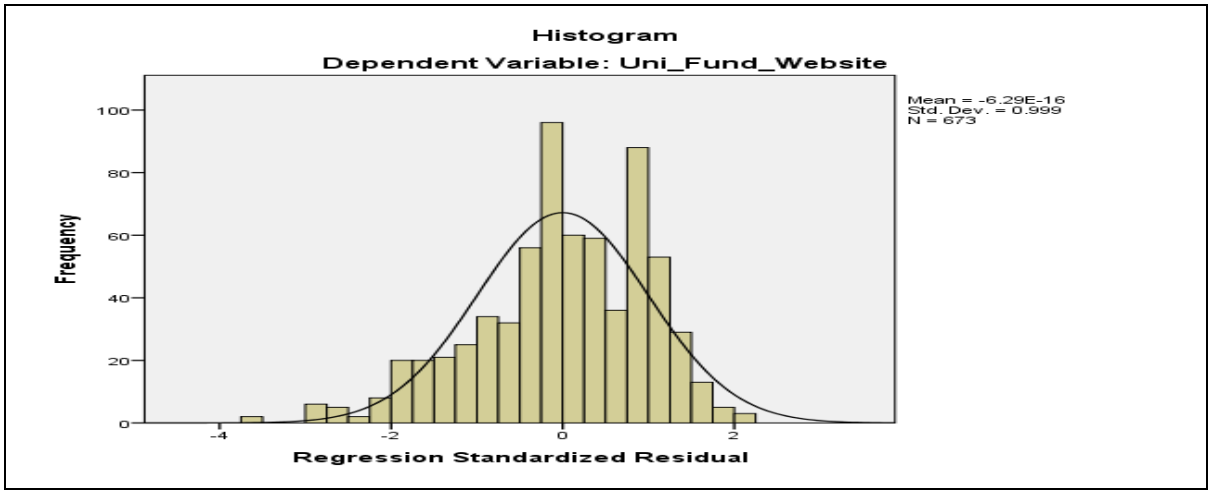
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.316[a]	.100	.097	1.95404	.100	37.228	2	670	.000

a. Predictors: (Constant), Youth_Targeted_Initiatives_Training_Communities, Elderly_Citizens_Priorities
b. Dependent Variable: Uni_Fund_Website

The R^2 value of .100 giving a good fit of prediction capacity of the regression model obtained from the data set at 10% of the variation in the outcome being determined by the predictor variables. A regression analysis, predicting Log_ universal funding of community websites from predictors shows a highly significant F statistics at F (1) = 37.228, P<.001), thus very unlikely to have happened by chance. The hypothesis is therefore supported as there is a statistically significant relationship between the set of all independent variables listed 'a' and the dependent variable.

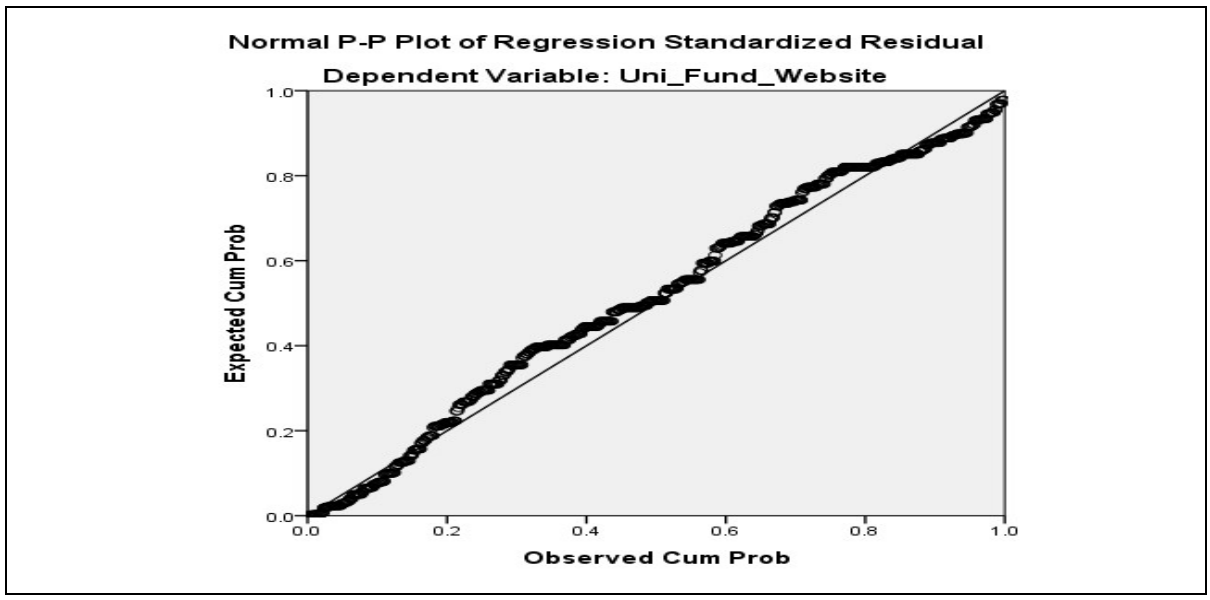
The chart below further shows graphical demonstration of normality that the data set follows the normal and probability distribution

Generalized Normal Data Fit of Dependent Variable and Predictors



The linearity figure below shows the P-P plot of regression standardised residual with universal funding of community websites as the standardised residual dependent variable with no substantial divergence from normality, rendering the results obtained from the analysis highly valid

P-P plot for Standardised Residue of Dependent and Predictors



Conclusion on H14: Use of youth to training of communities and inclusion of elderly citizens' priorities in e-government programmes will positively influence funding of community websites

The tested relationships validate the key e-government strategy factor of (i) Citizen-users literacy and education.

- Therefore the relationships should be considered in the proposed conceptual model and strategy framework for Botswana.

H15: Citizens' users' e-government awareness initiatives

Initiatives enhancing ICT skills and targeting employment creation for citizens through e-government programmes will positively influence citizens' users' awareness of e-government.

Model Summary Predictive value of Citizen-users E-government Awareness and Low ICT Skills

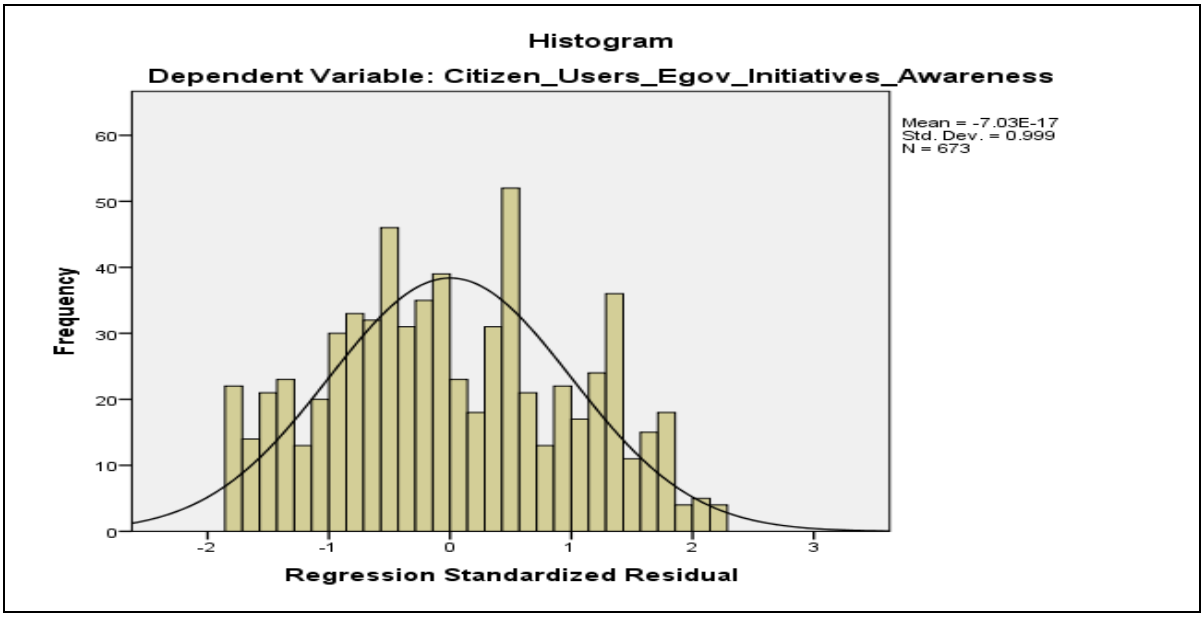
Model Summary[b]									
					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.179[a]	.032	.031	3.25680	.032	22.326	1	671	.000

a. Predictors: (Constant), Low_ICT_Skills_Employ_Initiatives
b. Dependent Variable: Citizen_Users_Egov_Initiatives_Awareness

The R^2 value of .032 giving a good fit of prediction capacity of the regression model obtained from the data set at 3.2% of the variation in the outcome being determined by the predictor variables. A regression analysis, predicting Log_ citizens' users' e-government awareness initiatives networks from predictors shows a highly significant F statistics at F (1) = 22.326, P<.001), thus very unlikely to have happened by chance albeit low percentage. The hypothesis is therefore supported that there is a statistically significant relationship between the set of all independent variables listed 'a' and the dependent variable.

The chart below further shows graphical demonstration of normality that the data set follows the normal and probability distribution

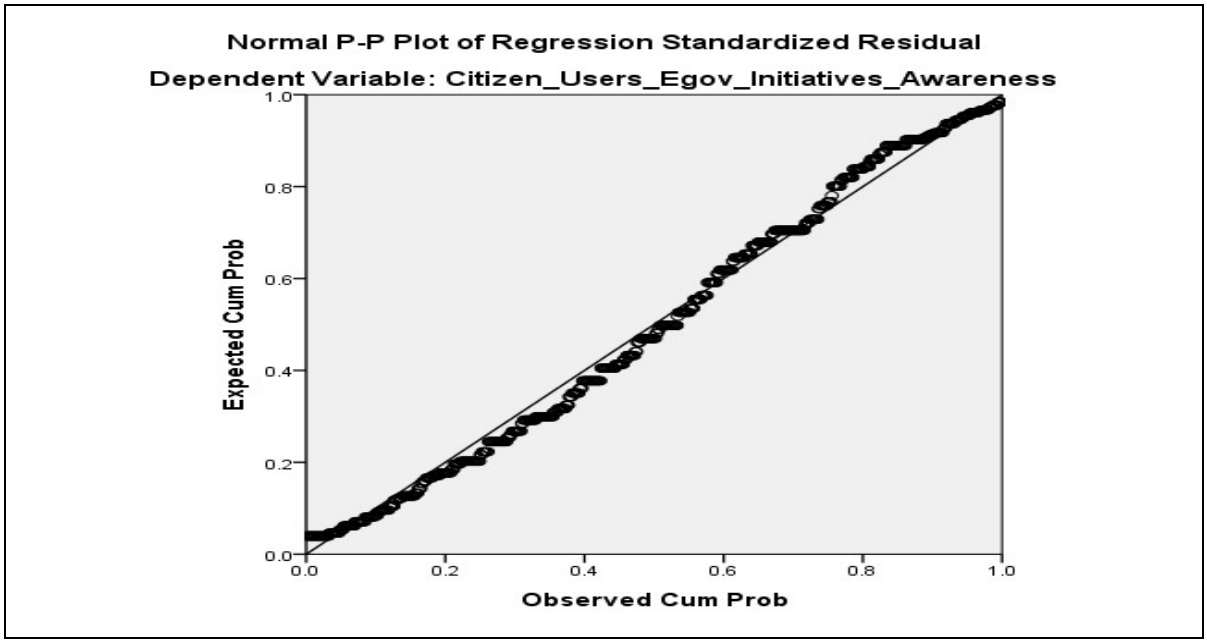
Generalized Normal Data Fit of Dependent Variable and Predictors



The linearity figure below shows the P-P plot of regression standardised residual with citizens' users' e-government awareness initiatives as the standardised residual

dependent variable with no divergence from normality, rendering the results obtained from the analysis highly valid

P-P plot for Standardised Residue of Dependent and Predictor



Conclusion on H15: Citizens' users' e-government awareness initiatives are largely influenced by Initiatives enhancing ICT skills and targeting employment creation for citizens through targeted e-government programmes.

The tested relationships validate the key e-government strategy factor of (i) Citizens economic empowerment (job opportunities) and (ii) Citizen- stakeholders inclusive change strategy (ICT skills for inclusion in government online).

- Therefore the relationship should be considered in the proposed conceptual model and strategy framework for Botswana

H16: Citizens' users' Involvement and differentiation

> **Youth targeted initiatives, training of communities and provision of community websites, catering for elderly citizens' priorities and initiatives to enhance low ICT skills, introduction of e-government and ICT syllabus content to cater for students will facilitate citizens users differentiated e-government involvement and provision**.

Significance of citizens' users' Involvement and differentiation was explored with the entry of independent (predictor) variables on; (a) youth targeted initiatives and training of communities; (b) Elderly citizens' priorities; (c) Computing, ICT and e-government syllabus; (d) enhancing low citizens ICT skills and employment through e-government; and (e) initiatives targeted to create user awareness (table below)

Citizens' Involvement & Differentiation and Independent (Predictor) Variables entered

Variables Entered/Removed[a]			
Model	Variables Entered	Variables Removed	Method
1	Youth_Targeted_Initiatives_Training_Communities, Citizen_Users_Egov_Initiatives_Awareness, Elderly_Citizens_Priorities, Comp_Egov_ICT_Syllabus, Low_ICT_Skills_Employ_Initiatives, Uni_Fund_Website[b]		Enter

a. Dependent Variable: Citizen_Users_Inolvement_differentiation
b. All requested variables entered.

The R^2 square change statistics for the increase in citizens' trust, knowledge and awareness associated with the added variables (independent) is 0.284, which means the prediction capacity of the model obtained from the data constitutes 28.4% of the variation is determined by the predictor variables.

Model Summary Predictive value of Citizens' users' Involvement & Differentiation and other Independent Variables

Model Summary[b]									
					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.533[a]	.284	.277	2.14431	.284	43.961	6	666	.000

a. Predictors: (Constant), Youth_Targeted_Initiatives_Training_Communities, Citizen_Users_Egov_Initiatives_Awareness, Elderly_Citizens_Priorities, Comp_Egov_ICT_Syllabus, Low_ICT_Skills_Employ_Initiatives, Uni_Fund_Website
b. Dependent Variable: Citizen_Users_Inolvement_differentiation

The F statistic for the overall regression relationship for all independent variables is <0.001, F (1) = 43.961, P<.001) which is very unlikely to have happened by chance. The hypothesis is therefore supported that there is a statistically significant relationship between the set of all independent variables listed 'a' and the dependent variable (citizen-users involvement and differentiation).

ANOVA on Citizens' Users' Involvement & Differentiation and other Variables

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1212.825	6	202.137	43.961	.000[b]
	Residual	3062.311	666	4.598		
	Total	4275.135	672			

a. Dependent Variable: Citizen_Users_Inolvement_differentiation
b. Predictors: (Constant), Youth_Targeted_Initiatives_Training_Communities, Citizen_Users_Egov_Initiatives_Awareness, Elderly_Citizens_Priorities, Comp_Egov_ICT_Syllabus, Low_ICT_Skills_Employ_Initiatives, Uni_Fund_Website

The t-statistic in the below coefficient table show the associated standard error in the extent to which beta values vary across the sample and the standard error determines whether or not the b values differ significantly from zero (In the column

labelled ‘Sig.’). The smaller the Sig. the larger the t value the greater contribution of the predictor. For Log_ (Citizen-users e-government initiatives awareness, t(673) = 2.36, p < .05; Universal funding of websites, t(673) = 3.95, p < .001; Elderly citizens priorities, t(673) = 4.78, p < .001; Low ICT Skills, t(673) = 3.15, p < .01; computing, e-government and ICT syllabus, t(673) = 4.50, p < .001; and Youth targeted initiatives, t(673) = 7.01, p < .001) are significant predictors of citizen-users involvement and differentiation.

Coefficients of Each Independent (Predictor Variable)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	3.094	.826		3.745	.000	1.472	4.716			
	Citizen_Users_Egov_Initiatives_Awareness	.062	.026	.081	2.375	.018	.011	.113	.072	.092	.078
	Uni_Fund_Website	.175	.044	.143	3.947	.000	.088	.262	.326	.151	.129
	Elderly_Citizens_Priorities	.223	.047	.166	4.780	.000	.131	.315	.313	.182	.157
	Low_ICT_Skills_Employ_Initiatives	.111	.035	.112	3.150	.002	.042	.180	.289	.121	.103
	Comp_Egov_ICT_Syllabus	.311	.069	.161	4.498	.000	.175	.446	.331	.172	.148
	Youth_Targeted_Initiatives_Training _Communities	.352	.050	.251	7.007	.000	.254	.451	.372	.262	.230

a. Dependent Variable: Citizen_Users_Inolvement_differentiation

The residual statistics below shows that the mahalanobis has an acceptable value for the independent variable and is within the Chi-square critical value for the degree of freedom.

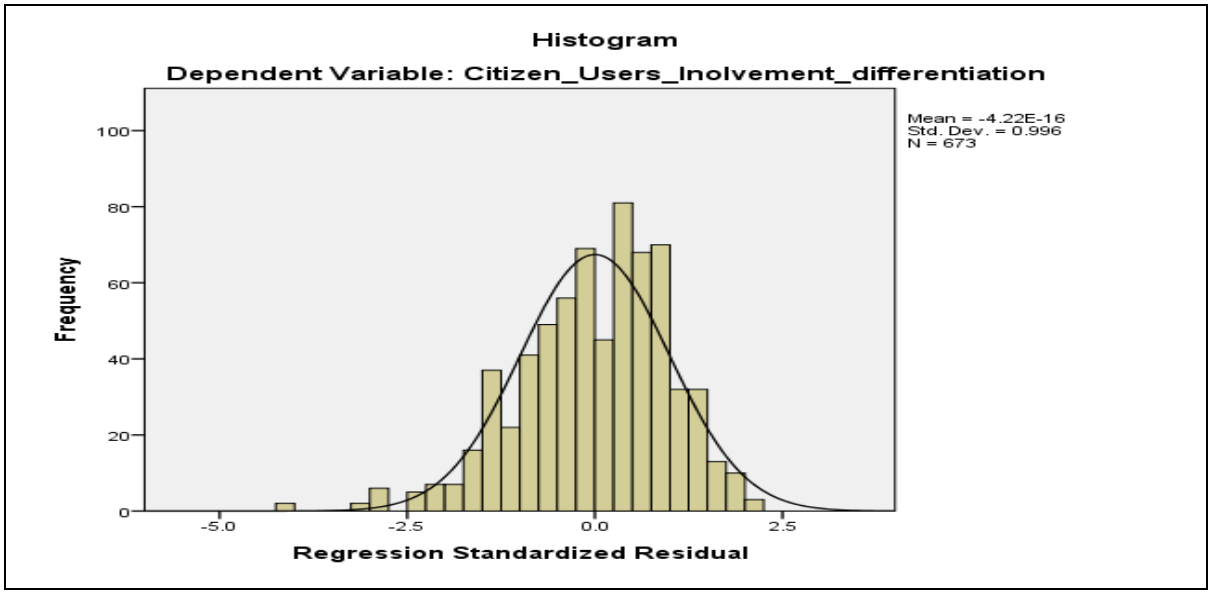
Residual Statistics for Model selection

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	6.2617	18.9341	16.0758	1.34343	673
Std. Predicted Value	-7.305	2.128	.000	1.000	673
Standard Error of Predicted Value	.094	.625	.209	.064	673
Adjusted Predicted Value	6.4717	18.9191	16.0748	1.34187	673
Residual	-8.74213	4.50477	.00000	2.13472	673
Std. Residual	-4.077	2.101	.000	.996	673
Stud. Residual	-4.088	2.103	.000	1.001	673
Deleted Residual	-8.79180	4.51581	.00101	2.15929	673
Stud. Deleted Residual	-4.138	2.109	.000	1.003	673
Mahal. Distance	.304	56.091	5.991	4.992	673
Cook's Distance	.000	.026	.002	.003	673
Centered Leverage Value	.000	.083	.009	.007	673

a. Dependent Variable: Citizen_Users_Inolvement_differentiation

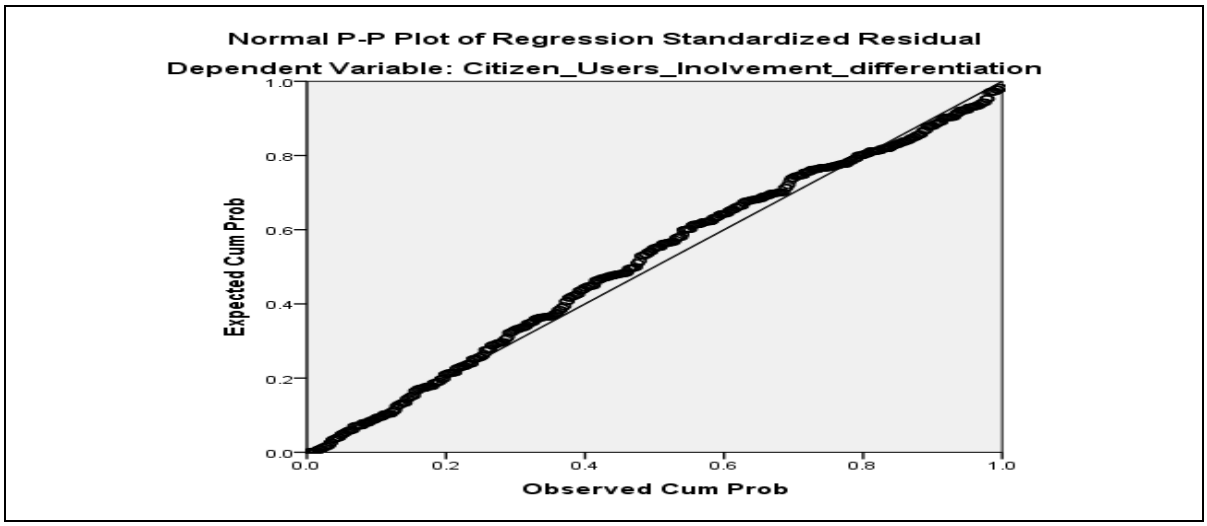
A further validity of results is seen in Figure 7.33 giving a graphical demonstration of normality the data set follows both the normal and probability; hence normality is demonstrable to an acceptable extent

Generalized Normal Data Fit of Dependent Variable and Predictors



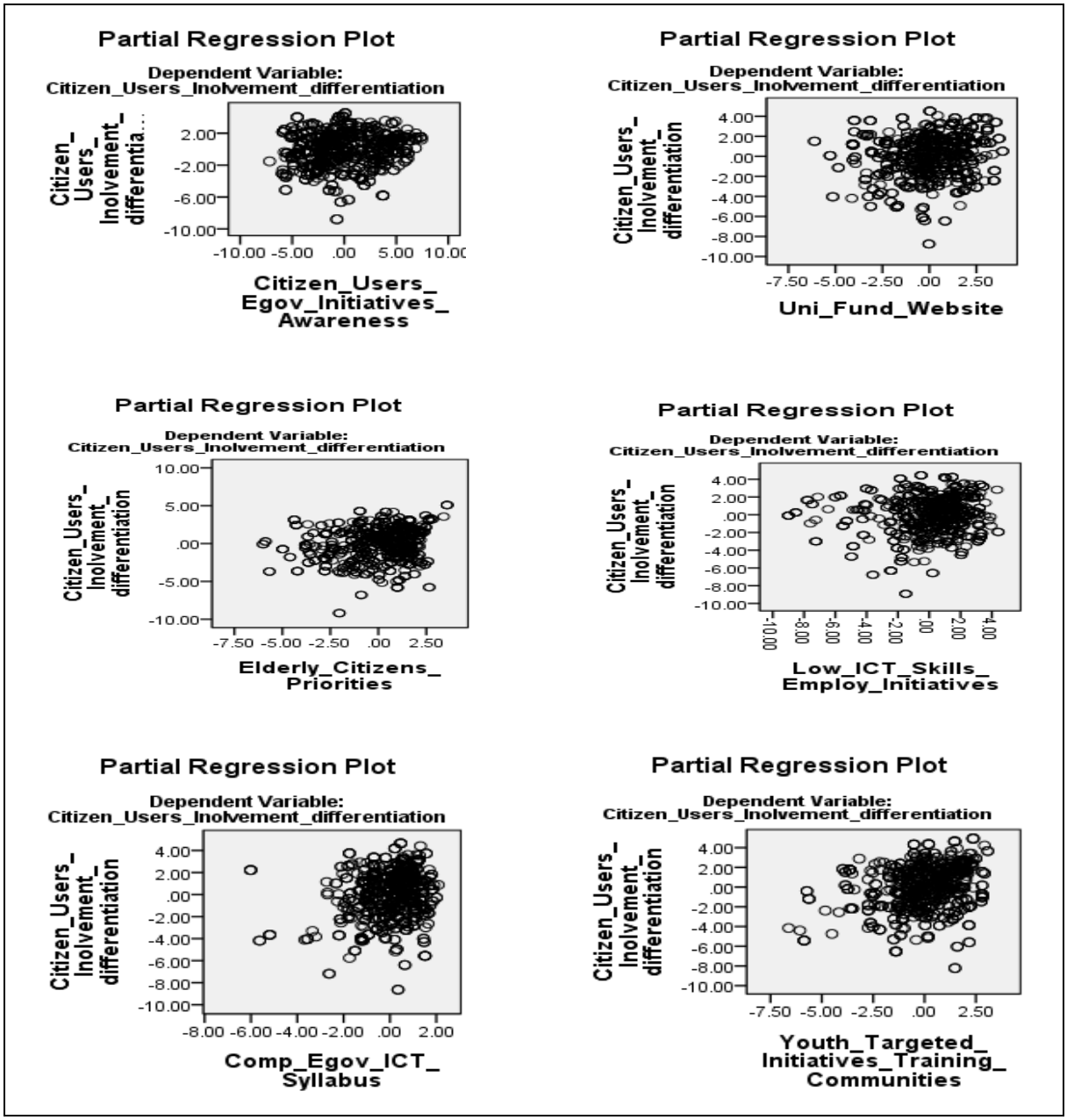
The linearity P-P plot of regression standardised residual with citizen-users involvement and differentiation as the standardised residual dependent variable shows linearity with no substantial divergence from normality, rendering the results obtained from the analysis highly valid.

P-P plot for Standardised Residue of Dependent and Predictors



The Scatter plots in the figure below exhibit the spread on partial regression plots of the Mahalanobis distances within different cases of the predictor variable on citizens' e-government readiness and awareness levels

Scatter plot of the Mahalanobis distance of selected factors on User Involvement and Differentiation



Conclusion on H16: Youth targeted initiatives, training of communities and provision of community websites, catering for elderly citizens' priorities and initiatives to enhance low ICT skills, introduction of e-government and ICT syllabus content to cater for students will facilitate citizens users differentiated e-government involvement and provision.

The tested relationships validate the key e-government strategy factor of (i) categorizing stakeholders, (ii) long term and short term strategies securing adoption and continual use.

- Therefore the relationships should be considered in the proposed conceptual model and strategy framework for Botswana

Appendix 6

DATA ANALYSIS STATISTICAL OUTPUTS (regression analysis)

Statistical Attachment ST 1

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	24.115	.645		37.384	.000	22.849	25.381			
	Rural_Communities_ICTskills_Resour_PAE	-.529	.092	-.172	-5.773	.000	-.709	-.349	-.166	-.184	-.171
	ICT_Internet_Subsidies_Citizens_Villages	-.252	.079	-.098	-3.197	.001	-.407	-.097	-.177	-.103	-.094
	Established_Communication_Citizens_Egov_Initiatives	-.301	.036	-.264	-8.457	.000	-.370	-.231	-.320	-.265	-.250
	Citizen_Stakeholders_Catergorization	-.121	.039	-.092	-3.124	.002	-.197	-.045	-.091	-.101	-.092
	Citizen_Stakeholders_Rep_Part_Change_teams	-.222	.040	-.166	-5.491	.000	-.301	-.143	-.199	-.176	-.162

a. Dependent Variable: Citizens_Trust_Knowledge_Awareness

Statistical Attachment ST 2

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	3.453	.289		11.958	.000	2.886	4.019			
	ICT_Internet_Subsidies_Citizens_Villages	-.280	.044	-.207	-6.441	.000	-.366	-.195	-.067	-.205	-.193
	Project_Impl_Auto_Egov_Priority_Funding	-.162	.048	-.102	-3.395	.001	-.255	-.068	-.076	-.109	-.102
	Citizens_Egov_Readiness_Awareness	.189	.016	.390	12.152	.000	.159	.220	.313	.367	.365

a. Dependent Variable: Countrywide_Citizens_Internet_Access

Statistical Attachment ST 3

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	23.778	.607		39.198	.000	22.588	24.969			
	Established_Communication_Citizens_Egov_Initiatives	.197	.032	.160	6.250	.000	.135	.259	.012	.199	.155
	Citizens_Egov_Readiness_Awareness	-.262	.027	-.264	-9.884	.000	-.314	-.210	-.387	-.306	-.245
	Primary_Sec_Tertiary_ICT_Curriculum	-.596	.034	-.470	-17.517	.000	-.663	-.529	-.553	-.494	-.434
	Project_Impl_Auto_Egov_Priority_Funding	-.573	.081	-.177	-7.108	.000	-.732	-.415	-.236	-.225	-.176
	Rural_Communities_ICTskills_Resour_PAE	.328	.084	.098	3.923	.000	.164	.492	.126	.126	.097

a. Dependent Variable: Gov_Stakeholders_openness_Transparency_Citizens_Involvement

Statistical Attachment ST 4

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	1.205	.519		2.321	.020	.186	2.224			
	Established_Communication_Citizens_Egov_Initiatives	.130	.024	.156	5.350	.000	.082	.178	.424	.171	.131
	Citizens_Trust_Knowledge_Awareness	-.058	.019	-.079	-3.010	.003	-.096	-.020	-.250	-.097	-.074
	Rural_Communities_ICTskills_Resour_PAE	.239	.056	.105	4.246	.000	.128	.349	.146	.137	.104
	ICT_Internet_Subsidies_Citizens_Villages	.383	.051	.203	7.474	.000	.282	.484	.367	.236	.183
	Students_Sch_CompLABS_Internet_Access	.278	.026	.329	10.797	.000	.227	.328	.527	.331	.264
	Citizens_Egov_Readiness_Awareness	.127	.020	.188	6.406	.000	.088	.166	.454	.204	.156

a. Dependent Variable: Influential_Stakeholders_participation

Statistical Attachment ST 5

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	2.664	.316		8.438	.000	2.044	3.283			
	Project_Impl_Auto_Egov_Priority_Funding	-.090	.032	-.077	-2.773	.006	-.154	-.026	-.036	-.090	-.076
	Students_Sch_CompLABS_Internet_Access	-.128	.016	-.286	-7.850	.000	-.160	-.096	.122	-.247	-.215
	Primary_Sec_Tertiary_ICT_Curriculum	.071	.014	.156	5.098	.000	.044	.099	.263	.164	.139
	Citizens_Egov_Readiness_Awareness	.120	.012	.337	9.819	.000	.096	.145	.349	.304	.268
	Influential_Stakeholders_participation	.128	.019	.242	6.860	.000	.092	.165	.367	.218	.188
	Established_Communication_Citizens_Egov_Initiatives	.081	.014	.183	5.605	.000	.053	.109	.273	.179	.153
	Citizens_Trust_Knowledge_Awareness	-.036	.011	-.092	-3.145	.002	-.058	-.014	-.177	-.102	-.086
	Countrywide_Citizens_Internet_Access	-.132	.022	-.179	-6.140	.000	-.175	-.090	-.067	-.196	-.168

a. Dependent Variable: ICT_Internet_Subsidies_Citizens_Villages

Statistical Attachment ST 6

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	11.662	.490		23.812	.000	10.701	12.623			
	Established_Communication_Citizens_Egov_Initiatives	.087	.029	.090	2.966	.003	.029	.145	.194	.096	.075
	Citizen_Stakeholders_Rep_Part_Change_teams	.119	.036	.104	3.309	.001	.048	.190	.279	.107	.084
	Gov_Stakeholders_openness_Transparency_Citizens_Involvement	-.371	.022	-.471	-16.800	.000	-.414	-.328	-.553	-.479	-.425
	ICT_Internet_Subsidies_Citizens_Villages	.299	.059	.136	5.074	.000	.183	.414	.263	.163	.129
	Students_Sch_CompLABS_Internet_Access	.121	.036	.123	3.340	.001	.050	.192	.399	.108	.085

a. Dependent Variable: Primary_Sec_Tertiary_ICT_Curriculum

Statistical Attachment ST 7

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	8.553	.431		19.834	.000	7.707	9.399			
	Citizens_Trust_Knowledge_Awareness	-.063	.023	-.082	-2.775	.006	-.107	-.018	-.091	-.090	-.082
	All_Citizens_Incentives_Internet_ICT_Gadgets	.742	.054	.406	13.781	.000	.636	.847	.408	.408	.406

a. Dependent Variable: Citizen_Stakeholders_Catergorization

Statistical Attachment ST 8

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	6.529	.518		12.607	.000	5.513	7.546			
	Citizens_Trust_Knowledge_Awareness	-.116	.020	-.156	-5.816	.000	-.156	-.077	-.199	-.186	-.145
	Rural_Communities_ICTskills_Resour_PAE	-.292	.058	-.127	-4.994	.000	-.407	-.177	-.093	-.160	-.125
	Students_Sch_CompLABS_Internet_Access	.605	.026	.705	22.850	.000	.553	.657	.584	.596	.572
	Citizens_Egov_Readiness_Awareness	-.112	.019	-.164	-5.794	.000	-.150	-.074	.129	-.185	-.145
	Established_Communication_Citizens_Egov_Initiatives	-.130	.025	-.153	-5.266	.000	-.179	-.082	.175	-.169	-.132

a. Dependent Variable: Citizen_Stakeholders_Rep_Part_Change_teams

Statistical Attachment ST 9

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	7.196	.296		24.348	.000	6.616	7.775			
	ICT_Internet_Subsidies_Citizens_Villages	-.091	.028	-.105	-3.265	.001	-.145	-.036	-.036	-.105	-.102
	Gov_Stakeholders_openness_Transparency_Citizens_Involvement	-.078	.010	-.254	-8.015	.000	-.098	-.059	-.236	-.252	-.250
	Countrywide_Citizens_Internet_Access	-.054	.020	-.086	-2.738	.006	-.093	-.015	-.076	-.089	-.085
	Citizens_Trust_Knowledge_Awareness	-.035	.011	-.103	-3.253	.001	-.055	-.014	-.078	-.105	-.101

a. Dependent Variable: Project_Impl_Auto_Egov_Priority_Funding

Statistical Attachment ST 10

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	2.687	.272		9.883	.000	2.154	3.221			
	Primary_Sec_Tertiary_ICT_Curriculum	.406	.030	.399	13.409	.000	.347	.465	.399	.399	.399

a. Dependent Variable: Students_Sch_CompLABS_Internet_Access

Statistical Attachment ST 10

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	7.735	.541		14.307	.000	6.673	8.796			
	Uni_Fund_Website	.137	.034	.156	3.988	.000	.069	.204	.249	.152	.145
	Low_ICT_Skills_Employ_Initiatives	.099	.027	.141	3.718	.000	.047	.152	.217	.142	.135
	Comp_Egov_ICT_Syllabus	.243	.054	.177	4.526	.000	.137	.348	.259	.172	.165

a. Dependent Variable: Youth_Targeted_Initiatives_Training_Communities

Statistical Attachment ST 12

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	7.429	.584		12.720	.000	6.282	8.576			
	Elderly_Citizens_Priorities	.217	.041	.198	5.311	.000	.137	.297	.240	.201	.195
	Youth_Targeted_Initiatives_Training_Communities	.241	.043	.210	5.632	.000	.157	.325	.249	.213	.206

a. Dependent Variable: Uni_Fund_Website

Statistical Attachment ST 13

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Confidence Interval for B		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	5.229	.598		8.745	.000	4.055	6.403			
	Low_ICT_Skills_Employ_Initiatives	.232	.049	.179	4.725	.000	.136	.329	.179	.179	.179

a. Dependent Variable: Citizen_Users_Egov_Initiatives_Awareness

Statistical Attachment ST 14

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations		
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constant)	1.488	.900		1.654	.098	-.278	3.253			
	Citizen_Stakeholders_Rep_Part_Change_teams	-.211	.038	-.179	-5.506	.000	-.286	-.136	.175	-.176	-.142
	Citizens_Trust_Knowledge_Awareness	-.187	.024	-.213	-7.776	.000	-.235	-.140	-.320	-.245	-.200
	Gov_Stakeholders_openness_Transparency_Citizens_Involvement	.215	.026	.265	8.377	.000	.164	.265	.012	.263	.215
	Rural_Communities_ICTskills_Resour_PAE	-.280	.073	-.103	-3.832	.000	-.423	-.137	.016	-.124	-.098
	ICT_Internet_Subsidies_Citizens_Villages	.323	.065	.143	5.001	.000	.196	.450	.273	.161	.129
	Students_Sch_CompLABS_Internet_Access	.462	.038	.457	12.272	.000	.388	.536	.446	.371	.315
	Primary_Sec_Tertiary_ICT_Curriculum	.091	.034	.089	2.694	.007	.025	.158	.194	.087	.069
	Influential_Stakeholders_participation	.218	.040	.182	5.491	.000	.140	.296	.424	.176	.141

a. Dependent Variable: Established_Communication_Citizens_Egov_Initiatives

(APPENDIX 7) Questionnaire Survey One (OP-QS1) Structure Matrix

Structure Matrix																						
	Component																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
II3: Opinion leaders engagement in e-government change process from inception and understanding of e-government benefits	-.830																					
II4: Opinion leaders motivation and confident to publicise e-government to citizens.	-.818																					
II7: E-government is highly valued by citizens in the villages and other remote areas	-.799																					
II11: I have between have over 5 and 10 years in the role of influence over government employees and / or members of the public (citizens)	-.779																					
II6: There has been enough citizens awareness	-.647																					-.516

creation on e-government																						
II10: leaders or committee or board members within degree of opinion influence by citizens	-.566																					
II2: Change champions understanding, support and embrace for the e-government initiative.	-.541																					
II8: E-government innovation is highly valued by most citizens in cities and towns.																						
DD8: Availability of trained personnel to assist citizens in each village to access and use ICT, internet and web technologies.		.792																				
CC6: There are well established media channels updating progress on e-government		.670																				
CC4: Targeted e-government awareness		.647																				

campaigns made to all people in the villages including remote areas																						
KK4: The e-government efforts have identified citizens groups (e.g. employees, parents, senior citizens, youth, students, consumers, business owners, disabled, sports, NGOs etc) and defined their information and public service needs and tailored the e-gov plans			-.793																			
KK5: Programmes to achieve computer literacy amongst majority of citizens' especially in the rural areas.			-.724																			
KK7: Strategies that fully encourage, support and facilitate the communities to have their own websites			-.692																			

KK10: Tax holidays and other incentives to facilitated ICT infrastructure in the underserved areas by ISPs			.583																			
FF4: Citizens prefer to do transactions electronically than manually				-.782																		
JJ1: Stakeholders consultation and inclusion since e-government inception, needs and priorities informed strategy initiatives				.529																		
CC1: Citizens are aware about e-government projects					.750																	
BB5: Citizens are able to participate and contribute to government policy discussions online					.629																	
CC3: Citizen groups are represented are part in e-government change advocacy teams					.602													.573				
FF6: Citizens						.836																

with low income, women , youth and disadvantaged have access to ICTs and internet																						
FF7: Most citizens participate in online study, online purchase and sale of goods and services						.563																
HH2: Citizens e-government engagement and awareness impact on the e-government adoption							.881															
HH8: Citizens will need to trust e-government, internet and web technologies in order to share personal information and complete personal transactions online							.775															
HH1: Citizens adoption of e-government is depended on level of knowledge they have about initiatives							.753															
HH9: Lack of knowledge							.749															

leads to citizens mistrust and hinders adoption of the e-government																						
KK3: Engagement of citizen groups influential voices across the nine (9) districts of the Botswana								.778														
KK2: Active ongoing engagement of citizens groups in change management structures								.761														
KK9: Youth targeted through e-government initiatives for employment creation opportunities								-.745														
FF3: Presence of ISPs in most villages and that citizens have access to.									.855													
FF2: Sufficient internet access for most citizens in the public domain in all the 9 districts of Botswana									.770													
FF1: Most citizens use internet for banking, email, web browsing ,										.782												

payment of bills and online chats																						
BB3: Citizens are able to download government information online with ease										.780												
CC8: Government has made significant effort in creating e-government awareness amongst all citizens										.585												
GG1: Members of parliament and counsellors are aware about e-government and give regular update to citizens										.582												
GG4: District Administrator and tribal leaders are aware about e-government and fully embrace the change										.550												
KK12: Alternative sources of ICTs e.g. mobile phones should be considered given their wide spread countrywide.											.852											

KK11: Education and use of community, opinion leaders and change champions to disseminate information to citizens' can impact on adoption											.731											
EE7: Citizens in the villages and remote areas generally adopt change once it has been tried, tested and proved sufficiently that it works.												-.818										
EE11:Citizens highly value openness and transparency												-.766										
EE3: Citizens better identify with change when they are consulted, involved and participate in change process												-.595										
EE2: Citizens decision making on the new change is driven by envisaged value and benefits												-.574										
BB1: There is adequate citizens																						

awareness of government website																						
EE4: Citizens in the villages, largely depend on valued representative opinions to make informed decisions.																						
FF9: Most citizens living in rural areas lack resources and ICT skills to access internet													.865									
AA1: availability of reliable and secure ICT networks to citizens.													-.665									
KK14: Phased Implementation of e-government														.925								
KK15: Phased implementation starting in areas and communities that have adequate e-readiness levels.														.923								
KK16: Appointment of regulatory and statutory body to oversee and implement e-government														.643								
II13: E-government implementation is on schedule															.822							

and is more likely to be a success																						
BB2: All government information is provided online															-.575							
II12: Government employees openness to embrace e-government and understanding of what it entails.	-.512														.539							
AA3 : Government subsidies for citizens in non urban to access ICTs and internet																						
BB4: Most Citizens are able to acquire government services online and perform transactions																.835						
JJ13: E-government project team full autonomy and authority to manage, implement, allocate resources and initiate processes without waiting on government official.																	-.767					
JJ14: E-government project enjoys																	.506					

a sustainable funding priority																						
AA6: All secondary schools have computer labs and internet connections																		.766				
CC2: Widely shared information on e-government benefits to citizens																		.653				
AA7: All students in government secondary schools have computer access																		.553				
FF5: Citizens are used to sharing information electronically																						
JJ11: E-government acknowledged a high priority with knowledge amongst government employees officials and political leaders																			-.860			
KK6: Provision of funds and /or incentives (e.g. VAT exemptions) for citizens to acquire ICTs and internet gadgets.																				-.858		
KK13: E-																						

government project team autonomony from Department of Information technology (DIT)																						
KK8: Operational universal fund to assist underserved areas																						
DD4: Colleges and universities provide good and adequate training for effective use of ICTs and Internet.																					.776	
DD1: Teaching in primary and secondary education encourages use of ICTs.												.534									.717	
DD2: Adequate ICTs and other web technologies' instruction in primary and secondary education																					.548	
GG3: High political support for e-government and the project is a top government priority																						-.712
AA5: Sufficent ICT access and skills by																						.618

government employees																						
AA4: Most citizens in towns and cities are e-ware and e-ready																						.572
CC7: Citizens in urban areas are more aware about e-government than those in the villages																						.553
CC5: Existence of a specific for creating awareness on e-government and ensuring citizens buy-in.																						
Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization.																						

(APPENDIX 8) Citizens Questionnaire Survey 2 (OC-QS2) Structure Matrix

Structure Matrix

	Component						
	1	2	3	4	5	6	7
Q15: Incentives and subsidies can motivate ISPs to set up underserved areas	.784						
Q14: Differentiated strategies needed for citizens who may not cope with change.	.601						
Q27: Engagement of community leaders, other opinion leaders and change agents can influence citizens' perception and adoption	.584						
Q26: Use of prime radio and television slot can facilitate e-government aware and adoption.	.551						
Q6: Citizen-users' engagement and e-government awareness		.881					
Q7: Citizen-users' awareness of e-government benefits		.785					
Q5: Citizen-users' government website awareness and access		.750					
Q24: Creating a universal fund to assist underserved areas can generate e-government interest			.759				
Q25: E-government tailored to user groups needs and priorities can yield higher adoption.			.701				
Q23: Communities websites impact on citizens e-government adoption			.647				
Q32: E-government must have priority funding projects.			.555				.528
Q13: Elderly citizens in the villages mostly prefer physical contact than online				.769			
Q12: Elderly citizens in villages rate use of technology less important.				.722			
Q8: Inadequacy of basic necessities in non urban areas hinder e-government adoption					-.777		
Q9: Impact of unemployment citizens on e-government adoption					-.768		
Q10: Lower levels of ICT and internet skills impedes citizens e-government adoption					-.606		
Q11: Use of other sources of power and energy can aid connectivity							
Q1: Compulsory ICT Curriculum at all education levels (including early primary)						.862	
Q2: Compulsory e-government, e-business and e-commerce content at all levels of education						.703	
Q4: Compulsory computer labs and internet at all level including early primary education							
Q3: Need to youth employment through e-government							.729
Q28: Use of Accredited private consulted to teach citizen-communities on e-government can drive interest and adoption.							.576
Q30: Continuous e-government communication and update to citizen-stakeholders can stimulate adoption							.511

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

(APPENDIX 9)Questionnaire Survey One (OP-QS1) Communalities

Communalities		
	Initial	Extraction
AA1: availability of reliable and secure ICT networks to citizens.	1.000	.834
AA3 : Government subsidies for citizens in non urban to access ICTs and internet	1.000	.653
AA4: Most citizens in towns and cities are e-ware and e-ready	1.000	.845
AA5: Sufficient ICT access and skills by government employees	1.000	.778
AA6: All secondary schools have computer labs and internet connections	1.000	.808
AA7: All students in government secondary schools have computer access	1.000	.862
BB1: There is adequate citizens awareness of government website	1.000	.826
BB2: All government information is provided online	1.000	.666
BB3: Citizens are able to download government information online with ease	1.000	.719
BB4: Most Citizens are able to acquire government services online and perform transactions	1.000	.800
BB5: Citizens are able to participate and contribute to government policy discussions online	1.000	.760
CC1: Citizens are aware about e-government projects	1.000	.809
CC2: Widely shared information on e-government benefits to citizens	1.000	.689
CC3: Citizen groups are represented are part in e-government change advocacy teams	1.000	.763
CC4: Targeted e-government awareness campaigns made to all people in the villages including remote areas	1.000	.848
CC5: Existence of a specific for creating awareness on e-government and ensuring citizens buy-in.	1.000	.758
CC6: There are well established media channels updating progress on e-government	1.000	.784
CC7: Citizens in urban areas are more aware about e-government than those in the villages	1.000	.785
CC8: Government has made significant effort in creating e-government awareness amongst all citizens	1.000	.736
DD1: Teaching in primary and secondary education encourages use of ICTs.	1.000	.793
DD2: Adequate ICTs and other web technologies' instruction in primary and secondary education	1.000	.732
DD4: Colleges and universities provide good and adequate training for effective use of ICTs and Internet.	1.000	.744
DD8: Availability of trained personnel to assist citizens in each village to access and use ICT, internet and web technologies.	1.000	.753
EE2: Citizens decision making on the new change is driven by envisaged value and benefits	1.000	.727
EE3: Citizens better identify with change when they are consulted, involved and participate in change process	1.000	.776
EE4: Citizens in the villages, largely depend on valued representative opinions to make informed decisions.	1.000	.725
EE7: Citizens in the villages and remote areas generally adopt change once it has been tried, tested and proved sufficiently that it works.	1.000	.828
EE11:Citizens highly value openness and transparency	1.000	.749
FF1: Most citizens use internet for banking, email, web browsing , payment of bills and online chats	1.000	.804

FF2: Sufficient internet access for most citizens in the public domain in all the 9 districts of Botswana	1.000	.851
FF3: Presence of ISPs in most villages and that citizens have access to.	1.000	.857
FF4: Citizens prefer to do transactions electronically than manually	1.000	.795
FF5: Citizens are used to sharing information electronically	1.000	.819
FF6: Citizens with low income, women , youth and disadvantaged have access to ICTs and internet	1.000	.824
FF7: Most citizens participate in online study, online purchase and sale of goods and services	1.000	.775
FF9: Most citizens living in rural areas lack resources and ICT skills to access internet	1.000	.804
GG1: Members of parliament and counsellors are aware about e-government and give regular update to citizens	1.000	.727
GG3: High political support for e-government and the project is a top government priority	1.000	.781
GG4: District Administrator and tribal leaders are aware about e-government and fully embrace the change	1.000	.702
HH1: Citizens adoption of e-government is depended on level of knowledge they have about initiatives	1.000	.722
HH2: Citizens e-government engagement and awareness impact on the e-government adoption	1.000	.835
HH8: Citizens will need to trust e-government, internet and web technologies in order to share personal information and complete personal transactions online	1.000	.799
HH9: Lack of knowledge leads to citizens mistrust and hinders adoption of the e-government	1.000	.823
II2: Change champions understanding, support and embrace for the e-government initiative.	1.000	.834
II3: Opinion leaders engagement in e-government change process from inception and understanding of e-government benefits	1.000	.868
II4: Opinion leaders motivation and confident to publicise e-government to citizens.	1.000	.830
II6: There has been enough citizens awareness creation on e-government	1.000	.832
II7: E-government is highly valued by citizens in the villages and other remote areas	1.000	.846
II8: E-government innovation is highly valued by most citizens in cities and towns.	1.000	.766
II10: leaders or committee or board members within degree of opinion influence by citizens	1.000	.733
II11: I have between have over 5 and 10 years in the role of influence over government employees and / or members of the public (citizens)	1.000	.817
II12: Government employees openness to embrace e-government and understanding of what it entails.	1.000	.712
II13: E-government implementation is on schedule and is more likely to be a success	1.000	.765
JJ1: Stakeholders consultation and inclusion since e-government inception, needs and priorities informed strategy initiatives	1.000	.574
JJ11: E-government acknowledged a high priority with knowledge amongst government employees officials and political leaders	1.000	.780
JJ13: E-government project team full autonomy and authority to manage, implement, allocate resources and initiate processes without waiting on government official.	1.000	.687
JJ14: E-government project enjoys a sustainable funding priority	1.000	.678

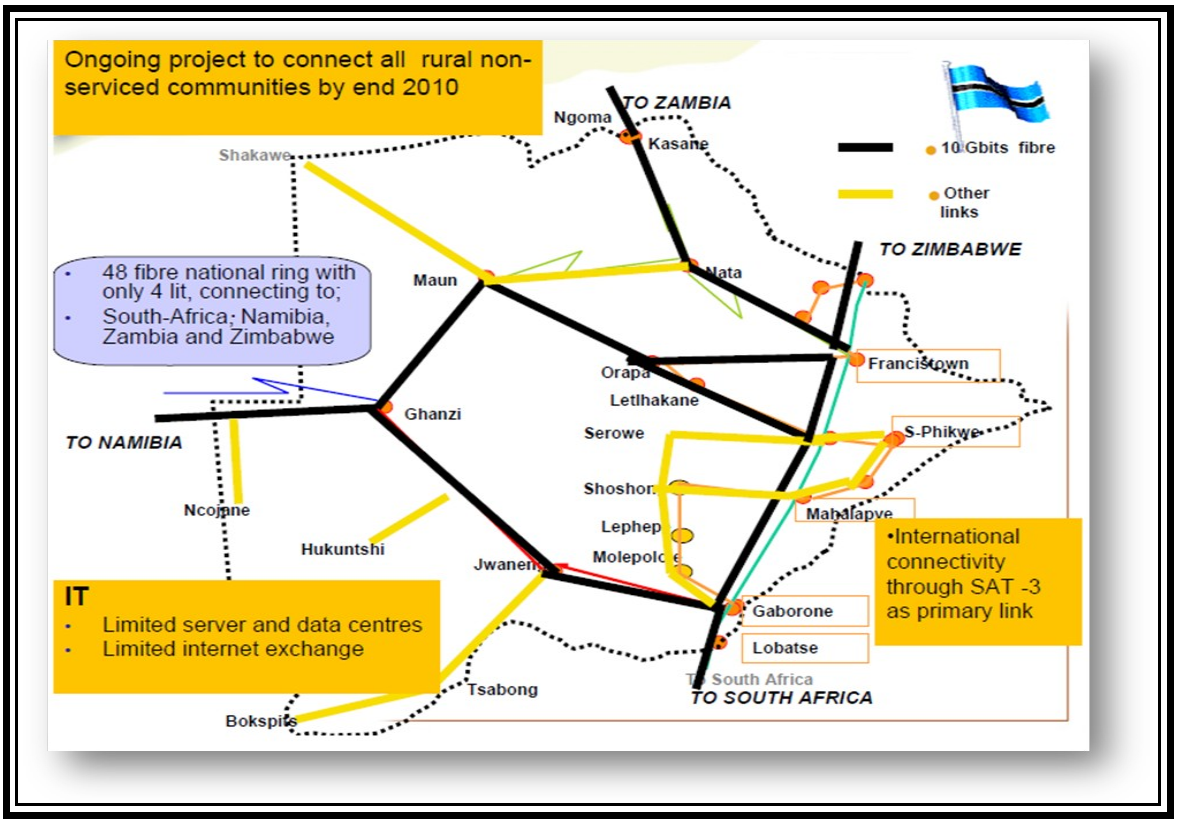
KK2: Active ongoing engagement of citizens groups in change management structures	1.000	.682
KK3: Engagement of citizen groups influential voices across the nine (9) districts of the Botswana	1.000	.685
KK4: The e-government efforts have identified citizens groups (e.g. employees, parents, senior citizens, youth, students, consumers, business owners, disabled, sports, NGOs etc) and defined their information and public service needs and tailored the e-gov	1.000	.709
KK5: Programmes to achieve computer literacy amongst majority of citizens' especially in the rural areas.	1.000	.638
KK6: Provision of funds and /or incentives (e.g. VAT exemptions) for citizens to acquire ICTs and internet gadgets.	1.000	.789
KK7: Strategies that fully encourage, support and facilitate the communities to have their own websites	1.000	.633
KK8: Operational universal fund to assist underserved areas	1.000	.659
KK9: Youth targeted through e-government initiatives for employment creation opportunities	1.000	.643
KK10: Tax holidays and other incentives to facilitated ICT infrastructure in the underserved areas by ISPs	1.000	.669
KK11: Education and use of community, opinion leaders and change champions to disseminate information to citizens' can impact on adoption	1.000	.642
KK12: Alternative sources of ICTs e.g. mobile phones should be considered given their wide spread countrywide.	1.000	.782
KK13: E-government project team autonomony from Department of Information technology (DIT)	1.000	.664
KK14: Phased Implementation of e-government	1.000	.874
KK15: Phased implementation starting in areas and communities that have adequate e-readiness levels.	1.000	.863
KK16: Appointment of regulatory and statutory body to oversee and implement e-government	1.000	.637
Extraction Method: Principal Component Analysis.		

(APPENDIX 10) Citizens Questionnaire Survey 2 (OC-QS2) Communalities

Communalities		
	Initial	Extraction
Q1: Compulsory ICT Curriculum at all education levels (including early primary)	1.000	.758
Q2: Compulsory e-government, e-business and e-commerce content at all levels of education	1.000	.576
Q3: Need to youth employment through e-government	1.000	.594
Q4: Compulsory computer labs and internet at all level including early primary education	1.000	.460
Q5: Citizen-users' government website awareness and access	1.000	.636
Q6: Citizen-users' engagement and e-government awareness	1.000	.787
Q7: Citizen-users' awareness of e-government benefits	1.000	.661
Q8: Inadequacy of basic necessities in non urban areas hinder e-government adoption	1.000	.648
Q9: Impact of unemployment citizens on e-government adoption	1.000	.637
Q10: Lower levels of ICT and internet skills impedes citizens e-government adoption	1.000	.575
Q11: Use of other sources of power and energy can aid connectivity	1.000	.518
Q12: Elderly citizens in villages rate use of technology of less important.	1.000	.560
Q13: Elderly citizens in the villages mostly prefer physical contact than online	1.000	.651

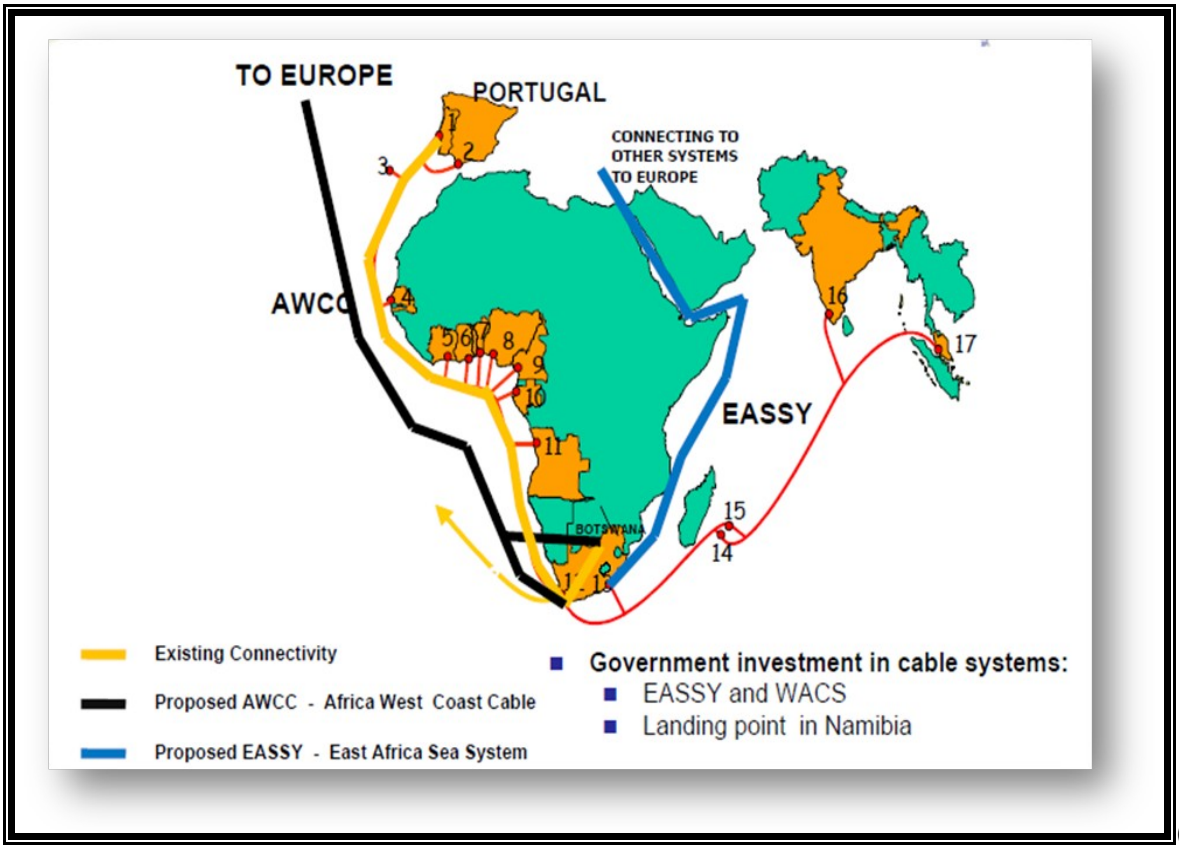
Q14: Differentiated strategies needed for citizens who may not cope with change.	1.000	.424
Q15: Incentives and subsidies can motivate ISPs to set up underserved areas	1.000	.660
Q23: Communities websites impact on citizens e-government adoption	1.000	.514
Q24: Creating a universal fund to assist underserved areas can generate e-government interest	1.000	.612
Q25: E-government tailored to user groups meet needs and priorities can yield higher adoption.	1.000	.542
Q26: Use of prime radio and television slot can facilitate e-government aware and adoption.	1.000	.544
Q27: Engagement of community leaders, other opinion leaders and change agents can influence citizens' perception and adoption	1.000	.428
Q28: Use of Accredited private consulted to teach citizen-communities on e-government can drive interest and adoption.	1.000	.483
Q30: Continuous e-government communication and update to citizen-stakeholders can stimulate adoption	1.000	.434
Q32: E-government must have priority funding projects.	1.000	.564
Extraction Method: Principal Component Analysis.		

Appendix 11: Fibre Ring Connectivity in Botswana



(Source: Botswana National ICT Policy Reports)

Appendix 12 EASSy and WACS Connectivity in Botswana



(Botswana E-government Sources)