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DEDICATION
To my son Kayden Morang’a, my loving wife, my parents and siblings for the role they played in my Education. They supported and encouraged me and worked against all odds for the success of this endeavor. To my wife for the moral support, care and the endless joy she brought to my life.
ACKNOWLEDGEMENT

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Lastly, I wish to thank the research assistants, data analyst and the participants who volunteered to give the information for the study.

May God bless you all and keep you safe always.
ABSTRACT
Successful e-government implementation at county governments can potentially improve efficiency and effectiveness of internal administration within government, to re-locate government service from government offices to locations closer to the citizens hence fastening access to government services. However, its implementation in economically and technologically transitioning countries such as Kenya has remained problematic as majority of e-government projects end as a failure. This study aimed at addressing this problem by critically examining the usage of the existing models, factors for successful implementation hence establishing the requirements for successful e-government implementation. This informed the formulation and development of a context based framework for e-government implementation in county governments in Kenya that took account of the unique contextual characteristics and experiences at the county units of government in Kenya. Mixed method approach that combined both qualitative and quantitative data was adopted. A field study based on a target population of 10,000 and a sample size of 200 respondents was used to gather information on e-government. The respondents were selected from five (5) counties which were Uasin Gishu, Kisii, Machakos, Makueni and Nairobi Counties. Descriptive statistics which included frequencies, regression and correlation were to answer the research questions in line with the objectives. The developed framework will guide and aid successful development and implementation of ICT projects at the county governments in Kenya.
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<tr>
<td>CCK</td>
<td>Communications Commission of Kenya</td>
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<tr>
<td>E-Commerce</td>
<td>Electronic Commerce</td>
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<td>E-Government</td>
<td>Electronic Government</td>
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<td>E-Health</td>
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<td>E-Learning</td>
<td>Electronic Learning</td>
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<td>GoK</td>
<td>Government of Kenya</td>
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<tr>
<td>ICT</td>
<td>Information Communication Technology</td>
</tr>
<tr>
<td>ITPOSMO</td>
<td>Information, Technology, Processes, Objectives &amp; Values, Staff &amp; Skills, Management Systems &amp; Structures, and Other Resources &amp; Constraints</td>
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DEFINITION OF KEY TERMS

**Developing countries**: Countries with immature social, economic, political and technical capability.

**E-democracy**: Increasing the engagement of citizens in public decisions and actions.

**E-government**: Use of ICT tools by government agencies in the provision of information and services to its citizens.

**Framework**: A layered conceptual structure intended to guide for the building of an e-government project.

**Implementation**: Execution of specified set of activities designed to actualize an ICT project.

**Model**: Involves sequential steps for progressive development of an e-government project.
CHAPTER ONE: INTRODUCTION

1.1 Background of the Study
The advent of the Internet, digital connectivity and use of innovative technologies has opened new opportunities empowering citizens through the access of information and knowledge. This has enabled the development of applications including electronic government (e-government), electronic commerce (e-commerce), electronic learning (e-learning) and electronic health (e-health) which has resulted into changing daily lifestyle for citizens around the globe (Ndou, 2004). E-government, in particular, has changed the way governments interact with their citizens, business and other entities (Dangol, 2012; Heeks, 2003). It is initiated as a key factor in enhancing the efficiency and effectiveness of the government operations, and also improves service delivery between citizens and the government (Al-Adawi et al., 2005; Evans and Yen 2006; Dangol, 2012; Majozi, 2012). However, the complete potential of e-government can only be realized if well and successfully implemented (Bwalya et. al., 2012). Several studies confirm that while majority of the developed countries are in the advanced stages of e-government development, developing countries are still in their early stages of development (Basu & Salizubhajit, 2004; Ndou, 2004).

According to the United Nations (UN) (2014), e-government is the use of ICT and its application by the government for the provision of information and public services to its citizens. It is the use of ICT tools such as Internet-based applications, phones, and other digital means in the delivery government services at reduced costs and greater improved public access (Basu, 2004; Rahman, 2007). Generally, it can be referred to as the use and application of information technologies in public administration for purposes of streamlining and integrating workflows and processes, to effectively manage data and information, enhancing public service
access and delivery as well as expanding communication channels for engagement and empowerment of people.

E-government is considered as a powerful tool that improves and enhances public service delivery for the realization of social economic development (Ndou, 2004; Lyne & Lee, 2001). Skietrys, Raipa & Bartkus (2008) assert that successful e-government implementation will result into radical institutional reforms in the public and private sectors hence greater efficiency will be achieved in the provision of services. The promise of greater efficiency and effectiveness by e-government has attracted the attention of many governments both in developed and developing countries compelling them in making significant financial and political commitments to develop and adopt e-government services to improve their efficiency and effectiveness (Kumar & Best, 2007; Accenture, 2005; Fang, 2002; Sharma & Gupta, 2003). According to UN (2008), respective governments are introducing such innovations in their organizational structures and practices, and in the ways in which they mobilize, deploy and utilize human, financial and ICT resources. While the latest UN (2014) survey indicates that e-government has been adopted by all the 193 UN global member states, majority remain at the low or intermediate levels of e-government development.

1.2 Benchmarking and Implementation of E-government Projects

E-Government projects and initiatives in developing countries fail to meet many of their expected objectives and outcomes and, in some instances, fail to get off the ground entirely (Alshehri & Drew, 2010; Heeks, 2003; Mahmood, 2013; Nkwe, 2012). Models and frameworks have been proposed in the literature to benchmark and guide e-government implementation process. These models and frameworks outline different phases to be followed
while implementing e-government projects. Several studies argue that majority of these proposed models are oversimplified and cannot be easily applied for e-government projects implementation in economically and technologically transitioning countries because they were developed in developed countries where technical and non-technical infrastructures are mature compared to those of developing countries (Zarei, Ghapanchi & Sattary, 2008; Heeks, 2003). Additionally, e-government experiences greatly vary from one government to another, both between and within countries hence need for country specific assessment indicators to enable cross-country comparisons by relative scores (Flak, Olsen & Wolcott, 2005).

While there has been considerable progress in e-government as a result of its potential benefits, developing countries still have a long way to go before e-government reaches its potential and all aspects of the Grant and Chau (2006) definition of e-government are effectively delivered. Hidden behind the massive adoption is the shocking fact that most e-government projects, especially in the African and developing countries have ended up failing (Heeks & Bailur, 2007). Africa remains relatively slow and uneven with limitations in ICT infrastructure and human capacity posing the greatest challenge (UN, 2014). Heeks (2003) analyzed more than 40 e-government for development projects in developing countries and estimated that 35 percent of these were total failures, while 50 percent partially failed, and only 15 percent were successes. Total failure occurs when the initiative was never implemented or was implemented but immediately abandoned, while partial failure takes place when the major goals for the e-government initiative were not attained and/or there were significant undesirable outcomes. On the other hand, successes means projects achieved the set and predetermined goals. Gartner (2002) also notes that more than 60 percent of all e-government initiatives either fail or fall short of expected outcomes. Consequently, Mutula (2008) notes that e-government initiatives
in Sub-Saharan African countries seem to be far from reaching realization and attaining the purpose for which they are undertaken due to several challenges and stumbling blocks. Based on this analytical review, the process of e-government implementation in developing countries is still considered at the initial level.

Due to the high failure rate of E-government projects in developing countries as claimed by a number of researchers (Gartner, 2002; Heeks, 2007), different stakeholders are getting concerned including government itself and members of the general public (Mpinganjira, 2013). This is mainly due to the fact that E-government project failure results in wasteful spending of often very large sums of money, a situation that most African countries can least afford due to limited financial resources often at their disposal (Mpinganjira, 2013). Studies have concluded that e-governments in the developing African countries face numerous technological difficulties and hence the need for more home-grown studies to bridge the existing knowledge gaps (Ahmad, et al, 2012). The figures from previous studies (Heeks, 2003; Mutula, 2008) clearly indicate the need for research towards investigating causes of implementation failures of e-government projects (Dada, 2006; Kaaya, 2004; Peters et al., 2004) in these Sub-Saharan African countries with an aim of proposing solutions to the same.

Kenya, as a developing country continues to receive demands from within and outside the country for public sector reforms (Annan, 2009; Clinton, 2009; Kibwana et al., 2001). This demands are basically directed for the need of improving the economic growth, promote political participation, freedom of expression human rights, as well as to reduce poverty through democratic governance. In addition, Boswell (2009) noted that the U.S. Secretary of State Hillary Clinton urged the young leadership and the civil society to agitate for government accountability and democratic freedom through ICTs. In addition, the former UN Secretary
General, Kofi Annan, who led the peace negotiations that resulted in the formation of grand coalition government after the 2007 disputed presidential elections in Kenya, asserted that there is need for country to embrace reforms (Annan, 2009). Like Clinton, Annan (2009) urged Kenyans not to be passive but to demand for accountability among government officials. Such concerns to implement reforms in the public sector underscore the significance of implementing e-government to advance government processes, improve delivery of public services, and increase free flow of public information among citizens, businesses, and government employees. Boswell (2009) and Dahl (2006) observed that the use of ICTs in public sector would usher in basic democratic tenets such as transparency, accountability, and active citizen engagement.

E-government implementation in Kenya aims at enhancing flow of information; promote citizens’ participation in the public policy processes, productivity among the civil servants, and improving the delivery of public services to stakeholders. Despite its efforts, Kenya is currently ranked number 119 globally, retaining same ranking since 2012 survey. However, focusing in the ranking of African countries, Kenya declined from position 7 in 2012 (UN, 2012) to number 9 in 2014 (UN, 2014). Ranking according to E-Government Development Index Kenya was ranked at position two in the East African Community after Rwanda (UN, 2014). Despite their dismal in e-governance, African governments support e-government and appreciate its potential contribution to the governance (Mutula, 2008). With the devolved units of government in Kenya, the adoption and realization of e-government’s potential requires the use new technologies, such as the Internet, to extend and provide citizens, businesses, and other government agencies with an easier and more convenient way of accessing government information and services. This will improve the quality of services, and provide greater
opportunities for all citizens to participate in political processes and in democratic institutions. All stakeholders involved collaboratively participate in decision and policy making and also to bridge the interaction bridge between them. E-government redefines the interaction between citizens and their government (Gautrin, 2004). Modern ICT as a tool plays a critical role in uplifting public sector performance, enabling greater efficiencies and effectiveness in government operations and service delivery, improved communication and coordination across boundaries and levels of government, and also offer greater transparency and accountability in government functions.

To guide and benchmark e-government development, researchers and scholars have proposed a number of e-government development models (West, 2004; Layne & Lee, 2001; Deloitte & Touche, 2001; Moon, 2002; Hiller and Be’langer, 2001). According to Zarei, Ghapanchi & Sattary (2008), existing models are oversimplified and cannot be easily applied for e-government implementation in developing countries where the non-technical and technical infrastructures are not as mature as those of developed countries. Additionally, e-government experiences vary from one government to another, both between and within countries hence requiring country specific assessment indicators to enable cross-country comparisons by relative scores (Flak, Olsen and Wolcott, 2005). This study will examine and address the issues related to e-government implementation in developing countries which result of simply adopting the experience of developed countries.

1.3 Statement of the Problem

Despite the capability of ICTs can enhance government efficiency, effectiveness, public service delivery, promote good governance and enhance democracy, e-government projects
and initiatives in developing countries such as Kenya at county governments fail to meet many of their expected objectives and outcomes and, in some cases, fail to get off the ground entirely (Alshehri & Drew, 2010; Heeks, 2003; Mahmood, 2013; Nkwe, 2012). According to (Nabafu & Maiga, 2012), e-government project implementations at devolved units of government are generally more problematic and are associated with high failure rates. A study conducted by Gartner (2002), showed that 60 percent of all e-government initiatives in developing countries such as Kenya either fail or fall short of expected outcomes. On his study, Heeks (2006) also confirms that e-government project implementation in developing countries is commonly associated with low levels of success. High failure rates of these projects is now a matter of great concern to many governments, citizens of the general public and other stakeholders because it results in massive wasteful spending of public money, a situation that most developing countries like Kenya can least afford due to limited financial resources (Mpinganjira, 2011).

The reality on the ground is that these initiatives in many developing countries are inherently complex and multidimensional and therefore suffer from a wide variety of challenges (As-Saber, Srivastava, & Hossain, 2006; Ndou, 2004). Success and failure of these projects depends on the size of the design gap that exists between design of the e-government project and current realities on the ground (Heeks, 2003). The larger the design gap, the greater the risk of e-government projects failure and the smaller the gap, the greater the chance of success (Heeks, 2003). Various models have been designed and proposed to guide the implementation and development of e-government applications. However, these stage models were developed at different perspectives in developed countries and only concentrated on the conditions that existed in that context with limited focus and investigation into the unique contexts in
developing countries. According to (Flak, Olsen, & Wolcott, 2005), e-government experiences vary dramatically from one government to another, both between and within countries and therefore, hence direct usage of these models may not be appropriate as they may cause e-government project failures. Thus, these proposed models may prove inadequate if directly applied for e-government implementation at county levels of government.

The design gap now remains between current e-government implementation models and the real conditions on the ground. (Heeks, 2003) refers this as the Design-reality gap. For effective e-government, it is important to successfully introduce technology into the specific context (Gupta & Jana, 2003; Heeks, 2003). Therefore different countries should consider requirement for e-government implementation and incorporate them in the model (Zarei, Ghapanchi, & Sattary, 2008) as this would enable the potential of e-government to be harnessed to the existing context of government.

1.4 Objectives of the Study

1.4.1 General objective

The aim of the study was to develop and describe a context based e-government implementation framework to aid in the successful e-government project implementation in county governments in Kenya, as a developing country.

1.4.2 Specific Objectives

1. To critically examine the usage and application of existing proposed models for e-government implementation in developing countries such as Kenya.
2. To determine the critical success factors for e-government implementation in the County governments in Kenya.

3. To propose and describe a context based e-government implementation framework for county governments in Kenya.

1.5 Research Questions

1. What is the extent of usage and application of existing models in aiding e-government implementation in developing countries such as Kenya?

2. What are the critical success factors for successful implementation of e-government in County governments in Kenya?

3. Which context based framework can guide successful e-government project implementations at county governments in Kenya?

1.6 Scope of the Study

The study focused on the implementation of e-government at county levels of government and was limited to five county governments in Kenya including Nairobi, Machakos, Kisii, Uasin Gishu and Makueni Counties. The study specifically concentrated on identifying the general major activities and contextual factors required for development of e-government, and incorporating them into an existing model that was designed based on the conditions in developed countries. The study therefore identified requirements critical to successful implementation of e-government projects at county levels of government in Kenya as a developing country.
1.7 **Significance of the Study**

The proposed framework is generic and can be applied to any other developing countries with similar context as that experienced within the scope under which this study was carried out. The findings of this study have the potential to guide successful e-government projects implementation in Kenya at county units of government and other developing countries with similar contexts. The study identified fundamental factors that influence the implementation of e-government and thus the findings will inform and provide a platform on which e-government implementers, practitioners and policy makers will base when making decisions on e-government implementation in the public sector in Kenya. On the other hand, the resulting framework will present a road map for practitioners to follow in their e-government projects implementation. This framework will contribute to an understanding of the implementation roadmap, which would benefit agency practitioners doing e-government projects. Furthermore, the understanding of requirements and design of a framework for county e-government project implementation contributes to the extension of existing e-government implementation models and frameworks.

The findings and conclusions of this study are useful for policy makers at county levels of government especially in Kenya; to guide them towards taking correct decisions. In general, this study is important for researchers as this will contribute to the body of knowledge. Furthermore the study is important to professionals and decision makers in developing countries of the same context, which are mainly characterized by low levels of success in implementing e-government applications.

1.8 **Limitations of the Study**

This study was conducted to determine the level of implementation of the e-government and the challenges they were facing towards the same. The study led to development of a framework for
the Kenyan county governments whose application of the framework may not apply to other
governments in other developing countries due to contextual variations in management and
government structures. The generic implementation framework that resulted from the study may
not be fully applicable to all county governments in Kenya because the study did not survey all
the 47 counties. Finally, the proposed framework is just but a theoretical framework which was
never tested for validity.

1.9 Research Assumptions
This study assumed that the framework that resulted from this study were generic hence could be
applied in any county government in Kenya for successful e-government implementation. The
study also assumed that the data gathered was genuine and correct for analysis purposes.
1.10 Research Conceptual Framework

The conceptual framework below is the diagrammatic presentation which identified the critical factors that influenced the implementation of e-government. The framework was a result of literature review.

Fig 1.1: A conceptual framework of factors influencing the success of e-government implementation.
CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This section of the thesis presents an analysis of the existing information related to the subject area in relation to works done by different researchers. For purposes of a clear, neat, logical presentation and thorough review of the literature reflecting the problem, objectives, models and methodologies on ground, this section is organized in different subsections as shall be explored and cited accordingly hereafter.

2.2 An Overview of E-Government

E-government is gaining popularity as a fundamental tool for enhancing public administration (Njuru, 2011). It is not only a tool or platform that enhances public service delivery but also has the potential and capability to reform the manner in which public policies are formulated and implemented in respect to efficiency, accountability, transparency, and citizens’ participation (Njuru, 2011). Citizens contact government for various reasons including influencing public policy, addressing individual level concerns, conducting government transactions, and finding information on benefits and services that government offers (Pieterson & Ebbers, 2008). E-government is as a tool can increase citizens’ trust and confidence in their governments (West, 2004).

Schelin (2003) notes that e-government lacks a consistent, widely accepted universal definition because the concept is considered as relatively new and ideas are yet to mature (Young- Jin & Seang-Tae, 2007). Some consider e-government as a goal in itself while some view it as a tool for achieving broader public sector reform goals (Yildiz, 2007). According to World Bank (2002), e-government refers to the use of ICTs (like wide area networks, the internet and mobile
computing) by government agencies to improve and transform interactions with citizens, businesses and other government agencies. (Almarabeh & AbuAli, 2010) also defines e-government as the utilization of ICTs’ to offer citizens and businesses the opportunity to interact and conduct business with government by using different electronic media. In its simplest form, it is the application of ICTs to improve its operations and deliver public services (Kumar & Best, 2006). In general, e-government has the potential of strengthening government-citizen relationships, improving internal government processes, improving the efficiency and effectiveness of delivering public services, and expanding processes for democratic accountability and control and collective decision-making.

E-government can be seen as the administration, regulations and frameworks organized by a government to enable efficient service delivery as well as to communicate, co-ordinate and integrate processes (Almarabeh & AbuAli, 2010). Bhatnagar (2004) argues that e-government is about changing how governments work, share information, and delivers services to external and internal clients. It makes use of ICT tools to transform relationships with citizens and businesses, and between arms of government.

Majority of public organizations and governments around the world have established websites to provide public information to citizens (UN, 2010). Countries and regions vary in their overall performance in e-government uptake (West, 2008). Yasin and Yavas (2007) observes that the level of diffusion and dissemination of e-government has been neither homogeneous, nor has e-government evolution influenced all cultural settings equally. According to UN (2014), the Republic of Korea has retained the top spot in 2014 with Australia (2nd) and Singapore (3rd). Korea has retained the position while the later have both improved their rankings considerably over their 2012 performance. Previous statistical results from many surveys conducted by
international and national organizations (UN, 2008; UN, 2010; UN, 2012; UN, 2014; EIU, 2008; Bridges.org, 2008; Kirkman et al., 2002; Kim, 2007) show that the rich, developed and westernized countries are more likely to have advanced and mature e-government systems, while developing countries lag behind the rest of the world in terms of e-government adoption and dissemination.

The concept of e-government is surrounded by political, economic, cultural, technological and organizational factors; and these factors greatly influence the various sectors and stages of e-government progress (Ndou, 2004; Edington and Shin, 2006; AL-Shehry et al., 2006; Al-Adawi et al., 2005). The transformation has often been associated with complexity and difficulty (Ifinedo, 2005) due to the multiple dimensions and perspectives involved (Alshawi & Alalwany, 2009; Veenstra et al., 2011). The socio-technical nature of e-government suggests that these issues will need to be addressed with careful attention to context (Seifert, 2003), as the contextual nature of a country can lead to e-government difficulties. The complexity of e-government as a socio-technical system (Lau et al., 2008) challenges the transformation in many developing countries (Seifert, 2003). Therefore, for effective e-government it is important to successfully introduce technology into the specific context (Heeks, 2003; Gupta & Jana, 2003).

Several models have been proposed to aid and guide the development of e-government systems with some describing e-government as an evolutionary process, starting with presence on the web, providing the public with relevant, basic information (Gartner, 2002; Layne & Lee, 2001; West, 2004). The development is described in 4 levels; web-presence, interaction, transaction and transformation. The stages are explained in terms of measurements of costs, time, complexity, levels of integration and constituency value.
E-government is thus a fundamental transformation of government, which involves profound reforms in the structure, process, culture and behavior in public sector (Prins, 2001; Howard, 2001, Irani et al, 2005). Lenk and Traunmüller (2000) assert that e-government is a powerful guiding vision for the transformation which governments must adapt. This is because e-government improves the quality of services and provides greater opportunities for participation in democratic institutions and processes (Lambrinoudakis et al., 2003). It reduces bureaucracy and enables access to government services 24 hours in seven days, which improves the quality of services (Ndou, 2004).

2.2 E-government Implementation

E-government, the use of ICTs in public service delivery platforms, is being implemented in both developed and developing countries as an effort towards improved efficiencies, effectiveness and reduced cost in delivering public services. The complexity of e-government has culminated into many e-government projects fail (Heeks, 2003; Andersen & Henriksen, 2006; Wimmer, Scholl, Gronlund, and Andersen, 2006). Sustainable e-government implementation demands that e-government technology platforms continuously evolve and adapt the emerging technology trends. Therefore, technology being one of the enablers of e-government calls for open and scalable interfaces which can continuously be scaled and adapted to the emerging trends.

Most governments have enhanced on e-government initiatives, having different perspectives of e-government. These initiatives have achieved different levels of success, with very limited percentage of success of the e-government systems in developing countries, while the rest are either total or partial failures (Heeks, 2002). Similarly developing countries such as Canada, Singapore, Sweden and South Korea have been successful with e-government. In many countries e-government has only been fruitful for a small part of society (Muganda, 2008). Several studies
show that there are still huge disparities in the use of technology and that these are not likely to be removed unless concerted action is taken at different national and international levels (Heeks, 2003; Seifert, 2003).

Several models have been proposed by several researchers to guide its successful implementation of e-government (Titah & Barki, 2006; Kamal & Themistocleous, 2006; Lin, Fofanah & Liang, 2011). Despite their existence, a high failure rate is being recorded by a number of studies (Heeks, 2003; Gartner, 2002; Mpinganjira, 2011). Studies have tried to investigate the reasons behind the huge failure proportion of e-government projects (De’, 2005; Kumar, 2007; Reddick, 2009). These models include “ITPOSMO model” by (Heeks, 2003), challenges for e-government initiatives (Gil-García and Pardo, 2005), and e-projects challenges and barriers (Al-Rashidi, 2010) among others.

2.3.1 E-government Implementation in Developed and Developing Countries

High quality e-governmental services can provide a nation with competitive advantage for international business in today’s global economy (Onyancha, 2007). Proper implementation of e-government results into long term cost savings and improved service quality (Kaisara & Pather, 2009). According to Ngulube (2004), remain the single largest collectors, users, holders and producers of information. For this reason, governments in both developed and developing countries have been making significant efforts to adopt e-government services to improve their efficiency and effectiveness of government internal operations, communications with citizens, and transactions with both individuals and organizations (Kumar et al., 2007). On the other hand, Tahrani (2010) agrees that the growing access to ICT has encouraged many governments in the globe to integrate new technology into their national economic development strategies. In his
study, Seifert (2003) argues that information remains the basic ingredient in developing countries in pursuing the political, economic, social and managerial activities.

The potential benefits of e-government as a means of improving delivery of government information and services to citizens in developing countries have been widely acknowledged (Colesca & Dobrica, 2008; Mofleh, Wanaous & Strachan, 2008; Moon, 2002; Wang & Liao, 2008). According to Heeks (2003), e-governance and these shifts are changing the way society works and the way that society is governed. Even so, different countries and regions vary in their overall performance in e-government uptake (West, 2008). Several studies (Avgerou 2008; Berman & Tettey 2001; Sang, Lee & Lee, 2009) show that e-government adoption has shown positive trends in developed countries and negative ones in the developing countries with governments in the developed world responding positively to the opportunities. On their study, Yasin and Yavas (2007) observed that the level of diffusion and dissemination of e-government has neither been homogeneous, nor has e-government evolution influenced all cultural settings equally.

The statistical results from many surveys conducted by international and national organizations (UN, 2008; EIU, 2008; Bridges.org, 2008; Kirkman et al., 2002; Kim, 2007) show that the rich and developed countries have advanced and mature e-government systems, while developing countries lag behind the rest of the world in terms of e-government adoption and dissemination. For instance developed countries such as Singapore and USA governments have successfully harnessed ICT to achieve greater efficiency and productivity in the public sector. Their efforts have been recognized internationally, with Singapore consistently ranking top among countries in the world in various e-government surveys such as Waseda University’s International e-Government Ranking and the World Economic Forum’s Global Information Technology Report.
Several major studies indicate that International e-government projects failure rates are high and range between 60%-85% (World Bank, 2007; Heeks, 2006). Heeks’ (2003) survey indicated that 35% of the e-government projects are a total failure and only 15% were a success. On their study, Gupta and Jana (2003) justifies high failure rates and argue that e-government initiatives around the globe are due to a lack of understanding regarding effective planning, development, deployment, and setting of unrealistic project goals that are too ambitious given existing capacity.

Marijn, et al., 2009 argue that developing countries are lagging behind developed countries with respect to e-government implementation, and the gap is widening over time. This ever widening gap can be attributed to several challenges that span from human resources, technical to legal issues (Gohar et al., 2010). Heeks (2002) observes that there is a big difference between ICT implementation and use between developed and developing countries. On his observation, Heeks (2002) argues that the problem in developing countries often arises due to dissimilarities in the physical, cultural, economic, and various contextual factors.

Chen et al., (2006) identified a number of distinct factors that represent the difference between developed and developing countries in terms of Internet development and, implicitly, the readiness for e-government. From their study, Chen et al., (2006) argue that the reason behind successful implementation of e-government initiatives in developed countries is that developed countries have more advanced economies and are more stable socially, politically, culturally and technologically than their less developed counterparts. Many developing countries use web based systems for e-government applications where data is stored in back end databases and content is accessed through government portals. On the contrary, most of the developed countries, e-government interventions have moved to semantic web based e-government systems offering
easy, ubiquitous and convenient access to government data due to the semantic interoperability facilitated by semantic web technology (Al-Sudairy & Vasista, 2011). This is an emerging trend in e-government and it is anticipated that contemporary attempts to implement robust e-government solutions should be informed by design attributes facilitating semantic interoperability.

2.3.2 E-government Implementation in Africa

Africa is the second largest continent (Burke, 2012) and it constitutes two distinct regions: North Africa and Sub-Saharan Africa (SSA). The Northern is the Arab World, with different cultural and economic characteristics from the rest of Africa (Ifinedo, 2006). The SSA governments have keenly followed the trends towards adopting e-government with the objective of enhancing flow of information, citizens’ active participation in the public policy processes, promoting productivity among employees, and improving public service delivery (Njuru, 2011). According to Bwalya & Healy (2010), Africa is starting to embrace the concept of digital, knowledge-based economies in preparation being part of the global economic value chain. This is witnessed by the initiation of several e-government initiatives across the continent including web applications and portals that promote access to government information and services by citizens and businesses (Rorrissa & Demissie, 2009). Nevertheless, e-government in Africa has evolved making it one of the most dynamic regions in terms of ICT growth (Burke, 2012).

Despite the adoption of ICT applications, such as e-learning and e-government (Bwalya & Healy, 2010), poor conditions on the continent are constraining the efficient use of these applications. E-government development progress in Africa remains relatively slow and uneven (UN, 2014). In Africa, Tunisia and Mauritius are the two highest-ranked countries, with Egypt, Seychelles, Morocco and South Africa following behind and indicating progress as compared
with the 2012 Survey. However, Africa experiences regional digital divide with most Internet connectivity and ICT infrastructure concentrated in South Africa, Morocco, Egypt, Mauritius and Seychelles. In terms of ICT adoption there is lack of ICT policy and champions, weak political and budgetary commitment, resistance to change, digital divide biased against a high rural population base. Nonetheless, many governments in Africa believe there to be enormous potential for e-government to help their countries improve the quality of life for citizens, increase government efficiency and help achieve sustainable socio-economic development (Maumbe et al., 2008).

The region of SSA faces major political and socio-economic challenges, in addition to the existing under developed human resources, lack of infrastructure as well as cultural and funding constraints. In the ICT context, the SSA countries have critical deficiencies (Maumbe et al., 2008). Africa was once considered a technological desert as far as technology adoption and use is concerned (Ramessur, 2009). To reverse this trend, countries in the region need to focus on building human capital, promoting ICT literacy and bridging infrastructure gaps so as to provide an enabling environment for e-government development (UN, 2014). Moreover, scholars emphasize the need for developing countries to work for the interaction of financial, technical, managerial and social factors in delivering government transformation through e-government (Ndou, 2004; Grant & Chau, 2005; Brown & Thompson, 2011). Others suggest a context-oriented approach as a more promising route for e-government adoption (Heeks, 2002; Dada, 2006; Schuppan, 2009).
2.3.3 E-government Implementation in Kenya

Kenya as a developing country in Sub Saharan Africa is implementing e-governments with the objective of enhancing free flow of information, citizens’ active participation in the public policy processes, promoting productivity and facilitates efficient delivery of public services. Heeks (2002), argued that e-government can be viewed from an evolutionary perspective because governments around the world have used some form of computerization before the notion for e-government developed. Today, e-government initiatives are pervasive and continue to evolve from national to state and local governments (Misra, 2007).

Kenya continues to receive demands from within and outside the country for public sector reforms to improve economic growth, political participation, freedom of expression, and human rights, as well as to alleviate poverty through democratic governance (Annan, 2009; Clinton, 2009; Kibwana, Akivaga, Mute & Odhiambo, 2001). Boswell (2009) noted that the U.S. Secretary of State, Hillary Clinton, urged the youth and the civil society to agitate for government accountability and democratic freedom through ICTs. In addition, Annan (2009), urged Kenyans not to be passive but to demand for accountability among government officials. Such concerns to implement reforms in the public sector underscore the significance of implementing e-government to advance government processes, improve delivery of public services, and increase free flow of public information among citizens, businesses, and government employees. Boswell (2009) and Dahl (2006) observed that the use of ICTs in public sector would usher in basic democratic tenets such as transparency, accountability, and active citizen engagement.
Kenya recognizes the importance of ICT and Innovation in achieving the vision 2030 objectives. For that reason, four key policy documents guiding the ICT and Science, Technology and Innovation (STI) sector in Kenya have been formulated: Kenya ICT Policy 2006, e-government Strategy, Kenya ICT National Master Plan 2017 and Kenya Science, Technology and Innovation (STI) Policy 2012. In terms of ICT infrastructure, a national fiber optic infrastructure is in place and four submarine cables are online (TEAMS, SEACOM, EASSy, LION). The e-government strategy was launched in 2004 by the administration of former President Mwai Kibaki. ICT development is Kenya’s top development agenda as outlined in the e-government strategy (2004-2009) that provide a road map on ICT implementation. According to the government by then, the main objectives of implementing e-government were to enhance delivery of public services, improve access to information by citizens, promote productivity, and enable citizens’ participation in policy making process. Studies show that such objectives are global expectations (Heeks, 2002; Holzer, 2004; Kenny, 2001; Welch et al., 2005; World Bank, 2002). Moreover, to underscore the significance of e-government, the Kenyan government declared its implementation as one of its top priorities towards realization of national development goals and objectives for employment and wealth creation (Fed. Rep of Kenya, 2009).

According to the E-Government Strategy (2004), e-government refers to the use of information technologies by government agencies to transform government operations in order to improve effectiveness, efficiency in public service delivery and promoting democracy (GoK; EGS, 2004). According to the GOK (2009), the public services include; applying for public jobs, submitting tax returns, tracking exam results, tracking status of passports, tracking student loan repayment, and reporting corruption. Examples of ICT Initiatives and projects ongoing in Kenya include the Laptop Programme, Digital Inclusion Projects (Wezesha Initiative, Pasha Centres/Digital

The Kenyan government has initiated some capital investment towards set up and installation of ICT infrastructure. The foreign funding component constitutes the largest percentage of this investment in terms of technology. Kenya’s e-government initiative was launched to enhance the delivery of public information and services to the citizens, promote citizens’ participation in the public policy making processes, and enhance the morale of government employees. Research by UNESCO (2004) showed that ICTs can help reinvent government by injecting innovative ideas in the government institutions and structures to enhance provision of goods and services with greater efficiency, effectiveness, and lower costs.

Kashorda (2009), observed that the Kenyan government has increased access to computers in all ministries but on the other hand, Thompson (2009) argue that increasing computers do not necessarily translate to positive outcome. On his study, Adeboye (1995) and Kenny (2001) notes that e-government is not a panacea to many of the challenges facing developing countries particularly in regard to democratic governance.

Kenya has witnessed significant growth in the ICT sector as demonstrated by the number of Internet users, broadcasting stations and number of mobile telephone subscribers, since the advent of its liberalization in the 1990s. Competition in the voice market has continued to intensify causing operators to reduce their prices on the various products and services. In the last few years, the Kenyan government has launched, among other things, the Konza City project and Huduma. The Konza City project is intended to be the country’s technology innovation. Huduma is a new initiative by government for streamlining public-to-government communication and
service delivery. Through Huduma services enable citizens to use the web and mobile-based platforms in channeling their concerns regarding service delivery via short message service (SMS), voice and video. These messages are then passed to authorities and service providers for redress. This process is aimed at facilitating a direct link of engagement between citizens and service providers for increased and effective service delivery.

Kenya still faces substantial challenges including limited access to high speed broadband; lack of infrastructure and services in rural areas; high cost of broadband connectivity; inadequate approaches to ICT policy and regulation that caters for the unified licensing framework amongst others. These challenges have caused slow rate of innovation diffusion thus the Kenyan government is yet to fully adopt the Internet-enabled operations to optimize public service delivery (UN, 2010). Thompson (2009) noted that because of poor Internet connectivity in Kenya, the country is far from realizing unlimited internet access given that less than 10% of 38.8 million Kenyans have access to computers. Kashorda (2009), argued that while digital villages are under construction in Kenya, there is limited penetration of cyber cafes and access to the Internet. Poor infrastructure is a drawback when compared to developed countries such as the United States where more than 74% of the total population is connected to the Internet (World Bank, 2008c).

According to Karshoda (2009), more than 80% of Kenyans live in the rural areas where internet accessibility and connectivity is a challenge. Other studies have argued the interconnection of democratic governance, social, economic, and political development (Rousseau, 1968; Schumpeter, 2008; Dahl, 2006). However, other studies point to a highly ineffective state of Kenya’s social, economic, and political culture (Klopp & Kamungi, 2008). It is also important to note that Kenya’s consistently failed to implement democratic reforms with Bogaards (2007)
arguing that holding elections at regular intervals doesn’t necessarily produce deliverables that provide sufficient measure for democracy.

The Huduma initiative, for example, set up to enable Kenyan citizens to raise their concerns encountered while accessing public services and is one project that did not meet its expected goals (Bott & Young, 2012). In the first six months of its launch in the year 2011, it was reported that stakeholder uptake was low. Out of more than 3,000 reports submitted by citizens, only 12 were processed but none had been resolved (Bott & Young, 2012). So far, the Government Information Technology Investment and Management Framework enables all ministries connect to the Internet under the Executive Network (Limo, 2003). The government is also encouraging all ministries to run integrated information systems for example the Integrated Financial Management Information System (IFMIS) and the Integrated Personnel and Pensions Database (IPPD). While developing countries may show similar characteristics, the Kenyan context presents various challenges that affect the successful implementation of ICT projects. This is may be due to differences in working cultures, skill sets, and access to technology, relevant infrastructure, and political environment thus country context gaps.

Implementation of e-government requires a country to have elaborate infrastructure, equal access, and inclusion for all citizens. While Kenya is rated below average in the UN e-readiness survey (2010), other favorable factors that could booster the adoption and diffusion of e-government is due to the fact that the nation having more than 45% of the population under the age of 15 (World Bank, 2009). From a public policy perspective, most governments at all levels are facing financial constraints, constrained budget, and accountability gaps (Reason Foundation Report, 2009).
The lack of relevant infrastructure can cause problems is an e-government model from a developed country is adopted in its entirety by a developing country like Kenya. Due to lack of infrastructure in most developing countries, the telecommunication costs can be high, thereby nullifying benefits of e-government (Schware & Deane, 2003). In the views of the GI (2009), the Kenyan government is characterized by inefficient institutions and structures.

2.3.4 E-government Implementation in County Governments in Kenya

The new constitution in Kenya (Kenya, 2010) which was passed on 27th August 2010 lead to the creation of 47 County governments which forms a cornerstone in realization of an effective devolved government and also plays a great role in political and economic transformation towards the realization of vision 2030 and beyond (Karanja, 2009). The counties are charged with the mandate of facilitating industrialization through provision of appropriate infrastructure, operation and maintenance of vital services, licensing, land planning, taxation, and development to spur growth in their economies.

Chapter Eleven of the Kenyan constitution (Kenya, 2010), highlights the objects and principles of the devolved county governments. Various articles in Chapter Eleven of Kenya’s constitution emphasize the role of counties to realizing good governance, efficient public service delivery to the citizens, economic and social prosperity. Article 174 of the states that county governments should promote social and economic development as well as enabling easily accessible services. Self-sustenance and efficient service delivery in the county government are recognized as key pillars to the success of a devolved government structure.

Effective use and application of technologies at the counties will have positive effect to the overall governance structure. The ICT Authority is a State Corporation under the Ministry of
Information Communication and Technology (MoICT) established in August 2013. The role of the ICT Authority is to assist counties governments to achieve sovereignty in their operations and service delivery to citizens through ICT. Some of the core functions of the county government include: promoting national unity; Promoting democratic and accountable exercise of power; giving power of self-government to the people; and enhancing the participation of people in exercise of power of the state and making decisions affecting them.

The overall goal of e-government is to make the government more productive, efficient and citizen-centered. The e-government strategy focus on redefining the relationship between government and citizens by empowering them through enhanced and better access to government services. The e-government initiative will be a shared vision between the National and County Governments and the private sector and the implementation process will involve all stakeholders. The broad objectives of e-government in all aspects of National and County governments will be to:- Improve collaboration between Government agencies and enhance efficiency and effectiveness of resource usage; Reduce transaction costs for the government, citizens and the private sector through the provision of services electronically; Improve Kenya’s competitiveness by providing timely information and delivery of Government services; Provide for access to information held by public institutions, provide for information security and protection of personal information; and ensure automation of Government services and the extension of establishment of “Huduma” centers: one-stop centers for accessing all Government information and services by the citizens; to sub-counties.

In order to deliver these functions, the county governments need to leverage ICT in service delivery to the citizens. The counties will need to take initiatives around: ICT institutionalization; Capacity building; ICT infrastructure development; and ICT systems deployment.
2.4 Success Factors for E-government Implementation in Developing Countries

The implementation of e-government is affected or influenced by so many factors, which can either be failure factors or success factors (Heeks, 2003; Dangol, 2012). According to Heeks (2003), e-government success and failure depends on the size of gap that exists between current realities and design of the e-government system. The larger the design-reality gap, the greater the risk of e-government failure and equally the smaller the gap, the greater the chance of success (Heeks, 2003). (Heeks & others, 2003) many e-government projects do not reach their full potential or eventually fail. The large percentage of failure of e-government projects can be attributed to lack of global e-government design frameworks or models. Further, e-government is a multi-dimensional phenomenon with heterogeneity applications, adding to the complexity of its implementation. Such applications need to interoperate and execute in common applications platform environments using an appropriate interoperability framework. Other than the technology front, the softer side of e-government (e.g. people’s willing-ness to adopt e-government, ability of public institutions to absorb e-government) also largely impact on the success of e-government.

Success or failure of most e-government interventions can be attributed to many factors. According to Bertot, Jaeger, & McClure, (2008), failure of e-government projects can be as a result of minimal engagement with the citizens and businesses over time to capture dynamism in the consumer taste changes and technology preferences. Core reasons for failure of e-government projects in developing countries can be categorized into; lack of strategic clarity, lack of sustained leadership at political and senior management levels, poor understanding of user and application needs and lack of appropriate categorization of user needs, limited or lack of
stakeholder engagement, lack of requisite skills, projects want to deliver too much technological and organizational change at once (Vanka, Sriram, & Agarwal, 2007).

Success factors are those occurrences whose presence or absence determines the success of an ICT project (Gichoya, 2005). Gichoya (2005) refers those occurrences as drivers, enablers and inhibitors. He further argues further that the absence of drivers and enablers can cause failure and their presence can also cause success. The factors encourage or reinforce the successful implementation of ICT projects. From the literature, some of these drivers include:

2.4.1 Availability of funds
E-government projects and initiatives require funding to start the e-government projects. Economically, the most significant barrier to the implementation of e-government is lack of money since e-government implementations are typically very expensive (UNPAN, 2004). Moon (2002) considers lack of financial support as a huge obstacle to the implementation of e-government in many countries. Mpinganjira (2013), argues that effective and successful implementation of E-government projects requires large financial investments to cover costs such as those associated with hardware, software and training of staff. Thus the most serious and significant barrier to the implementation of e-government is a lack of money; e-government implementation is expensive. Lack of money could take several forms, for instance a lack of funding to recruit skilled IT staff in government entities acts as an important barrier impacting on the deployment of e-government (Choudrie et al., 2005). In addition, as e-government requires secure solutions and applications, and issues of trust are of great importance to gain customer loyalty, the high cost of such secure, trustworthy solutions are considered a financial barrier (Gefen et al., 2002; Lambrinoudakis et al., 2003). Therefore it is necessary to ensure the availability of the existing and expected budgetary resources.
On the other hand, Grönlund et al. (2005) argues that many e-government projects in developing countries are financially dependent on international organizations, such as the UN and aid agencies from developed countries. This makes them particularly vulnerable when the external funding stops and even more exposed to financial sustainability failure than project in the developed world. It is important also to note that the returns on investment are often negative in the short terms as it often takes long to realize significant benefits. This often makes justification for E-government projects difficult especially in light of limited financial resources and more pressing immediate needs. Seifert and McLoughlin (2007), indicated that it is important for government to take a long term view of the return on investment in e-government projects because in the long run the savings that government may achieve from among other things, increased levels of efficiencies are likely to outweigh the costs of implementing such projects.

2.4.2 ICT Infrastructure

According to the Work Bank (2002), the availability of the ICT infrastructure in developed countries is considered a driver to implementing e-government. The technical infrastructure of a country is critical to the success of e-government projects. For transiting to e-government, architecture, that is, a guiding set of principles, models and standards is needed (Ndou, 2004). E-government platforms need to support interoperability of a variety of hardware and software products. In providing e-government services through components of Information and Communication Technology, that is able to support and enable the implementation of e-government services composed of infrastructure application server environment and its security, data and content management tools, application development tools, operating systems as well as hardware. These IT infrastructures are the backbone of e-government implementation and key factor for success.
According to Alshehry (2008), IT standards are necessary if government entities are to work together and participate positively in offering e-government services to stakeholders. Standards can be defined according to Keen's (1991) definition that standards are agreements on designs, procedures, and interfaces that help designers of databases, software, hardware, and telecommunications facilities to improve products and systems autonomous of one another with the assurance that they will be well matched with any other product or system that adheres to the same standards. All government organizations are required to implement standards based on Internet and World Wide Web Technology. However, it is common for different government organizations to have different hardware and software that may not work, accommodate and interoperate together; this may cause e-government execution complexities. Layne and Lee (2001), argues that e-government adoption should be in a position to offer access to people and other users from one single integrated gateway. It also requires participating government entities to share their information to serve and accomplish citizens’ or e-government system users’ needs. Hence, information technology standards are necessary to avoid any hardware and system obstacles that would impede the execution of e-government systems. In his study, Weerakkody, et al, (2011) found out that ICT standards are an impediment in the implementation process of e-government in Qatar. Similarly, Alshehry (2008) in his study indicated that IT standards would affect the implementation process of e-government as well.

ICT infrastructure has been identified by many researchers as a barrier for e-government implementation (Alshehry, 2008; Al-Khoury & Bal, 2006). Al-Sobhi et al. (2010) observed that if the ICT infrastructure is insufficient in a nation, the channels of service delivery are unreachable, which may accordingly end up with digital divide. According to Salman (2004), ICT involves the Internet, phone lines and telecommunication systems that can compose e-
government applications. E-government initiative needs a technically progressive ICT infrastructure, with a higher frequency range, covering the whole country and offering reasonable services for the broad public (Alshehry, 2008). Despite this fact, many developing countries, even if they have the will, do not have the infrastructure necessary to directly diffuse e-government services throughout their land (Almarabeh & AbuAli, 2010; Reffat, 2006).

Another technical problem to e-government development and adoption is security (Seifert, 2003; Al-Khoury and Bal, 2006). This is due to the fact that e-government deals with extremely sensitive information, which must be conserved from hackers and Internet crooks (Alshehry, 2008, Al-Fakhri, et al, 2008; Signore, et al, 2005). Al-Busaidy and Weerakkody (2009) define security as the degree of protection that e-government offers against various online threats.

Conklin and White (2006), assert that information that is stored in databases and systems remain very valuable. In this case, security and privacy issues should be monitored and reviewed continuously. Therefore, underestimating the importance of this factor can result in unauthorized access to sensitive information and loss of citizens’ trust, which might lead to e-government failure (Weerakkody, et al., 2011).

Other factors under this category include: Accessibility and interoperability

### 2.4.3 Policy and Legal Framework

E-government can only be implemented successfully if it is regulated by a legal framework (Hai Suan, 2005). According to Gasco (2005), the existence of an enabling legal framework is indispensable to successful e-Government because it impacts IT adoption across government agencies (Gasco, 2005). Basu (2004), argues that the success of e-government initiatives and processes are highly dependent on the government’s role in ensuring a proper legal framework for their operation. The legislation and policy issues are related to the existence of appropriate
laws, regulations, and directives that facilitate the deployment of e-Government service. According to Basu (2004), the legal framework ought to preserve basic public policy and assign responsibility regarding data ownership and rights.

As e-government is internet based, security of the data is an issue and should be regarded as an important internet policy security issue (Wu, 2014). Legal and policy guidance with clear indications regarding access to information and issues related to risk and trust is important (Lane & Buchanan, 1998).

Bwalya et al., (2014), argue that well implemented e-government will enhance transparency and will foster open, inclusive and responsive government, however Ozkan & Kanat (2011) notes that any breach of privacy and security may harm public trust in e-government. Lyne and Lee, (2001) consider privacy and confidentiality as critical barriers towards the e-government implementation. Citizens are ever concerned with the privacy and confidentiality of their personal data as they transact. According to UN (2010), the digital gap in Kenya is widening as the ICT policy does not have a specific mechanism to ensure inclusion and equal access (UN, 2010). Thus, in order to protect and secure electronic activities, governments should develop a legal framework which provides a mechanism by which legal requirements are enforced.

2.4.4 Top Management Support (Political Support and Commitment)

E-government needs continuous approval and commitment from high authority to sustain and to avoid unanticipated delays or project failures (Reeks, 2003). According to the OECD (2003) leadership is critical to the success of E-government initiatives. Lam (2005), argues that leadership is an important factor in a successful e-government project, and its absence can therefore lead to its failure. This is because committed leaders help champion E-government projects by ensuring that such projects are put onto the government agenda as well as ensuring
the availability of financial resources and technical expertise needed for the successful implementation of E-government projects. The political environment in which e-government initiatives are undertaken is of importance because politics represents the authoritative allocation of values or goals for the society (Nour et al., 2008). The e-government system embraces political values the same way it embraces efficiency values (Nour et al., 2008; Bolgherini, 2007). These values involve public accountability, citizen participation, efficiency, democratic responsiveness, integrity and service quality, and security (Bwalya & Healy, 2010; Ahn, 2011; Al Nagi & Hamdan, 2009). Kroukamp (2005) noted leaders who do not see e-government as a priority pay little attention to ensuring that IT policies and programs are introduced.

Udo and Edoho (2000) noted that one of the most serious constraints to E-government diffusion in Africa is the limited number of officials who are willing or able to champion ICTs in government. According to Heeks (2003), one reason for e-government failure in developing countries is that it is designed within an environment which has a ‘role culture’ that values rules and logic; while the political environment in developing countries has a culture which values self-interest and hidden agendas. Some government officials view e-government as a challenge and threat to their position power and viability they become resistant to the idea of embracing online transactions (Ebrahim et al., 2003; Sanchez et al., 2003). Such lack of support from politicians and high level bureaucrats poses a challenge for e-government and it sustainability, leading to underdeveloped e-government platforms (Schwester, 2009).

2.4.5 Creating Awareness and Building Trust

This factor has widely been recognized to be a barrier to e-government implementation (Weerakkody et al, 2010; AlAwadhi & Morris, 2009; Weerakkody et al, 2006). E-government awareness entails citizens learning and education, and marketing about e-government services
(Nduo, 2004; Reffat, 2006; Elsheikh et al, 2008). The lack of awareness might prevent citizens and employees from participating in e-government services (Reffat, 2006; Weerakkody et al, 2006; Almarabeh & AbuAli, 2010). Reffat (2006) argue that e-government services are only valuable if people know about them and this can only happen if the e-government users are trained.

Building trust in government demands that citizens to have the freedom and ability to participate in the political, social, and economic life (Welch et al., 2005). In addition, e-government provides citizens with the opportunity to participate in free, fair, and frequent elections (UN, 2008). E-government improves accountability, transparency, and responsiveness in government institutions, citizens, and business (Welch et al., 2005; UN, 2010; World Bank, 2004). Nonetheless, Janneh (2007) observed that from the economic, social, and political perspectives, the Kenyan government has failed to meet these expectations of its citizens.

2.4.6 Digital Divide

Digital divide is the gap in opportunity between those who have access to the Internet and those who don’t. The term digital divide majorly describes the differing levels of access to technology by people across the globe. Digital divide is characterized by a myriad of technology, social, economic and political factors. Those who do not have access to the Internet are unable to benefit from e-government services (OECD, 2003). Therefore not all people have access to computers or Internet and this can be due to a lack of income, necessary skills, or internet access. Smith (2002), recommended that availing in public locations, such as libraries, post offices and shopping centers, could help in addressing the digital divide. Feng (2003), points out that the lack of Internet access among the society is considered the most important barrier to e-government development.
Mullen and Horner (2004) argue that digital divide is one of the most barriers facing e-government implementation. It pertains to several factors, such as language barriers, education, disability and age (UN, 2005). Inequitable access to ICTs by people posses challenges to the success of e-government projects especially as it affects adoption rates. Alzouma (2005) observed that Africa faces serious problems relating to digital divide not only between countries but also inside countries for example between those in rural and urban settings. UNESCO (2007) argued that that it is imperative for leaders to think about social inclusiveness in the context of infrastructure while making decisions about technology and development. In Kenya, the ICT policy in place does not have specific mechanisms to ensure inclusion and equal access of its citizens thus the digital gap is widening (UN, 2010).

2.4.7 ICT Strategy

ICT that shapes e-government also requires a properly aligned ICT strategy, satisfying system properties, information management, and regulatory framework (Baker, 2011). Heeks (2003), defines e-government strategy as a plan for e-government Systems and their supporting infrastructure which provide the management with the ability to achieve organizational objectives. Kharel & Shakya (2012), agree that strategic plan and framework is compulsory part of e-government development and implementation in the country.

2.4.8 Training of Staff

Shortage of skilled ICT personnel especially in the public sector makes it difficult to effectively implement E-government projects or ensure their sustainability (Mpinganjira, 2013). UNESCO (2007) observed that it is often difficult to change the prevailing public servants” culture, encourage them to adopt new ways that would cut down bureaucracy, and red tape. The lack of
staff training programs may slow e-government implementation. Greater training seeks to increase awareness among employees of the possible benefits of providing e-government services (Kaylor et al., 2001; Woolridge, 2002).

2.4.9 Cultural factors

The main barriers to the adoption of e-government are not just technical, but also center on cultural implications of new technologies (Feng, 2003). According to Sathe (1983), culture is a set of important assumptions, beliefs and values that society members share in common. This implies that any opposition to societal norms is more likely to meet resistance. Cultural differences and individual behavior patterns influence acceptance and use of new technology (West, 2001). Swartz (2003) found that cultural issues negatively affect the acceptance and adoption of e-government in developed countries such as the UK and Japan. However, a cultural issue is not easily tangible and therefore it must be given more planning so that e-government implementation is successful (Weisinger & Trauth, 2003). This means that e-government acceptance will only start to be realized if it is introduced in a culturally sensitive manner. Adoption may require persistent but gentle pressure to insert innovation into a culture and make a population aware of its value.

In conclusion, introducing e-government is costly and has multiple requirements of stable technical infrastructure, political system, a legal framework in place, and highly skilled people (Stoltzfus, 2005). It is also associated with other factors, such as: security and privacy, accessibility issues, prioritization and trust in government. These challenges, whether environmental, managerial or technical appear in both developed and developing countries. The difference lies in the level of complexity and the approach of how to handle these challenges. According to Bolgherini (2007), developed countries have mature technical and
non-technical infrastructure as compared to that in developing countries. Thus, e-government success is generally determined by the ability of e-government implementers to identify challenges or contingencies and respond to them by accommodating response mechanisms in the e-government solutions provided (Sahraoui et al., 2006).

2.5 Usage and Application of the Existing E-Government Implementation Models

E-government development is influenced by development models (Irani, 2006; Layne & Lee, 2001, O. Signore, Chesi, Pallotti (2005)). The models establish stages or phases; starting with electronic provision of rudimentary information and ending with fully integrated online services, incorporating transaction capability (Maumbe et al., 2008). In order to implement and accomplish e-government projects or initiatives, there must be a stepwise approach applied to the infrastructure development which transforms an initial e-government initiative into final desired service (Zahir Irani et al., 2006). A stage-wise approach offers government ability to measure the progress and also to generate momentum that could subsequently be maintained (Irani, 2006). These stages inspire a sense of progress and growth as it helps to avoid dead ends and suggests directions in which to grow and improve (Oyomno, 2004; Anderson & Henriksen, 2006; Kim & Grant, 2010).

E-government models have been proposed by researchers (Hiller, 2001; Layne & Lee, 2001; Moon, 2002) and research institutions (e.g., Gartner Group, 2000; Deloitte & Touché, 2001). The models are either developed by institutions such as the United Nations and American Society for Public Administration, 2001; Gartner Group Deloitte and Touche, 2001; Baum & Di Maio, 2000 or by Individual researchers (Layne and Lee, 2001; Hiller & Bélanger, 2001; Moon, 2002). E-governments have different objectives in different countries and each follow different models for e-government development. One advantage of having a phased model is
that it ensures each e-government initiative can be calculated and errors of the initiative can be rectified. The continued increase in number of these models is evident of lack of a universally accepted framework for e-government implementation (Maumbe et al., 2008).

Gartner group (2000), developed a model with four stages. These are: Web presence – this is the initial stage where government provides website with static basic information that the citizen can access. Interaction – government provides a website with various capabilities such as searching, documents downloading and email communications; this is used as a tool for interaction between different parties involved. Transaction – citizen (users) can conduct on-line transaction such as buying and selling. And Transformation – at this stage, all government operational processes are integrated, unified and personalized.

The UN and American Society for Public Administration (2001) proposed a five stage e-government implementation model. This model is a synthesized model integrating features and aspects from the previously proposed models. In their research Siau and Long (2005) noted that there is a corresponding relationship between Moon’s model first stage and the first two stages of the UN’s stage model. The second stage of Moon’s model and the third stage of UN’s model are also similar.

The model stages are: Emerging web presence – government websites provides basic and limited static information and options for citizens. Enhanced web presence – website is improved in-terms of providing dynamic, specialized and updated information. Website features include search facilities, site maps and on-line help. Interactive web presence – all stakeholders are connected to government portals. Search facilities and accessibility features are enhanced at this stage. Others are Transactional web presence – this phase allows two-way interactions between the citizen and the government. Seamless/Networked web presence – the
most sophisticated level of e-government service delivery. At this stage, all services and functions across government levels are integrated thus enabling citizens to access any kind of services from one location.

Deloitte and Touch (2001) presented a six stage model based on the view that e-government objectives should serve citizens building a long term relationship. The full description of each of the stage is as follows: Information publishing – government sets up static websites for providing basic information to citizen. Communication is one-way; Official-two way transaction – an advanced stage where information is transacted and exchanged between citizen and government as service providers; Multipurpose portal – here government uses a single portal to transact with citizens; Portal personalization – users are provided with the opportunity to customize and personalize the portal based on their desired features; Clustering of common services – at this stage, all government services and operational processes are so as to provide unified and seamless services to users; Full integration and enterprise transaction – government changes its structure and provide more sophisticated, integrated and personalized services to citizen.

On the other hand, Layne and Lee (2001) regard e-government as an evolutionary phenomenon based observation and experience. They define e-government as the use of web based technology and internet applications to enhance the delivery of government information and services to citizens. With this definition in mind, they postulate a four stage model of growth for e-government. The model is based on different dimensions including technical, organizational, and managerial and has four stages. Cataloging is the first stage meant to deliver basic static information through a website. Transactional is the second stage that enables a two way communications where citizens can conduct on-line transactions. Vertical
integration is the third stage that focuses on the automation of government workflows as well as transforming of government services. Government functions at different levels such as those of local and national governments are integrated. Horizontal integration – this the fourth stage that focuses on systems integration between different levels and functions thus providing users with a unified and seamless service.

The Layne and Lee model focus and concentrate more on the bias of the international institutions promoting e-government. According to them, e-government should move beyond just the actual benefits it is making and focus more on reaching the citizen and other users in a more efficient way. The authors argue that the first stage should include horizontal and vertical integration. This is an advanced feature and thus should be considered at the last stages like in the other maturity models.

Figure 2.1: The Layne & Lee (2001) Model:
Hiller and Blanger (2001), suggested a model with five stages, including: Information dissemination which involves disseminating information which is static to the citizen by posting it on the website, the communication is one-way. Two-way communication—government websites are enhanced with a number of capabilities such as emails and downloadable forms to interact with citizen. And Service and financial transaction—it is an advanced stage where government offers online services including financial transaction to citizen by use of sophisticated technology. Others are Vertical and horizontal integration—various systems at different levels of government are integrated vertically and horizontally. Finally is Political participation—the government involves citizen in participating in political activities including online voting and forums.

Moon (2002) adapted Hiller and Bélanger (2001) model despite some minor differences in phrasing. The stages include: One way communication, Two-way communication, Transformation, Vertical and horizontal integration, and Political participation. However, comparing the two models Moon (2002) and Hiller and Blanger (2001), there are large similarities in particular from stage two to five. For that reason, only stage one will be described. One way communication is considered as the initial stage of e-government developments where information is disseminated to the citizens by posting on the website for online access.

Zarei et al., (2008) described a nine stage model for e-government implementation in a developing country. The nine stages are strategy development, building infrastructure, building trust, making a physical and electronic portal, initial interactions and stimulation, prototyping,
enrichment and multidimensional development, integration, and development of the ICT industry. These nine stages are based on the Iranian experience.

Siau & Long (2005) synthesized and analyzed a number of the existing e-government implementation models which appeared in the literature up to that time with an intention of finding commonality for the various phases. The stage model resulted from the combination of Gartner’s four-stage model, UN’s five-stage model, Delloitte’s six stage model, Layne and Lee’s (2001) four stage model and Moon’s (2002) model. From their meta-synthesis, they summarize e-government implementation into five phases of: Web presence for posting static information for public viewing; Interaction for two way communication; Transaction; Transformation- for business process reengineering and horizontal and vertical integrations and E-democracy for online voting, polling and surveys.

Nabafu and Maiga (2012) proposed a seven stage model by extending Siau and Long’s (2005) model by adding new and unique features useful for implementing e-government at the local context. Besides the five Siau and Long’s (2005) established steps of web presence, interaction, transaction, transformation, and e-democracy used for e-government implementation, the new model by Nabafu and Maiga (2012) describes new dimensions of financial resources mobilization; Building an ICT infrastructure; training; sensitization; Social political factors. It was a step towards supporting local government agencies to successfully implement e-government projects in Uganda. The Ugandan model incorporates activities required for successful implementation of local e-government.
2.6 Comparison of the Existing E-government Implementation Maturity Models

In attempting to synthesize the different models for e-government implementation, it is noted that there exists differences and similarities focusing on their variables for each phase. From the literature, it is noted that the variables which are common to the models are information or catalogue, interaction and transactions (Gatner, 2000; UN, 2002; Siau & Long, 2005; Chan et al., 2005; Al-Nuaim, 2011). Integration is a common variable as the last phase in all the models.

The differences between the models are the number of phases where two of the selected models have four phases (Gartner, 2000; Layne & Lee, 2001) and others six phases (United
Nations, 2002; Siau & Long, 2005; Chan et al., 2005; Al-Nuaim, 2011). These differences in number of phases may be attributed to technology advancement as noted in the timeline for the development of the models. It is noted that models that were developed before 2003 have less than five phases while those developed after 2003 have more than four phases. Layne and Lee (2001) divide integration into vertical and horizontal stages. In the vertical stage, local, state and federal governments are connected for different functions or services of government, so citizens can access the service at the higher level of governments from the same entry. However, at the horizontal stage systems are integrated across different functions and services. This means that, if any citizen made a transaction in one government department, this will lead to an automatic check against data held in other government departments (Layne and Lee, 2001).

Despite their differences, there are many similarities between these stages. For instance, presenting government information is commonly perceived as a first step to implementing e-government, despite the different names assigned to it. Another common stage is where all the transactions are conducted online but this stage have been given different names such as transact, transactional and transaction. Moreover, two-way communication between government and other parties is also a common, as observed within the (Gartner Research, 2003; United Nations Division for Public Economics and Public Administration, 2001; Center for Democracy and Technology, 2002) models. They predict linear development or evolution of e-government from a basic online presence to full integration, seamlessness, and transformation. Studies suggest that this development is progressive and stepwise.

In conclusion, it is clear that there is no agreed specific number of stages of e-government implementation model since it is different from one researcher to another and presumably one
country to another. This may be due to the technological, social, organizational, economic and political reasons. What can be determined is that e-government implementation process involves multiple stages or phases of development and is not a one-step process.

2.7 Critiques of Existing E-government Implementation Models

E-government is an important ICT application that can improve the standard of living of people around the globe. Furthermore, it serves as a measurement tool in determining the development strategies of a country through the level of application and completed initiative in e-government implementation. Due to this fact, the implementation of e-government initiatives has become one of the major goals to boost the operations and services in government organizations in both developed and developing countries. Thus, most governments are putting more effort in terms of resources to implement e-government initiatives that best suit their respective countries. Despite their effort, there are many differences and variations in e-government implementation.

The e-government literature describes a range of models and frameworks suggesting critical factors, useful for a variety of perspectives. These models are to provide a better understanding and visualization of e-government implementation. However, the challenge of identifying the individual factors and their optimal combination remains an issue for both researchers and practitioners (Edington & Shin, 2006). Despite the fact that many studies have sought to identify the factors that contribute to e-government adoption (Moon, 2002), there is a big gap when it comes to integrating these factors into a holistic model (Edington & Shin, 2006). Some models are built to achieve specific objectives, while others are developed upon different benefits. Therefore, direct usage of these models without any customization or extension to a
specific context may not be appropriate and eventually may cause many e-government project failures.

Effective e-government with higher levels of diffusion and adoption requires an enabling context. This highlights the need for comprehensive understanding of the real context of the state or organization in which the initiative is taking place (Bwalya & Healy, 2010). Some researchers argue that e-government needs to focus on the different collection of attitudes, values along with social, political and cultural factors (Heeks, 2002; Kim, 2007; Grundén, 2009). The existing proposed models for e-government implementation have largely been developed and used in the developed countries and are not equally used in developing countries like Kenya. According to Capgemini (2007), their (models) formulation only concentrated on conditions that exist in national and state-level e-Government practices with few investigations focused on the local government. Zarei et al. (2008) argues that these models are oversimplified, and therefore cannot easily and directly applicable for e-government implementation in developing countries because the technical and non-technical infrastructures are not as mature as those of developed countries. Therefore failure in implementation of e-government projects is due to the design reality gap created by varying conditions experienced by each government as these models have been developed from different perspectives and therefore may prove inadequate in when applied to some areas.

On the other hand, Zarei et al., (2008) argues that the existing e-government implementation models focused only at national and state level and are more suited to the developed countries with advanced, up-to-date technology and more non-technical concerns such as concentration on public awareness and e-readiness than developing countries. Lofstedt (2005), observes that the existing e-government implementation models were developed to assess e-government
projects with central or national government as the unit of analysis with little regard for the local governments. They are little used in projects to assess e-government services at the county government level or local government level that has the most direct contact with the citizens and businesses and is responsible in providing basic services (Flak et al., 2005). Moreover, county governments often lack independent decision making powers in the area of e-government, and often rely on funding from central governments to implement new initiatives (Shackleton & Dawson, 2007).

In e-government literature, a good number of researchers argue for the customization of these existing international e-government implementation models so as to suit the different contexts of the developing countries. Flak et al., (2005) argues that e-government experiences vary dramatically from one government to another, both between and within countries and there is need for country specific assessment indicators to enable cross-country comparisons by relative scores. Therefore there is need for different countries to consider requirement for e-government implementation and incorporate them in the model (Zarei et al., 2008).

In an attempt to understand and explain the failure of e-government initiatives in developing countries, (Heeks, 2003) built a model on the assumption that success and failure of e-government depends on the gap existing between the current situation (reality) and the (design) for e-government. The ITPOSMO model seeks to explain the high rates of failures of information systems in developing countries (Heeks, 2002). This model assumes the designers of IS are remote which means their contextual inscriptions are liable to be significantly different from user actuality. It assumes the designers come from developed countries or have been trained in developed countries and their knowledge of the local circumstances is at
variance with the local reality. This model can be used in explaining some of the reasons as to why implementation of ICT in Kenyan government fails.

Heeks (2003) identified seven dimensions in order to understand the design-reality gap, abbreviated in the acronym (ITPOSMO). This research will adopt and apply the same model suggested by Heeks which introduces a gap framework that will help the researcher to study several variables or aspects that affect e-government implementation. This model provides a comprehensive approach in illustrating inequality between the design of e-government systems and its actual implementations (Heeks, 2003).

Figure 2.3: The ITPOSMO Model

The meaning of each factor of ITPOSMO model is presented as follows.

“T” means Information types required in communication between government and the stakeholder.

“T” means The technology used in the agency (comparing the requirements contained within the design of the e-government application vs. the real situation now).

“P” means the work processes undertaken in the agency (comparing the processes needed for successful implementation of the e-government application vs. the real situation now).

“O” means the objectives and values that key stakeholders need for successful implementation of the e-government application vs. their current real objectives and values.

“S” means the staffing numbers and skill levels/types required in/by the agency (comparing the requirements for successful implementation of the e-government application vs. the real situation now).

“M” means the management systems and structures required in the agency (comparing the requirements for successful implementation of the e-government application vs. the real situation now).

“O” involves the time and money required to successfully implement and operate the new application compared with the time and money really available now.

2.8 A Context Based Framework for E-government Implementation at County Governments

Most e-government strategies and implementation plans in developing countries have been based on theories and experiences of developed countries (Huang, D’Ambra, & Bhalla, 2002). However, due to substantial differences in many key aspects of e-government related technological and social conditions between developed and developing countries, e-
government development strategies and experiences from developed countries may not be
directly applicable to developing countries (Chen, Chen, Huang, & Ching, 2006).
Due to the gap that exist between the use of existing models meant for e-government
implementation in developing countries as evidenced from the literature, researchers argue for
the need to customize these models through identifying individual country requirements and
incorporating them in the models (Zarei et al., 2008). A model is proposed and its formulation
is based in the contextual experiences of Iranian government (Zarei et al., 2008). The model
outlines nine phases that guides the progressive development of e-government. The nine
stages are strategy development, building infrastructure, building trust, making a physical and
electronic portal, initial interactions and stimulation, prototyping, enrichment and
multidimensional development, integration, and development of the ICT industry. Their
intention and effort was to provide a contextualized framework to guide the implementation of
e-government in Iran as a developing country.
Siau & Long (2005) model was formulated by synthesizing and analyzing six of the existing e-
government implementation models that had been proposed before it in the literature by
finding commonality for the various phases. The stage model resulted from the combination of
Gartner’s four-stage model, UN’s five-stage model, Delloitte’s six stage model, Layne and
Lee’s (2001) four stage model, Hiller and Belanger model, and Moon’s (2002) model. The
authors applied a quantitative meta- synthesis approach to integrate those maturity models into
a new synthesized one. From their meta-synthesis, they summarized e-government
implementation into five phases of: Web presence for posting static information for public
viewing; Interaction for two way communication; Transaction; Transformation for business
process reengineering and horizontal and vertical integrations and E-democracy for online voting, polling and surveys.

Nabafu & Maiga (2012) proposed a seven stage model to aid e-government development at the local governments. The model was as a result of customizing and extending Siau & Long (2005) five stage model by incorporating new features after considering the unique conditions experienced in Ugandan government. Siau & Long (2005) model was selected by Nabafu & Maiga (2012) for customization and the selection was informed by the strengths of the model. Firstly, the combination is comprehensive as it covers and integrates the main ideas from different models. Secondly, the model combines different perspectives such as technology, organization, management and politics. Layne and Lee (2001) four-stage model does not take into account political development and democracy factors, which are the main visions of e-government. According to Siau and Long (2005), their proposed model can be used to investigate possible factors (for example, information and computer technology, human development situation, economics, culture and political environment) as they influence e-government development stages.

Nabafu & Maiga (2012) thus outlines seven stages which are financial resource mobilization; build ICT infrastructure; web presence; interaction; transaction; transformation and E-democracy. The model by provides new dimensions required for the e-government implementation process under the themes of financial resource mobilization, ICT infrastructure development, training, sensitization and Social political factors (Nabafu & Maiga, 2012).

This study analyzes and synthesizes two models (Nabafu & Maiga (2012) model and Zarei et al., (2008) model) by identifying the similarities and differences and then integrates the models resulting in a common model that can provide a common framework for e-government.
implementation at county governments level in Kenya, which is a developing country. The justification towards the selection of the two models is based on their strengths. Nabafu & Maiga (2012) model has been developed to aid e-government implementation in Uganda which is a developing country. Kenya and Uganda may have contextual experiences (social, financial and political factors) as they are both developing countries. Similarly, the design and development of Zarei et al., (2008) model was based in an Iranian experience. As a developing country like Kenya, most experiences may not be that a part.

Although Nabafu & Maiga (2012) and Zarei et al., (2008) models’ stage names are different, their content may have some similarities and differences. In most instances, a model presents a phase earlier but the same phase with the same content comes later in another model or vise versa. On the other hand, one model doesn’t contain some stage which is critical in another and all this can be attributed to different perspectives and conditions under which the study was carried out by the authors. Despite the positions of the stages in their respective models, all of them contain a stage related to the availability of the portal in the Web (presence), a stage where the citizens can interact with governments (interaction), a stage where the citizens can transact with governments (transaction), a stage where there is building of the ICT infrastructure, and an advanced stage that covers advanced features such as information sharing between agencies (integration).
CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes in detail the strategy that was used by the researcher to conduct the research. It includes the following research design, sampling and sampling procedures, and description of research instruments, data collections procedures and data analysis procedures.

3.2 Research Approach and Design

The researcher adopted a mixed method employing both quantitative and qualitative approaches in the study. Data collection from various sources increases the trustworthiness and validity of data (Yin 2003; Saunders et al 2003). This method enabled the researcher to study all aspects of a phenomenon under study in which case the merits of one instrument may offset the demerits of the other (Mugenda & Mugenda, 1999).

The study adopted descriptive survey which enabled accurate account of the characteristics, such as behavior, opinions, abilities, beliefs, and knowledge of a particular individual, situation or group. Survey research provided a suitable instrument for collecting large amount of data, a practical framework for collecting a large sample of composing groups and also ensured strong data reliability.

3.3 Target Population

E-government users and implementers across the five purposefully selected county governments were targeted as a study population. According to Garcia & Moyano, (2007), e-government users include citizens, businesses, governments, and government employees. Survey statistics by the Kenya National Bureau of Standards (KNBS) (2015) indicates that there are approximately a
total of 99,000 persons employed by the 47 county governments in Kenya. Therefore, an approximation of 2000 employees was considered as a target population for study from each county government. Thus, the five purposefully selected counties resulted into a target population of 10,000 individuals.

3.4 Sample Size and Sampling Procedures

The researcher purposefully sampled from e-government users who are employees of the various counties and e-government implementers who are the officers in charge of ICT infrastructure and implementation in the county. Only one officer from each county was selected depending on availability. The researcher employed purposive sampling because the study intended to engage specific people who provided the information required to achieve the objectives of the study. The study population cut across all the ministries across the county government.

The study adopted Yamane’s formula (Yamane, 1967) in determining the sample size. The formula is show below.

\[
n = \frac{N}{1 + N(e)^2}
\]

Where:

n is the sample size,

N is the population size, (N= 10,000)

e is the level of precision. (7%)
By using Yamane’s formula of sample size with an error 7% and with a confidence coefficient of 93% (Yamane, 1967), the calculation from a population of 10,000 resulted into 200 persons from all the five county governments.

A reference table for appropriate sample sizes for respective population sizes based on the criterion of level of precision as computed by Yamane (1967) can be made at appendix III.

3.5 Data collection methods and instruments

In order to determine the dynamic nature of the factors that influence e-government implementation in Kenya, the researcher gathered data to satisfy the objectives of this research and to give the reader a clear picture of the subject under study.

3.4.1 Questionnaires

Questionnaires were designed to collect data from users of e-government. Questionnaires were utilized as they are inexpensive, less time consuming and has the ability to provide both quantitative scale and qualitative data from a large research sample (Cornford & Smithson, 1997). The questionnaires enabled the researcher to determine the critical success factors influencing e-government implementation as well as the requirement for e-government implementation at county governments in Kenya. This was used as the primary data collection method for recording participant responses to research related questions presented in a predetermined order (Neuman, 2006).

A questionnaire for e-government was carefully designed so that facts and opinions of the respondents concerning the subject area of study were captured.
3.4.2 Interviews

E-government implementers were interviewed as key informants of the study. Structured questions pertaining e-government implementation were asked. County government officials who were key on e-government initiatives were interviewed via face-to-face structured interviews. This enabled the researcher to gain more insight and data collected complemented and supported the quantitative data.

3.6 Pre-testing for Validity and Reliability

For purposes of this study, the researcher developed a structured questionnaire and before it was administered, the questionnaire was interrogated for content and comprehensiveness by experienced researchers on e-government. A pilot test of the questionnaire was conducted using small samples comprising 15 respondents that were systematically collected from Nyamira county government, seven days apart in order to check if there was need to refine it and to ensure the questions capture the research questions and objectives (Saunders et al., 2003; Brace, 2004). The results were then reviewed for any variations in the data captured, omissions and typographical errors.

3.7 Data Processing, Analysis and Presentation

Quantitative data gathered from the field was first cleaned, coded and subjected for processing and analysis. The researcher used descriptive statistical techniques including presenting a summary of findings in form of charts, tables and graphs from coded numbers and percentages. Statistical Package for Social Sciences (SPSS Statistics Version 17.0) computer software program was used in analysis. The results of analysis were presented by use of charts, tables and graphs.
3.8 Ethical Considerations

Clearance to carry out this research was granted by Kisii University, the National Commission for Science, Technology and Innovation (NACOSTI) and five county governments. County governments’ managers were briefed on the purpose and nature of the study prior and during the time of collecting data. An informed consent to participate was then sought from each respondent. In addition, every respondent was assured of non-disclosure of the shared information, and was made aware of the freedom to withdraw from the study if he/she so wished.
CHAPTER FOUR: RESULTS PRESENTATION AND DISCUSSION

4.1 Introduction
This chapter presents the findings from the study. The study involved two questionnaires, one administered to the ICT officers and another to other county employees who were the users of e-government applications in our study. The study targeted 200 respondents and five key informants who were the IT managers in the five counties. All the IT officers responded to the study since the researcher had prior arrangements with the officers that ensured the full participation. The numbers of questionnaires administered to the respondents were 40 in every county making a total of 200 respondents. After data collection, data was cleaned to ensure that the questionnaires were completed. A total of 80 questionnaires were either not returned or were not fully answered making a response rate of 60%. Richardson (2005) states that 50% or above is an acceptable response rate in research surveys.

4.2 Characteristics of the Respondents
The study established how the different employees were distributed among the five counties. Makueni and Uasin Gishu had the highest number of secretaries at 25.6% who participated in the study followed by Nairobi at 20.5%, Kisii at 17.9% and Machakos at 10.3% respectively. In the category of the receptionists, the county that had majority of the respondents was Makueni at 25% followed by Machakos and Nairobi tie of 21.9%, then Uasin Gishu at 18.8% and finally Kisii at 8%. The county with the highest number of accountants in the respondents was Machakos at 31.6% whereas the administrators at Nairobi and Machakos counties were leading at 30.8%. There was only one storekeeper from Machakos County whereas Uasin Gishu,
Machakos and Makueni did not have any security head featured in the study as well as Nairobi and Makueni did not have a transport manager in the study.

Table 4.1: Shows occupation * County Cross tabulation

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Kisii</th>
<th>Uasin Gishu</th>
<th>Nairobi</th>
<th>Machakos</th>
<th>Makueni</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secretary</td>
<td>7(17.9%)</td>
<td>10(25.6%)</td>
<td>8(20.5%)</td>
<td>4(10.3%)</td>
<td>10(25.6%)</td>
<td>39(32.5%)</td>
</tr>
<tr>
<td>Receptionist</td>
<td>4(8%)</td>
<td>6(18.8%)</td>
<td>7(21.9%)</td>
<td>7(21.9%)</td>
<td>8(25%)</td>
<td>32(26.7%)</td>
</tr>
<tr>
<td>Administrator</td>
<td>2(15.4%)</td>
<td>1(7.7%)</td>
<td>4(30.8%)</td>
<td>4(30.8%)</td>
<td>7(21.9%)</td>
<td>13(10.8%)</td>
</tr>
<tr>
<td>Accountant</td>
<td>4(21.1%)</td>
<td>1(5.3%)</td>
<td>4(21.1%)</td>
<td>6(31.6%)</td>
<td>4(21.1%)</td>
<td>19(15.8%)</td>
</tr>
<tr>
<td>Transport Manager</td>
<td>5(38.5%)</td>
<td>6(46.2%)</td>
<td>0</td>
<td>2(15.4%)</td>
<td>0</td>
<td>13(10.8%)</td>
</tr>
<tr>
<td>Security Head</td>
<td>2(66.7%)</td>
<td>0</td>
<td>1(33.3%)</td>
<td>0</td>
<td>0</td>
<td>3(2.5%)</td>
</tr>
<tr>
<td>Store keeper</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1(100%)</td>
<td>0</td>
<td>1(0.8%)</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>120</td>
</tr>
</tbody>
</table>

The respondents were either university graduates or diploma holders with the college respondents being the majority at 95%.

Table 4.2: Tabulates the level of education of the respondents

<table>
<thead>
<tr>
<th>County</th>
<th>Education Level</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>College</td>
<td>University</td>
</tr>
<tr>
<td>Kisii</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td>Uasin Gishu</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>Nairobi</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>Machakos</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>Makueni</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>114</td>
<td>6</td>
</tr>
</tbody>
</table>

The female respondents took the lead with 66(55%) and the male followed with 54(45%). The mean age was 39.11 with the oldest respondent being 58 years and the youngest 23 years. There was an equal representation from the five different counties which were Kisii, UasinGishu,
Nairobi, Machakos and Makueni. The study also wanted to know how the gender was distributed across the five counties. Kisii and Machakos had an equal representation of 12 with the rest having higher female representation as shown in figure 1 below;

Figure 4.1: Shows gender distribution across the five counties

4.3 Usage and application of Existing E-government Implementation Models

The first objective sought to examine the various existing proposed models as far as e-government implementation is concerned at the various entities of county governments in Kenya. The respondents were asked to state if they had any access to public services via the county website.
25% agreed that they had access at all the times, 67.5% of them access at sometimes, 6.7% to a small extent while 0.8% of the respondents did not have any access.

Regarding training, majority of the respondents confirmed that they had been trained on website usage though not by the county government but the computer colleges which they had studied earlier. Responding to the easiness of using the county website, 34(28.3%) agreed that it was easy, 66.7% formed the majority who had the view that it was of moderate simplicity on usage and 5% disagreed that it was easy to use.

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>34</td>
<td>28.3</td>
<td>28.3</td>
<td>28.3</td>
</tr>
<tr>
<td>Moderate Extent</td>
<td>80</td>
<td>66.7</td>
<td>66.7</td>
<td>95.0</td>
</tr>
<tr>
<td>Disagree</td>
<td>6</td>
<td>5.0</td>
<td>5.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Respondents were asked to indicate whether the website allowed communication among employees and departments. Responses from all the five counties confirmed that the website did
not facilitate staff communication within the county nor did it allow communication between departments. Instead, Microsoft outlook was used for internal official communication. The website offered a site to post public information for the citizens and employees were only allowed to take the information to the website administrators who were the only ones mandated to post the information. They also said that they rarely get feedback from the public and in return rarely responded to the feedback.

All the respondents confirmed that they had never purchased services online but only followed the channel of procurement which was also manually done through either tendering or physical purchase incase a commodity was small or basic through the accounts department. Concerning the status of the website, 48.3% said that the information from the website was sometimes up to date with the rest having the opinion that it was rarely up dated. The information posted in the website was found to be of moderate extent in terms of adequacy and appropriateness by the majority 87.5% followed by those that agreed and disagreed with an equal measure of 5.8% and lastly only 0.8% strongly agreed that it was adequate and appropriate.

![Adequate and appropriate information](image)

Figure 4.3: Shows the adequacy and appropriateness of the information posted on county website
The mean of the respondents on whether the information that was contained in the website was valid adequate and appropriate was 2.98 and a standard deviation of 0.389. This meant that majority were agreeing that the website was of adequate and appropriate information. The same information from the different counties was analyzed and presented in table 4.4 below. Out of the five counties, majority (87.5%) agreed that their respective county websites contained moderate information about the county.

Table 4.4: Adequate and appropriate information Cross tabulation

<table>
<thead>
<tr>
<th>County</th>
<th>Adequate and appropriate information</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly agree</td>
<td>Agree</td>
</tr>
<tr>
<td>Kisii</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>UasinGishu</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Nairobi</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Machakos</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Makueni</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>7</td>
</tr>
</tbody>
</table>

The study also established that none of the websites provided sites/portals to enable users procure processes online, vote for political leaders’ online, show political results online or purchase services/goods online as shown by all the respondents across the five counties. The respondents did not have trust in the website as it did not offer all the requirements that they wanted and especially transparency matters were not given priority. The five sampled counties had not fully migrated to the use of website since most service provision and delivery to the staff and the citizens were done manually.
4.4 Critical success factors for e-government implementation

The second objective sought to establish the success factors for e-government implementation.

The results are presented in table 4.5.

Table 4.5: Tabulates the success factors for e-government implementation

<table>
<thead>
<tr>
<th>Factor</th>
<th>Very Important</th>
<th>Important</th>
<th>Don’t know</th>
<th>Less important</th>
<th>Very unimportant</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of policy and strategic frameworks on e-government</td>
<td>0</td>
<td>47.20%</td>
<td>16%</td>
<td>32.80%</td>
<td>0</td>
<td>3.1</td>
</tr>
<tr>
<td>Good attitude to the use of website</td>
<td>0</td>
<td>8%</td>
<td>88%</td>
<td>0</td>
<td>0</td>
<td>3.0</td>
</tr>
<tr>
<td>Political will and support by politicians</td>
<td>0</td>
<td>48.80%</td>
<td>40%</td>
<td>7.20%</td>
<td>0</td>
<td>2.9</td>
</tr>
<tr>
<td>Literacy and awareness among citizens/users</td>
<td>0</td>
<td>99.20%</td>
<td>0</td>
<td>0.80%</td>
<td>0</td>
<td>2.9</td>
</tr>
<tr>
<td>Existence of a Legal framework</td>
<td>0</td>
<td>64%</td>
<td>8%</td>
<td>24%</td>
<td>0</td>
<td>2.5</td>
</tr>
<tr>
<td>Availability of ICT infrastructure (e.g. computers)</td>
<td>0</td>
<td>97.60%</td>
<td>0</td>
<td>6.40%</td>
<td>0</td>
<td>2.4</td>
</tr>
<tr>
<td>Trust by users due to past failures</td>
<td>0</td>
<td>80%</td>
<td>8%</td>
<td>8%</td>
<td>0</td>
<td>2.3</td>
</tr>
<tr>
<td>Adequate of funds to sustain the website</td>
<td>0</td>
<td>88.80%</td>
<td>3.20%</td>
<td>4%</td>
<td>0</td>
<td>2.2</td>
</tr>
<tr>
<td>Training staff members and citizens (IT skills)</td>
<td>0</td>
<td>88%</td>
<td>0</td>
<td>8%</td>
<td>0</td>
<td>2.1</td>
</tr>
<tr>
<td>Reliable power supply</td>
<td>0</td>
<td>100%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Four counties strongly believed that funds contributed to the level of website implementation with one agreeing. Those that agreed on the impact of political leadership on the implementation were two from counties, two officers did not know on how to rate it whereas one officer
disagreed. All the respondents strongly agreed on the factor that the skills of the users, ICT infrastructure and the national government affected the stage at which a county government could be. On the policy framework, Uasin Gishu agreed while the rest strongly agreed with the technology status being strongly agreed upon by all the respondents.

In order to successfully implement e-government in the counties, the following factors were strongly considered to be of great consideration: adequate funds to sustain the website, political will and support by the politicians, trust by the users due to the past failures, reliable power supply, availability of ICT infrastructure, existence of a legal framework and availability of policy and strategic frameworks on e-government whereas training and sensitizing of the staff members and the citizens were of moderate consideration since it could be very costly for the county and instead preferred creation of awareness and high literacy levels to the staff and the citizens since they could educate themselves except in the more technical arts. Also good attitude to the use of the website was of less importance since the nature of the information posted from the website would make it or not attractive to the users.

However, the counties were required to address the following challenges for them to successfully implement e-government projects: finance, lack of established ICT infrastructure, inappropriate strategy on e-government were rated to be the major challenges by all the counties in using e-government model. Lack of skills and knowledge of implementing the model, cultural beliefs and differences among citizens and illiteracy among the staff and the citizens were not seen to pose a challenge. Poor security and privacy policy and lack of proper standards were of moderate challenge towards the use of any model by the counties.
4.5 Requirements for successful e-government implementation

Respondents were asked to rate the importance of the various factors for successful implementation of e-government. The study revealed that there were key requirements for e-government implementation by the county governments.

Table 4.6: Tabulates requirements for successful e-government implementation

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Very Important</th>
<th>Important requirement</th>
<th>Don’t know</th>
<th>Less important</th>
<th>Very unimportant</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linking the website to the national government website and that of other counties</td>
<td>0.80%</td>
<td>16%</td>
<td>68%</td>
<td>19.20%</td>
<td>0%</td>
<td>3.5</td>
</tr>
<tr>
<td>Development of an elaborate e-government strategy</td>
<td>4%</td>
<td>64%</td>
<td>16%</td>
<td>16%</td>
<td>0%</td>
<td>2.8</td>
</tr>
<tr>
<td>Political will and support by politicians</td>
<td>0%</td>
<td>77.60%</td>
<td>18.40%</td>
<td>4%</td>
<td>0%</td>
<td>2.6</td>
</tr>
<tr>
<td>Availability of adequate financial resources</td>
<td>4%</td>
<td>92%</td>
<td>4%</td>
<td>0%</td>
<td>0%</td>
<td>2.4</td>
</tr>
<tr>
<td>Putting IT in place</td>
<td>1.60%</td>
<td>88.80%</td>
<td>4%</td>
<td>5.60%</td>
<td>0%</td>
<td>2.4</td>
</tr>
<tr>
<td>Building trust among citizens by providing security to information</td>
<td>4%</td>
<td>80%</td>
<td>16%</td>
<td>0%</td>
<td>0%</td>
<td>2.2</td>
</tr>
<tr>
<td>Presence of a website where information can be posted</td>
<td>1.60%</td>
<td>98.40%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>2.1</td>
</tr>
<tr>
<td>Availability of a legal framework</td>
<td>80%</td>
<td>20%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>1.9</td>
</tr>
<tr>
<td>Sensitizing the citizens on the relevancy of the website</td>
<td>80%</td>
<td>20%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>1.3</td>
</tr>
<tr>
<td>Training staff members and citizens on how to use the website</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>1.0</td>
</tr>
<tr>
<td>Availability of computers and connectivity devices like modems</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>1</td>
</tr>
</tbody>
</table>

The requirements which were strongly considered by the users to be of great consideration were: adequate funds to sustain the website, political will and support by the politicians, trust by the
users due to the past failures, reliable power supply, availability of ICT infrastructure, existence of a legal framework and availability of policy and strategic frameworks on e-government, training of the staff members and the citizens. Also good attitude to the use of the website was of less importance since the nature of the information posted from the website would make it or not attractive to the users.

Though the computers could be another form of ensuring that there is easy access to the website by the citizens, it was of the respondents’ opinion that the prices be subsidized. There was great need to have the internet which could either be provided by modems or wireless connection. Political will and support by the politicians was seen to also be of importance since when they support and active commitment of influential politicians may play a significant role in promoting e-governance “buy in”. According to Wilson III, (2004), if politics are wrong then the other major drivers of e-government will not work.

Also, a website availability where information could be posted was important. However, the information needs to be updated and the website frequently checked for any malfunction or forgery. In addition, it was considered important to build trust among citizens by providing security to the information. Whereas some respondents did not support the idea of linking of the website to that of the national government and other counties as it was not very important as it was indicated by the mean of 3.5. All the respondents agreed that it was necessary to adopt a model for e-government though they said that it could only work out as a guide since the models were not developed in their context.

4.6 Correlation
A correlation of the success factors other factors that were required for the implementation of the e-government was carried out.
Table 4.7: Tabulates correlation of the success factors for e-government implementation

<table>
<thead>
<tr>
<th></th>
<th>Influence_select</th>
<th>shortcomings</th>
<th>success</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>-.854</td>
<td>.255</td>
<td>.134</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.066</td>
<td>.679</td>
<td>.830</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>-.854</td>
<td>1</td>
<td>-.522</td>
<td>.341</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.066</td>
<td>.367</td>
<td>.575</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>.255</td>
<td>-.522</td>
<td>1</td>
<td>-.638</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.679</td>
<td>.367</td>
<td>.247</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>.134</td>
<td>.341</td>
<td>-.638</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.830</td>
<td>.575</td>
<td>.247</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

4.7 Key Informant Interview Results

A set of questions were carefully designed and posed through a structured interview questions to five purposefully selected respondents that constituted of the technical people (implementers) who were the IT managers. The results indicated that all the implementers were aware of one or more of the models under the study as presented in the table below:
Table 4.8: Tabulates model awareness and use by county governments

<table>
<thead>
<tr>
<th>Model</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layne &amp; Lee</td>
<td>3</td>
<td>60.0</td>
</tr>
<tr>
<td>Deloitte &amp; Touche</td>
<td>2</td>
<td>40.0</td>
</tr>
<tr>
<td>Moon</td>
<td>2</td>
<td>40.0</td>
</tr>
<tr>
<td>Hiller &amp; Belanger</td>
<td>3</td>
<td>60.0</td>
</tr>
<tr>
<td>Zirei</td>
<td>4</td>
<td>80.0</td>
</tr>
<tr>
<td>Nabafu &amp; Maiga</td>
<td>4</td>
<td>80.0</td>
</tr>
</tbody>
</table>

From the study, 80% of the implementers were aware and were using Zirei and Nabafu & Maiga e-government implementation models, 60% of the respondents were aware and used of Layne & Lee and Hiller & Belanger models while 40% of the respondents were aware and used of Deloitte & Touche and Moon models. The study also sought to establish the stage at which each of the five counties was as far as e-government implementation is concerned. Findings from the study showed that Makueni County was in the web presence stage while Kisii, Uasin Gishu, Machakos and Nairobi counties were in the interaction stage, with no county in the transformation integration level. With regard to whether the stages of the model were followed in the order stipulated by the respective models, only Machakos county respondent confirmed that they strictly follow the steps provided by the model whereas the rest argued that some steps as outlined in the respective models could not fit well their contextual experiences hence at times they ignore to follow the phases as outlined by models.

With regard to the success of website implementation, all the implementers from five counties strongly believed that adequate funds to a greater extent contribute. Those that considered political leadership had an impact to a moderate extent on the implementation of a website were
two managers. Two officers did not know on how to rate it whereas one officer disagreed. All
the respondents agreed to a greater extent that the skills of the users, ICT infrastructure, good
attitude, awareness, reliable power supply and trust by users are important to the success of e-
government implementation. On the policy and strategic frameworks, a respondent from Uasin
Gishu to a moderate extent agreed while the rest were of the view that to a greater extent is
important as far as the success of e-government is concerned.

On challenges to the implementation of the websites, all the implementers from the five county
governments agreed to a greater extent the following that included lack of enough funds from the
national government, lack of enough knowledge on ICT skills by the citizens, lack of cheap
power or electricity especially in the rural areas, little trust by the citizens as they would prefer
physical enquiries to checking the internet, ignorance and lack of enough trust by the citizens.
The five implementers drawn from the five counties were of the view that the national and
county government should invest more in technology and work towards reducing the ignorance
of the citizens to embracing new technology for efficient and productive county governments.
This would be through allocating more financial resources as this is the core to enhanced
development.

Requirements for successful implementation of e-government were also rated in order of their
importance, and it included adequate financial resources, putting IT infrastructure in place,
sensitize the citizens on the relevance of the website and availing legal framework were the
number one rated points towards having a successful e-government. From the respondents, there
was a need to create an elaborate e-government strategy that should be adequate and appropriate.
4.8 Discussion of the Findings

The purpose of this thesis was to describe a context based framework to aid in successful implementation of e-government at county governments in Kenya. The study first sought to examine and critically evaluate the extent of usage of the existing proposed models. In the literature review, a good number of models were identified and the study established that each of these models was developed at different contexts of varying characteristics and majority of these models were developed in developed countries while few were developed in developing countries. From the study, it was found out that there was no agreed universal model that was adopted and used by county governments for ICT project implementation. This is because there is no universal model in the literature that has been proposed to aid e-government implementation at county levels in developing countries like Kenya. This resulted to each county adopting a model that they are either aware of or pick any among the existing models which they assumed could serve them better. Further, the study revealed that the counties were at their early stages of e-government development. From the findings, the delay in development was due to a number of constraints that limit development. The challenges county governments face include lack of adequate funds, lack of knowledge on ICT skills by the citizens, lack of cheap power or electricity especially in the rural areas, little trust, security and privacy issues among others.

In order to successively implement e-government in the counties, the following factors were strongly considered to be of great consideration: adequate funds to sustain the website, political will and support by the politicians, trust by the users, reliable power supply, availability of ICT infrastructure, existence of a legal framework and availability of policy and strategic frameworks on e-government whereas training and sensitizing of the staff members and the citizens were of moderate consideration. Also good attitude to the use of the website was of less importance since
the nature of the information posted from the website would make it or not attractive to the users.

Results from the field equally confirmed and pointed to the factors as highlighted in the literature.

However, the counties were required to address the following contextual challenges for them to successfully implement e-government projects: Lack of financial resources, lack of established ICT infrastructure, inappropriate strategy on e-government were rated to be the major challenges by all the counties in using e-government model. Lack of skills and knowledge of implementing the model, cultural beliefs and differences among citizens and illiteracy among the staff and the citizens were not seen to pose a challenge. Poor security and privacy policy and lack of proper standards were of moderate challenge towards the use of any model by the counties.

4.8 Outline and Description of the Proposed Framework

From the study, the researcher proposes a framework to guide and benchmark the implementation of IT projects at the county government level in Kenya. The framework takes into account all the contextual factors at county level governments.
The framework requires that the implementers begin with the development of Legal framework and this requires political will and commitment from the political class who are responsible with the formulation of the legislation. County governments in Kenya need an elaborate legal framework in place that provides equal treatment of all the stakeholders of e-government. The legal and strategy framework should be able to address issues related to security and privacy issues as it increases the trust of e-government users. Eilu (2008) argues that developing countries lack political will from government to implement the e-government systems as intended. This is due to the fact that most governments do not consider ICT development a priority.
Having a legal framework in place, the County E-government strategy should be developed. According to Heeks (2003), “An e-government strategy is a plan for e-government Systems and their supporting infrastructure which maximize the ability of management to achieve organizational objectives”. From the research findings, the county government should develop a properly aligned and elaborate county ICT strategy that satisfies the anticipated system attributes, information/data management, and regulatory framework is necessary for successful e-government project implementation.

With an e-government strategy, the county government should sensitize and build trust among the intended system users who are staffs and citizens: lack of trust by e-government users proved to be one of the major reasons why e-government applications developed by county government are not embraced. Users need to be aware of the benefits and relevance of e-government services as this will positively improve their attitude towards the use of the website. The framework captures the important need to sensitize and build trust among staff and the citizens affected as this is an important requirement for successful implementation of e-government project in Kenya.

After sensitization and building trust, the county government should mobilize resources: findings from the study revealed that limited financial resources for building sustainable ICT infrastructures is one of the challenges to e-government implementation. Therefore mobilizing finance resources to acquire the necessary infrastructure to support implementation and sustenance of the county e-government projects remains to be an important need. The framework recognizes this by outlining a phase that will enable the county government mobilize and accumulate financial resources needed to acquire, expand capacity, infrastructures support and staff/user training. National government should support county governments as far as the
financial resource is concerned for proper and efficient implementation of e-government projects. County governments should explore other alternative means of mobilizing funds such as funds from the donors, grants, collaborations and partnerships. Political leaders should prioritize IT projects and allocate enough funds during budgetary allocations.

With sufficient funds for e-government projects implementation, ICT infrastructure should be acquired and built. From the study, ICT infrastructure is a key challenge to e-government implementation in Kenya. County governments need to put in place an ICT infrastructure supported by reliable power supply and network connectivity. Thus county governments should put in place basic ICT infrastructure to enable the government capture the benefits of new technologies and communication tools which are very significant for undertaking an e-government initiatives. Irregular and unstable electricity supplies equally affect implementation and usage of e-government projects in the county governments.

Having the right infrastructure in place, a simple and easy to use website for posting and content delivery should be created. This emergence of e-government usually starts with establishing an official website to promote their governance policies and disseminate general static information to citizens (United-Nations, 2008; Watson & Mundy, 2001). During the emerging period, online interaction with citizens may not exist nor links to other departments. Most government activities on the web are simply posting static information to let citizens know about them. Websites may describe the purposes and mission of the government (Smith, 2001). This phase involves the development of a website with static content. The content can only be viewed without any interaction. Then users involving the staff and the citizens are trained on how to use the website. County management needs to train and equip e-government users with different skills throughout the different stages of implementation. They should be trained on how to use websites for easy
service delivery. This will enable them to easily adopt and enjoy services offered by e-government.

Next is the Interaction and Transaction phase. At this stage, the e-government users both the staff and citizens can now use and interact with the government through the use of a website. The website is made in such a way that it allows a two way communication between the users and the government itself. The website also enables online transactions. Other than providing downloadable forms, government also provides interactive media such as e-mail and online forums to enable citizens to communicated with government (United-Nations, 2008). According to Kaaya (2004) and Cursey and Norris (2008) government websites’ interactivity might include more sophisticated features such as facilities for feedback submission, two way interaction such as email, downloadable forms that can be submitted offline, and forums that allow citizens to post comments on the websites.

At the transaction stage, e-government systems provide facilities for 24/7 citizen online payment systems (United-Nations, 2008). With two-way interaction, citizens are able to fill in forms and pay for ID (identification document) card applications, birth certificates, passports, and license renewals. These types of forms may be available in specific databases that can be accessed easily by citizens. Payments are also available, supported by security, privacy, and confidentiality facilities (Kaaya, 2004). The availability of security facilities can help citizens make transactions securely through the websites.

Transformation- At this stage, county government are integrated vertically and horizontally and both back and front offices have also been integrated for e-participation and citizens’ involvement in the decision making processes (United-Nations, 2008). This stage requires the use of highly sophisticated e-government systems where all aspects of government organizations
have been transformed to supportive technology. All government departments are integrated vertically and horizontally which enables one-stop shop services (Layne & Lee, 2001) and connection between all stakeholders have also been established (UN, 2008).

E-democracy – democracy is ensured and embraced though online voting. It is an advanced stage where the electronic platform enables citizen’s exercise their democratic rights through electronic voting.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter presents the summary of the study findings, conclusions and research recommendations. The chapter also presents further research directions.

5.2 Summary

The successful study carried out in the five counties established that different existing models were being adopted and used by each county government and none had developed their own localized model for use nor did the counties adopt a universal model. On the other hand, with respect to the level of implementation, the study found out that different counties were at early stages of development on their respective models. From the study, the critical success factors to
implementing e-government projects and initiatives to enhance the efficiency, effectiveness and service delivery of government through ICTs included availability of financial resources, availability of ICT infrastructure, availability of policy and strategic frameworks on e-government, good attitude to the use of website, political will and support by politicians, literacy and awareness among citizens, existence of a legal framework, trust by users, adequate of funds to sustain the website, training staff members and citizens (IT skills) and reliable power supply.

The same factors were mentioned as part of the challenges for successful e-government implementation at county units of government. The requirements established from this study were used in the development of a proposed framework. Two of the existing models from the literature were synthesized and integrated then evaluated and the missing requirements in the resulting model were incorporated to reflect the unique contextual aspects on the ground hence an extended generic framework. In addition, the challenges experienced posed a major problem and this informed the researcher in the formulation of a resulting framework that can suit best the Kenyan context.

To Communities of users, the framework enables county e-government projects to be successfully implemented. Citizens can benefit by being able to access information at any time, any place, stay current with information and also participate in decision making process. Using e-government platform in the County government, the county would be are able to reduce operational and communication costs. The quality of service delivery will be improved, enabling county governments to build a good image and trust by citizens. County government employees will be able to perform their tasks easily by accessing all the required information and disseminating it to those in need at any time.
4.3 Conclusion

From this study, it is evident that most county governments are adopting and implementing the e-governments with believing that it will improve service delivery to their citizens. In addition, e-government implementation levels and status vary from county to county where the study confirms that devolved counties are still at early stages of development and are still struggling with many contextual challenges. Further, the study confirms that there is no agreed and universal model or framework to aid or guide e-government project implementation in county governments in Kenya. The study establishes that this gap is majorly influenced by varying contextual characteristics or factors in different counties such as availability of resources such as funds, political environment, ICT infrastructure, awareness as well as good sound strategic plans and policies. To fulfill the development needs of ICT projects at county levels in Kenya, those involved in the design, implementation and management of IT-related projects and systems must improve their capacity to address their specific and unique contextual characteristics so as to curb the challenges that have been long the stumbling blocks to successful implementation of e-government initiatives.

Furthermore, for successful e-government projects implementation at county governments in Kenya, there is need to streamline the implementation strategy by incorporating and integrating the unique contextual characteristics and experiences of county governments into a model that will result into a generic framework to aid its implementation. The proposed contextualized framework outlines a phased approach to e-government development. The adoption of this framework will enable county governments to cultivate and incorporate public hybrids in all e-government project implementation so as to extend e-government designers exposure to e-government users context and realities in order to limit context collision and avert possible
failures. Hybrids comprise of people who understand both context, organization, operations and the requirements of the counties.

5.4 Recommendations
The results from the study revealed that there was need for Kenya county governments to develop and adopt a contextualized framework that captures unique contextual experiences and characteristics for successful e-government project implantations. The research prompted the researcher to formulate, design and develop a generic contextualized framework that would be of help to the county governments in IT project implementation. The requirements that were determined from the five counties were analyzed, rated and evaluated for commonality. Some of requirements that resulted from the study pointed to two commonly known models discussed in the literature but a number of those requirements identified weren’t captured in the two models Zirei et al., (2008) and Nabafu & Maiga (2012)). This could be because the two models were developed in different countries and only concentrated and captured the experiences in those respective countries leading to their formulation. The added features to the proposed framework resulted from the field. The study therefore recommends that county governments in Kenya consider adopting the proposed framework in their e-government project implementations.

5.5 Further Research
The study recommends a further study on the county government citizen awareness of e-government implementation on enhancing their lives. Secondly, this study measured on the output of e-government implementation; hence not ascertaining the overall net value of e-government initiatives. To evaluate possible ‘none use failure’, future studies should also measure the outcome of e-government initiatives undertaken i.e. the effect of those system on the
intended users. Third, further research is also directed towards the validation of the proposed framework. Thus, the order of the phases of the proposed should be evaluated and validated.

Further future work, the researchers should conduct a large-scale survey which will explore e-government implementation challenges and success factors from the counties where the survey wasn’t conducted by this study so as to integrate the findings with the framework proposed by this study leading to a more generic e-government implementation framework. Furthermore, the researchers need to investigate and conduct more studies on e-government initiative, e-government strategy and e-government readiness within the Kenyan context. Lastly, future research evaluating the e-government implementation for both Kenyan counties and country like Republic of Korea (which was ranked number one in e-government implementation by UN (2014) in order to draw parallels based on the same scale with regard to implementation. This will provide clear lessons that are more acceptable and easily applicable to close existing gaps in Kenya as a developing country.
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Appendices

Appendix I: Structured Interview Schedule (Implementers):

Examing e-government implementation in the devolved Kenyan Counties.

Section A: [Examining the existing e-government Implementation models][Implementers only]

1. A number of scholars have designed and proposed a good number of models and frameworks to guide and benchmark the implementation of e-government. These models outline progressive phases to be followed during the implementation period.

(a) Are you aware of any of these models? □ Yes □ No

<table>
<thead>
<tr>
<th>MODEL</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Layne &amp; Lee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deloitte &amp; Touche</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(b) Which model has your county government adopted to guide e-government implementation?
_______________________________________________________________________
_______________________________________________________________________

(c) If you are implementing any model, which level are you in?

- Web-presence
  - □
- Interaction
  - □
- Transaction levels
  - □
- Transformation or horizontal integration level,
  - □

(d) To what extent did the following factors inform/influence the selection of the model that the county has adopted?

<table>
<thead>
<tr>
<th>Factor</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Don’t know</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funds</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Political leadership</td>
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</tr>
</tbody>
</table>
Skills of users
ICT infrastructure
National
government
Policy framework
Technology

Others please specify………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
(e) Do you follow the steps as they are provided by the model?
□ Yes       □ No

(f) What are some of the benefits of using the selected model?
------------------------------------------------------------------------
------------------------------------------------------------------------

(g) Do you think it is necessary to adopt a model when it comes to e-government implementation?
□ Yes       □ not sure       □ No

(h) Rate the following challenges/shortcoming or problems as a result of using the model?
<table>
<thead>
<tr>
<th>Problem</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Don’t know</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate finance</td>
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<tr>
<td>Lack of established ICT infrastructure</td>
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<tr>
<td>Lack of skills and knowledge of implementing</td>
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<tr>
<td>Illiteracy among the staff and citizens</td>
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<tr>
<td>Inappropriate strategy on e-government</td>
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</tr>
<tr>
<td>Lack of proper standards (universal model)</td>
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<tr>
<td>Poor security and privacy policy</td>
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<tr>
<td>Cultural beliefs and differences (Religion, social, political) among the citizens</td>
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</tbody>
</table>

SECTION B:

(a) [Critical success factors of e-government implementation]

2. Please rate the importance of each of the following factors to the success of e-government implementation.
<table>
<thead>
<tr>
<th>Factor</th>
<th>Greater extent</th>
<th>Moderate extent</th>
<th>Small extent</th>
<th>No extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequate of funds to sustain the website</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Political will and support by politicians</td>
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<tr>
<td>Trust by users due to past failures</td>
<td></td>
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<tr>
<td>Training staff members and citizens (IT skills)</td>
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<tr>
<td>Reliable power supply</td>
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<tr>
<td>Good attitude to the use of website</td>
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<tr>
<td>Availability of ICT infrastructure (e.g. computers)</td>
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<tr>
<td>Availability of policy and strategic frameworks on e-government</td>
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<tr>
<td>Existence of a Legal framework</td>
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<tr>
<td>Literacy and awareness among citizens/users</td>
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</tbody>
</table>

**Any other:**
(b) **[Requirements for e-government implementation]**

3. In your own opinion, to what extent can you rate the following as a requirement for successful e-government implementation at the county level?

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Very Important</th>
<th>Important</th>
<th>Don’t know</th>
<th>Unimportant</th>
<th>Very unimportant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development of an elaborate e-government strategy</td>
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<tr>
<td>Availability of adequate financial resources</td>
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<tr>
<td>Availability of computers and connectivity devices like modems</td>
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<tr>
<td>Availability of a legal framework</td>
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<tr>
<td>Political will and support by politicians</td>
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<tr>
<td>Presence of a website where information can be posted</td>
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<tr>
<td>Training staff members and citizens on how to use the website</td>
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<tr>
<td>Linking the website to the national government website and that of other counties</td>
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</table>
Thanks for your time and feedback/responses

Okemwa Joshua

Appendix II: Sample Questionnaire (E-government Users)
(Please note, your information will not be sold or given to outside entities. It is for research use only.)

Section A: Personal information

1. Occupation/Position: _________________________

2. Highest Level of Education: □ None □ Primary □ High School □ College/University.

Section B:

3. Have you ever used the county government website? □ Yes □ No

4. Do you access public services using the Website? □ Yes □ No

5. Have you ever been trained on how to use the website to access public services?
   □ Yes □ No
6. Is the county website easy to use? □ Agree □ Moderate □ Disagree

7. Have you ever purchased services online using the existing website?
   □ Yes □ No

8. Is information provided in the website up to date? □ Yes □ No

9. Do you use a website to communicate to other staff? □ Yes □ No

10. Does the website allow you to get information from other departments in the county government? □ Yes □ No

11. Does the website allow you purchase or get services online? □ Yes □ No

12. Can the existing website allow you to vote for political leaders online?
   □ Yes □ No

13. In your own experience, can you express your views through the website?
   □ Yes □ No

14. Have you ever received any feedback using the website? □ Yes □ No

15. From your own assessment, do you think the information posted in the website is adequate and appropriate? □ Yes □ No

16. Are you aware of any benefits of using website as a means of accessing government services? □ Yes □ No

17. Do you trust all government services offered through the website?
   □ Yes □ Not all services □ No □ Not sure
18. Rate the following success factors for the e-government implementation

<table>
<thead>
<tr>
<th>Factor</th>
<th>Very Important</th>
<th>Important</th>
<th>Don’t know</th>
<th>Less important</th>
<th>Very unimportant</th>
<th>Mean</th>
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<tr>
<td>Availability of policy and strategic frameworks on e-government</td>
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<tr>
<td>Good attitude to the use of website</td>
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<tr>
<td>Political will and support by politicians</td>
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<tr>
<td>Literacy and awareness among citizens/users</td>
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<tr>
<td>Existence of a Legal framework</td>
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<td>Availability of ICT infrastructure (e.g. computers)</td>
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<tr>
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<tr>
<td>Reliable power supply</td>
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</tbody>
</table>

19. In your own opinion, to what extent can you rate the following as a requirement for successful e-government implementation at the county level?
<table>
<thead>
<tr>
<th>Requirement</th>
<th>Very Important</th>
<th>Important</th>
<th>Don’t know</th>
<th>Unimportant</th>
<th>Very unimportant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development of an elaborate e-government strategy</td>
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<tr>
<td>Availability of adequate financial resources</td>
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<td>Availability of a legal framework</td>
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<td>Political will and support by politicians</td>
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<tr>
<td>Linking the website to the national government website</td>
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<td></td>
</tr>
</tbody>
</table>
and that of other counties

Sensitizing the citizens on the relevancy of the website

Building trust among citizens by providing security to information

Putting IT in place

Thanks for your time and feedback/responses

Okemwa Joshua

Appendix III: Table showing sample sizes (n) calculated by Yamane’s formula (Yamane, 1967) for precision (e)

<table>
<thead>
<tr>
<th>Population</th>
<th>±3%</th>
<th>for ±5%</th>
<th>±7%</th>
<th>±10%</th>
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