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**Ph.D. Dissertation of Public Policy**

**Exploring Factors for E-Government  
Innovation and Transformation in  
Tanzania**

**February 2016**

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## **Abstract**

# **Exploring Factors for E-government Innovation and Transformation in Tanzania**

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This study explores factors for e-government innovation and transformation in Tanzania. It starts by examining the challenges and opportunities for e-government innovation and transformation in Tanzania. The government ambition to transform the administrative operations and to ensure transparency and accountability have grown over the years and now become evident. The efforts exerted for establishing an efficient framework for e-government in Tanzania are of great significance for the reason that it lowers the operating and production cost and increases efficiency and transparency for the better. The study begins by exploring the critical challenges and opportunities facing the central and local government, social network groups as well as private institutions that are struggling for online services using e-government platform. At the outset, the conceptual framework presented was synthesized with four factors and analyzed to explain the challenges and opportunities. The study uses the SWOT method to analyze internal weakness and

the external threats that were critical during the initiation, selection, development and implementation of e-government. The author uses the principal component factor analysis to examine the interrelationship between the social, resources, technology and transformational drivers. Data were collected by way of focus group discussions, field observations as well as documentary review. The statistical software package SPSS version 22 was employed in this study to carry out the factor analysis for each item using Oblimin with Kaiser Normalization.

The results drawn support the research questions. To be more precise, for the challenges, I have found five factors; for the opportunity, I have found seven factors and for the key drivers, I have worked out five factors. The analysis shows that the challenging factors made an e-government process stagnant, resulting in more corruption and conflict of competing interests, on the whole, and thus retarding the process of transformation. The opportunities and the key drivers are suggestive devices for playing a significant role in all spheres of contemporary societal changes within institutional setups and settings to concretize e-government materialization in Tanzania. An implication for governmental institutions, however, is strongly advised to view this e-government roadmap as a suggestion and embryonic dynamics to embrace e-government policy innovation that would enable the acceleration of e-government transformation process in Tanzania.

**Keywords:** e-government transformation, ICT, technology, social transformation, institution, innovation, knowledge, e-government-think tank.

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## **List of Abbreviation**

<b>ASPA</b>	American Society for Public Administration
<b>CCTV</b>	Closed-Circuit Television
<b>DGF-KTC</b>	Development Gateway Foundation-Korea Training Center.
<b>DB</b>	Database
<b>EASSy</b>	Eastern African Submarine Cable System
<b>eEA</b>	electronic Enterprise Architecture
<b>eGa</b>	E-government Agency.
<b>G2B</b>	Government to Business.
<b>G2C</b>	Government to Citizens.
<b>G2G</b>	Government to Government.
<b>GDP</b>	Gross Domestic Product
<b>GNI</b>	Gross National Income
<b>HCMIS</b>	Human Capital Management Information Systems
<b>ICT</b>	Information and Communication Technology
<b>IFMS</b>	Integrated Financial Management Systems.
<b>IP-TV</b>	Internet Protocol Television.
<b>ITU</b>	International Telecommunication Union
<b>LAN</b>	Local Area Network
<b>LGA'S</b>	Local Government Authorities
<b>MCST</b>	Ministry of Communication, Science and Technology
<b>MDA'S</b>	Ministries, Departments, and Agencies

<b>MOFEA</b>	Ministry of Finance and Economic Affairs
<b>MOHA</b>	Ministry of Home Affairs
<b>MOHSW</b>	Ministry of Health and Social Welfare
<b>MOID</b>	Ministry of Infrastructure Development
<b>MOJCA</b>	Ministry of Justice and Constitution Affairs
<b>MOLIS</b>	Management of Land Information and Survey Registration Systems
<b>Nat.</b>	National
<b>NBS</b>	National Bureau of Statistics
<b>NGO</b>	Non-Governmental Organization.
<b>NIA</b>	National Information Society Agency
<b>NICTBB</b>	National Information Communication and Technology Broadband Backbone
<b>NM-AIST</b>	Nelson Mandela African Institute of Science and Technology
<b>PMO-RALG</b>	Prime Minister's Office – Regional Administration and Local Government
<b>PO-PSM</b>	President Office - Public Services Management.
<b>POLIS</b>	Parliament Online Information Systems
<b>PPP</b>	Public-Private-Partnership
<b>QoS</b>	Quality of Services
<b>SME'S</b>	Small and Medium-Sized Enterprises.
<b>SPSS</b>	Statistical Package for the Social Sciences
<b>Std.</b>	Standard

<b>SWOT</b>	Strength, Weakness, Opportunities and Threats.
<b>TANESCO</b>	Tanzania Electric Supply Company Limited
<b>TET</b>	Technology Enactment Theory
<b>TRA</b>	Tanzania Revenue Authority
<b>TTCL</b>	Tanzania Telecommunication Company Limited
<b>UN-EDGI</b>	United Nations for E-Government Development Index
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organization.
<b>URT</b>	The United Republic of Tanzania
<b>US-FBI</b>	United State – Federal Bureau of Investigation

## **DEFINITION OF KEY TERMS**

The following definition of key terms is given on the basis of the context of the present study.

**E-GOVERNMENT TRANSFORMATION** In this study, it refers to carrying out fundamental changes triggered by the pre-defined process that helps to match with the ever-growing shift of e-government environment in the world

**2G TECHNOLOGY** This stands for the second generation of the mobile network levels. This allows for voice calls and limited data transmission.

**3G TECHNOLOGY** This stands for the third generation of the mobile network levels. This allows for voice calls and computers or other device to share data transmission wirelessly.

**4G TECHNOLOGY** This stands for the fourth generation of the mobile network levels. This allows for speedy and high voice calls with unlimited robust of data transmission.

**DAWASCO** This is the corporation responsible for the operation

and maintenance of water supply and sewage disposal? (Dar Es Salaam Water and Sewage Corporation)

**E-HEALTH** This is a digitally based system for providing bunch of online materials related to health

**E-INDEXING** This is a digital-based system for providing a bunch of online materials related to indexing

**E-INTELLIGENT** This is a digital-based system for providing the tailor-made solutions for online materials related to intelligence

**E-NATIONAL** This is a digital-based system for providing tailor-made solutions for online materials related to nationality

**E-OFFICE** This is a multi-functional workspace that provides the tailor-made solutions for an integrated computer-based technology for office work

**E-POLICE** This is the digital-based systems for tailor-made solutions used by police for administration and record purposes.

<b>E-SERVICES</b>	This is a digital-based system for providing tailor-made solutions through online materials related to services
<b>E-THINK-TANK</b>	This is a virtual smart society group for IT expertise. It stands for electronic (Technology) think tank group
<b>E-VILLAGE</b>	This is a digital-based system for providing a bunch of online materials related to village
<b>EPICOR</b>	This is an integrated enterprise resource planning (ERP) Software with solutions for customers' relationship management (CRM), human capital management (HCM) and many more applications resources.
<b>EWURA</b>	Referred to the government regulatory authority for energy and water in Tanzania. It is responsible for Energy and Water Utilities Regulatory Authority.
<b>KMO</b>	This is a measure of Sampling Adequacy and it is an acronym for Kaiser-Meyer-Olkin
<b>KRA'S</b>	The most important tasks or descriptions to be

accomplished by any institutions and they stand for Key Results Area,

**M-PESA** “M” stands for Mobile, and **PESA** is a Swahili word which means Money. So it is the use of mobile phones for transferring money.

**MKUKUTA** This is the government strategy to fight against poverty in the country. It is a Swahili abbreviation for the National Strategy for Growth and Poverty Reduction.

**NICTBB (MKONGO)** This is the government Telecommunication infrastructure which is literally called **MKONGO** in Swahili and is operated under the Tanzanian Telecommunications Company Ltd. (TTCL). It stands for National ICT Broadband Backbone.

**SEACOM** This is a network of submarine cable operators with the terrestrial high-speed fiber-optical cable under the sea.

**SMART IT** This signifies Specialists, knowledgeable experts in information technology field



**TIGO-PESA; VODA-PESA** These are private mobile companies' deals with providing mobile money transfer services using smart or mobile phones with additional charges.

**UHURUNET** This is a submarine cable intended to provide affordable telecommunication connectivity for African countries. It stands for submarine cable systems infrastructure.

**UMOJANET** This is a terrestrial segment intended to provide affordable internet connectivity to mobile users in African countries. It indicates terrestrial, cable systems in African infrastructure connectivity.

# CHAPTER 1. INTRODUCTION

## 1.1. Background of the Study

Tanzanian Government is struggling to transform the nation by embracing the adoption of e-government services. This effort of transformation is orchestrated by the governmental institutions (*in this case refers to supplying institutions*) to the Citizens and Business (*hereafter referred to consuming citizens or society in general*). The interaction with e-government promises to bring efficiency and enhance government accountability (Heeks, 1999, 2001, 2006; Kumar *et al.*, 2007; Chen and Hsish, 2009) to the general public. More significant is that, Governmental institutions, citizens, and private companies are now trying to embrace the utilization of e-government applications. Mainly they are engaged in the business and share data and information through the use of various communication devices. Several developmental features of local e-government such as the use of M-Pesa, Tigo-Pesa, etc. facilitate smooth and speedy online interaction.

This interaction can be in a form of procurement and selling of goods through the internet such as Amazon, [www.kupatana.com](http://www.kupatana.com); [www.zoomtanzania.com](http://www.zoomtanzania.com); [www.jurnia.co.tz](http://www.jurnia.co.tz); [www.kivuko.com](http://www.kivuko.com) etc. The introduction of local visa such as Tembo Card Visa; combined with international cards like the PayPal Visa; Master Card; etc. is now being used to procure goods online such as talking time (*airtime*), houses, cars, plots, etc. These cards are used on a numerous

way including the online payment of utility bills such as electricity, telephone, water bills, etc. (Mas & Morawczynski., 2009). This development has been discovered in developing countries with basic and minimal functionality. For instance, the use of M-Pesa was first developed in Kenya and has attracted more attention to developing countries and in particular to Tanzania. This technology interaction is shared through the use of various technological devices such as mobile phones, computers, iPads, and other electronic media and devices (Mas & Morawczynski., 2009).

A significant number of literatures on e-government have continued to draw attention particularly in developing countries claiming that e-government services nowadays are seen as a universally applied technological innovation. This form of services was first presented by the work of Heeks, (1998); Mutula, (2008), who suggested for careful design, implementation and distribution of information and services to the citizens and the general public (Schuppan, 2009). Knowing that, e-government application has a lot to offer in terms of a bunch of opportunities, it might become a Rehoboth e-government in the Tanzanian context with several established opportunities windows. This can be classified into several dimensions such as a universal resource tool for all citizens; it can become a system within a policy abbreviated as “Police Tool” to fight against criminals both online and offline in the country while reducing its operation cost. It is evident that “new” technology opportunities have been made possible in Tanzania operating through chatting (Facebook, Viber, WhatsApp, blogs, Skype, etc.) and the sharing of

information has emerged to be the groundwork for e-government transformation. Furthermore, these emerging technologies influence virtual society / citizen and governmental institutions to rush on online interaction without primary knowledge about using it.

Despite these challenges, online services through the internet are not clearly designed to operate in tandem with the speed of e-government transformation in developing countries. For instance, the customer satisfaction with the internet service depends on the speed and reliability. The emergence and development of high-speed internet technology such as 2G, 3G, 4G and 5G technologies are said to become a stumbling block to many of the e-government development projects owing to speed and reliability. Arguably, several kinds of literature are focused on addressing the outcome of e-government as challenges or opportunities rather than assessing the linkages between internets as the vehicle for efficient utilization of e-government. The World Bank report, (2001) clearly acknowledges that the internet as an enabler for e-government must be a free and open market for all to harness the digital divide. In addition, it should allow access of data and information, interactions, trade, and acts as a communication platform that builds on the ground of socio-economic issues. Although studies on challenges of e-government done by Heeks, (1998; 2001; 2006) pointed out that e-government driven by technology (*internet*) must be accessed across cities (urban and rural areas) more efficiently and effectively, but fails to show how governmental institutions account for leveling the internet connectivity and accessibility to all.

This research explicitly examines the modalities on how internet technology can be managed, utilized and governed to ensure that citizens and other actors' network have access to it. More precisely, e-government must provide opportunities for individuals especially young people, groups, society, and various communities (Schuppan, 2009) to interact in business, education, health, economic issue (Lai, 2006; Mutula, 2008). Notwithstanding the bunch of these opportunities, e-government will eventually lead to income generation and government efficiency (Heeks, 1998; 2001; World Bank, 2001). In sum, these studies lack the evidence of how much the governmental institutions can provide a standard approach on the underlying framework of the e-government to support the affordability by the consuming citizen (Lupilya, & Jung, 2015). Furthermore, it is intriguing to learn from this literature on e-government that, they fail to factor these challenges and opportunities to see how they influence each other while bridging the technology gap between locations and accessibility (Nonaka, 1994; Lupilya, 2015; Lupilya, & Jung, 2015).

The paradigm shift that emphasizes the e-government implementation in developing countries lays between the consuming citizen or society and the supplying institutions (*government*). Different kinds of literature on e-government paradigm appear to be weak in explaining how the supplying institutions are capable of designing and delivering appropriate services to the consuming citizen or society. It turns out that the consuming citizen or society are being misguided while the supplying institutions are absolutely busy with adopting e-government

without a deeper diagnosis of what makes e-government balanced (Coleman, 2006; Lupilya, & Jung, 2015). According to Kettl, (2005), cited those institutions which are aiming at reform become successful in the reflections of their political and socio-cultural orientation towards technology innovation (*deep diagnosis*). In view of kettl, (2005) arguably encourage governmental institutions to be technology savvy focusing on knowledge creation and innovation development for the e-government (Nonaka, 1994; Lupilya, & Park, J. 2015). This is imperative for it to become a catalyst for change in delivering e-government transformation. On the other hand, it appears that the weak understanding on the part of the technology of the consuming society leads the governmental institutions to barricade the potential drivers of transformations and thus faces complex technologies, resources and social transformation challenges.

Several kinds of literature on understanding and analyzing the e-government challenges and opportunities are grounded in several categories. According to Heeks & Bailur (2007) they categorize different cases in order to understand the concept of the e-government, such as the use of framework-base referring from the body of theoretical work; model-based referring to the use of stage models, concept-based referring to the use of concepts, and category-based referring to the list of factors or categories (Heeks & Bailur, 2007). These approaches are insufficient to address and explain the opportunities and challenges of e-government adoption underlying the dispersion between consuming citizen or society and the supplying institutions. This weakness is evidently seen on the rapid

rate of consumption of new technology by a citizen or society versus the supplying institutions. More precisely, this literature fails to show and examine the impact of new technologies in the absence of old technologies and how that explains the concepts and empirical framework associated with the transformational drivers. According to studies done by Heeks (1998; 2003) have analyzed the failure of e-government project in developing countries, on the analysis he discovered that about 85% of the project in developing countries do fail. In summary, Heeks pointed out that, the reasons for such failure, are due to the weak capability to diagnose what governmental institutions, citizens, and private sector (stakeholders) want from e-government as a resource pool to deliver the quality of online services. Such effects led to the loss of trust, capacity building, readiness, awareness and indeed the “large gaps that often exist between project design and African public sector reality” (Heeks, 2003). These results might obscure the reality between the consuming citizens or society and the supplying institutions on the ground that both consumers and supplying institutions are not in harmony to understand each other.

Even though, this seems to be one area to consider for orchestrating the e-government transformation, but this literature does not completely show how the genre of leaders from the supplying institutions can indeed balance what consuming citizen or society are able to use and learn with regard to the rapid rate of technology growth. Considering this argument, this research wants to address this kind of challenges and opportunities that Tanzania is facing and identify the approaches towards achieving e-government effectiveness transformation.

One approach to looking at this gap is to study what are the opportunities and challenges that can be learned from the transformational drivers associated with the social transformation; the resources and technological factor and then show how this impact to the supplying institutions in their efforts to achieve e-government effectiveness. Another approach is to examine the relationship between each factor such as the social transformation, the resources factor and the technology in relation to the transformational drivers and then study the challenges and opportunities that could have an impact on their efforts of transforming the e-government in Tanzania. Both approaches stated above are viable and will be used interchangeably for this study.

## **1.2. Research Rationale**

The e-government transformation in Tanzania, for the last two decades, have been a challenge to the governmental institutions efforts to realize its entire goals and objectives. Along with this effort, e-government agency has been created to learn and engineer the process of transforming the e-government in Tanzania. However, the private sector, citizen to an individual's level, is becoming more internet and e-government savvy, which makes it difficult for the governmental institutions to forge ahead the transformation process. Their holistic struggle to embrace the culture shift from lock-in of information to more about sharing and interacting each other online continues to signal a complex transformation process and has not clearly substantiated in the body of literature.



Internet technology is the backbone of e-government transformation for it to operate and to allow online services utilization. Figure 2 shows that, the absence of transformational drivers to influence the technology factor (Internet) obscures the effortful accomplishment of the e-government project. In Tanzania, there is the unprecedented growth of telecommunication industries that promote social transformation to use, buy or even sell goods and services via the internet. While using old technology with unstable internet bandwidth connect-ability, unstable internet prices in the telecommunications sector and interconnection frequencies are some of the challenges linked to knowledge and innovation in e-government. Furthermore, the technology signal interference and unutilized communications infrastructure are among the challenges not dealt with the previous study but are highly correlated with transformational drivers. The current study highlights these challenges because they are highly associated with achieving e-government effectiveness.

Generally, the ambition for the governmental institutions such as MDA's, to rush on adopting these technologies in the absence of resources factor (Smart IT personnel, financial resources, and technical resources) might have a direct impact on the transformational drivers. These might affect the process of attaining the goal and have turned to be the main source of duplicating the IT infrastructure and technological applications. For instance, the procurement of substandard IT equipment's, which increases the vulnerability of threats in terms of protection of information and data security, misalignment of applications and electronic devices

for sharing and communications, has a direct impact on the transformational drivers and thus becomes a root cause of problems to achieve e-government effectiveness. Therefore, this study is important and timely to make a contribution to the literature by analyzing these pertinent issues ranging from prospects to challenges of e-government in Tanzania.

### **1.3. The Research Purpose**

Since the aim of this study is to contribute to developing countries' e-government framework development for transformation by extrapolating transformational drivers as a key issue and suggesting theoretical approaches in its implementation. South Korea as a reference case study may be used to propose areas of fundamental difference. The author wants to observe any impact in utilizing the e-government trends Tanzania. South Korean case as a reference study model will be empirically applied while designing and developing the e-government framework. To learn the key factors that are potential for the e-government during the transformation process in the context of Tanzania, the author asks these questions:

*R<sub>1</sub>: What are the Opportunities for E-Government Transformation in Tanzania?*

The governmental institutions are struggling to institute “clean” process on how to protect public data and information shared through the internet in real-time. The serious concern to this literature is on the modalities towards the absence of transformational drivers for achieving e-government effectiveness. Experience

shows that online information and data are central to the operationalization of e-government while in their presence might continue to be a compelling factor for the e-government project development.

The concerns are not on the e-government challenges only but also to study different dimension on which opportunities can be invested, shared and operated. Using these opportunities, the author wants to draw the relationship between the transformational drivers to see if there is any correlation in achieving the e-government effectiveness. This is important to learn the causality between the transformation drivers and the e-government effectiveness. This concern is critical to embrace more opportunities at the expense of e-government rollout and so, the author wants to answer this question:

*R<sub>2</sub>: What are the Challenges for E-Government Transformation in Tanzania?*

Previous research shows that challenge of e-government lies on policy, technology, and resources. This is true for one thing, that e-government requires substantial resources for investment. However, this research wants to observe the root cause of these challenges at the level of cognition, knowledge and innovation. Tanzania may be facing lots of challenges that block the implementation of e-government. But there are other opportunities that can be applied to address these challenges. Therefore, the author is interested in analyzing the challenges in various angles ranging from the context of cognitive ability, knowledge, and innovation with the practicality that would provide the groundwork for transformation. Towards the

end, the results provided here will act as a basis to lay down a broad roadmap to be used as a guideline along with the transformation of the e-government project in Tanzania. To do so, the author asks the question as follows:

*R<sub>3</sub>: How to Address these Challenges in Order to Achieve E-Government Effectiveness in Tanzania?*

A previous literature review revealed a number of challenges facing developing countries in implementing the e-government. However, even if these challenges are addressed, yet there are still some drawbacks where challenges addressed today turn to be different challenges in a different fashion for tomorrow. Such a vicious cycle of addressing challenges are the consequences of not understanding how these challenges are supposed to be implemented and linked into the process of transformation. The author, aimed at analyzing fundamental drivers which are potential in addressing and breaking the vicious cycle of challenges once and for all. This research is timely and opportune to the contribution of success in designing a framework for overcoming challenges in e-government transformation.

The overall research outcome is guided by the following objectives; first is to understand the challenges of e-government in Tanzania, and secondly is to understand the opportunities of e-government in Tanzania, and the third is to suggest a framework on how to address the e-government transformation challenges in Tanzania. This led to the formulation of the research framework that

will guide the thesis in answering those pertinent questions. In responding to the above questions, the following Figure 2, presented in this study highlights related factors that are relevant to address the above questions.

#### **1.4. Scope of the Limitation**

The scope of this thesis is limited to the e-government agencies in the Republic of Korea, the National Information Society Agency (NIA). The main focus will be on the e-government transformation model along with several stages of e-government initiatives during their early stages of e-government growth. It should be noted that the Korean e-government has marked a successful attainment of national development objectives on e-government transformation. For this study, therefore, it is appropriate to use the South Korean case in order to learn and understand the critical path towards the e-government development.

In addition to that, Korea has had a long-standing history coming from the poorest nations which were similar to Tanzania. Recently, Korea has been ranked as one of most highly developed countries in the world for e-government service delivery in terms of participation and democracy, according to the UN report, e-government ranking index released in 2014. Korea offers a good lesson on how the state development model was imperative to balance the development in terms of e-government services. In designing the e-government framework for in Tanzania, the Korean state development model would provide significant factors to be studied along with the transformation of the e-government in Tanzania.

Since its inception, Korea has reached the top level of the full-fledged transformational stage in the e-government, therefore, it should be noted clearly that the generalization of this study should be with cautious. While it is useful for the current study to use Korea as a reference model to develop a fundamental e-government framework in Tanzania as suggested by Yin (2003), it is imperative to limit its scope and focus to the development state model in an underlying framework of implementing the e-government in South Korea. This would provide a significant framework model for the future Tanzanian e-government transformation.

## **1.5. Organization of the Study**

The first chapter provides a background, research rationale, research purposes, scope and limitation and organization of the study. The research framework and the scope of the study are covered in this chapter. The rest is organized into seven chapters, including the previous chapter. The following is Chapter Two which provides the theory of e-government and conceptual framework. The chapter discusses the concept of e-government in a broader perspective underlying the three factors based on the e-government transformation process: the Social factor, Resources, and Technology factors. To learn how these factors contributing to the transformation drivers, extant models, and theories supplement to this chapter in order to describe and analyze the reality in Tanzania along with a reference to the South Korean case study. Chapter Three discusses data collection, measurement,

and the methodology used to analyze data. This chapter provides an extensive survey and analysis based on the key challenges and opportunities that are the fundamental base for addressing e-government transformation. Chapter Four presents the SWOT analysis based on the local or national challenges and opportunities in e-government transformation process. The chapter covers a critical number of issues focusing on the technology, resources and social factors for the e-government. Chapter Five discusses the results of the analysis from the three questions raised from this research study. Chapters Six presents discussion based on the results on the study. Finally, the last Chapter Seven presents the conclusion and recommendation. It provides the implications and the future research works that need to be carried out as the contribution to the academic community.

## **CHAPTER 2. THEORY OF E-GOVERNMENT AND CONCEPTUAL FRAMEWORK**

This chapter presents a review of literature from different scholars who articulate broader concepts and extant theory of e-Government. The chapter presents the facts about the e - government status and the general orientation about Tanzania. The chapter centered within the research framework in Figure 2 and discusses the SWOT analysis as a key identification factor of the challenges and opportunities along with three factors: social transformation, Resources, and Technology. Based on these factors, the study reviewed and identifies the gap needed to address and design the framework for the transition of government to e-government. The extant Technology Enacted Theory was used to evaluate essential capabilities of each one of these factors used in this study. Finally, the author debated the unique approach on how these factors impact the transformational drivers as a key driver to successful attainment of the full e-government transformation in Tanzania.

### **2.1. Literature Review on the Concept of E-Government**

In spite of the mixed definition of e-government, understanding of what e-government is, in the perspective of Tanzanian is still a challenge that obscures the efforts of governmental institutions initiatives to embrace the e-government transformation. This concept of e-government becomes very ambiguous terminology (Halchin, 2004) even in the developed countries. For instance, the e-



government strategic plan for Tanzania defined the concept of e-government as “about applying ICT to reform and improve government processes, and ultimately making the services more convenient and easily accessible” (URT, 2003, p. vii). In the same breath, e-government is defined as “the use of ICT to enhance work efficiency and improve service delivery in order to meet the needs of the public in a responsive and transparent manner” (URT, 2003, p. 2). This mix of definitions may tend to obscure their struggle towards understanding what they can do for the e-government against what e-government can do for them. For the earlier definitions show the application of ICT as an outcome of convenient interactions while the later one is acknowledging what e-government can do to bring efficiency. Candidates of government should ask this question: how e-government would make less of citizen divergence, less of corruption and administrative inefficiencies?

Heeks and Bailur (2007), attract more attention among other literature in addressing the above puzzle by analyzing the understanding of e-government. In their study, they described several frameworks for analyzing views about e-government. In most literature are using theory based to understand the concept of e-government while another literature are using a framework based such as the use of theoretical works. Other literatures are based on using the Model-based such as the stage models of e-government development. Depending on circumstances, other literatures are using the Schema based such as the use of architectures to describe e-government. Nevertheless, literatures are also defining the e-government

as the Concept based such as the use of concept like good governance, efficiency, effectiveness, transparency etc. similarly, literatures are also using the Category based such as a listing of factors or categories necessary to describe the concept of e-government.

As pointed out in the previous paragraph, the author observed that, the lack of understanding the e-government derivations, has led to most governmental institutions to fail in explaining what they are able to do and achieve in the use of e-government (Moon, 2002; Heeks, 2003). Because of this, misguided effect, the cozy paradoxical and ambiguities, the local IT experts within institutions are struggling to define and deliver the concept of e-government in public (Heeks, 2003, 2006).

### **Defining the E-Government**

Recently, the emerging of e-government concepts tends to replace the idea of ICT. In its simplicity, Information and Communication Technology abbreviated as “ICT” can be specified as the “electronic means of capturing, processing, storing and disseminating information” (Duncombe & Heeks, 1999; World Bank, 2005). Consider the following definitions of e-government detailed in Table 1.

**Table 1:** Definition of e-government

Reference	Definition of e-government	Main focus	
		Transformation	Improved Service
(Bekkers & Zouridis, 1999),	Define e-government as the use of ICT's to deliver services	Use of ICT	
Duffy, (2000)	... Simply using information technology to deliver government services directly to the customer 24/7. The customer can be a citizen, a business or even other government entity		To deliver government services
Deloitte and Touche (2002)	The use of technology to enhance the access to and delivery of government services to benefit citizens, business partners, and employees.	Use of ICT	
(UN & ASPA, 2001, p. 1)	“Using the Internet and the World-Wide-Web for delivering government		

	information and services to citizens”		
Kumar et al. 2007	Basically, as a tool to improve services to all (G2C, G2B, G2G)		
Chen and Hsish (2009)	The use of ICT to improve the quality of services and governance (c.f UNESCO)		
(DiCaterino and Pardo, 1996),	e-government as more concerned with interactivity at a bigger picture		Efficiency and effectiveness; Accountability; Interactivity
Ghere & Young, 1998; Heeks, 1998	e-government is about enhancing accountability		
Heeks, 2001b	e-government is about bringing efficiency and effectiveness		
Coleman (2006)	Defined e-government as the automated procedures and interaction of sharing the flow of information services through internet for well “balanced e-government”		Balanced e-government

Due to the “cozy paradoxical” in defining e-government, this study begins by defining e-government reflecting to three fundamental elements: **Technology**— simply a collection of ICT tools (*PC, Laptops, fax machines, photocopiers, phones,*

*etc.*) that is capable of producing data and information, necessary for online sharing and accessibility in a faster and efficient manner (West, 2004; Coleman, 2006; Kumar *et al.*, 2007; UN, 2008, p. xii; Chen and Hsish, 2009). **Context**– can be understood as an environment which is set up to allow connection ability and intractability of people, institutions, and places (*“interaction or cooperation”*) with specified activities (Morgeson & Mithas, 2009). **Transformation**– concerned with the change of “old ways of doing things, into new ways of doing things” enabled by technology in a well guided context (Heeks, 1998, 2001, 2002; Duffy, 2000; Fountain, 2001; Ndou, 2004; Coleman, 2006; Jung, 2007; Kumar, 2010). In this study, we adopt the definition of Bekkers & Zouridis, (1999) to define e-government in the context of Tanzania.

In summary, the study suggests the definition of e-government as “connecting people (context) for the purpose of enabling them to share and interact with information (process) and delivering online service through the use of the internet (Technology).

## **2.2. Factors for the E-Government**

### *The Social Factor*

In Castells, (2001) writing on the reflection on the internet: the Internet galaxy, once said:

*“Technological systems are socially produced. Social production is culturally informed. The Internet is no exception”.* (Castells, 2001, p.36)

Tanzania society is based on communal social systems that explain its culturally informed, values and norms which are changing due to the advancement of technology invention (Castells, 2001). Recently, the government has started to experience the speedy transformation of the social group via interaction with technology caused by the internet (Castells, 2001) similar to what Fountain called it as the “virtual society”. Such speed of transformation has attracted more attention to the governmental institutions on how to design and transform the e-government (Lewin, 1951; Weber, 1974; Lal, 1999; Mulgan, 2000; Heritier., 2001; Heeks, 2002; Madon, 2004; Lupilya, & Jung, 2015). Using Figure 2, the study shows how this devastating social factors impacting the transformation drivers for speeding up the e-government effectiveness attainment (Shin, *et al.*, 2008; Tan, *et al.*, 2008; Headayetullah, & Pradhan, 2010; Lupilya, & Jung, 2015). The emerging of technology has changed this social institution into more of (virtual society) online social network, which are growing at the same rate of growth for the internet or technology (Castells, 2001). For Castells argument is about the trends of the high speed of online social network growth, which explains how e-government is resulting in social change (Castells, 2001) but fails to capture the underlying forms of prediction such as income, engagement, guidance & awareness, demographic and attitudes (Heeks, 2003, 2006; Shin, *et al.*, 2008; Tan, *et al.*, 2008; Headayetullah, & Pradhan, 2010). This study discusses these predictions as a challenge to learn the process of attaining e-government effectiveness. This study argued that the social transformation factor can become an affluent device to

support the transformation process while interacting with the environment constructively or innovatively (Castells, 2001). Several kinds of literature describe social phenomena associated with people and technology relationship within an interaction environment (Heeks, 1998; Castells, 2001; Lupilya, & Jung, 2015). This does not capture several predictors of social class, such as the income, engagement, guidance & awareness, demographics, and attitudes (see Table 4). These factors are necessary to explain social patterns which are highly correlated with transformation drivers for possible e-government transformation (Castells, 2001). Similar to Lupilya, & Jung (2015), cogitated that governmental institutions and social transformation are inseparable “institutions” and so they intervene from adoption to utilizing state of the art of e-government.

The increasing demand to interact with e-government is highly correlated with income (Castells, 2001). In the case of Tanzania, the estimate of the income is an important predictor to understand the society’s ability to interact with e-government services (Heeks, 1998, 2002; Lupilya, 2015; Lupilya, & Jung, 2015). According to the World Bank report, they measured income in terms of the national poverty rate underlying the poverty headcount ratio, which is estimated to \$28.2 in the year 2012 (UN, 2014). This provides a clue over the population living under the national poverty line cannot be or be able to access the internet given their income level. Income inequality is rapidly growing to leave the minority far poor to be able to accommodate per day internet connectivity consumption (Shin, *et al.*, 2008; Tan, *et al.*, 2008; Headayetullah, & Pradhan, 2010; UN, 2014).

Societies whose income are higher than working class societies are more likely to enjoy the full interaction with e-government services than a society whose income are below the national poverty line (Shin, *et al.*, 2008; Tan, *et al.*, 2008; Headayetullah, & Pradhan, 2010; UN, 2005). This income is a fundamental predictor of institutional leadership for projection and is highly structured at the midst of impacting the development future of E-government Policy or strategy, innovation (Bevin, 1993), the development of E-government enterprise architecture and installation of several e-government labs or clustering (Lewin, 1951; Weber, 1974; Lal, 1999; Mulgan, 2000; Heritier., 2001; Madon, 2004; Kamssu, 2005; UN, 2005; Lupilya, & Jung, 2015). For example, any increase in income affects the pricing framework of the internet higher than the incremental rate in income. This explains that the prices for connecting to the internet continue to be extremely high in contrary with the increase in income (Avgeron, 2003; Grönlund, 2005; Merwe, 2009). Regardless of experiencing unstable and weak connection in relation to the price and size of bandwidth offered (shared or dedicated) to the citizen, this becomes another challenge for the government to attain its e-government project goals (Avgeron, 2003; Grönlund, 2005; Merwe, 2009).

On the other hand, internet accessibility, sharing and transfers of information and data online pauses a serious challenge in terms of data privacy and information confidentiality (Moon, 2004; Heeks, 2006; Headayetullah & Pradhan, 2010; Alshboul, 2012). Through experience shows that, in the absence of institutional virtuous leadership, checks and balances, E-government Policy and



strategy innovation, E-government enterprise architecture, and the e-government clustering are the key drawbacks of any development, including the e-government (see Table 4) (Lal, 1999; Mulgan, 2000; Wimmer, & Von Bredow, 2001; Van Eck, *et al.*, 2004; Kamssu, 2005; Ross *et al.*, 2006). All these can become the key transformational driver, but faces challenges to influence the social transformation. To say the least, the absence of e-government labs or clustering where a social network can be enhanced at an affordable cost has led the IT and other telecommunication industries to in-flight prices. This tends to affect the citizen's income, engagement, and attitudes and so forth (Lal, 1999; Mulgan, 2000; Wimmer, & Von Bredow, 2001; Van Eck, *et al.*, 2004; Kamssu, 2005; Ross *et al.*, 2006; Lupilya, & Jung, 2015). The delay to utilize the E-government enterprise architecture in many cases affects the rate of investment in terms of telecommunication, which in turn affect the social income as well as the engagement, attitudes and so forth (Lal, 1999; Mulgan, 2000; Wimmer, & Von Bredow, 2001; Van Eck, *et al.*, 2004; Kamssu, 2005; Ross *et al.*, 2006; Ross *et al.*, 2006; Yonazi, 2010, UN, 2014). Many kinds of literature have pointed out to the need of enforcing E-government Policy and other IT strategies to guide and foresee the e-government transformation (Hone, *et al.*, 2002). While in the absence of this instrument, they claim that it will continue to trigger difficulties for the social transformation to enjoy the e-government benefit. This will lead to the loss of social-economic income between citizens that is generated from using e-government (Lewin, 1951; Weber, 1974; Lal, 1999; Mulgan, 2000; Heritier., 2001;

Madon, 2004; UN, 2014; Lupilya, & Jung, 2015). The E-government Policy should address issues related to social transformation such as social engagement, cost per internet access with respect to an average income distribution. Furthermore, it should address the creation of awareness, issue of demographics and attitudes which are imperatives for the transformation process (Hone, *et al.*, 2002; Lasswell, 2003; Evans & Yen, 2006). While all these require a virtuous leadership to oversee and implement, they become a challenge not only to governmental institutions but also to social transformation that leads to undesirable directions (Lewin, 1951; Lal, 1999; Mulgan, 2000; Wimmer, & Von Bredow, 2001; Heritier., 2001; Havard, 2007).

Taking engagement as another key driver within social networks are intertwined with the transformation drivers in the process of E-government Policy development, the E-government enterprise architecture, and the e-government clustering in which social group or the citizen is an important factor (Lewin, 1951; Lal, 1999; Mulgan, 2000; Wimmer, & Von Bredow, 2001; Heritier., 2001; West, 2004; Akman, 2008). If the goal is to transform the social group or society, then, engagement becomes normalized predictor underlying the e-government transformational drivers (Heeks, 2002, 2003, 2006). However, economic status characterizes by the social group may drive the governmental institutions in an undesirable direction. Such efforts are likely to have less social engagement and amplify the social inequality (West, 2004; Akman, 2008; Lupilya, & Jung, 2015).

However, the shortcoming of not achieving the results may be confined

with the theoretical approach targeting to the society within social groups. The approach that this society needs can be categorically analyzed here. At first, is the creation of awareness program for free, providing free technical support using the IT technology industries (supplemented with government or private institutions, schools, universities, vocational training and so forth). The second level is, creating a shared group network for spreading free IT related programs elsewhere in the country, can be a catalyst for the transformational not only social but also to the e-government effectiveness (West, 2004; Akman, 2008; Lupilya, & Jung, 2015). On the other hand, there are challenges that should be addressed while transforming the society. For instance, lack of virtuous leadership can be an obstacle for any developmental projects that are required for social transformation (Havard, 2007). In the absence of virtuous leadership, the effects are cascading to weaken several devices which are crucial for the project. For instance, the checks and balances (Bevin, 1993), the development of E-government enterprise architecture, the development of e-government labs or clustering and above all, is the monitoring and evaluation of the key results area. This is essential indicators to be analyzed and provide adequate feedback on the project outcome that aimed at supporting the social transformation. But for effective social transformation, the transformational drivers as an intervention device for the process can be the allies to orchestrate this social transformation at the similar speed of the e-government transformation if wisely approached (West, 2004; Akman, 2008; Lupilya, & Jung, 2015).

As e-government continues to bring the hope of offering a bundle of online services, social, demographic supplemented with social attitudes are emerging to be the fundamental base for predicting patterns of transformational drivers (Chaula *et al.*, 2006; Coleman, 2006; Heeks, 2006). While experience shows that the largest group access to internet or e-government might tend to create inequality in terms of income dispersion that can obscure the effort on embracing the transformation of social network in terms of online services provisions (Madon, 2004; Shin, *et al.*, 2008; Tan, *et al.*, 2008; Jain & Kesar, 2011). The online services have changed the way society is living in response to the interaction with the information age and is said to be highly correlated with social attitudes to sharing information and exchange of online data (Castells, 2001; Akman, 2008). To address these challenges, the transformational drivers should design effective e-government Policy or strategies (Heritier, 2001; Madon, 2004; Shin, *et al.*, 2008; Tan, *et al.*, 2008; Jain & Kesar, 2011); provide e-government labs or clustering to level the disparities of accessing the internet. However, time to time it should provide a monitoring and evaluation mechanism based on the formulated projects as the key results area for effecting social transformation.

### *The Resources Factor*

Any effort for technology transformation along with the society or social network is highly linked to the availability of resource such as smart IT personnel, financial resources as well as Technical resources (Avgerou, 2003; Coleman, 2006; Chatwin,

& Pazi, 2013). Currently, the smart people (resources) are not in the governmental institutions, but they are outside governmental institutions. The implication to the private institutions is that they become strategic guards to win the effort that the government is initiating to transform the society (Heeks, 2002, 2003, 2003a). Most of the private institutions accumulate smart IT personnel, their turnover, financial resources are high, and they are capable of accommodating technical resources (Heeks, 2002, Jung, 2007). As opposed to governmental institutions, development of smart IT personnel is highly correlated with the institutional leaders approach and interest. This has an adverse impact to the transformational drivers for transforming e-government (see Figure 2). The scarcity of resources within governmental institutions requires a serious analytical approach to influence the substantial benefits of the e-government project (Heeks, 1998, 2003; Coleman, 2006). The government's ability to procure technical resources such as the installation of computers, the building of database center, protecting infrastructure, etc. is the investments that government depends on private IT companies to install them (Norris *et al.*, 2001; Alshboul, 2012). This explains that governmental institutions become slow to act and respond to the newer technologies due to insufficient IT smart resources to advise and coordinate (Bonham et al. 2001).

For instance, experience shows that over 60% of the projects in the government are subcontracted to the private institutions in designing and implementation while their technical IT resources are becoming a watchdog (Lupilya, & Jung. 2015). However, they are highly considered to take part mostly

in the evaluation of the project, implementation, commissioning and training on the use of the system or project (Heeks, 1998, 2001). This is similar to Heeks (2003a), argued that e-government failure in developing countries is due to the reality and the contrasting design of the e-government from developed countries. For Heeks, he described that these gaps are aligned with social, economic, cultural and other physical factors. However, this study outweighs some of these factors that might be generated on the basis of authors experience and perception about developing countries.

According to Ndou, (2004), pointed out the inadequacy of resources in implementing e-government in developing countries, but fails to integrate the cost of accessibility of the internet as a base. The author analyzed the prices for connecting to the internet and concluded that they are still extremely high with the unstable and weak connection (UN, 2005; 2014). On the other hand, E-government Policy or telecommunication policies for regulating the prices for internet access are still silent and, therefore, provides boarding room for investors to play the saga-rumba as they wish (Jung, 2007; Lupilya, & Jung, 2015). According to Fountain, (2001); Ndou, (2004) and Norris *et al.*, (2005) financial resources are correlated with the development of e-government labs / clustering, IT enterprise and architecture, E-government Policy and strategy innovation and these demands a checks and balance. Factoring these two, it is reasonable to say that the resource factor and transformational drivers are influencing each other to satisfy the effort for achieving e-government effectiveness (West, 2004; Akman, 2008; Lupilya, &

Jung, 2015).

According to Heeks, (1998, 2003a); Ndou, (2004); Ngulube, (2007) claims that most of the e-government project failure in developing countries are due to one: is the absence of resources. This may not necessarily be true in the sense that, each country depends on how their resources are to be used that in turn will determine what the appropriate structure for e-government implementation is. The provision of resources (Technical, Financial, Human etc.) is rooted within transformational drivers which are highly correlated with the changing nature of social and technological transformation as inseparable. However, transformational drivers may face challenges to associate with the resources factor in several ways. For instance, the development of e-government labs / clustering may require a sufficient provision of technical resources and other related factors, but due to the nature of engagement with social and the online protection may tend to obstruct the e-government development (Norris & Moon, 2005; Lupilya, & Jung, 2015).

### *The Technology Factor*

The discussion in this subsection focuses on Internet satisfaction, database center, standardize applications, standardize IT systems and the online protection as they are directly impacting to the transformational drivers for the e-government.

The unprecedented growth of the internet like a binary tree in Tanzania is alarming and, therefore, demands a new infrastructure for the protections, connectivity, and accessibility (Merwe, 2009). Although the argument raised by

Heeks, (1998, 1999); Coleman, (2006); and Merwe, (2009) about the development of e-government infrastructure, can be summarized for the formulation of the appropriate agencies to foresight the implementation of the e-government and its strategic plan. As such, this would benefit the current government, whose situation is equipped with fragmented policy, fragmented ICT projects, fragmented IT or ICT strategic plans, fragmented ICT infrastructure (Naidu., *et al.*, 1994; Heeks., 2001; 2003; Chardwick., 2003; Brewer., *et al.*, 2006). However, there is no evidence as to how many effects on telecommunication sector, networking companies, and another related private organization has affected the effort of government in pushing the e-government implementations. But on the recent literatures on e-government suggests that, collaboration with other actors in telecommunication sector to enable the presence of e-government systems (Madon, 2004; Gil-Garcia, 2005; Kamssu, 2005; Sawe, 2004, 2005; Shin, *et al.*, 2008), can help to fight against elements involves in corruption within governmental institutions and the country at large (Heeks, 1998, 1999, 2002; Chadwick & May, 2003; Coleman, 2006).

Just in time, the recent report on telecommunication sector published by ITU (2014) shows that the corruption rate in the telecommunication sector in Tanzania is growing at a very high speed concurrently with the speed of internet consumption (ITU, 2014). In general, the internet technology is a backbone of the e-government transformation that allows sharing, interaction and information utilization (Chardwick, 2003; Brewer, *et al.*, 2006). In other words, in the absence



of the internet, it will have a greater consequence to the effortful accomplishment of the e-government project (Heeks, 2002, 2006). In the recent article published by Lupilya, & Jung, (2015), emphasized that the deep rooted cause for all this fracas lies on the level of implementing telecommunication policy, ICT policy, e-government strategy, privatization policy, and all this instrument which is not adhered to (Chardwick, 2003; Brewer, *et al.*, 2006). Despite the effort made by a citizen to demand the government intervention to regulate the internet cost from the internet service provider and the telecommunication companies, such efforts are still in a vein (Yonazi, 2010; Lupilya, & Jung, 2015). The cost to access and connect to the internet using mobile, iPad's or even other devices is extremely high and keep raising without informed government and the society. Nevertheless, studies on internet satisfaction such that of Castells, (2001); Fountains,(2001) and Kumar *et al.*, (2007) emphasized that citizen and governmental institutions suffer due to the inability to afford the internet accessibility services such as the bandwidth provisions whether are treated as shared or dedicated and very often are not analyzed and monitored (West, 2004, Yildiz, 2007). This explains that the utilization of bandwidth elsewhere in various sectors and citizens does not correlate with the value for money paid for. This tends to discriminate users from accessing the internet which becomes polarized by their income level and their ability to use the internet via mobile and other devices.

The persistent internet inequality continues to grow and now expanding into the local and central government, social / citizen and private sector, as a

consequence, this lower the effort of implementing the e-government project in Tanzania (Heeks, 1998, 2003a, 2003; Lupilya, & Jung, 2015). Overall, the consequences continue to spread across all platforms from an increase of unemployment, low level of IT innovations, and the internet accessibility inequality to social-economic network inequality (Chadwick & May., 2003). While, in governmental institutions, the internet inequalities are expanding between local and central government facing a number of challenges that leads to social-economic inequality (Chadwick & May., 2003). In this regards, the telecommunication infrastructure-inequality which cause the internet inequality in the rural area affects the networking of business with central government through the internet (Merwe, 2009; Mutula, & Mostert, 2010). In this case, communication internet should be seen as the necessity and not a luxurious thing. This will help to bridge the gap between these inequalities.

In the context of social network and the rapid growth of technology within e-government platform, the database center has attracted more attention to government and citizen (Akman, 2008; Adeyamo, 2011). Online government and public information and data require a strategic control and protection management (Van Eck, *et al.*, 2004; Shin, *et al.*, 2008; Tan, *et al.*, 2008). Governmental institutions and several other private institutions, plus citizens or social network group are emerging rapidly in adopting the utilization of data and information via the internet and other technologies to improve their business process (Castells, 2010; Chatwin, & Pazi, 2013). Therefore, in the presence of database center

located in Tanzania is the strategic driver to impact the transformational drivers for speedy achievement of the e-government effectiveness (Castells, 2010; Chatwin, & Pazi, 2013). Although, the transformational drivers as the intervening factor might be facing challenges as the consequences of technology failure (Jain & Kesar, 2011), this left us with inconclusive results and, therefore, needs to be explored.

Due to the advancement of e-government technology, challenges associated with institutional virtuous leadership, checks and balances, E-government Policy / strategy, innovation, E-government enterprise architecture, e-government labs / clustering, monitoring and evaluation of the key results areas are among the key areas that might inhibit the technology transformation in the area of sustaining the database center. For instance, Virtuous leadership is directly influencing the presence of database center in terms of setting the appropriate E-government Policy or strategic innovation for the database (Havard, 2007; Lupilya, & Jung, 2015). Furthermore, in the absence of E-government enterprise architecture become a stumbling block yielding higher risk for information leakage and destroy the meaning and the power of information and data sharing privacy (Heeks, 1998, 1999, 2001; Ho, 2002; Dhliwayo, 2009; Ciampa, 2010). For the effective data sharing and information protection, the absence of the e-government labs in different wards and districts or, in general, local government and its agencies may become difficult excise for the database technology expansion and development (Lupilya, & Jung, 2015). Within that context, the designing and implementation of the e-government for the country may become difficulty in the

collection and processing of data and information from local government and its agencies to central government and the citizen at large (Shin, *et al.*, 2008; Tan, *et al.*, 2008; Jain & Kesar, 2011). The quality of data and information protection for online consumption via e-government is the matter of E-government Policy and strategic innovation supplemented with monitoring and evaluation of each key results area (Wimmer & Von 2001; Hone, *et al.*, 2002; Alshboul, 2012). Monitoring and evaluation are the fundamental mechanisms of checks and balances for each key result area underlying the installation, maintenance and sustainability of database center (Kumar *et al.*, 2007).

For the government of Tanzania to rely on using online data and information in order to advance its economies of scale, the need for standardized applications, IT systems and online protection becomes fundamental and valuable to governmental institutions (Heeks, 1998, 2002; Moon, 2002; Coleman, 2006). In addition to that, the authors concluded that this technology impacts the transformation drivers for achieving the best e-government. According to Chardwick, (2003); Brewer, *et al.*, (2006) argued that governmental institutions have recognized the needs for standardizing IT applications and systems and ensure protections for online data and information to stay competitive. This argument provides a new lens where transformational drivers as suggested by Lupilya, & Jung (2015) can be closely examined and studied (Havard, 2007). The following subsection discusses the technology enactment theory and draws key factors for e-government transformation in Tanzania. The core argument of Fountain, (2001) on

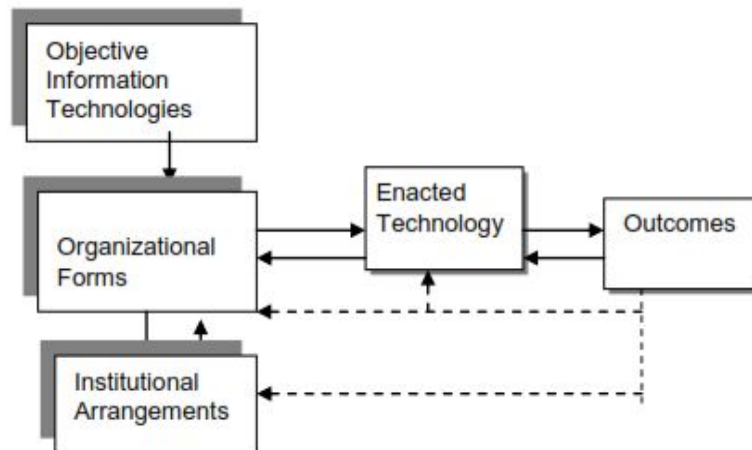
the Technology enactment theory is that technology adoption or e-government implementation can change the institutional arrangement and organization forms in their process of their designing, implementation and applications (Figure 1). The theoretical argument raised here is to analyze factors that are key drivers to accelerate the e-government transformation as conceptualized by Fountains (Figure 1).

### **2.3. The Technology Enactment View of E-Government**

#### **Theory**

In order to develop a conceptual research framework for the e-government in Tanzania, Fountains (2001), introduced the theory of Technology enactment as seen in Figure 1. The proposition of the technology enactment theory centers on the effects of technology within organization forms (beliefs, culture, social structure, behaviors, laws, and cognitive) and institutional arrangement (bureaucracy and leadership) calling to restructure their systems and their network actors. In general, the new technologies in government systems should not be viewed as an objective, but are essentially a policy that meant to re-arrange internal process systems. It can also help to respond to the ever growing needs brought by new versions of the technology. Using the TET developed by Fountain, helps the current study to identify three cardinal factors: Institutional, Technology, and Citizen Factors were all explained above in the analysis.

**Figure 1:** Technology Enactment Framework



**Figure 1:** Technology Enactment Framework (Fountain, 2001)

### *Objective Information Technologies:*

The work of Fountain in developing the TET lying on the distinction between the Objective Information Technologies with four distinct elements: the hardware, software's, and networking of actors. The Tanzania governmental institutions have rolled out the utilization basic technologies to each government Ministries. Each governmental institutions have adopted or developed a web portal that worked as the gateway to explain their mission, values, and objectives. Local Area Network (LAN) has been setup for sharing information, searching and retrieving through the use of computers, Laptops, and resources sharing printers and scanners. The various specialized software applications have been implemented such as MOLIS, POLIS, e-Office, IFMS, M-Pesa, etc.

The e-government agency (*eGa*) with its mandate to oversee the implementation of the e-government, has implemented government portal, email systems, and other software application development. However, there are challenges in the utilization of the existing telecommunication infrastructure (NICTBB) which would help to speed up the transformation of the e-government in the country. All these applications require appropriate designing, understanding, perception, and their implementation. In the conceptual research framework these elements require resource factors (knowledgeable IT personnel, financial resources and technical resources) as well as the utilization of transformational drivers (virtuous leadership, checks and balances, e-government policy and strategic innovation, e-government enterprise architecture etc.) which do affect the

organization forms as well as institutions arrangements towards achieving e-government effectiveness.

*Institutional Arrangements:*

The e-government Agency (*eGa*) is now coordinating the e-government development in Tanzania. Several initiatives such as integrating the governmental institutions' technology systems have begun regardless of the challenges they are facing. The e-government strategic plan has been recently approved to be used national-wide regardless of the implementation technical know-how. Several legal institutions are underway to be approved by the parliament in Tanzania, such as the cyber war, access to online information; online data security and signatures, citizen information privacy etc. are underway to be enacted. In Tanzania, President Jakaya Mlিশo Kikwete has been in a forefront to see that government should be transformed into electronic forms. Similarly, Chief Secretary of the URT has been embracing the governmental institutions to adopt and start utilizing the potential benefits of the government. Tanzanian Leaders has been treating the e-government project as the priority national agenda. The re-arranged Institutions caused by technology are the ones that Fountain calls "the virtual state" uses this new technology. This institution includes factors such as the bureaucracy and the Leadership aspects. These are interpretive elements based on the transformational drivers as an enabler to effective e-government implementation as indicated in Figure 2.



### *Organizational Forms:*

The URT has established an agency called e-government Agency (abbreviated as *eGa*) to foresee and implement the national e-government project. The *eGa* as in charge of the national e-government has assumed its formal responsibility to oversee and coordinate its implementation throughout the country. Other government Ministries are also taking formal responsibility such as the Ministry of science and Technology which is responsible for the Telecommunication Infrastructure, policies and so forth are to cohesively work together around the clock. Trends are now visibly seen beginning of the involvement of private sectors, other governmental institutions, and lately, the plan to involve social network group may come up in the future. However, this process is still complicated to harmonize especially when it comes to institutions interest, transparency, ownership and accountability. These elements change the organizational forms such as social structure, norms, laws, cultures, values, behaviors, citizens, societies, and other organizational forms in their ways of adopting technology or e-government. For Fountain, a virtual state is "a government that is organized increasingly in terms of virtual agencies, cross-agency and public-private networks whose structure and capacity depend on the Internet and web" (Fountain, pp.4 (2001).

Fountains argued that technology can provide a wider channel of online services that leads organizational outcome. However, in different parameters of

understanding, the presence of technology cannot replace organization or institution, but it can allow re-arrangement of the process to fit into new systems of technology. The central emphasis on the TET is that institutions should be arranged and organizational forms should support that effort to respond to the technological challenges that influence their designing, perception, and implementation process.

*Enacted Technology:*

In relation to the transformation drivers, the study argues that the re-arranging of the institutional process without possessing collaborations, participations, involved with a citizen, Public Private Partnership (PPP) would fail to forge ahead in the e-government enactment. Furthermore, for the effective development of the e-government project, the PPP, social network group, Citizen, institutional and organizational innovation may bring visible the enactment of the e-government transformation outcome. To some parameters also, Fountains argued that failure to handle with care the collaboration and involvement factor within institutions and organization is the main root of problems in re-arranging the institutions for e-government development (Fountain, 2001). In the case of Tanzania, collaboration or involvement factor in the age of information is lagging behind along with institutions effort to confront the transformational changes caused by that e-government. In many situations, institutions have continuously experiencing types of leaders who apply what I call a “stovepipe approach” or “taking things for granted” especially on fundamental issues like e-government national project.

Their intention is either to avoid disrupting their status quo or causing the institution's failure within its environment that would barricade the e-government development. This study argued that in, either way, e-government should be guided along with the collaboration or involvement factor and leaving one of this out means leading the institutional arbitrary; Fountains, on the other hand, use the phrase “disrupts complex ecologies of institutionalized power relationships” (p. 205)”.

*Outcomes:*

The organizational forms (Figure 1) orchestrated by a Citizen, social, culture, values, norms, and behaviors are becoming internet savvy without standards. Fountain argued that institutions rearrangement is necessary to match with the social transformation through technology. One way to determine the technological failure that leads to producing organizational outcomes is due to the absence of collaboration, involvement or connection with the organizational forms and the institutions arrangement as shown in the analysis Table 16, Figure 1 & Figure 2; and also can be seen in Fountains, (2001); Heeks., (2003; 2006); Havard, (2007); Karokola & Yngstrom, (2009); and Lupilya, (2015). In Tanzania, the technology continues to grow faster in a form of a “binary technology”, but standards and governing mechanism are critical to success. Without these elements, it is evident that it can produce a negative organizational outcome that might accelerate “Fear” for the governmental institutions to go online (“e”) (Fountains, 2001; Norris. et.al,

2005). Fountain, presented the TET, arguing that the presence of Technology has brought up a “win-win” situation to both network actors and organizations forms. However, it is not clear on what Fountain means by “win-win” situation since that e-government or even technology is viewed in the aspects of delivering services to the public at large. The win-win situation can be results of lack of legal aspects and institutional rearrangement, their process, designing and implementing the e-government. This might affect the organizational forms in their efforts aiming towards guiding the enacted technology and the network actors (Heeks, 2001; 2003; 2006; Kumar, 2010; Mutula, *et al.*, 2010).

To sum up, the style of implementation of e-government projects has led to what I call “illusion of innovation” within a responsible institution (Fontain, 2001; Heeks, 2003; Lupilya, & Jung, 2015). Institutions, especially those which are responsible for governing the implementation of e-government projects take the form of a stovepipe approach in the implementation and coordination of the national project. In a similar fashion, other governmental institutions perceived that innovation in e-government transformation may tend to disrupt their status quo, which is contrary to the theory of TET (Fountain, 2001). This perception is now becoming “misfortune of technology” that cannot assist to re-arrange institutions and organizational forms towards accelerating e-government effectiveness. Therefore, Technology enactment theory is consistent with these realities and supports the notion of virtuous leadership in e-government national project as essential and imperative in Tanzania (Norris, *et al.*, 2005). Social transformation

and the binary technology growth are critical factors that affect the adoption and transformation of e-government through the perception, designing, implementation, and utilization. Fountains idea of Institutions rearrangement (bureaucracy and the Virtuous leadership) had a considerable influence as the key drivers for e-government enactment. Since the TET is a foundation of e-government adoption and implementation, the author had featured it in the development of the conceptual research framework as a mediating variable. The study treats the TET as a base to develop critical and important factors that form the current conceptual research framework for effective e-government transformation (Akman., 2008; Heeks., 2009). In additional to that, adoption or transformation of e-government is said to depend on organizations forms and institutions arrangement that enable the design, perception and implementation of the enactment of the e-government transformation. In such achievement, organizations forms and institutions structure are the fundamental engines that can constitute efficiency e-government enactment. (Figure. 2). In order to efficiently design the conceptual research framework, several elements from the TET were derived and integrated. The fundamental purpose is to form a seemingly conceptual research framework for the e-government enactment and transformation.

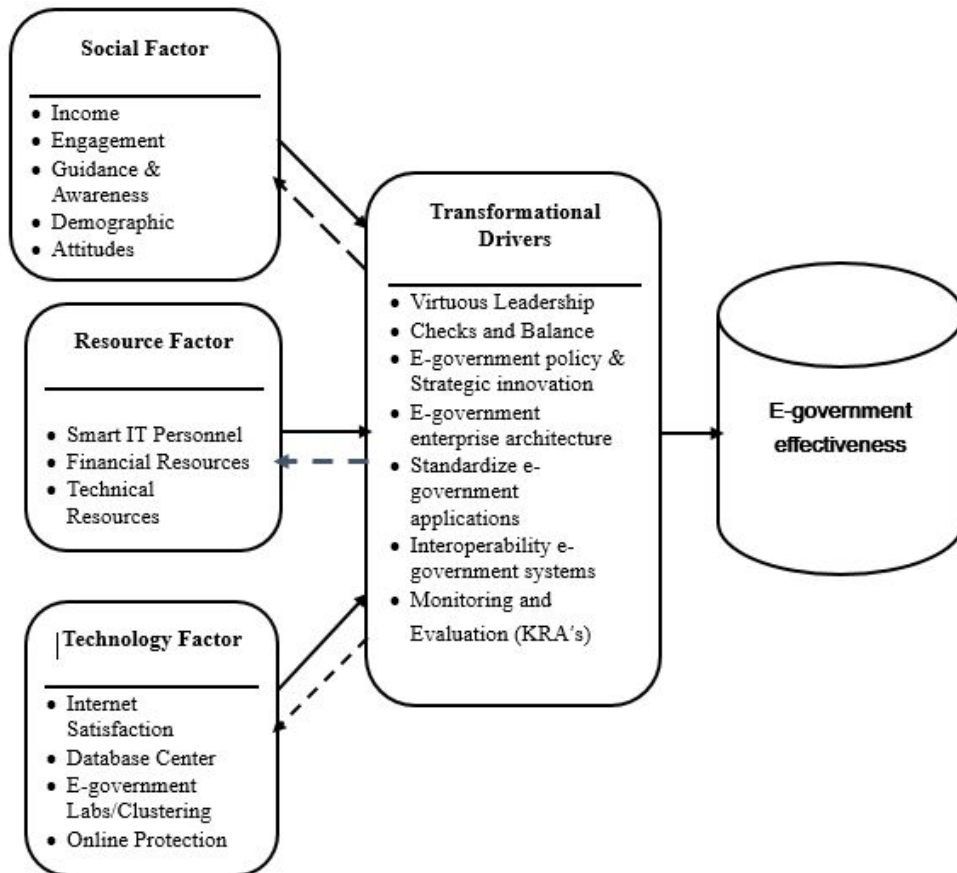
## **2.4. The Conceptual Research Framework**

Following the above discussion highlighted above, led to the formulation of the key factors of the e-government transformation (Figure 2). A total of four factors

was identified as critical to the e-government transformation. These factors are the Social, Resources, Technology and the Transformation Drivers. On the Social factors, the transformational drivers show how it impacts positively the social factors. On the other hand, social factors can affect direct the transformational drivers in their process, designing, and transformation. This is similar to the Resources factor, where the Transformation can affect directly in governing each element in the resources factor. But resources factor can also become a stumbling block to forward the transformation drivers underlying their process, designing and implementing for obtaining the organizational outcome view of the e-government. Central to the research, is the Technology factor, which can impact negatively the transformation and implementation of the e-government through the transformational drivers. To sum it all, in each factor, several elements were developed that measure each factor identified in the conceptual research framework in Figure 2. The Figure 2 below shows the antecedents of transformational drivers which influence directly other independent factors. The study uses the word “Transformational drivers” to refer to as the engine that drive the whole process of e-government transformation. These key drivers are supplemented with several elements such as virtuous leadership, checks and balance, e-government policy & strategic innovation, e-government enterprise architecture, standardize e-government applications, interoperability e-government systems, and finally is the monitoring and evaluation of the key results area (KRA’s) see Figure 2. In relation to the technology enactment theory (TET), the conceptual research framework was

developed to focus on key factors within institutions rearrangement, organization forms, objective information technology, and technology enactment as well as the organization outcome. Within these elements, the study identified four fundamental factors for e-government enactment outcome: Social Factor, Resources, Technology and the Transformational drivers. These are illustrated in the following figure 2.

**Figure 2:** Conceptual Research Framework



The study provides the conceptual research framework focusing on the relationship with the organization forms and institutions arrangement in respect to the e-government enactment. However, each element within the key factors causes a significant correlation with other elements in their designing, selection, perception and implementation for the e-government national project. In this way, the key factors as identified within organizational forms and institutions arrangement tends to relate to how the understanding of transformational drivers reacts to the process, selection, designing and the enactment of the e-government implementation as



depicted from Figure 2. The author analyzed the elements from each of the listed factors which are categorized as social factors (which includes: Income, engagement, guidance & awareness, demographic, attitudes), the resources factor (includes the smart IT personnel, Financial resources, and Technical resources) and finally the technology factor (includes the internet satisfaction, database center, e-government labs / clustering, and online protections). It was imperative to exemplify the direction of arrows in each factor or elements as indicated in the conceptual research framework to explain the direct and indirect correlation towards enacting the e-government as influenced by the transformational drivers (Figure 2).

The research shows how these elements play an important role in influencing the designing, process, perception and implementation towards achieving the full functionality of the e-government transformation. On the other hand, the study shows that the transformational drivers have a significant impact to the independent factors (social, resources and technology factors) as depicted from Figure 2. The author postulates the impact of these elements as to how they influence the characteristics of the e-government transformation outcome. Therefore, the study developed testable statements based on each element in the conceptual research framework which was tested to identify challenges, opportunities and key drivers that influence the achievement of the e-government effectiveness. The conceptual framework is discussed in detail in the next chapter. Furthermore, the elements to influence the transformation of e-government through

designing, selection, and implementation were guided by the understanding and analysis of the critical factors for e-government transformation. However, the transformational drivers as stipulated above have been considered essential at the process level to determine how the e-government transformation is influenced by their designing, process, and implementation. Institutions arrangement and organization forms as propounded in the TET become a promoter of new ideas to be learned and adopted within the conceptual research framework for e-government enactment outcome (Figure 2). The approach that need to be adopted and implemented using this conceptual research framework. This is central to the application of the SWOT analyzes that provide the significant impact of the transformation process of the e-government.

The SWOT analysis is characterized by the TET framework focusing on the national e-government transformation process. This analysis is employed to cater for the contextual ground of what is in the situational now and where the transformation of e-government should be spearheading the future. In order to gather more succinct facts on the ground, the following chapter iterates a detailed analysis and characteristic of e-government in the context of Tanzania. The study presents the main strength and opportunities of the e-government transformation in Tanzania. It also presents the analytical perspectives of the weakness and threats dimension in the process of designing, selection and transformation of the e-government outcome. Following this dimension, the conceptual research framework was employed as the starting point to investigate and analyze key

factors.

# **CHAPTER 3. DATA, MEASUREMENT, AND METHODOLOGY**

## **3.1. An Overview**

In this chapter, the author presents the methodology for conducting the current research in order to understand the opportunities and challenges of the e-government transformation in Tanzania. Doing so, the framework was developed and presented to show the research direction. The study explored this framework underlying four factors that impact and influence both directions of e-government transformation. The preceding literature review provides the groundwork for such analysis. Additionally, this part explores empirically these factors that inhibit the transformation of e-government in Tanzanian context. So, both qualitative and quantitative research methods were applied in order to validate the information provided in the literature review. The quantitative methods were useful for explanatory investigation on the cause-effects using the factor analysis of the challenges and opportunities of the e-government implementation in Tanzania.

## **3.2. Methods of the SWOT Analysis**

The total of 100 participants was respondent to the SWOT analysis questions. In the questionnaires that were sent to participants, section two was designed to gather information on the ground based on the SWOT methods. This survey was meant to

identify internal factors (strengths, and weakness) and external factors (opportunities and threats) facing the e-government transformation in Tanzania. A set of open-ended questions, semi-structured online interview were conducted for each participant who was available online during the interview process. However, a survey questionnaire was presented to increase the response rate from the participants and presents biased to the participants.

The in-depth analysis is provided based on Strength, Weakness, Opportunities and Threats (**SWOT**) towards the e-government transformation in Tanzania influenced by internal (*Strengths and Weakness*) and external (*Opportunities and Threats*) factors. The factors such as the social factor, technological and resource factors are diagnostically analyzed regarding selection, process, designing and transforming the e-government national project. The SWOT analysis is the key diagnostic tool as a foundation to understand these potential factors and their effects in the process of e-government transformation. More importantly is that through SWOT an in-depth analysis can be conducted to elude the persisting challenges and opportunities in the existing legal framework and the policy context of e-government.

Several studies suggests that the e-government transformation is strongly correlated within the elements identified from the transformational drivers and are influenced by the social (Mulgan, 2000; Wimmer, & Von Bredow, 2001; Heritier., 2001;), Resources (Madon, 2004; Kamssu, 2005; Shin, *et al.*, 2008;) and technological factors (Heeks, 2001; 2003; 2006; Tan, *et al.*, 2008; Headayetullah,

& Pradhan, 2010; Alshboul, 2012; Lupilya, 2015; Lupilya, & Jung, 2015). These factors tend to diminish the effort of governmental institutions in forwarding the e-government transformation influenced by designing, selecting, structuring and implementation process (Madon, 2004; Kamssu, 2005; Shin, *et al.*, 2008; Lupilya, & Jung, 2015). The use of SWOT analysis to understand these factors are necessary and timely to be conducted. Therefore, the study begins by describing the facts about Tanzania that influences the designing, selecting and the process of the e-government transformation.

### **3.3. Sampling Frame**

The current study uses both quantitative and qualitative exploratory study as one of the research strategies to analyze the challenges and opportunities for e-government implementation in Tanzania. To accomplish this, I use non-probability sampling to select the target population. The target population, therefore, consisted of Government, Private, and educational institutions; social forum, and entrepreneurship across Tanzania. All these institutions carry a mandate in some aspect to ensure that appropriate planning, designing, implementing and monitoring of the e-government initiatives are reinforced. The unit of analysis for this study focused on experienced IT experts, Top level directors and managers, Public Officials and Academicians (*individuals*). The list represented here is the sampling frame (Table 9). In order to maximize the response rate of the questionnaire, I employed a combination of judgment and quota sampling methods.

Judgmental sampling is appropriate when the author has the knowledge about the population that the author wanted to study. However, the use of quota sampling was applied to validate the representation criteria within groups of interest that were undertaken as a study. This ensures appropriate representation of various groups in the study.

The expert survey instrument was permeated within a manageable location to save time and ensure cost effective while taking the study. In this case, I purposely pick randomly governmental institutions, Private IT Sector, International Organizations, and Local Social Network forums. Governmental institutions such as those vested to foresee and implement e-government are the e-government agency (*eGa*), Ministry of Communication, Science and Technology (MCST), Ministry of Finance and Economic Affairs (MOFEA), Ministry of Justice and Constitution Affairs (MOJCA), Ministry of Home Affairs (MOHA), Ministry of Infrastructure Development (MOID), and the President Office - Public service management (PO-PSM). However, I also picked randomly international organizations, a local organization, and other private companies those which are supporting the effort of the e-government implementation. Such as Telecommunication Companies like Tanzania Telecommunication Company Limited (TTCL) which supports the Fiber Optic Cable installation, coordinating the ICT infrastructure too, Tanzanian Mobile Phone Operators like Airtel, Tigo, Vodacom, and Zantel. Finally, I picked up two Local Social Network Forums such as the e-think tank, and Wanabidii forums.

I purposely selected three Academic institutions in Tanzania sufficiently provide programs on a related topic in question. Part of their curriculum are majoring on creating the students' knowledge about the development and implementation of information systems, IT project initiations, e-government designing and implementation, IT for educational teaching, implementation and commissioning of organizational IT projects, etc. These universities, among them the author was the Director heading the department of computer science and was involved in teaching at Tumaini University – Iringa campus. Other universities taken as a sample of the study were the Nelson Mandela University in Arusha, and St. Augustine University in Mwanza region. The Online questionnaires were sent to all 104 participants to this study structured on the sampling frame (see Table 9).

① Governmental institutions:

E-government agency (*eGa*): The E-government Agency is responsible for overseeing and implementing the e-government project in the Country. It is responsible and accountable to President Office – public service management (PO-PSM). The targeted population under the e-government agency comprise of 3 Directors and 6 line Managers. Ministry of Communication, Science, and Technology: This is responsible in formulating policies, conducting monitoring and evaluation, regulatory and legal matters pertaining to ICT. The Ministry is the main coordinator of the e-government project in cooperation with the e - government agency (*eGa*). Cybercrime law and other related online information law are under



development in this Ministry. The targeted population comprises 4 Directors in the Ministry who are Director of Infrastructure, Director of ICT, Director of security and system, Director of Policy.

Ministry of Finance and Economic Affairs: This Ministry is responsible for determining and allocating budget for e-services expenditures to different governmental institutions. It is important to note that some questions within the questionnaire were related to budgetary issues. This Ministry was imperative to be included as a target sample is comprised of 4 Directors working in IT or Computer Department and Financing.

Ministry of Justice and Constitution Affairs: This Ministry is responsible for creating and promoting good governance in terms of justices and providing legal services. However, this Ministry is providing legal support for the establishment and development of Cybercrime law and other related online information law in cooperation with other Ministries. Some questions related to Cybercrime law; intellectual property which was asked relates to the functions undertaken by this Ministry and, therefore, it is important to be included in the study. It comprises of 5 Senior Legal Officers who are working under IT or ICT department.

Ministry of Home Affairs: This is important Ministry is working for Citizen Database development, such as Identification Card, the issue of Passport, Visa, etc. Since most questions asked was related to individual privacy, information security and database security are all linked under this Ministry and its wider

network to national security components. It is imperative to include this Ministry under study. The target population comprises of 4 Directors working in IT related project development, and others working under national security agency within the Ministry.

Prime Minister's Office – Regional Administration and Local Government (PMO-RALG) of Tanzania: The PMO-RALG is responsible for implementing a vast number of ICT projects at the local level. The coordinating of the e-government implementation towards improving governance within local government is the key to improving services to cities, towns, Municipalities, Districts, and Wards. All this requires good governance and timely services available 24 Hrs. x 7 days / week. The target population under PMO-RALG is 5, knowledgeable Directors on the ICT infrastructure development.

President Office - Public service management: the President Office is responsible for supporting the development and implementation of the e-government from central to local government and across the Nation. It also coordinates donor funded projects aimed at facilitating the implementation of e-government, ICT infrastructure, e-government database, E-governments, training etc. among other activities. The target population comprises 6 Directors on the e-government initiatives and development.

② Tanzanian Mobile Phone Operators:

For the private sector in Tanzania, a great deal of involving them into the e-

government project has been realized and welcomed by many private sectors. They play a key role in facilitating and rolling out some infrastructure related technologies. They are important in the sense that they cooperate with governmental institutions to speed up the effort of bringing the e-government to live. It was important to consider them in this study, their role have a special contribution and added value to the development and implementation of e-government. The targeted population in this category was the CEO, Directors, managers, and professional's personnel, about 17 were conducted.

Airtel: I conducted one Managing Director of the company, one Business enterprise Director; one IT Director who is also overseeing the IT Infrastructure, one Network Director and one Regulatory and communications Directors. Tigo: For Tigo company, one CEO who is the overseer of the company and other 2 Directors who are involved in designing, supervising and controlling the communication technology and other software innovation platform. Vodacom: For Vodacom Tanzania, is the second competing telephone operator in Tanzania. 5 Targeted members were conducted. One CEO, and other 4 IT Chief Officers on various capacities ranging from Legal and regulatory, Finance, corporate affairs, human resources, sales and distribution of security control, and online privacy. Zantel (*re-named as Airtel*): This is fast growing telephone operator in Tanzania. They have supported e-government on the basis of connecting mobile into the network, searching, retrieving and transaction online just like any of the above operators. The target population for this was taken 4. In that respect, I conducted

one CEO and other 3 Directors on different capacities on the duties.

③ Local IT industries and Social Network Forums:

Local social networks have played a key role in promoting the use of IT technologies on different forms of devices and applications. They have made more effort in providing online training and increasing awareness on how to use the technology especially the e-government. These groups were included in the study, which had 28 respondents: For e-think-Tank, respondents were about 10 members who are knowledgeable and experienced on various levels of e-government platform ranging from infrastructure, software development of security to privacy configuration.

Wanabidii forums: For Wanabidii are Tanzanian social network forum, which had 8 respondents in the study. These respondents have a vast knowledge on IT and programming related specialties. Most of them are involved and taking part on e-government funded the project from donors. This diversity was important to provide support on the investigation.

Local IT Industries: For Sihebs Technologies limited company, E4E Software Technologies development; Vinjari website. These are a few IT business, entrepreneurship which was purposely chosen because of their effort in developing various local software related to e-government applications focusing on transforming services into e-services. They had contributed much on electronizing services to public sector, Citizen Transaction, and information sharing and on

Private IT sector, in particular, education institutions and private owned companies. This group comprises 10 Respondents: 5 Directors and 5 Managers on different capacities ranging from IT / software developer to data security or privacy protection.

④ Academic Institutions:

Local University is regarded as a good example when implementing various IT related projects in the Country. For instance, the Student records require strong security setup and ensure the credibility of issuance of any records for individual students. This practice is similar to the e-government set up in context. The issue of database and students' information, therefore, requires a well designed and implemented data structure similar to e-government enterprise architecture, in order to ensure data privacy, and information securities adhere. A number of vast combinations of knowledge's are required to share knowledge on how to structure and run a specialized program synthesis for maximum security protections. Allowing data sharing for learning, retrieval and searching are the key routes to increase security concerns within the database of the university. The author investigated this university with a targeted population of 22 participants within the Academic institution.

These academic institutions are well regarded as the critical thinker when it comes to IT designing and implementation. They are well equipped with

knowledge on the level of IT and e-government. This institution has already applied e-government on their early setting up of their institutions. Most of these institutions have begun to provide online or video conferencing courses, allowing instant routing of communication and information. They have a good IT infrastructure designed and implemented, which allows a two-way traffic for communication, data retrieval and sharing information online. For this reason, it was prerequisite to contact these institutions:

University of Tumaini – Iringa: The Target population was 10. The study selected one Rector, and one Director of Computer center, and another 8 Lectures and tutorial assistance working in different capacities within the field of related IT.

The Nelson Mandela African Institution of Science and Technology (NM-AIST): For NM-AIST, only 6 target population was conducted. Most of this were Lecturers and their assistance lecturers on related field of IT and policy development.

The university of St. Augustine in Mwanza region: the 6 target population was picked up. These involve Lecturers and IT Technicians, who are overseeing the IT infrastructure of the University. They are in charge of managing, implementing and configuring the setup for maximum security and privacy protection. Student's data records are very important and therefore, it is important to analyze how protections of the individual data record and information privacy are managed.

**Table 2:** Frequency distribution of target population (N=104)

	Frequency	Percent	Cumulative Percent
e-government Agency	9	8.7	8.7
Ministry of Communication, science and Technology	4	3.8	12.5
Ministry of Finance	4	3.8	16.3
Ministry of Justices	5	4.8	21.2
Ministry of Home Affairs	4	3.8	25.0
Prime Ministers Offices	5	4.8	29.8
President Office – PSM	6	5.8	35.6
Airtel	5	4.8	40.4
Tigo	3	2.9	43.3
Vodacom	5	4.8	48.1
Zantel	4	3.8	51.9
E-thinktanz	10	9.6	61.5
Wanabidii	8	7.7	69.2
Sihebs	4	3.8	73.1
E4E technologies	4	3.8	76.9
Vinjari website	2	1.9	78.8
Tumaini University	10	9.6	88.5
Nelson Mandela	6	5.8	94.2
St. Augustine University	6	5.8	100.0

### 3.4. Developing the Survey Instrument

The SWOT analysis together with the literature review provides a checklist of 84-



items were developed as the survey instrument. The item developed represents a concrete and comprehensive challenge to avoid any sort of redundancy. The country background uses both Swahili and English as the media of communication and all the participants in the sampling frame were conversant with English. Therefore, the language used for the survey questionnaire was set to English based on the sampling frame. The second part was the completion of the study survey, which uses various sources of data collection: on a first round, the semi-structured interview; direct observations; participants-observation was done for governmental institutions, Mobile phone operators, local IT industries and social network, and academic institutions on January, 05 to 21 March 2015 (see Table 2). The second round was based on documentations; library and archival records from March, 08 to May 15, 2015.

The central focus of these rounds was to seek answers to the question of 1) what are the challenges of e-government implementation in Tanzania, 2) what are the opportunities of e-government in Tanzania, and the last question I run the factor analysis to know 3) how to address these challenges in Tanzanian context. Prior to the participation, the participants had an orientation of the questions and the importance of e-government transformation in Tanzania. However, all participants were asked to provide additional answers on the separate paper which were coded and interpolated. Another participant's voluntarily agreed to be recorded during the conversation. However, under ethical research consideration, the information provided is treated confidentially. A final round was data collection, which was

administered using secondary information from the Literature review as provided in the theoretical framework and the background of the study. Some other important resource centers visited include the central Library, Korean Ministries, and information resource center in Korea. The university central Library and other libraries at the university of Seoul – Korea was consulted.

### **3.5. Data Analysis Tools**

The Central objective of the current research analyzed the opportunities and challenges of e-government in Tanzania. Following a set of questionnaire that was sent to participants, the study also conducted an online survey of which both were extensively analyzed. The study, however, approached to a number of statistical tools in order to analyze those data: the study used the following tools:

#### *The Validity of Construct and Questionnaires Content*

The study uses the principle component factor to analyze the validity of the constructs and the content. To do so, each variable in the study were examined to ensure that each operationalization of the constructs does conform to the research objectives. The research study identified four variables for the analysis.

#### *The Reliability*

To ensure the reliability of the measurement scale that was used in this study, the study analyzed the consistency of each variable using the correlation coefficient

methods. The reliability analysis for all items on the challenges and opportunities of the e-government in Tanzania indicated on all items are loaded low while other items are loaded very high. Items that loaded low, indicate the absence of these instruments for e-government transformation while other items loaded very high indicates that if the instruments are made available to the institutions then those infrastructures or instruments are underutilized. The analysis shows that all variables were significantly consistent and reliable. This was done using the suggested analysis proposed by Cronbach Alpha (1951) to test for each internal reliability and consistency of each scale used in the study as an extension to the work done by Guttman (1945). The reliability level of acceptance value should be .060 Cronbach Alpha, if it gets more, that explains more reliability and consistency of the scales measurement used. Items were distributed to all respondents; about 99% response items were averaged to indicate the general challenges and opportunities of the e-government. However, the low scores explained that the availability of resources, the social transformation and technology factors for e-government were among of the critical challenges that did not direct attention to governmental institutions.

### *The Exploratory Factor Analysis*

The statistical package software SPSS version 22 was employed in this study to run the factor analysis for each item using Oblimin with Kaiser Normalization. The central goal of this analysis is to ensure the following key objectives are met. First, is to understand the significant structure of the relationship between constructs such as the Social, Resources, Technology and the transformational drivers is met. Second, is to reduce the number of variables or constructs within the largely selected population to a small one. Third, is to ensure that all constructs on the subject matter has a valid evidence to be analyzed and, therefore, such condition has been met and fulfilled.

#### *The Model Assessment*

The factor analysis was employed to examine the interrelationship between the social, resources, technology and transformational drivers. In order to understand this interrelationship using the factor analysis, three conditions are certified: 1) To measure the Sampling Adequacy (Cerny, & Kaiser, 1977), it is suggested that the use of Kaiser-Meyer-Olkin (KMO) is imperative to certify the applicability of the factor analysis (Kaiser, 1970, 1974; Dziuban & Shirkey, 1974). In a multicollinearity case, the KMO can help to determine which constructs to be dropped from the model. The KMO usually varies from 0 to 1.0: The KMO measure should be close to 1.0 (Cerny, & Kaiser, 1977). However, in the case where the KMO measure equal to 0.5, this explains that the partial identity of the correlation matrix is approached. When KMO measure less than 0.5 indicates high

multicollinearity of constructs: two things required, one is to immediately re-assess and remedy the constructs or second, drop completely the constructs (Cerny, & Kaiser, 1977). In summary, KMO measure of sampling adequacy ranges from 0.90 – 1.00 which indicate marvelous, 0.80 – 0.89 as meritorious, 0.70 – 0.79 as middling, 0.60 – 0.69 as mediocre, 0.50 – 0.59 as miserable; and less than 0.5 (0.00 – 0.49) as unacceptable (Kaiser, 1970, 1974; Dziuban & Shirkey, 1974). (2) The Bartlett Test of Sphericity should be 0.5 or lower to verify that the homoscedasticity across samples or group has an equal variance. In other words, there is a significant relationship between the construct. And 3) is the description of the anti-image correlations that holds a small value. This would explain that the data matrix is appropriate for factoring the analysis in question (Hair *et al.*, 1998).

The following Table 3 shows the reliability coefficient analysis of the scales as a measure of the adequacy of all samples in the study. The KMO test value indicates above 0.5 which explains that the measure of the adequacy of the sample is certified. In this case, the Measure of sampling adequacy is above .782 for Social factor, Resources factor loaded .857, and Technological factor indicates .719 while the transformational drivers have higher KMO of .902. Therefore, the author included the Cronbach's Alpha to test for internal reliability measures as shown in Table 3 that explains that there is a significant relationship to all constructs with a value of .000 (Cronbach, 1951).

**Table 3:** The reliability coefficient analysis of the scales (Cronbach Alpha)

The Constructs	Number of Items	Reliability (Cronbach Alpha)	KMO	Bartlett Test of Sphericity Chi-Square	Significant
Social Factor (SQ)	6	.890	.782	555.797	.000
Resources Factor (RQ)	7	.926	.857	944.695	.000
Technology Factor (TQ)	7	.910	.719	1209.764	.000
Transformational Drivers Factor (DQ)	6	.898	.902	337.782	.000
<b>Total</b>	26				

**Note:** SQ = Social Factor Questions; RQ = Resources Factor Questions; TQ = Technology Factor Questions; DQ = Transformational Drivers Factor Questions.

The study sample size of 104 is adequate as opposed to the ratio requirement for the exploratory factor analysis of 15:1 between the sample and variable (Hair *et al.*, 2011). The analysis, correlation matrix for challenges of e-government transformation shows the significant correlations between factors which exceed 0.448 (in this case satisfied the accepted level of .01 variances), which satisfied the condition for carrying out the factor analysis. The measurement of the sample adequacy, a value obtained from using the Kaiser-Meyer-Olkin (KMO) criterion and the Bartlett's Test of Sphericity was employed.

The Measure of sample adequacy is 0.78 that satisfied the requirement of the MSA value of 0.5. The commonalities values of all constructs in the table below shows above 61.4% of the variance associated with the constructs in the study and this explains the commonalities extraction of the variance are successfully obtained. For the component analysis shows the total variance explained with one-factor loading, about 65% of cumulative eigenvalues is explained in the first component. This is an acceptable level to continue for further analysis

### **3.6. Measurement and Variables**

The study uses the Likert scale as one method to assign some weight to different questions. This is easy methods that motivate the respondents to indicate their level of certifications. From point 5 which are given a weight as strongly agree to 1 which is strongly disagreeing. This method helps the respondents to orient themselves to some of the questions that they are familiar with and become easy for them to just pick and tick the appropriate box. Furthermore, Likert scale has been considered as one of the best methods that are keeping a good indication and awaken a memory within respondents since that (Pett *et al.*, 2003), similar choices are made available however on the different degree.

*The Social Factors:* which is a group of a citizen who is vibrant to the use of e-government, but they can enhance the interaction for online information sharing.

*The Resources Factor:* are the engines for fueling the transformation of the

e-government. This is believed to steer the wheel for social and technology enablement within institutions and another dimension. Several authors are directing their attention to resources and that should be seen as a waterfront for the development of the e-government services applications

*The Technology Factor:* This is the most critical factors for enabling the e-government to sit on it. The advancement of any technology does have an impact in the development of e-government in terms of infrastructure, database center, the internet and so forth. It is imperative to measure the intensity of the technology effect on the development of the e-government.

*The Transformation Drivers:* one of the areas that have been critical for most developing countries are the transformation drivers to influence the e-government. For instance, possessing virtuous leadership might explain the change and restructuring of the institutions' systems to speedy transform the e-government adoption or transformation. The Table 4 below explains in a more detail:



**Table 4:** Constructs used to measure e-government challenges

Construct Measurement	Construct and measurement			
	Social Issues	Resources Issues	Technology Issues	Transformational drivers
1	Income	Smart IT	Internet satisfaction	Virtuous Leadership
2	Engagement	Financial Resources	Database center	Checks and Balance
3	Guidance and awareness	Technical Resources	Standardize applications	E-government Policy / strategy innovation
4	Demographic	-	Standardize IT systems	E-government enterprise architecture
5	Attitudes	-	Online protection	e-government labs / clustering
6	-	-	-	monitoring and Evaluation (KRA)

*Measurement of Social Factors*

Social factors are said to influence the transformation of e-government in various contexts. The study was interested in measuring several items including income, engagement, guidance and awareness, demographic and attitudes. As explained in the literature review, the level of income can determine the frequency of interacting and sharing of the communication and the e-government across borders. Since all

technology devices and the internet, accessibility is correlated with spending money. Studies on social factors were carried out by Venkatesh *et al.*, (2000); Venkatesh *et al.*, (2003); Choudrie, and Lee, (2004); Choudrie, and Papazafeiropoulou, (2006); Alawadhi, & Morris, (2008). They describe factors mentioned above as the success in enabling sharing and interaction on the online platform.

To understand how people are transformed within the dimension of technology, one way is to measure the level of accessibility to the internet. In the first instances, I set the question related to income perspective, engagement, and guidance and awareness. However, some categorical group in terms of demographic factor may be deemed necessary to establish their frequency level of connectivity in terms of their choices and subject matter of the e-government. These demographic factors are important to design what services are frequently accessible and what not. I looked at the age category to see the frequency distribution of internet accessibility via phone or computers and other devices. Age category can also tell the income level, whether dependency, or non-dependency, whether they have a job or jobless, whether they are a net guru or not, and so forth. These elements help to determine their attitudes towards online sharing and interaction. To do that, I also constructed the items measurement using a five-point Likert scale which was ranging from “1” strongly disagree to “5” strongly agree. A set of fifteen items was developed as a measurement to the constructs. See Table 5.

**Table 5:** Measurement of social factors for e-government transformation

<b>Items</b>	<b>Measures of social factors</b>
<b>1</b>	<i>Internet inequality can inhibit the online interaction and sharing of information</i>
<b>2</b>	<i>Absence of information on citizen demographic (such as birth, population, migration, age, marital status, place of residence, etc.) leads to failure in e-government designing</i>
<b>3</b>	<i>Social attitudes towards e-government deployment lead to failure in achieving the e-government goals</i>
<b>4</b>	<i>Social engagement towards e-government can influence the speed implementation of e-government efforts</i>
<b>5</b>	<i>Government intervention to provide guidance on internet price can speed up the e-government deployment across nations</i>
<b>6</b>	<i>Government support to increase awareness to social elite network speeds up the e-government trust and deployment across citizen</i>

Internet inequality, social attitudes, and social awareness are highly and significantly correlated each other. These factors explain positive correlation and how they affect the e-government transformation and, therefore, are critical challenges to governmental institutions. The KMO is .782 while the Bartlett's Test of Sphericity ( $P < .001$ ). So, the study concludes that the correlation is significant and that, the data set has met the condition for running the factor analysis (Hair, *et*

al., 2011).

### *Measurement of Resources*

The correlation coefficient matrix computed for ten (10) components to measure the resources factor. The study observes that the correlation coefficient popped up from the correlation matrix presents items with a higher value of 0.3 while other items indicate lower than 0.3. This shows that the factor analysis criterion is met and thus can be conducted in this study. The study conducted the measurement of sample adequacy using the Kaiser-Meyer-Olkin (KMO) as the widely used criterion. In this case, the KMO is 0.857, while the Bartlett's Test of Sphericity is ( $P < .001$ ). Under this circumstance, the analysis shows that factor analysis is sufficient to test the data set.

**Table 6:** Measurement for resource factors for e-government transformation

<b>Items</b>	<b>Measures of resource factors</b>
<b>1</b>	<i>Absence of smart e-government experts within government can inhibit the e-government transformation</i>
<b>2</b>	<i>The lack of e-government budget support from donors and other external agencies can create an obstacle for e-government transformation</i>
<b>3</b>	<i>Lack of internet accessibility within governmental institutions is an obstacle in achieving e-government transformation</i>

4	<i>Government intervention to regulate free tax on smartphones can support the e-government deployment</i>
5	<i>E-government task force in Tanzania plays a key role in speeding up the e-government utilization and deployment process</i>
<b>Items</b>	<b>Measures of resource factors</b>
6	<i>Lack of enforcement to deploy the National ICT Broadband Backbone-NICTBB can lead to delays of e-government transformation efforts</i>
7	<i>Internal coordination of e-government systems design and installations can speed up the e-government transformation process</i>
8	<i>Centralized e-government applications can influence the development and transformation of e-government success</i>

### *Measurement of Technology*

The measurement of technology is well known on availability of resources as presented by Heeks, (1998, 2002, 2006); Fountain, (2001); Castells, (2001); Hone & Eloff, (2002); Vroom, & Solms, (2004); Hwang *et al.*, (2004); Ndou, (2004); Grönlund, (2005); Kumar *et al.*, (2007); Karokola, & Yngström, (2009a); Headytullah, (2010). The advancement of technology creates positive progress while on the other hands creates a negative development of the e-government transformation, especially in the developing countries. In the literature reviews, it shows that, technology advancement such as the internet, database, standardize applications, IT systems, and online protections are essential for the transformation of e-government, but requires critical analysis and coordination (Heeks, 1998, 2002, 2006; Fountain, 2001). In other words, if the technology is not well managed

and controlled by the governmental institutions, say from its initial adaptation to its implementation, such effort may doom to fail and very often may cause catastrophic in the whole process. Table 7 shows the measurement for technology factors for e-government transformation.

**Table 7:** Measurement for technology factors for e-government transformation

<b>Items</b>	<b>Measures of technological factors</b>
<b>1</b>	<i>Lack of internet satisfaction can inhibit the e-government transformation efforts</i>
<b>2</b>	<i>Absence of database center is an obstacle for e-government transformation</i>
<b>3</b>	<i>The absence of standardized applications is an obstacle for e-government transformation</i>
<b>4</b>	<i>The absence of standardized IT systems is an obstacle for e-government transformation</i>
<b>5</b>	<i>Lack of online protection is an obstacle for e-government transformation</i>
<b>6</b>	<i>Absence of e-mobile infrastructure can delay the e-government transformation process</i>
<b>7</b>	<i>The lack of e-mobile localized applications can inhibit the speedy transformation of e-government</i>

The correlation matrix presents eight factors. Scale Tq6 loaded very low among other scales in the analysis. However, the study considered this scale as an independent project in the nation to speed up utilization of e-government, but it

turns out from the literature review, analysis on e-mobile infrastructure (Tq6) analysis suggested that, since the NICTBB (National ICT Broadband Backbone) is in place, there should be a well-organized strategy for deployment of NICTBB which satisfy the technology infrastructure where mobile is part of it. To avoid such duplication, therefore, this scale was confirmed to be dropped from the analysis.

All constructs are above the accepted value of 0.5, and in this case, the KMO is 0.719 which is preferably high (Kaiser, 1974). The 93.554% of the variations in the seven factors is explained after extracting two components that loaded with higher Eigen-values (4.590 and 1.959). Using the extraction methods of principal component analysis, the cumulative results of 93.554% suggest that two components are explained in the second order factors.

#### *Measurement of Transformation Drivers*

Transformational driver's acts as a mediating variable, in this case, but have a huge implication to the attainment of the e-government goals. It was observed that governmental institutions require to have virtuous leadership, coupled with the Napoleon Bonaparte style of leadership to effect changes in the whole institutions. Things like checks and balances, E-government Policy/ strategic innovation, IT and e-government enterprise architecture, having e-government labs or clustering are important factors that need to embrace and institutionalized. Previous studies, they

measure e-government success using these factors pointed on the literature review. However, I extend more on covering items that were not addressed in the previous literature, but were necessary to be considered in the context of Tanzania. These were eighteen items developed on each item below and were measured using a five-point Likert scale. The following table outlines these measures developed and are widely presented in Table 8.

**Table 8:** Measurement for transformation drivers for e-government transformation

<b>Items</b>	<b>Measures of transformational drivers</b>
<b>1</b>	<i>Absence of virtuous leadership hinders the development of e-government</i>
<b>2</b>	<i>Lack of checks and balances for e-government national project hinders the speed of transformation</i>
<b>3</b>	<i>Absence of e-government policy innovation leads to failure of e-government transformation</i>
<b>4</b>	<i>Absence of IT and e-government enterprise architecture hinders the transformation of e-government</i>
<b>5</b>	<i>Absence of “implementable” e-government strategic plan innovation can lead to failure of e-government transformation</i>
<b>6</b>	<i>The absence of monitoring and evaluation (KRA) in e-government is an obstacle to smooth transforming the e-government</i>

The results of the correlation between transformational drivers show significant correlation at 0.01 levels among all constructs. The results from the analysis indicate that the study is supported to conduct the factor analysis for the challenges



of e-government in Tanzania according to the correlation results for the transformational drivers.

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and the Bartlett's Test of Sphericity criterion are 0.902 that explain the appropriateness certification of the criterion of the MSA value above 0.5. However, to verify the presence of non-zero correlation among constructs the Bartlett's Test of Sphericity was tested which is significant at 0.0001. This result explains the suitability to conduct the factor analysis (Hair *et al.*, 2011).

#### *The Pretest*

In order to uncover some issues or misinformation's which were not observed during the development stage of the survey instrument, the pre-tested was essentially administered within a sample of 50 collaborative University students' participants during and after the survey as described by Cooper & Schindler (2006). The author conducted two round research participation as a one-to-one approach from March 29 – May 19, 2015. The survey instrument was designed to analyze the dependent and independent variables in the study. The author divided the participants into three groups (Group  $X_1$  = Students who are majoring in computer science, IT networking, or software development;  $X_2$ , = Junior staff who are knowledgeable and are working day-to-day on providing IT services or e-government projects;  $X_3$  = Senior staff who oversees and decision makers of the institutions, among other responsibilities they are involved in providing direction

and vision of the e-government transformation.

Prior to the beginning of the session, the author run the pretest of the survey instrument with the group using their internal domain website with a group of 5, and each group ( $X_1$ ,  $X_2$ ,  $X_3$ ) possesses, at least, more than 10 respondents who were involved in updating website, as well as monitoring number of customers visiting their site. After this initial testing, any ambiguities related to the concepts or main topic of the questionnaire, typos, and missing characters were instantly clarified and rectified. In order to have an accurate and coherent survey, a second stage was initiated into the group of  $X_1$ ,  $X_2$ , and  $X_3$  working on the different field but have the same goals. However, a group of 35 respondents were tested using the same revised survey within a range of 20 – 30 minutes. This was done to ensure the credibility of the survey and ensure clarity within instrument was met.

The author administered an online survey for each group ( $X_1$ ,  $X_2$ , and  $X_3$ ) who had a sufficient knowledge about IT and e-government. However, depending on the orientation day, group  $X_3$ , had few directors and the CEO due to the reasons that they were absolutely busy with making administrative decisions. For that, they couldn't spare 30 minutes to go through the online survey. Instead, I conducted an interview while record during the conversation within 10 – 20 minutes. Time to time, due to the status quo (working at the State House) the author, several offices allows the author to freely interact with groups while observing their working interactions, participation in decision making, as well as general work routines regarding the e-government transformation process. During the process of

observation, interviewing and questionnaire administering, I controlled idiosyncrasies by the Tanzanian government on the document review angle. Other variables that were seemed to interfere with the study were also controlled from the initial phase of designing, testing and implementation. However, the central concern here was that the author was given high priority, because it was perceived to most authorities that, the author was sent to investigate the institutions. Additionally, the information requested by the author may be biased authorized or hidden due to fear of accountability and transparency. Sometimes, online survey experience had some shortcomings in the sense that, power-cut, knowledge using online surveys, slowness of computers due to viruses or oldness were among of the concerns issues. The author addresses this concern following Monte Carlo Methods (Van Slyke, 1963) by dividing the participants into homogenous subgroup randomly, and assigns independently the survey to each stratum.

To ensure that the survey questions conform to the standard quality and measurement, the study adopted a recommended scale developed by Venkatesh *et al.*, (2003, 2008); Wang, Wu and Wang, (2009) in order to ensure the reliability and validity of this measurement. I conducted several pre-test questionnaires to different participants, social forums, and citizens in order to ensure questionnaire validity and reliability. The questionnaires were sent back and forth to various groups and were validated time to time to maintain a standard level of reliability and possess the quality of information. According to Anderson and Gerbing (1998), cross-validation for the construct to be measured should be examined and tested to

ensure their reliability. The study has employed the techniques recommended by Gerbing (1998) in that aspect.

Out of 104, only 100 participants who responded to the study are represented as a valid sample which amount to the response rate of 100%. The sample shows that about (65%) who completed the survey were female respondents who dominate male respondents (34%). An average of the respondent's age who was involved in the survey was between 31-40 age groups. At an average education level, approximately 41% had a Master's Degree of education, while 36% had a Bachelor's degree in a respective field. Only 11% of respondents were reported to possess a Ph.D. level education. While 40 Directors across institutions participated in the survey (38%) and only 12 tutorial assistances (10%) responds to the survey study. Thirty-five percent out of the respondent in the survey study are coming from the Governmental institutions which are mandated to oversee the implementation of the e-government in the country. Only 16 % are the respondent in the survey were coming from private institutions that are operating their business on the platform of technology. The 17 % are coming from social forums, these groups are entirely interacting day to day with technology. This group is the catalyst for widening up the utilization of technology such as blogs, Facebook, googling, charting, etc., whereas the 21% are from educational institutions which are geared on training and implementation of e-government in their sector-wide. This includes using e-government for education, teaching, and learning, grading as well as communication. The other part of 9% respondents are

from private entrepreneurship connected to e-government business in various platforms. For instance, the development of software's and technological applications, IT equipment service, etc. are from these institutions (See Table 9).

**Table 9:** Analysis of the Demographic profile of the respondents (N=104)

<b>Variables</b>	<b>Frequency</b>	<b>Percent</b>
<b>Gender</b>		
Female	68	65.4
Male	36	34.6
<b>Age:</b>		
20 – 30 Years	23	22.1
31 – 40 Years	35	33.7
41 – 50 Years	28	26.9
51 and above	18	17.3
<b>Education</b>		
Basic Education	5	4.8
Diploma	1	1.0
Advanced Diploma	5	4.8
Bachelor's Degree	38	36.5
Master's Degree	43	41.3
Ph.D.	12	11.5
<b>Survey respondents' area</b>		
Government institutions	37	35.6
Private institutions	17	16.3

Social forums	18	17.3
Educational Institutions	22	21.2
Entrepreneurship	10	9.6

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When crossing checking the balance of the respondent rate, the study found that most of the respondents were knowledgeable about the e-government and have an IT background. About 38% respondents were holding a position of Director in their respective domain, 4% were the Chief Executive Officer (CEO) oversee their adoption and implementation of e-government. While 1% hold a position of Managing Director whose business was to foresee the company's growth in the use of technology. The 9% were line managers who supervise other staff working on the implementation or adoption of e-government services, 1% as business manager, 3% were IT Chief Officer, 4% were the Legal Officer works under the cyberspace security, while 4% are the IT specialist, only 5% were software developers in their institutions. The 6% were working under security experts, and 8% were the lecturers who are involved in teaching and changing their institutions in the use or utilization of e-government. While 10% were supportive staffs or tutorial assistant in their respective domain (see Table 10).

Comparing these diversified experiences within different institutions, it was observed that only 38% of the 104 respondents who were involved in the survey study. These were the Directors working in the governmental institutions where, e-government is their functional area. They also take another responsibility of supervising lots of projects involved in the development and implementation of

Technology or e-government. About 5% of the 104 respondents were the top leaders who are involved in making a decision and taking responsibility in terms of transparency and accountability running of the institutions. The rest of the respondents about 48% were line managers who are engaged in planning, designing and supervising the implementation of e-government (see Table 10).

**Table 10:** Frequency distribution of the basic categories of the target population  
(N=104)

<b>Category</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
CEO	5	4.8	4.8
Managing Director - MD	1	1.0	5.8
Director	40	38.5	44.2
Manager	10	9.6	53.8
Business Manager	1	1.0	54.8
IT Chief Officer	4	3.8	58.7
Senior Legal Officer	5	4.8	63.5
IT	5	4.8	68.3
Software Developer	6	5.8	74.0
Security experts	7	6.7	80.8
Lecturers	9	8.7	89.4
Tutorial Assistance	11	10.6	100.0

Following the factor analysis suggest that several latent variables in this study explain the correlated variables of social, resources, technology and the transformation drivers of e-government transformation are loaded very low while other factors loaded high. This explains that the assumption of several latent variables on social, technology, resources was underutilized. However, factors that were loaded high tell us that, in the absence of the transformation drivers it affects



the attainment of the e-government transformation. The reasons that, several factors in the study loaded very low, shows that even though some basic infrastructure, and the availability of resources such as IT personnel, all these are not fully utilized for the betterment of the e-government transformation. The results indicate that, the misuse of resources becomes a fashion in most developing countries, and therefore, fails to obtain the added value and the project impact for their development

For instance, the availability of technology infrastructure such as the national backbone infrastructure, which is an extremely expensive infrastructure development, has left out for some reasons, and is not harmonized and integrated within governmental institutions. In addition to that, the resources factor also have loaded high, supporting the argument that, technology dependency, infrastructure dependency, and other technological technical support dependency have led to the failure of the attainment of the e-government milestone. For instance, according to the e-government strategic plan indicated that one of the prime objectives of the e-government agency in Tanzania is to coordinate the integration of the IT systems, merging of applications and so forth. The questions often asked, is which institutions are liable to manage this platform and systems? The answer to that is still a government institutional puzzle. This has delayed the speedy transformation of the governmental institutions' systems, fearing that who will manage and coordinate one system. The results from this study show that such weakness on the resources factor, particularly the absence of smart IT personnel,

financial resources, and the technical support locally has contributed to the failure for not attaining the e-government national project on time.

### **3.7. Concluding Remarks**

This chapter highlighted the methodology used for data collection, measurement, and latent variables. This was imperative to detail this finding and is carried forward to the next chapter for analysis. At first, the methods explained in this chapter for data collection started with a semi - interview, a questionnaire was sent to all participants and survey was administered in this study. The study also employed measurement as indicated from previous writers. The expert survey instrument was permeated within a manageable location to deliver time and ensure cost efficient while taking the survey.

The study uses the Likert scale as one method to assign some weight to different questions. In order to validate the output from the survey, the author explored empirically each item indicated in the research framework: the social, resources, technology factors, plus the transformational drivers for the transformation of e-government in Tanzania. The study empirically performed a factor analysis on all the constructs underlying the third question of how to address the challenges and opportunities of the e-government in Tanzania. The next section will provide the analytical results of these findings.

# **CHAPTER 4. SWOT ANALYSIS FOR THE E- GOVERNMENT**

## **4.1. The Challenges of E-Government Transformation**

The current research argued that the transformation drivers are not only used as a command and control in addressing the challenges, but also can be used as an institutional device to orchestrate the diffusion of e-government services across borders. This device plays an important role in a government effort to achieve the e-government effectiveness transformation. From the viewpoint of Heeks, (1999, 2002); Fountain, (2001); Lupilya, & Jung (2015) the transformational drivers can be used as a strategic device for the governmental institutions to enable the transition of e-government project. Within this device, key predictors addressed here are: the virtuous leadership, checks and balances, the E-government Policy / strategic innovation, the E-government enterprise architecture, the e-government labs / clustering, and the monitoring and evaluation of the key results areas abbreviated as (KRA's).

As pointed out in Havard (2007) suggested the model of virtuous leadership for embracing challenging projects like e-government national project. The model of virtuous leadership seems to be timely and necessary as governmental institutions are struggling to respond to changes caused by technology (Castells, 2002; Lupilya, and Jung, 2015). The model contains ten

points and among them are: a virtuous leader should be virtuous, magnanimous and humble, prudent, have a leadership temperament, and have authority (Havard, 2007). This model of virtuous leadership is a far-reaching device for triggering the formulation and coordination of e-government to meet the challenges caused by several network actors. For the smooth transformation along with a social e-transformation requires a global cooperation orchestrated by virtuous leadership (Lupilya, & Jung, 2015). It should be noted that e-government is about people and their relations with the government (Kitaw, 2006; Kumar, 2010; Lupilya, 2015). Therefore, institutional virtuous leaders who are aggressive to embrace e-government projects can highly impact the effort to achieve social e-transformation (Karakola & Yngstrom, 2009; Machira, 2009; Dhliwayo, 2009; Merwe, 2009).

In the context of Tanzania, tremendous small and medium enterprises (SME's) such as IT industries, social Media and network and Telecommunication sector have come forth in the late 2000's. This emerging of SME's has marked the high competition age in this ever-growing technology environment which undermines the leadership responsibility (Heeks, 1998, 1999, 2006; Heritier, 2001; Headayetullah & Pradhan, 2010). Such Mushrooming of SME's such as the IT industries, social media networking, IT applications for communications, Telecommunication industries both private and public are mushrooming without standards. Such movements have made it hard not just for the government to maintain the technological development standards, but also citizen becomes unable to afford and consume the services rendered (Heeks, 2001b; Lupilya, & Jung,

2015). In this regards, this explains the weakness of institutional leadership not to become accountable and responsible for the fragmented telecommunications and IT industries in the country (Heeks, 2002, 2003; Lupilya, 2015). The current study analyzes these trends of growing SME's in the field of IT, and describe it as a challenge characterized by the failure of institutional leadership (Heeks, 2002). The study shows that there is also the lacks of checks and balances (Havard, 2007; Yonazi, 2013) as a mechanism for adjusting weakness and opportunities during the transformation process. Similarly, the e-government Policy / strategic innovation (Ndou, 2004; Karokola & Yngstrom, 2009a) is beyond the governmental institutions priority and therefore, become a stumbling stone for accelerating the transformation process. The most important item to note here is, the e-government enterprise architecture (Heeks, 2002; Mutula, 2008; Kumar, 2010) which is a missing link in the transformation process. This has resulted into failure to establish several e-government labs / clustering and institute monitoring and evaluation mechanism as the key results areas (KRA's). These initiatives are said to be a fundamental groundwork that if well designed and institutionalized can ensure strong effort of e-government transformation (Castells, 2001; Shin, 2008; Yonazi, 2013; Lupilya, & Jung, 2015).

### *Virtuous Leadership*

The virtuous leadership is referred to as virtue ethics excised in action by the leader demonstrating the ability to lead, make timely, but most effective decision making

within institutions (Lewin, 1951; Lal, 1999; Mulgan, 2000; Wimmer, & Von Bredow, 2001; Havards, 2007).

Recently, institutional leadership in most developing countries has limited power and authority in their leadership style (Havard, 2007) which causes tensions and conflict of competing interests. In fact, the image portrayed in the e-government transformation in a developing country, portrays the nature of leaders who are entrusted by the government, but fails to transform the e-government irrespective to the instruments they possess. In turn, they become leaders of popularity, boasting over their personalities, and forcing for greatness. This is contrary to Havard, (2007) suggested that true leaders are the one who are not searching for greatness, but who are capable of molding their characters, behavior, and attitudes towards virtuous. In other words, the leaders of these types are the ones that, who dislike taking responsibility and accountability, but spends most of their precious time for embracing rumors and hypocrites. Similarly, leaders of this type like to spend time for study-touring which has no impact to their work. In the study was done by Lupilya, & Park, J. (2015) strongly emphasizes on leaders to conduct e-government research and development by using whatever opportunities available, that way will accelerate their level of knowledge and innovation development in e-government. In doing so, this will promote their abilities that are essential and needed to forecast local problems and searching for solutions on challenges in e-government national projects. While Havard, (2007) pointed out the qualities of leaders as having virtue ethics. This implies that, Leaders should be

insulated with fresh veins of attitudes that do not attract any elements associated with misusing government resources, becoming irresponsibility's for own actions, turning into kleptocrats rather than being molded as a servant and spiritual leaders. That alone can portray the leaders in a similar fashion as uninformed leaders and sometimes deviate from being responsible, but grow in fear for accountability. Very often they manifest as if they are leaders with good experience and are knowledgeable, but, in reality, they are uninformed to carry out their responsibility and are becoming pretenders. In this manner, they pretend to know much, but, in reality, are entirely anti-development in character with self-driven interest. In similar fashion, they are the type of leaders who do not acknowledge the dignity and skills of others and appreciate whatever good things others have performed. Furthermore, other traits of leaders are the ones motivated by their selfishness and do not hold firm the interest of the public or citizen.

In summary, these are among the traits of leaders that can be spotted easily in many contexts, especially once assume to take responsibility. As a consequence, they tend to create enmity with those who proves to be innovative, creative and strong in character who carry out their duties and responsibility in e-government transformation intelligently. Instead of becoming an entrepreneurship leader with a zeal to collaborate and share knowledge and innovation to orchestrate the speed of e-government national development project, they become a stumbling block for the e-government development (Heeks, 2002, 2003; Lupilya, & Jung 2015).

In the study done by Burns (1978) suggested that “The crisis of Leadership today is the mediocrity or irresponsibility of so many of the men and women in power.....the fundamental crisis underlying mediocrity is intellectual. If we know all too much about our leaders, we know far too little about leadership. We fail to grasp the essence of leadership that is relevant to the modern age.” (Burns, 1978, p.1), in a similar way, he concluded that “Leadership.” is one of the most observed and least understood phenomena on earth” (Burns, 1978, p.2).

The author suggests that, institutional leaders should not be the least on earth to be known, but they should venture their effort towards becoming an entrepreneurship leaders with the spirit to save and innovate new things. This would explain their leadership traits as they struggle towards achieving the targeted prime goals. They must possess an entrepreneurship spirit that guides them in each stage of their struggle towards achieving the expected and targeted goals. This way, they will become leaders of hope because they are constantly observed in Africa and elsewhere in the world.

For Napoleonic Bonaparte<sup>1</sup> characterized his leadership not only as the dictator but the most influential figure that direct attention to developing countries. In the age of Napoleonic Bonaparte leadership, signifies that he was a great military leader; strategically, even more of entrepreneurship in spirit. Therefore, Napoleon was genius to handle tactics of complex situations; He worked beyond

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<sup>1</sup> [http://www.napoleon-series.org/research/napoleon/c\\_genius.html](http://www.napoleon-series.org/research/napoleon/c_genius.html) (Retrieved on 20/05/2015)



the clock continually; He possess a “hypnotic power” during his leadership; He was an inspirational leader existing to to-date as he pointed out that “If the art of war were nothing but the art of avoiding risks, glory would become the prey of mediocre minds.... I have made all the calculations; fate will do the rest.” (Napoleon Bonaparte, 2015).

For effective e-government transformation, institutional leadership should become a dealer in hope (Napoleonic style) who mold change as far as he can see the future. In other words, institutional leadership should learn an art of avoiding risk, but seek greatness of achievement through becoming responsible and accountable. Contrary to this, experience shows that institutional leaders of this age are seeking for greatness and pretenders instead of molding their ability to declare greatness. In 2002, 2003a and 2003, Richard Heeks, explain the long journey of stagnation of the e-government project in Africa, which attract attention to the government to orchestrate possible transformational drivers.

The literatures on e-government failure in developing countries, especially in Tanzania, Heeks (1998, 2001, 2003 and 2006); Karokola & Yngstrom, (2009); Machira, (2009) are claiming that institutional leaders, especially those operating in silos tend to avoid knowledge sharing and innovation collaboration. These behaviors make them narrow down their knowledgeability and create a bridge between innovation and the ability to learn and transfer knowledge. The consequences of this will result into producing mediocrity and irresponsible institutional leadership (Burns, 1978). For the author experience, a number of

misalignment of IT development projects, power dominance and leadership dependency style, absence of e-government Master plan for national e-government project, and Institutional docile, accumulating and controlling of government technology systems without clear demarcation challenged among of the leadership that hinders the governmental institution's growth (Duffy, 2000; Cloate, 2007; Dawes, 2008). Similar studies on institutions, especially that of Fountain, (2001); and Scott, (2004); play a significant role in how innovation within institutions can be a waterfront in re-arranging organizations, structures and effect changes in the cause of newly technology projects. They argued that institutional innovation can effect transformation in this age of technology. While Lupilya, & Jung, (2015) suggested that virtuous leadership is capable of transforming the institutional innovation only when their knowledge are coupled with a Napoleonic Bonaparte style which are interwoven with social transformation, Resources and technology factors.

Theoretically, this approach becomes suggestive of a change as many institutional projects are falling apart. To rescue most of the on-going projects like e-government in Tanzania, the needs to have Napoleonic Bonaparte leadership style supplemented with virtuous leadership are without precedence. While, in 2002, 2003 Heeks, among other scholars argued for the governmental institutions to invest their efforts towards embracing transformational leadership. While Lupilya, & Jung, (2015) suggesting for Napoleon Bonaparte plus the virtuous leadership to help to construct a unified structure of an interrelated collaboration.

This collaboration must visibly link to the form of social transformation, resources, and technology factors to create a sound e-government Rehoboth (Kamssu, 2005; Jain & Kesar, 2011; Lupilya, & Jung, 2015). Although this is theoretically and practically proven, it requires governmental institutions to understand that, embracing any one of the following independents: technology, social transformation, and resources can inhibit the attainment of e-government effectiveness (Kamssu, 2005; Jain & Kesar, 2011; Lupilya, & Jung, 2015). Experience shows that working in silos may become the root of a problem affecting many spheres of e-government transformation (Jeong, 2007; Karokola & Yngstrom, 2009a; Kumar, 2010; Almarabeh, & AbuAli, 2010; Lupilya, & Park, J. 2015). For example, at the age of today's institutional leadership have contributed to the misaligned and disintegrated of E-government Policy / strategic innovation towards e-government transformation efforts as a result of producing technology or e-government that operates in anarchy (Fountains, 2001; Heeks, 2003; 2006; Lupilya, 2015; Lupilya & Jung, 2015). The author suggests that having the virtuous leadership mixed with elements of Napoleonic Bonaparte style would quench the e-government transformation.

### *Checks and Balances*

The e-government project in Tanzania is one of the complex national projects that possess a high degree of challenges both in terms of social transformation, resources, and technology factors. In fact Althusser, (2001); Castells, (2010) and

Mohamed *et al.*, (2014) put it clear that without controlling the turbulence of citizen's income, the level of engagement, awareness, the demographic and attitudes in respect of the technology growth might affect the social transformation (Jain & Kesar, 2011). The government intervention triggered a serious debate in this process and is therefore required to institute time to time checks and balances mechanism (Mohamed *et al.*, 2014; Lupilya, & Jung, 2015). However, governmental institutions can contribute an important framework of checks and balance that includes, among other things, the training of their smart IT personnel, ensure adequate supply of financial resources, and indeed the distribution of technical resources across central and local government (Ndou, 2004; Heeks, 2009; Mutula, & Mostert, 2010).

Although these challenges are unpredictable (Heeks, 2002) but they do occur at critical times of the implementations, which results in catastrophic e-government implementations (Heeks, 1998, 1999). This explains that e-government national projects are among of the major multifaceted investment aiming at embracing the smooth distribution of online services and interactions within social and citizen at large (Ndou, 2004; Morgeson *et al.*, 2009). Several authors have addressed their concerns on a new approach to governing and cherishing this e-government transformation. They argued that intensifying a checks and balance mechanisms would constantly mirror what the e-government enterprise architecture says and the actual implementation based on the sketched or designed architecture. In reality, it is the call to checks and therefore, balance the boundary of a given

level of social transformation, resources, and technology at the broad perspectives (Heeks, 2002, 2003a, 2003).

In view of the above, one possible reason for most of the e-government project failed in developing countries might emanate from the absence of checks and balances (Heeks, 1998, 2002; Lupilya, 2015; Lupilya, & Jung, 2015). For instance, the higher rate of internet connectivity price has raised lots of tension to the government intervention. Coleman, (2006) and Heeks (2009) propose a framework to balance the operational cost against the accessibility to enable the interaction between government and citizen, business, and so forth. Lupilya, & Jung, (2015) emphasize on checks and balance the relative supply of income. This would attract attention to investors to balance their charges or price at an affordable price for a citizen to enjoy the fruits of e-government services.

In 2007, Castels debated on the social transformation and the demands on affordable internet prices, while Heeks (1998), Hone, *et al.*, (2002); Ross *et al.*, (2006); Jain & Kesar, (2011); Alshboul, (2012) and Lupilya, & Jung (2015) are arguing on standardizing IT systems and applications, online protection and the establishment of database center. All this clearly defines the needs to institute the checks and balance supplemented with monitoring and evaluation (Kumar, 2010, Mutula, & Mostert, 2010; Ritson, 2011). This is to ensure that compliance with the terms and legal action is considered. This would reflect on the context of the given policy, rules, and procedures, operating in a competitive market of internet

technology. From these experiences shows that lots of citizen grievances and greediness behavior to technology practices are the major signal to government institution's failure. In a different way, they send a message to the government reflecting how a citizen is fed-up with the way telecommunication companies and other institutions treat and drug them as far as a poverty line stands.

Although there are no checks and balances between the supply side from telecommunication industries and the private institutions with respect to the demand side of the social group or citizen, their needs are unmet. This condition implies that the transformational drivers' interventions are an important device for leveling these imbalances (Pina *et al.*, 2007; Ritson, 2011). In any case, institutions began to show a forefront interest to institute checks and balances as a transformational effort for balancing between social transformation, resources and technology factors towards e-government effectiveness (Nyanchama, 2004; Sattarova, and Kim, 2007; Ritson, 2011). Employing the transformational drivers with its embedded elements (virtuous leadership, checks and balances, E-government Policy, E-government enterprise architecture, e-government labs and monitoring and evaluation of KRA's) is timely and are interwoven with social transformation, resources factor as well as technology factors. These are the foundation for achieving e-government effectiveness policy and strategic innovation (Tinbergen, 1952; Ritson, 2011).

*E-Government Policy & Strategic Innovation*

At the outset, the e-government policy / strategic plans have been suggested by several authors including Heeks, (1999); Hone, *et al.*, (2002); Shin, (2008); Chatwin, & Pazi, (2013); Yonazi, (2013); Lupilya, & Jung, (2015) that it provides a clear future roadmap. Achieving efficient goal of the policy requires strong enforcement towards facilitating an equal opportunity of social transformation, resources factor and technology factors (Heeks, 1998; Grönlund, 2005). It is important for the governmental institutions to reverse their policy towards facilitating an equal opportunity of these factors necessary for the e-government connectivity between local and central government (Tinbergen, 1952; UN, 2008, 2014). In developing this policy, Tinbergen, (1952) and Lasswell, (1971) suggested that government policy makers should account a number of key driver or factors for measuring the transformation of e-government innovation and accessibility. These key drivers can range from the social transformation factor, the resources factor to the technology factor. These factors should capture the income distribution, engagement, guidance and awareness, demographic, attitudes, smart IT personnel, financial resources, technical resources, internet satisfaction, database center, online protection; standardize applications and IT systems (Heeks, 1999; Shin, 2008; Chatwin, & Pazi, 2013; Yonazi, 2013). All these factors can have an adverse impact to the transformational drivers that might lead to greater local and central e-government inequality (Lupilya, 2015).

However, the development and implementation of the e-government Policy has been critical challenges in most developing countries in Africa (Fountain, 2001;

Heeks, 2002, Moon, 2002). While governmental institutions are developing their ICT policy in silos, but engagement with social, resources and technology are imperatives ((Fountain, 2001; Heeks, 2002, Moon, 2002). For instance, under social factors, citizen engagement within different network actors' in the process of developing e-government policy is a MUST and should not be an option (Lasswell., 1971; Kumar., 2010; Mutula, *et al.*, 2010; Lupilya, 2015). The importance of engagement of different stakeholders would provide a key driver for measuring the transformation of e-government national project (Jung, 2007; Song, 2009). These factors are internet accessibility, price stability of internet bandwidth, database infrastructure, e-government labs and clustering, online protections of data and information, cybersecurity and law enforcement, tax deregulation for IT equipment's and so forth (Jung, 2007; Song, 2009). All these factors are the platform of e-government and can have an adverse effect in achieving e-government milestone. According to Heeks, (1998 and 2001); Fountain, (2001); argued that internet technology innovation should be handled in a way that it should not affect the e-government accessibility by the trait of customers. Otherwise, this may block many of the efforts for realizing the e-government services. The candidates in the governmental institutions should encourage e-government innovation by timely monitoring and evaluation of the several IT or Telecommunications policies and strategies. They should check and balance between the right-wing central government benefits and that of the left wing local government. They can do so by driving spontaneously policies alongside with the



growth of IT infrastructure for internet accessibility in the local and central government at the same speed of e-government transformation (Jung, 2007; Heeks, 2009; Song, 2009; Lupilya, & Jung, 2015).

In most cases, the development of policies for social transformation, resource factors, and technology projects are essential for the e-government transition (Castells, 2001). The study reviewed the current ICT policies and the e-government strategic plans and found that the policy target and goals are inversely proportional to the speed of social transformation, resources and technology growth (Song, 2009; Lupilya, & Jung, 2015). While the study of Castells, (2001) suggested that legal documents should be compatible with the growing trends of the social, resources and technology factors, and at the same time must comply with international standards (Castells, 2001; Chaula *et al.*, 2006; Coleman, 2006). This exercise requires governmental institutions to take maximum initiatives in creating a strong checks and balance mechanism. This mechanism should become the foundation for deploying the E-government Policy / strategic innovation and the E-government enterprise architecture development necessary for enforcing appropriate policy Tool (Nonaka, 1994, Castells, 2001). Such an exercise might help to address challenges that continually disrupt the efforts towards the social transformation, resources and technological factors necessary for the adoption and transformation of the e-government.

In trying to achieve efficiency in the implementation stage of the e-

government, Castells, (2001) and Evans & Yen, (2006) suggested that social policy supplemented with the public Policy can be a catalyst for addressing the future policy direction and strategic plan for the e-government in Tanzania (Nonaka, 1994, Castells, 2001). In its broad perspective is now becoming the next wave in the area of e-government field focusing on social policy, that attract the attention of many scholars to explore on various fields (Castells, 2001; Evans & Yen, 2006; Lupilya, & Jung, 2015). In view of e-government implementation, Policy development is the fundamental approach to enacting the e-government. While society is becoming more and more submissive to rules and procedures, the change caused by the speed of communication technology (Castells, 2001) should be given attention. This takes into account the new innovation of computers, laptops, PDA's, networking, ICT application, satellites, wireless communication gadgets, semi-conductors which are becoming a dominating factor of today's life (Lal, 1999; Kamssu, 2005). All these IT gadgets are the necessary tools for re-arranging customer's preferences as they are used both in homes, Universities, Schools, Government Offices, Agencies, private sectors and for citizens (Sawe, 2004; 2005; Tan *et al.*, 2008).

This pattern of technological advancement has been rapidly increasing that causes a serious tension to many stakeholders, including the Government, to forge ahead the development of standardized E-government Policy (Heeks, 1999; 2002; Shin, 2008; Kumar, 2010). Security concerns, threats, technological Risks, cybercrimes, privacy, and confidentiality are among of the many tensions that have

triggered off the effort of transforming e-government policy into practice (Von, 2005; Peng & Amit, 2005; Sattarova, 2007). The Government failures to control E-government Policy or e-government policy development has resulted in the loss of government tax for online collection, citizen protection; weak online services delivered, as well as slow down the pace of e-government diffusion in Tanzania (Heeks, 2002, 2003, 2003a; Moon, 2002).

Furthermore, the study observes that another possible explanation is due to the mixes of telecommunication policies, ICT policies, etc. There is no doubt that the internal IT / Telecommunications policies appear to be less strong than the investor's policies towards addressing the various challenges ranging from the social transformation, resources and technological factors (Wimmer & Von Bredow, 2001; Van *et al.*, 2004; Von, 2005; Peng & Amit, 2005). It appears that the telecommunication investment policies under international standards appear to be stricter than internal telecommunication policies (Von, 2005; Schuppan, 2009).

Other studies investigated on policy implementation in developing countries, studies on e-government policy and strategic plan were carried out by (Heeks, 2001b, 2002, 2006; Bhatnagar, 2004; Kumar, 2010), indicated that centralizing of policy and strategy plans resulted into poor coordination and implementation. In most developing countries such as Tanzania, Kenya and Uganda the IT or e-government policies and strategies are pushed down the road at the ministerial level, attached with a recommendation or directives to implement

strategies or policies without any guidelines (Nyanchama, 2004; Schuppan, 2009; URT, 2012).

### *E-Government Enterprise Architecture*

The e-government enterprise architecture (eEA) is known as one of the most popular architecture for large government and other business organization to manage the designing, installation and running of the complex projects underlying several uncertainties and risks (Heeks, 1998, 1999; Wimmer, & Von Bredow, 2001; Armour, & Kaisler, 2001; Van Eck *et al.*, 2004; Ross *et al.*, 2006). In 2007, Nour pointed out that, in the rapid change of social transformation, resources as well as the technology advancement (Castells, 2001), has attracted more debate to institute eEA for the better achievement of the e-government projects (Navarra, 2007; Chatwin, & Pazi, 2013). While Ross, *et al.*, (2006) and Navarra, (2007) argued that the e-government enterprise architecture is highly correlated with the social transformation underlying its embedded elements such as income, engagement, guidance, and awareness, demographic, as well as attitudes (Ross *et al.*, 2006; Navarra, 2007). It is also correlated with resources factor underlying the smart IT personnel, financial resources as well as the technical resources. Finally, the correlations between the technology factors underlying the internet satisfactions, database center, standardize applications and IT systems, as well as the online

protections. In Navarra's idea, explains that the effectiveness and efficiency of instituting the eEA are measured in terms of attainment of the key results area in each one of the factors from the social transformation, resources, and the technology factors (see figure, 1; Amour *et al.*, 1999b).

In 2010, Yonazi pointed out that a number of efforts have been made to effect the adoption of the e-government in Tanzania in the absence of the eEA and the results are far to be met (Yildiz, 2007; Yin, 2003b; 2009; Yonazi, 2010). In 2015, Lupilya, & Jung analyzed the challenges of e-government using SWOT analysis; they argued that the absence of the e-government enterprise architecture has led the governmental institutions to face lots of challenges in implementing the e-government. It is in this respect that, the government is too big to handle this transformation from social, resources and technology factors bounded with its resources such as smart IT personnel, financial resources and technical resources (Yin, 2003b; 2009; Yildiz, 2007; Yonazi, 2010; Lupilya, & Jung, 2015). However, their study indicated that most of the ministries, departments and agencies are still lacking the IT objectives, rules, guidelines, and the strategies on how to implement the e-government. The analysis of the local government and their agencies reported having the same dilemma as that of the central government in an effort to embrace the e-government implementations. Along with this scenario and failure, the emerging of the social transformation, the emerging of the resources complex, the turbulence change of the technology factors attracts more attention to design timely

e-government enterprise architecture to address these challenges (Yin, 2003b; 2009; Yonazi, 2010; Lupilya, & Jung, 2015).

Several authors such as West, (2004); Castells, (2001); and Shin *et al.*, (2008) pointed out that the development of the e-government labs / clustering requires an extensive eEA in order to tangle the uncertainties and risk. This would enable performance through the accessibility of the e-government by the social transformation, resources and technology factors (Castells, 2001; West, 2004; Shin *et al.*, 2008). In the early stages of designing any e-government projects, the eEA is always at the start and forefront which declares key results areas that need to be implemented along with the transformational drivers (Nour, 2007; Navarra, 2007; Chatwin, & Pazi, 2013). However, for effective eEA, the combination of several areas in the transformational drivers, such as virtuous leadership, checks and balances, E-government Policy / strategic innovation, e-government labs or clustering, monitoring, and evaluation are a necessary to channel for transformation (Ross *et al.*, 1996). The involvement of local government and its agencies, plus the central government are necessary cohorts in the implementation of the eEA focusing on the social transformation, resources and technology factors (Ross *et al.*, 2006; Boster *et al.*, 2000; Van *et al.*, 2004).

### *The E-Government Labs / Clustering*

This idea of embracing e-government labs is timely and valuable, especially to Tanzania as the way to shadow its laggard's stage of e-government implementation

(Heeks, 2006). The government of Tanzania should embrace the creation of the e-government labs, and these Labs can cluster in each district, wards, councils, regions, and cities to add value to the full attainment of the e-government transformation program (Heeks, 1998, 2002; Lupilya, & Jung, 2015). This e-government lab should involve highly talented people from the government sector, civil society, and private sector (Kearney & Hays, 1998; Ho, 2002). On the other hand, this agency should involve high-level government officials, such as prime ministers, ministers and so forth, the formulation of the team should be crosscutting in nature, it should start from the national level, local level to citizen level and another private sector must be in the midst of the agency team. The idea behind of the e-government labs is to carry out sufficient research on ways how to implement the Tanzanian e-government by detailing key results areas (Kearney, & Hays, 1998; Ho, 2002; Song, 2009). In the absence of this e-government labs or clustering it might be a myth to setup governmental institutions with the aim of transforming e-government from the national, local government to citizen level (Fountains, 2001; Moon, 2002). This effort signifies the inadequate approaches for the e-government transformation that has always resulted in failure (Heeks, 2003).

For instance, currently, the e-government agency is assumed to oversee and implement the e-government across the country by encouraging the MDA's to implement the strategic plan within a ministerial level. (URT, 2003; Heeks, 2003; Ndou, 2004; Nour, 2007; Mutula, & Mostert, 2010). The implication here is that in the absence of smart IT personnel supplemented with citizens and social

networking in each e-government labs or e-government clusters may become the stumbling block for the full implementations of e-government (Nour, 2007; Mutula, & Mostert, 2010). It is still unknown how the private sector and external investors would benefit from the newly developed e-government strategic plan of 2012 which is about to be implemented along with their privatization policy. Shin, and Song provide a classical example from Seoul, Korea, arguing that having a new agency to foresight the implementation of the e-government strategic plan would help redress a loose gap within e-government strategic plan, that compromise with the privatization sector policy (Shin, 2008; Song, 2009).

#### *Monitoring and Evaluation of Key Results Areas (KRA's)*

The success of implementing the e-government strategic plan more efficiently ties with monitoring and evaluation of the key results area that are monitored by e-government task force to eliminate barriers and forge ahead to results oriented (Shin, 2008; Song, 2009). Implementing the e-government strategic plan for the whole country is always a daunting task in all spheres of its transformation (Nour, 2007; Navarra, 2007; Chatwin, & Pazi, 2013). In a technology changes that affect the social and citizen to respond to the effects of change needs to be guided, monitored and evaluate prescribed key results area. To monitor and evaluate the social transformation, the e-government task force should pay attention to the key results areas such as income, engagement, guidance & awareness, demographic, and attitudes. These key results areas do impact to the transformation drivers that



might inhibit the attainability of the e-government effectiveness (Shin, 2008; Song, 2009).

While e-government requires resources for its effectiveness, the implementation should aim at achieving a number of key results areas such as smart IT personnel, financial resources and also the technical resources (Heeks, 2002, 2006; Song, 2009; Mutula, & Mostert, 2010). Furthermore, in adopting technology factors, the key results area that needs to be given attention are the internet satisfaction, database center, standardize applications, standardize IT systems, and also the online protections. Achieving these numbers of objectives as key results areas for the e-government seems as a transformation process that requires careful and innovative planning (Nonaka, 1994, Castells, 2001; Heeks, 2002; Song, 2009; Mutula, & Mostert, 2010). It is equally important that the Monitoring and evaluation mechanism should be equally instituted along with checks and balance for deployment and implementation of e-government. Doing so, this would provide spectacular results in the ways that transformational drivers should become a strategic device for achieving the best e-government (Nonaka, 1994, Castells, 2001; Heeks, 2002; Song, 2009; Mutula, & Mostert, 2010).

The current situation is that the implementations of the e-government strategic plan is pushed down to ministerial level without guidelines and are asked to implement the e-government strategic plan (URT, 2003; Wanjohi, 2003; Nyanchama, 2004). The government expects these Ministries, Departments, and Agencies to implement the e-government across the country without checks and

balances, without monitoring and evaluation of the key results area implemented and without standards (Wanjohi, 2003; Nyanchama, 2004; Nour, 2007; Navarra, 2007). Applying this monitoring and evaluation mechanism from the government Level, (Government Ministries; Departments / States / Districts, etc.) and the local government level must be coordinated under the transformational drivers (Nour, 2007; Navarra, 2007; Lupilya, & Jung, 2015). A similar case is depicted from the Indian e-government strategic plan implementation, focusing on the establishment of e-government labs with constant monitoring and evaluation mechanism. The results are far beyond achieved and citizens are enjoying e-government services (Sachdeva<sup>2</sup>, 2002). Other institutions formulated at the local level as e-government Labs mainly to spell out the e-government services to the citizen, provide awareness, engagement etc. in Tanzania. All these institutions require a monitoring mechanism to check and balance and indeed to evaluate the level of technological infusion to the social network that contribute much to the forward-looking and the improvement of the e-government milestone in the country. The coherent checks and balances, supplemented with e-government monitoring and evaluation are an inevitable mechanism for addressing problems that a parasite to the implementation of the e-government and its strategic plan in Tanzania.

In summary, the establishment of the e-government agency was a step forward to realize the transformation of the e-government in the Tanzania as a self-

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2 White Paper on E-governance strategy in India.  
[http://indiaegov.org/knowledgeexchg/egov\\_strategy.pdf](http://indiaegov.org/knowledgeexchg/egov_strategy.pdf) (accessed in February 27, 2015).

sufficient. This agency has done remarkable outcome in an effort to set out the base for embracing the e-government achievement. The ambition to attain speedy full-fledged e-government in Tanzania needs step by step locomotion similar to that of leapfrog approach. Institutions should recognize that leapfrog approach is timely and important.

**Table 11:** Key drivers for e-government transformation

<b>Factors</b>		<b>Sub-factors / predictors</b>	<b>References</b>
<b>Social Factors</b>	Income		Heeks, 1998; Venkatesh <i>et al.</i> , (2000); vankatesh <i>et al.</i> , (2003); Choudrie, and Lee, (2004); Renee <i>et al.</i> , 2004;
	Engagement		Choudrie, and
	Guidance and awareness		Papazafeiropoulou, (2006);
	Demographic Attitudes		Havard, 2007; Alawadhi, & Morris, (2008); Kumar, 2010;
<b>Resources Factors</b>	Smart IT		Heeks, 1998; 2001; Moon, 2002; 2004; Ndou, 2004;
	Financial Resources		Mutula, 2008; Mutula, & Mosters, 2010;
	Technical Resources		

<b>Technology Factors</b>	Internet satisfaction Database center Standardize applications Standardize IT systems Online protection	Kumar <i>et al.</i> , 2007; Castells, 2001; Fountain, 2001; Hone & Eloff, 2002; Vroom, & Solms, 2004; Hwang <i>et al.</i> , 2004; Ndou, 2004; Grönlund, 2005; Karokola, & Yngström, 2009a; Headyetullah, 2010.
<b>Transformational Drivers</b>	Virtuous Leadership Checks and Balance E-government Policy / strategy innovation IT and e-government enterprise architecture e-government labs / clustering monitoring and Evaluation (KRA)	Castells, 2001; 2010; Heeks, 1999; 2002; 2003a; 2003b; Gil-Garcia, J. R. (2005); Havard, 2007; Shin, 2008; Chatwin, & Pazi, 2013; Yonazi, 2010;

## 4.2. The Opportunities of E-Government

The author refers opportunities as large improvement of the existing technological systems already adopted or implemented. However, modification and extensions or customization can be applied to the existing e-government application systems to cater their needs and wants. However, the variant e-government application or systems can be adopted and modified to suit their context. Using this available opportunity is meant to reduce cost and save time parallel to the speed of e-government transformation. Governmental institutions and especially the e-

government agency (*eGa*) can strictly adopt this framework in their e-government transformation which aimed at relatively lowering the e-government risk during the transformation process.

*Description of the Existing E-Government Applications: The Convergence Strategy*

For an effective e-government national project success, the government of Tanzania should empower the convergence of their adopted e-government and other IT development application projects in the country. This is seen in the government and private institutions which signal an alarm to the future IT incompatibility and other cumulative technologies in terms of software applications and hardware equipment. This can indeed offer a bunch of opportunities that play a significant role within the social-economic dimension by speeding up the e-government transformation stages. In a nutshell, Table 5 summarizes several strategies for e-government projects as an opportunity to link them up: these strategies are Convergence, imitation, and success, innovation, engagement, national e-government-think tank committee, accessibility, and internal e-government capability.

These strategies can be applied in the several initiatives that have already been adopted or implemented in each government or private institutions. These initiatives such as e-government as a universal resource pool can provide a bunch of services to several institutions. For instance, in the policy or immigration institutions, they use the “Police Tool (*e-police*)” to fight against criminals both

online and offline in the country while reducing its operation cost. Also, e-government as an “ethical tool (*e-ethical*)” for administering and eliminating corruption and increases productivity can also be linked and form one platform for sharing and accessibility (Avgerou, 2003; Bhatnagar, 2004; Adeyemo, 2011).

While in the education sector, private and governmental institutions are using e-government for video conferencing, online meeting, and teaching and health sports. So this e-government is used as a “Visualization education Tools (*e-education*)” in educations, health, social, economic and governmental institutions. All this development must be integrated into one platform as an opportunity to fuel the e-government transformation process. More important is that, e-government is now used as an “Indexing Tool (*e-indexing*)” for analyzing and projecting future population, budgeting, and planning in the country. Where this development is taking shape should be linked and networked to form a source of knowledge and innovation sharing. Above all, is that e-government has made possible for connecting the whole country as a “virtual village (*e-village*)”. This development for connecting and bringing people together is an example of providing equitable goods and services as opportunities to be linked together.

In additional, e-government has now been used as an “Intelligence Tool (*e-intelligent*)” for signaling, monitoring, analyzing, and safeguarding online local “data and information” security. Several institutions have designed this development and implemented in the country. Governmental institutions can coordinate the interlinking of all these technological advancement processes that

signal a strong opportunity for e-government effectiveness transformation. Governmental institutions, especially in the policy, immigration, hospital, education sector are now integrating personal information online both for foreigners and local citizens. This explains the strong correlation as the opportunities for e-government convergence process in Tanzania. All information related to an alien people (e-foreigners), Local citizens, private and government institution employees on their personal profile such as Nature of work, Leaving status, locations, demographic data, and all other aspects of life are integrated into one structure and platform. This can be used as an opportunity to interlink all these institutions and their information systems and, therefore, promote the e-government transformation process (see Table 12). All this makes an e-government as “Rehoboth” for social transformation as well as the country's prosperity. In summary, the development of these e-government systems within institutions can signal strong opportunities for future e-government transformation and are summarized in the following Table 12:

**Table 12:** Strategic opportunity to speed-up e-government transformation

<b>Strategic opportunities</b>	<b>Types of opportunities</b>	<b>Description of opportunities</b>	<b>Modalities</b>
Convergence	e-government application convergence	Government can take advantage of converging the already available e-government application systems to expand the	e-police; e-ethical; e-culture; e-education; e-indexing; e-village; e-intelligence; e-

		forms of providing e-services	foreigner; e-admin; e-service; e-national; e-health.
Imitation and success	Imitate the e-government application and make it better locally.	Government can imitate the available database to create localized national database charter	Internalize the national database charter
Innovation in e-government policy	Innovation in policy and e-government security	Converging the available telecommunication policies to innovatively develop policy for e-government and online security policy	Innovation policy on e-government and online security policy
<b>Strategic opportunities</b>	<b>Types of opportunities</b>	<b>Description of opportunities</b>	<b>Modalities</b>
Engagement	Engagement in e-government development	Empower and coordinate social, private and government collaboration	Enable national e-government engagement through innovation.
National e-government-think tank committee	Establishment of national e-government-think tank committee	Empower innovation in e-government internally	Institutionalize local e-government innovation network
Accessibility	Expand online access to information	Generate more opportunities windows for internal online	Encourage the utilization of available e-services



		services consumption	by modifying or extension
Internal e-government capability	Identify internal capabilities to achieve e-government transformation	Create an internal e-government capabilities	Internalize e-government capabilities

*Imitation and Success:*

While database applications and systems are now adopted in some government or private institutions, the imitation process should be embraced seriously without failure. Government institution employees can learn how to integrate database from other countries and use that as a platform for integrating database as a national database system.

*Innovation in E-Government Policy:*

One way to speed up the development of e-government policy is to learn the already formulated telecommunication policies and understand them. This will provide an opportunity for innovation on how they convergence of this policy instrument for the development of the e-government policy.

*Engagement:*

Several private and governmental institutions have adopted and implemented similar e-government application development. All these developments are geared to provide quality of online services and increase efficiency in their productivity.

Governmental institutions can take up such initiatives to engage these institutions in the process of e-government development in one umbrella as an opportunity to increase windows of online services and improve productivity.

*National E-Government-Think Tank Committee:*

The ICT think tank group was originally developed and instituted by the governmental institutions to discuss and become a catalyst for the spearheading of the ICT implementations in each Ministry, agencies, and departments. The e-government agency can empower this group and create a more intellectual e-government oriented network that would help to sour the elements of e-government transformation.

*Accessibility:*

Through the available e-government application in a government and private institutions, convergence all this development may open new windows of opportunities in terms of e-services. Governmental institutions should focus on cultivating on opportunities which are there in terms of access to online information and data. A citizen should be able to interact with diversified systems or application to meet their needs and demand 24h \* 7 days / week. Things like online payments of utilities, buying and selling of online products, hospital records, education, employment status, and foreign information window, etc. All this development can make the e-government agency as new institutional innovation in

the area of e-government settings.

*Internal E-Government Capability:*

Governmental institutions should recruit a vast number of intellect personnel (smart young people) from various fields who are motivated to spend time in the development of the e-government application system. This way this network can create a sound e-government application based on their background and specialty that defines the nature of e-government services platform they ought to offer to the public. This e-government system will open multiple channels that cater the needs and demands of the citizens. Such approach could also accelerate the speed of e-government transformation in the country. Internalizing these capabilities meant to institutionalize a one-stop center to further its electronic services to the public at large.

### **4.3. The SWOT Analysis of the E-Government**

The SWOT analysis is conducted to validate information that was asked during the interview and questionnaire instruments. Nevertheless, the key objective is to ascertain the current status by extrapolating what strength, weakness, opportunities and threats are there. I started by placing the internal analysis (Strength and Weakness) of the e-government transformation in Tanzania, which was succeeded by the external analysis (Opportunities and Threats).

*Facts about Tanzania:*

Nearly 30 years down the road, Tanzania still ranks as a developing country, according to the United Nations report (2014). The estimates by the Unstats<sup>3</sup> data (2015), show that Tanzania has a total surface area of 947,303 km<sup>2</sup> with a population of over 47.7 Million. Categorically, the land size of Tanzania is 885,800 km<sup>2</sup> surrounded with Water size 61,500 km<sup>2</sup> and that explains the land size of Tanzania to be the largest country and is ranked number 31 worldwide, according to Unstats, (2015), U.S - Central Intelligence Agency<sup>4</sup> (2015), Wikipedia<sup>5</sup>, (2015). However, the estimated population density for the year 2012 is calculated as per 50.4 km<sup>2</sup> (Unstats, 2015).

The estimates for the year 2013 urban population in percentage was 27.6% lower than the rural area population growth, which is estimated to be 2.4% as per the UN<sup>6</sup> Report, (2014). The electricity infrastructure is still lagging behind with an unstable power supply to all regions, cities and wards. The total electricity capacity (excluding the off-line capacity) for grid installation is said to generate 1,051 MW. This means that citizen living in urban areas about 14.2% has access to electricity, whereas only 2% of the population living in a rural area are connected

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<sup>3</sup><http://unstats.un.org/unsd/pocketbook/WSPB2014.pdf>

<sup>4</sup><https://www.cia.gov/library/publications/the-world-factbook/geos/tz.html> (Retrieved on 12/03/2015)

<sup>5</sup>[http://en.wikipedia.org/wiki/List\\_of\\_countries\\_and\\_dependencies\\_by\\_area](http://en.wikipedia.org/wiki/List_of_countries_and_dependencies_by_area) (Retrieved on 14/03/2015).

<sup>6</sup><https://data.un.org/CountryProfile.aspx?crName=United%20Republic%20of%20Tanzania> (Retrieved on 14/03/2015)

to the electricity national grid line (JICA<sup>7</sup>, 2011). The country GDP per capital converted into US currency (\$) in 2012 is about 607.8 along with the Gross national income per capital (GNI) converted into the US (\$) in 2012 was 603.5 (Unstats, 2015). This research considers these data among other factors as crucial when designing, selecting, processing and implementing the Technology infrastructure, as enabling environment opportunities for the e-government transformation in Tanzania.

#### *Facts about E-Government Status*

In order to analyze internal strength in addressing the e-government focusing on its status, a set of the questionnaire were designed to know the facts from the institutions under examination. The questions asked were divided into two parts: the strength of the governmental institutions towards e-government transformation, and second, is the weakness of the governmental institutions towards the e-government transformation process. Basically, the author developed the question to assess the internal factors that governmental institutions has and analyze factors to overcome the weakness that may affect the progress of the e-government transformation.

The author identified external factors that prevent the transformation of the e-government in Tanzania. The research questions were framed into two parts: questions were asked on the opportunities that are visibly explored and can be used

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<sup>7</sup><http://eneken.ieej.or.jp/data/3962.pdf> (retrieved on 19/03/2015)

to strengthen the process; and secondly, the questions were developed focusing on the threats that prevent the transformation process. Since this is uncontrollable factors, but studies show that governmental institutions can easily adopt them and learn how to minimize risks, or avoid if necessary to do so. Furthermore, the identified challenges as the threats that prevent the transformation of the e-government in Tanzania can be minimized by learning or avoided as an opportunity to speed up the transformation process.

Respondents identified all these factors for internal and external and were coded analyzed and integrated as seen in Table 33 and Table 34. To begin with, the study provides the on-ground situation of what is going on in terms of technology development, implementation and utilization as national e-government projects.

#### *Internal Strength and Weakness Identified*

E-government as the national project in the government of Tanzania has attracted more attention to several MDA's striving to be efficient, transparent and accountable in providing equitable quality of service (Heeks, 2001b; Chadwick, 2006). In early 2000, governmental institutions began to forge ahead the implementation of Technology (ICT) projects as enablement tool for e-government to spearhead the provision of public quality of services (Ndou, 2004; Moon, 2004; Kumar, 2010).

Various Government Ministries, Departments, and Agencies (MDA's) have fully adopted the Information publishing /cataloging stage of the e-government (See Table 15). According to an analysis done on the e-government strategic plan in Tanzania, indicated that all MDA's have created independent local networks for internal sharing and communicating, mailing list, and the use of internet or the web (URT, 2007). The implication here is that the absence of e-government enterprise architecture has led this MDA's to install systems based on the knowledge and advice of the external IT providers without considering future government systems implications. However, in consultation with the ICT Think-tank of the government, the study noted that the recent achievement of the government email systems is owned and controlled by the e-government agency. According to the discussion held with the four e-government agency participants, they admit that the government users of the mailing systems are subscribed at a fee of approximately \$5 USA dollars per person per month (which deemed equivalent to 10,000/ Tshs at the exchange rate of \$1 USD = 2,000/ Tshs. Converted on May 25, 2015).

This fee collection is aimed at sustaining the future operations of the government email systems. But what is interesting about this initiative is the “fees collection “routines that the e-government agency seems to undertake which obscures its role as much as it clarifies its real context as services oriented institutions. In any case, for any revenue collections from governmental institutions should be directed or sent to the Ministry of Finance. The ministry of finance can disburse the funds in a form of budget justification according to the national budget

cycle under the approval of the parliamentary special budget debate session. Unfortunately, the agency might or might not be aware of the bureaucratic procedures involved in initiating the funds acquisition, but if they are, then such initiatives are an option which is doomed to fail.

Despite this ambition to adopt a web presence as a government gateway portal, most of the MDA'S website is linked up and running. The e-government agency is trying to become the waterfront in assisting MDA's who are struggling in deploying various online services and provides them with online law enforcement, provision of IT rules and guidelines, security protection and information privacy framework as noted in Andrew Chadwick (2006). This initiative is still far to be implemented as one of the overall plans for strengthening and influencing the sustainability of the government portal for sharing and interaction within government and citizen's to business.

#### **4.4. The Tanzanian E-Government Story**

##### *The E-Government Agency (eGa)*

Tanzanian government started implementing the National ICT policy of 2003 in its early 2004. This National ICT policy stipulates, among other things the: 1) Construct a government-wide unified communication network, 2) Create awareness of ICT utilization opportunities, 3) establish ICT focal point to coordinate fragmented IT or e-government initiatives (URT, 2012). The



developments of e-government within government and private institutions are increasingly initiated and rapidly taking shape. The e-government agency continues to merge and integrate some of the development of IT-based applications within MDA'S that influence the e-government implementation framework, but with lots of challenges (URT, 2012).

### *Key Initiatives and Achievement of the E-Government*

The ICT policy of 2003 has given birth to the establishment of the e-government in Tanzania. For the past 3 years, the e-government was initiated and installed. Several key initiatives and achievements for the e-government development in Tanzania have been analyzed and presented from the perspective of technology, social, institutions and resources as stipulated below:

First and foremost, was the establishment of e-government Agency (*eGa*) (*accessed in their website link: <http://www.ega.go.tz/>*) under executive agencies Act, Chapter 245 (URT, 2012). The *eGa* has been installed in 2012 to foresee and coordinate e-government implementation in the country (URT, 2012). This agency is said to be a semi-autonomous agency installed to foresight e-government transformation in the country (URT, 2012).

The governmental institutions under e-government agency have developed and implemented the government portal to provide e-government services with a single click through this website link (<http://www.tanzania.go.tz/>). These e-government services which range from sharing of online data and information to

online procurement and transaction have brought a significant progress in the realization of e-government services implementation. Furthermore, governmental institutions, citizen, and the private sector have adopted the use and utilization of email services / systems such as yahoo.com, google.com, hotmail.com, and government email systems ending with a domain name of go.tz. In general, the expansion of services also includes the online registration services to schools, Car registration, Houses and plots, birth and several identification statuses. Government Ministries are also providing and encouraging on providing information for tourism online services, online contract, online procurement, and so forth all these has been achieved. Access to government documents such as approved bills, procurement tender, approved budget information, an advertisement for maintenance agreement / contract are available for access, however, are based on one-way interaction. Nevertheless, the deployment of these services has encountered several challenges in terms of utilization, operationalization, sustainable maintenance, and effective coordination.

Recently, the government has achieved the progress of integrating several e-government services for online applications (*through government portal*) into a one-stop shop for online accessibility. These services include, but not limited to health (patient record and report generated systems from government and private hospital) which were first implemented via Private hospitals. These private hospitals are maintained and supported by Churches in Tanzania such as Lutheran church and Roman Catholic Church and so forth. Other services that can be

accessed through online are the e-education where registration, information sharing, research and development, the student's records and report evaluation are handled and documented. This information is partially linked within government and private education institution. There is also a slow move towards sharing online business such as selling, procurements, investment, financial transaction, and agriculture promotion, etc. These developments are achieved through a number of portals and blog's accessibility. Today, a citizen can access the online booking with limited buying online ticketing which are all linked to a website giving several options, date, discounts, payment mode, and so on (URT, 2012). When evaluating each one of these e-government services, the author found that through government enforced to the utilization of NICTBB have led these institutions to lower their price. Nevertheless, there are laps and down for matching on the modalities on business discourse. The governmental institutions have always been encouraging a competitive online market by expanding e-government service window to public with high competitive spirit. However, the development of all these systems in an ad hoc did not achieve what was intended as e-government success.

Government strategy was aimed at fostering the promotion of the e-government service window to the citizen through promoting local and international telecommunication sector or industries to be connected to NICTBB. This strategic movement was intended to provide low-cost and affordable prices for internet bundle for connectivity and accessibility by attaining effective service delivery via e-government. For instance, the government was determined to

provide cheap access to the internet in order to allow cheaper sending and receiving of short messages (SMS), cheap and very often free international online calling using the available social network applications, the use of M-PESA (Mobile PESA transaction), cheap access of M-TV services (Mobile Television) which have been achieved with high efficiency and had changed the Citizen life. However, not much was achieved due to lots of challenges.

The following table presents the analysis cost of accessing the internet through buying the internet bundle with its corresponding prices in Tanzanian Shilling (Tsh.) and converted to US Dollars (USD \$). At an average price, the citizen is able to interact, make a transaction online, share data, information and make a free IP calls (WhatsApp, Skype, Kakaotalk, Viber, IMO etc.) or sometimes at a very low rate for international calling via the internet. Making any IP phone call or surfing the net are mostly needed for establishing connectivity to the internet. The citizen is supposed to purchase an internet bundle says at an average of 60 MB for \$ 0.14 (Tsh. 300) in order to be connected to the internet (Table 13). For charting nationally or internationally, citizens are needed to connect to the internet by purchasing 10 MB of the internet bundle for \$ 0.09 (Tsh. 200). For downloading files, data, and pictures, as well as calling, one need to connect to the internet bundle of 180 MB or at an average of unlimited only for \$ 0.045 (Tsh. 1000). All these connections are the platform for e-government service provision in Tanzania. The Table 13 below was taken from Vodaphone Company, which offers internet bundle connectivity price structure at an average rate and, therefore,

attracted many customers (Table 13). The author collected and analyzed the validity with corresponding internet bundle associated with its prices in Tanzanian Shilling (Abbreviated as Tsh.) converted to US Dollar (Abbreviated as \$) as follows:

**Table 13:** Internet bundle connectivity price structure

<b>Validity</b>	<b>Internet Bundle</b>	<b>Price in Tsh.</b>	<b>Price in USD (\$)</b>
<b>1 day</b>	10 MB	200	\$0.09
	60 MB	300	\$0.14
	180 MB	500	\$0.23
	Unlimited	1,000	\$0.45
<b>7 Days</b>	1 GB	4,000	\$1.82
	Unlimited	7,000	\$3.18
	4 GB	10,000	\$4.55
<b>30 Days</b>	2 GB	15,000	\$6.82
	Unlimited	25,000	\$11.36
	15 GB	35,000	\$15.91
<b>Validity</b>	<b>Internet Bundle</b>	<b>Price in Tsh.</b>	<b>Price in USD (\$)</b>
<b>All Night 1 – day</b>	1 GB *	500	\$0.23
<b>All night 2 - days</b>	4 GB*	1,500	\$0.68

**1 USD \$ converted at 2,200 /= Tsh, as from November 2015.**

For the Network Technology level in Tanzania, the author purposely picked only three big network companies to explain the level of network technology. In Tanzania currently there more than five network companies operating in Tanzania. Among of these leading networks, companies are Vodacom, Airtel, and Tigo companies. Tanzania is using the network technology of GSM 3G and 2G Bands now in some big cities. Another remote area they are still using the 2G Bands, GSM 900/1800. Following the utilization of the NICTBB, these network companies were forced to adopt 4G Bands on 800 MHz currently, there is only one network company (Tigo) which has adopted the 4G technology and has implemented it, however, not fully utilized. For the SIM card, in Tanzania, the SIM card is available in a plenty of stores, individual mobile shops, road sellers, at least almost every corner in the country and can be registered within 10 minutes.

This SIM card needs 24 hours to some extremist situation, but at an average of almost 8 hours can be used to activate the SIM card depending on the workload of the systems. All Tanzanian SIM cards are prepaid and some are loaded with an airtime of Tsh. 1000 equivalent to USD \$0.45 which are already activated to be used. For purchasing the Airtime for almost all the network companies are available online and can be purchased using M-Pesa, and can be reloaded at a customer's convenient time. Several packages to encourage citizen to stay online and interact with each other are designed to lock-in customers such as the provision of talking "airtime loan package" can be requested with a special code for everyone and the services is available 24 h x 7 days / week. This kind of airtime loan

package is available to enable the citizen to borrow up to about 1500 Tsh which is equivalent to USD \$0.68. A citizen can use this airtime loan package to be connected to the unlimited internet bundle where they normally spend for using free or cheap IP-based phone call for almost one day = 24 Hrs. (Table 4). The Airtime loan Package is automatically deducted upon the next recharging time of your airtime. Very interesting point here is that the Wi-Fi technology is only limited to some areas and institutions and very often is available to some international organization, 2 – 5-star Hotels, and partly to some governmental institutions. But its protection and management have been so hard, especially when it comes to “free riders” who are by chances knew the point of the Wi-Fi zone and use it for connecting to the internet. This free rider can spend much of their time for accessing data, download images and pornography, sending images and uploading big data files and at some point continuing chatting via the Facebook, WhatsApp, or Viber. That’s why it is not common to find places located or identified to provide access to free Wi-Fi services in Tanzania.

The development of NICTBB has made it possible to almost all MDA’s that have been connected to the government-wide network management center located in the President's Office – Public Service Management. This strategic movement is geared to promote and ensure that this e-government project installed in various MDA’s provide value for money and increase efficiency in the government operation 24/7 by the responsible institution. Governmental institutions have installed special IT support unit (such as MIS department, IT

section, ICT unit, etc.) in order to assist and maintain the e-government systems infrastructure and development.

For example, the governmental institutions, including the Local Government Authority (LGA's) have connected to the NICTBB to enhance collaboration through e-government services to government, citizen, and the private sector. Several e-government application systems such as (HCMIS<sup>8</sup>, IFMS<sup>9</sup>, EPICOR, e-office<sup>10</sup>, e-administrations, MOLIS<sup>11</sup>, POLIS<sup>12</sup>, e-procurement, etc.) have been implemented under NICTBB within each MDA's and the LGA's (such as EWURA<sup>13</sup> TANESCO<sup>14</sup>, TRA<sup>15</sup>, NBS<sup>16</sup>, MOFEA<sup>17</sup>, MoHSW<sup>18</sup>, MoID<sup>19</sup>. [See Table 12]. Nevertheless, among of these institutions such as (EWURA, TANESCO, TRA, MOFEA etc.) have fully adopted this e-government application systems and have reached the transaction stage.

In the case of Local government, several but not all districts, wards, municipal and other councils across Tanzania had implemented a website that provides information and several opportunities windows to the citizen. For

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<sup>8</sup> Human Capital and Management of Information Systems (**HCMIS**)

<sup>9</sup> Integrated Financial Management Systems (**IFMS**)

<sup>10</sup> Using online routines as paper less through computer based technology (**E-OFFICE**)

<sup>11</sup> Management of Land Information and Survey Registration System (**MOLIS**)

<sup>12</sup> Parliament Online Information Systems (**POLIS**)

<sup>13</sup>Energy and Water Utilities Regulatory Authority (**EWURA**)

<sup>14</sup> Tanzania Electric Supplying Company Limited (**TANESCO**)

<sup>15</sup> Tanzania Revenue Authority (**TRA**)

<sup>16</sup> National Bureau of Statistics (**NBS**)

<sup>17</sup> Ministry of Finance and Economic Affairs (**MOFEA**)

<sup>18</sup> Ministry of Health and Social Welfare (**MoHSW**)

<sup>19</sup> Ministry of Infrastructure Development (**MoID**)



instance, citizen, private and other stakeholders can access information via the website and they can now bid for tenders online through the advertisement of tender documents, open for vacancies, projects implementation support, development project evaluation, and so forth. These are among of information transferred and shared online with a citizen, private and central government at large.

Several social applications such as blogs & website have shaped and transformed the societies into more of the virtual societies and have aggressively emerged and adopted recently. For instance, in political perspective: most of the politicians are now becoming internet savvy to be branded and market their strategic vision to the citizen. Most of these politicians are using blogs, and social media for political rule, especially this general election almost 80% of parties has used the internet as a second instrument for the campaign. A citizen can now access information through their phones and, therefore, make it easy to make a decision of whom they like to elect. The internet was the weapon to influence political party in the general election.

For economical perspectives, such as the advertisement of agriculture product, prices of manure, rain forecast, buying and selling of goods and services such as land, cars, automobile, houses, plots, tenders, etc. have been promoted via Mobile technologies.

For social network, this virtual society is able to chat online, interact and exchange online information through mobiles, PDA's, Laptops, etc. the use of

Facebook, blogs, and the charting room has provided information to citizen for business startup, learning opportunities, education scholarships, sharing of employment post, voting for leaders, and so forth. The internet continues to influence and widening up for online services as an opportunity for government and citizen, government and business and government to government interactions.

There is a remarkable trend for the establishment and development of localized blogs and website such as educational blogs & website. These websites are used for sharing information based on scholarship opportunities nationally and internationally. They do allow limited access and sharing of library and education materials with local and international universities such as Tumaini University, Sokoine University of Agriculture (SUA), University of Dar Es Salaam (UDSM), St. Augustine University of Tanzania (SAUT), Muhimbili University (MU), Bugando Medical University and so on. At an international university, they are linked with many universities around the globe such as from the US there is a Michigan state university, Virginia Technical University, Tuskegee University, Ohio State University, University of Florida, Iowa State University and so on.

While for the healthy blogs & website has been established to provide information and discussions from social network groups and experts related to health, sports, hazardous drugs and medicines or makeup shops. They also include discussion and provide information related to human use of poisoned food, fruits, drinks, smoking, and fragrance which have become a dumping place in Tanzania. For instance, Wanabidii Blog and social network were the first to spot the local

made of sausage from china using the skins of dogs and pig without being cleaned and tested for human consumption. The media becomes the forefront to send a signal to the government, which eventually government reacted on prohibiting sausages locally made sausages especially importing from China. This was a great success in sending a signal to the government in the use of blogs and social media network of which politicians also participates. On February 2008, Richmond corruption scandals in Tanzania circulated first in the online social media and send a signal to the government. The matter becomes serious and was taken in hand by politicians to be debated in the parliament, which led to the Prime Minister Edward Lowassa to resign from that position (Wikipedia, accessed on October 2015<sup>20</sup>).

For the tourist blogs & website: this provides discussion and information related to Tanzania national park attractions, wild animal seasons, and tourist information and packages and so forth. In November 2014, blogs and social website network speculated the first discussion of corruption and smuggling chain which involved top government officials for killing elephants and exporting ivory poaching and a huge number of lion and giraffe to China. This scandal involved, visit Africa the President of China and become a hot cake discussion in the parliament, which led Minister Kagasheki Khamis to resign from that post. (The economist accessed on November 2015<sup>21</sup>).

For political blogs & website, contains several information's which relate

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<sup>20</sup> [https://en.wikipedia.org/wiki/Edward\\_Lowassa](https://en.wikipedia.org/wiki/Edward_Lowassa)

<sup>21</sup> <http://www.economist.com/news/middle-east-and-africa/21631202-claims-links-between-politicians-and-poachers-merit-further-investigation-big>

to political issues widely discussed by the opposition and ruling parties such as Chama cha Demokrasia na Maendeleo (the Part for Democracy and Progress), Chama Cha Mapinduzi (Party of Revolution), United Democratic Party (UDP), Chama cha National Convention for Construction and Reform etc.). These involvements into political discussions are geared to promote new thinking, knowledge and idea that can be used for development of the country. Discussion may range from analyzing critically the ruling party on issues that touch base on governance issues, local development capacity, creating local business opportunities for villages, wards and district development in the country and so forth. Another dimension can be seen in the social network as a center for informing citizen and society at large. The channel of sharing information nowadays is through mobile phone where discussions or issues, pointing to the government, politicians, parliament, governmental institutions etc. are scrutinized and forge ahead to solutions. This form of interactions has accelerated good governance in a number of ways, including leaders to become responsible for their own acts captured with facts speculated on the internet (*as stated above*), governmental institutions to take ownership of national projects and become answerable in the course of the evaluation, commissioning, and feedback. National projects may range from an investment such as Gas and oil, mining extraction, to fund projects by donors such that of e-government national projects, patient record information systems, education system, etc. where community-based practice becomes the driving point and so forth.

The economic forum, blogs & website which are essential for business, investment opportunities, social networking support, Non-governmental Organizations (NGO's) and International governmental organizations (IGO's) and so forth have been escalating the interaction and sharing of information recently. These localized social blogs & website network group are aimed to provide rich and diversified information related to building local villages, cities, and wards in terms of promoting agriculture business, creating more opportunities for entrepreneurship, and bring them into one-stop and so forth. The creation of capacities and open opportunities for investment such as farming, greenhouse projects, advanced agriculture projects, and encouraging on individual employment have been taking shape through sharing ideas within these blogs and social network website. All these have been made possible through several channels which include the Wanabidii, e-think tank, Jamii forum, Zoom-Tanzania, Ukarimu-Tanzania, Michuzi Blog, vinjari blogs, and so on, have attracted more attention to Citizen.

For utilizing and governing the NICTBB infrastructure, The Tanzania Telecommunication Company Limited (*TTCL*) is operating and managing the ICT infrastructure in the country. This infrastructure known as the National ICT Broadband Infrastructure literally is called in Swahili "Mkongo" (NICTBB) is geared to expand more online services deliverable through e-government, M-mobile, and so forth. This is a huge investment development which is supported by the World Bank to ensure the speed e-government transformation and reduce the cost of accessibility. In Figure 3, shows the map of the NICTBB route and the point

of presence covered in the regions in 10,000KM. The goal is to connect all regions, wards, districts and villages into one ring. The NICTBB constitute three major rings already up running in Tanzania. These rings are the Northern Ring, The Southern Ring, and the Western Ring (Figure 3). The NICTBB is now connected through the submarine cable operated under (SEACOM, EASSy etc.) which is the major project for Africa which allows the international connectivity. The governmental institutions have managed to connect local internet service provider, telecommunication companies, and other emerging IT service provider to the NICTBB. Government and other private institutions has been connected to the NICTBB such as MDA's; TANESCO; DAWASCO; TRA; University of Dodoma; National Parliament; Airtel (Celtel); TTCL; Vodaphone; Tigo; Zantel; SimbaNet; are now providing e-government services in terms of data, financial transactions, Tax remittance through online; utility bills, education fees and health report etc. For instance, for education institutions has already been connected to the NICTBB for easy of education materials access and other administrative work.

The Tanzanian government has implemented several online consultation networks such as Telemedicine. This was made possible to ensure cheap and affordable location-less medical cost, the government hospitals such as Muhimbili, KCM Moshi, Tumbi Hospital in Coast Region, Bugando Medical Center in Mwanza, Mwananyamala Hospital in Dar Es Salaam etc. are implemented to provide affordable medical cost and reduce long traveling across borders for medical services. While for Private hospitals such as Agakhan Hospital and so forth

have connected to Telemedicine infrastructure projects. For Tele-education: this is an alternative to reduce costs to higher education cost. The Project Center for virtual education project in Tanzania has been centered at the University of Dar Es Salaam. Pan African virtual learning has been implemented which connect universities in Africa context. However, In Tanzania, Tumaini University, Makumira University, Nelson Mandela University of Technology are now being connected to offer online education as a part of enhancing citizen's education for those who are unable to afford the cost. For Tele-Judiciary framework: This project is aimed at connecting judicial systems in Tanzania and provides integrated legal systems which cover all over the country. Judicial High Court of Tanzania and its embedded departments have been connected to the system to help analyze cases, filed up cases, establish a ground for proceedings, and law interpretation aid have made the institutions to save time and speed up providing judgment to several cases. These e-government services initiatives are connected internationally to provide online consultations to areas that seem to be critical and need support, such as areas among others, are education, health images capturing, medicine, pediatrics, patient diagnosis report, clinical applications etc.

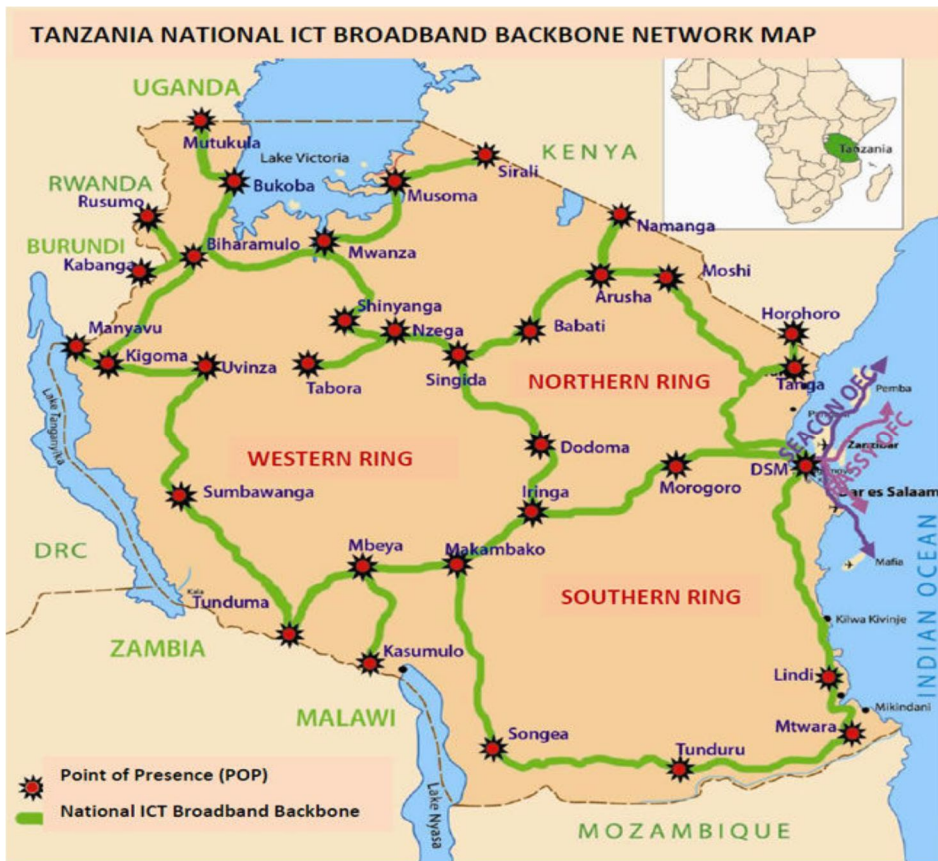
Government and Private Banking are now connected to the NICTBB to increase and speed up the e-government financial services to the Citizen. These banks have integrated their banking systems to the government and private institutions such as DAWASCO; TRA; TANESCO; and other MDA's targeting to provide a seemingly and efficiency e-financial services to Citizen at a lower cost

but also save time. These banks include the National Microfinance Bank (NMB); Tanzania Investment Bank (TIB); National Bank of Commerce (NBC); Cooperative Rural Development Bank (CRDB); Tanzania Postal Bank (TPB) etc. However, the investment on the Automated Teller Machine (ATM) which is connected to the NICTBB has enabled sufficient services to the citizen to avoid hassles of queuing in the banks which normally takes time and, therefore, leads to saving time and increase efficiency for both customers and banks institutions.

Government for citizen (G4C) initiatives through the NICTBB has allowed the interconnection of database network within governmental institutions and partly to private Banking institutions. For instance, government procurement systems (Government e-procurement systems) Tax registration, Loan remittance via IFMS, vehicle registration, national identification card registration, and education registration has been interconnected to provide e-government services. This development is now taking shape with lots of improvements to allow a citizen to register and make payments online through M-PESA. Most of the banking institutions that are interlinked to support M-PESA includes the National Microfinance Bank (NMB), CRDB, NBC, and Exim Bank of Tanzania.

**Figure 3:** The National ICT Broadband Backbone Network Map (MKONGO)





Source: NICTBB Management Unit

### *External Opportunities and Threats Identified*

The subcontracting: several governmental institutions (MDA's) under their IT or MIS units tends to become a watchdog on managing and controlling the sustainability of the technology systems. They do so by subcontracting to the external IT firms for maintenance, monitoring, and control the management of the systems. Some governmental institutions do take part in the process, but some take full control of support within their own IT units (URT, 2012).

Likewise, most of these information technology applications such as

MOLIS, e-Office<sup>22</sup>, HCMIS<sup>23</sup>, IFMS<sup>24</sup>, and POLIS<sup>25</sup> only to mention the few are currently utilized in various MDA's and also to local government independently and do not share any IT systems or infrastructure. According to Heeks, (1998); Fountain, (2001); Coleman, (2006) and Kumar, (2010), pointed out that, the integration of systems should depend on the nature, age and speed of the IT applications currently utilized, they draw attention to the explanation widely regarded as an incompatibility issue (URT, 2012). According to Heeks, (1998, 2002, 2003); Kumar, (2007) noted that for local government and other Agencies, there has been a slow adaptation of the e-government, however, several websites has been established and implemented that provides basic information to the Citizen of which sometimes are not up to date.

Other governmental institutions have reached for the interaction stage model, these institutions are the Tanzania Revenue Authority (TRA); Energy and Water Utilities Regulatory Authority (EWURA); Tanzania Electric Supplying Company Limited (TANESCO); Ministry of Finance which uses the IFMS; Private Banks that provide online Banking; and so on. Fountains, (2001); Moon, (2002) and Heeks (2002, 2003) highlighted on several applications operate independently under the management of either private company under contract, or governmental institutions under the IT department or supporting unit as a rhetorical approach. This is because the resources to sustain this application within governmental

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<sup>22</sup> Using online routines as paper less through computer based technology (**E-Office**)

<sup>23</sup> Human Capital and Management of Information Systems (**HCMIS**)

<sup>24</sup> Integrated Financial Management Systems (**IFMS**)

<sup>25</sup> Parliament Online Information Systems (**POLIS**)

institutions are lagging behind (URT, 2012).

In summary Table 14 provides the current status of the full deployment of online services in the absence of these instruments with different sector-wide. The list may be long, but just in summary.

**Table 14:** Service of e-government services opportunities available in Tanzania

<b>Sectorial-wide</b>	<b>e-government services Opportunities Available</b>	<b>Benefits</b>
Government MDA's and LAG's	<b>Online:</b> e-procurement, e-taxation, e-tourism, e-registration, e-administration, e-health, e-education, IFMS, MOLIS, HCMS, POLIS, EPICOR, a local government database, a central government database, citizen database, Tanzania national library database, government web-portal, blogs, IT/ICT infrastructure, Telecommunication Infrastructure and connectivity, e-Office etc.	Improve service delivery to Citizen and other private institutions

<b>Sectorial-wide</b>	<b>e-government services Opportunities Available</b>	<b>Benefits</b>
	<b>Online:</b> online registration, m-	

Government and private Schools sector	banking for fee transactions, national database accessibility, online education services, online video conferencing, etc.	Improve service delivery and reduce government spending
Public and Private Health sector	<b>Online:</b> online networked Patient Record, online medicines, biotechnology, integrated systems for hospitals, online doctors, and treatment, integrated health systems and accessibility, etc.	Improve health service delivery from practitioners around the world.
Hotels/park/gaming sector	<b>Online:</b> integrated booking systems, online gaming database, national park data information's, hunting licenses, etc.	Improve social welfare and economic prosperity
Airports / Transportation sector	<b>Online:</b> integrated booking systems, online transaction, online flight or transportation information,	Improve social welfare and economic prosperity
Banking sector	<b>Online:</b> ATM, m-banking, online Money Transmission protocols, etc.	Improve social welfare and economic prosperity
Telecommunication sector	<b>Online:</b> Voda-Pesa, M-Pesa, Tigo-Pesa, online marketing, adverts, online utility bills, m-Transactions, digital IP-TV, CCTV, IP-Broadcasting etc.	Improve social welfare and economic prosperity
<b>Sectorial-wide</b>	<b>e-government services Opportunities Available</b>	<b>Benefits</b>
IT industries /	<b>Online:</b> Blogs, web applications,	Improve social welfare

sector	Internet developers, IT solutions experts, internet café, IT maintenance and services, vendors on IT Devices / products, etc.	and economic prosperity
Others	Not mentioned here, but applicable	Not categorized here, but applicable

MDA's = Ministries, Departments, and Agencies; M-Pesa = Mobile Pesa; IP-TV=

Internet Protocol - Television

To summarize these opportunities, the efforts to bring clean and trusted e-government agency through these reform programs were necessary for advancing the e-government (Heeks., 1998 & 2006; Chadwick, 2006; Coleman., 2006). The study uses the e-government stage models as analyzed by Deloitte Research Group, (2000); Layne and Lee, (2001); Howard, (2001); Moon, (2002); UN, (2003) shows that Tanzania has made a remarkable transition stage of its effort in advancing to the e-government (See Table 15). However, while referencing with Seoul, Korea, Tanzania is still lagging behind the e-government development stages (UN EGDI, 2014).

**Table 15:** The e-government development Model of stages

e-government stages model	Sources					e-government Adoption	
	Deloitte and Touché (2001)	Moon (2002)	UN (2003)	Gartner's Group (2000)	Layne and lee (2001)	Tanzania status (2014)	
	6 -Stages	5 - Stages	5–Stage	4 -Stages	4-Stage	Partially (50%)	Full (100%)
Perspectives	Web presence	Technical sophistication	Technological perspective	Eminence of web presence	Technological integration	Citizen centric	Citizen centric
Information publishing / Cataloguing / <b>One-way communication</b> / Emerging /web presence	√	√	√	√	√	-	<b>X</b>
<b>Two-way transaction</b> /interact / enhancement	√	√	√	√	√	<b>X</b>	-
Vertical integration / Multi-purpose / portals / service and financial transaction / <b>interactive</b>	√	√	√	√	√	-	-
Horizontal integration / portal personalization / transactional / <b>transformati onal</b>	√	√	√	√	√	-	-

e-government stages model	Sources					e-government Adoption	
	Deloitte and Touché (2001)	Moon (2002)	UN (2003)	Gartner's Group (2000)	Layne and lee (2001)	Tanzania status (2014)	
	6 - Stages	5 - Stages	5 – Stages	4 - Stages	4 - Stages	Partial-full (50%)	Full (100%)
Perspectives	Web presence	Technical sophistication	Technological perspective	Eminence of web presence	Technological integration	Citizen centric	Citizen centric
Clustering of common services / <b>seamless or full integrated/</b> political participation	√	√	√	-	-	-	-
Full integration and <b>enterprise transformation</b>	√	-	-	-	-	-	-
<b>Main focus</b>	Customer	Technology	Public services	Ease of use	Managerial and operations	<b>QoS</b>	<b>QoS</b>

In referencing the e-government development stage models, the study found that different countries tried to implement e-government not necessarily following this stage but on their level of urgency and importance (Heeks, 2003; 2006). For instance, in Tanzania, the approach began its implementation through the attainment of MKUKUTA goals which was highly linked to the key results area of the each MDA's to ensure good governance. So several IT or Technology attracted

more attention to the private and governmental institutions (URT, 2012). In the same breath, e-government development was dependent on what is available in terms of IT infrastructure, electricity, infrastructure, environmental factors (awareness, politics, leadership and citizens will etc.), old technology, applications etc. Which at some point are not captured well in their models (Chadwick and May 2003). It is important, however, to recognize that these theoretical accounts of e-government stages remains as what Chadwick and May (2003) called it as an “underlying normative frame of character” whereas Moon called it as rhetoric while Heeks & Bailur, (2007) interpreted as a referencing model based framework for understanding the e-government development.

Nonetheless, some weakness such as lack of informatization was pointed out in MDA’s and LGA’s while adopting and implementing the e-government in Tanzania (Ndou, 2004; Jung, 2007). Among other things, is the mystification of understanding the e-government transformation that can be achieved through transformational drivers (Lupilya, & Jung, 2015). This disorientation of what institutions know about transformational drivers for achieving e-government effectiveness is mixed and, therefore, complicated (Lupilya, & Jung, 2015). Suppose that if these institutions are asked the question of what they know about the challenges that directly affect the social transformation, the resources and technology factor in delivering e-government? The answer to that might not be clear even to-date. What institutions know are the questions that these factors such as social, resources and technology can impact negatively or positively to the



implementation of e-government. Such consequences have led Tanzania to be far behind the developmental stage models of the e-government (Lupilya, & Jung, 2015).

Several kinds of literature pointed to the challenges, such as Heeks, on (1998; 2001); Fountains, (2001) and Lupilya, & Jung, (2015) argued that the root of problems with the e-government project failure in developing countries is the absence of human capital in terms of innovative and confidence to understand e-government. Although, Heeks, (2002) and Lupilya, & Jung, (2015) discovered that leaders from Africa should be held responsible for the e-government development. Along with that sentiment, Heeks, (2002), concluded on his findings by pointing out the phrase of being “innovative and confident” to refer to the capability of institutional leaders to do what they are able to do and wished to achieve in e-government that might outweigh the weakness and challenges. These shows a gap which might have been transcended by what Heeks (2003a) called it the gap between reality and the design towards e-government implementation in developing countries. This e-government perspective, on local and institutions innovation, should be addressed along with the transformational drivers that attract more attention to governmental institutions which are likely to be vivid to the attainment of e-government milestone (Lupilya, & Jung, 2015).

## **4.5. The Internal and External Analytical Factors**

The author uses the Technology Enactment Theory developed by Fountain, (2001) and the SWOT analysis to identify the challenges that are critical to Tanzania: Technology, social and resource factors (see Table 7). In addition to that, the transformational drivers are described as the key engine to influence the e-government transformation acting as an intervening variable.

In Table 7, below three factors are presented and the transformational drivers are shown as the key realization of the e-government transformation. This transformational driver is highly correlated with social, technological and resource factors, but provides a number of challenges that Tanzania is experiencing in due course of its implementation of the e-government project exercise. These are summarized and presented below

**Table 16:** Transformational driver that affects the Technology, Resources, and Social Factors

TRANSFORMATIONAL DRIVERS	TECHNOLOGY	RESOURCES	SOCIAL
<b>VIRTUOUS LEADERSHIP</b>	Internet accessibility inequality	lack of motivations and recognitions towards e-government project success due to leadership selfishness, mediocrity and irresponsible	Inability to afford prices for internet access due to leadership selfishness, mediocrity and irresponsible
	Absence of e-government labs / e-government clustering due to leadership selfishness, mediocrity and irresponsible	Lack of innovation in e-government policy and strategy development and implementation due to leadership selfishness, mediocrity and irresponsible	Social group / network are less engaged in the e-government national project due to leadership selfishness, mediocrity and irresponsible
	Institutions technologies are implemented independently	Leads to brain-drain – e-government experts exodus in search of green pastures (e.g. <i>From public institutions to private institutions</i> )	Leadership inability to forecast citizen demographic leads to inefficient utilization of e-government
	Institutions application and other systems are not shared within governmental institutions		

<b>TRANSFORMATIONAL DRIVERS</b>	<b>TECHNOLOGY</b>	<b>RESOURCES</b>	<b>SOCIAL</b>
	The culture of a secret within governmental institutions has affected the merging of e-government systems	e-government experts become a watchdog on e-government project implementation	Lack of coordination led to poor mastering the mobility of social networking
	All e-government projects are viewed differently and therefore implemented separately within institutions	Copy and paste of models, projects, and other approaches tend to weaken innovation among e-government experts within governmental institutions	Unreliable e-government applications for citizen uses due to leadership selfishness, mediocrity and irresponsible
		Politicians and administrators inability to recognize the potential of e-government services	
<b>E-GOVERNMENT ENTERPRISE ARCHITECTURE</b>	Unreliable / outdated electricity infrastructure / electrical power plants due to absence of e-government enterprise architecture	Presence of outdated ICT/IT/Telecommunications Policies / Strategies / Laws due to absence of e-government enterprise architecture	Limited / unreliable internet bandwidth provisions due to absence of e-government enterprise architecture
	Fragmented telecommunication infrastructure	The absence of enforcement, e-government laws / e-government strategies etc	High-cost of internet access, online appl. utilizations e.g. M-pesa, Tigopesa, etc.
	Absence of National Data Center infrastructure	Absence of Data and information security policy / Strategies/ Laws	High-cost of electronic devices

<b>TRANSFORMATIONAL DRIVERS</b>	<b>TECHNOLOGY</b>	<b>RESOURCES</b>	<b>SOCIAL</b>
	Poor connectivity infrastructure	Absence of cyber security policy / strategy and law enforcement	
	Absence of e-government infrastructure master plan	Lack of e-government policy due to absence of e-government enterprise architecture	High cost for maintenance and sustainability of technology
	The absence of harmonized –private data centers	Lack of database backup policy / strategy due to absence of e-government enterprise architecture	High-cost of data storage due to the absence of e-government enterprise architecture
	Absence of harmonized National Policy/Guidelines for physical Infrastructures		the high cost of monitoring and protecting information and data online
<b>E-GOVERNMENT POLICY / E-GOVERNMENT STRATEGIC INNOVATION</b>	Presence of outdated ICT/IT/Telecommunications Policies / Strategies / Laws	Inadequate supply of smart e-government personnel	Uncontrolled bandwidth connectivity price
	The absence of enforcement IT laws / e-government strategy	Fear of transparency and accountability	Unmonitored bandwidth usage vs cost
	Absence of Data and information security Master Plan / policy / Strategies/ Laws	misalignment of e-government developmental projects	Price discrimination over technology

<b>TRANSFORMATIONAL DRIVERS</b>	<b>TECHNOLOGY</b>	<b>RESOURCES</b>	<b>SOCIAL</b>
	Unutilized information and cyber security Act of 2015 without strategic and law enforcement	Governmental institutions become docile to donor countries	Technology service level discrimination
	Lack of e-government policy	Stagnant of several initiated new e-government developmental project	e-government marketing discrimination
	Lack of database backup policy / strategy		e-government services discrimination
	Lack of database backup policy, strategy		Internet service inequality
<b>CHECKS AND BALANCES</b>	the absence of checks and balances has led to Internet procurement especially in the governmental institutions into corruptions e.g. the IT experts, procurement units etc.	The lack of governmental institutions board to review and suggest appropriate enumerations and job specifications due to the absence of checks and balances	Lack of standardizing internet prices for accessibility and connectivity
	Weak checks and balances have led to the delay of the construction of database center due to corruption etc.	Lack of harmonization of the MDA's e-government budget approved for the e-government development due to absence of checks and balances	Citizens become crooked while struggling to learn the technology due to absence of checks and balances

<b>TRANSFORMATIONAL DRIVERS</b>	<b>TECHNOLOGY</b>	<b>RESOURCES</b>	<b>SOCIAL</b>
	Absence of checks and balances led to adopt old technological systems which are incompatible to support online e-government protection	Donor funding for e-government procurement and implementation are not coherent and with standards due to lack of checks and balances	Lack of checks and balance the measurement of citizen attitudes towards the satisfaction utilization of e-government
	Lack of checks and balances led to adopt an obsolete technological infrastructure that is incompatible to support new development of e-government labs and clustering process	In the absence of checks and balances led to the adoption of technical resources which are not evaluated, monitored to fit the current needs	Absence of checks and balance led to poor designing of the e-government services based on citizen demographic
<b>MONITORING AND EVALUATION (KRA's)</b>	The unguided technology led users especially younger generation to be doomed to social media such as Facebook, Instagram, WhatsApp, Kakaotalk, IMO and others	Inadequate of competent and smart team to monitor and evaluate the trends of the e-government national project growth	Escalating of pornography sites, blogs, Facebook and all other social media sites / website due to lack of awareness

TRANSFORMATIONAL DRIVERS	TECHNOLOGY	RESOURCES	SOCIAL
<b>MONITORING AND EVALUATION (KRA's)</b>	Lack of database center to support e-government applications for sending messages, voices, movies, photos and making or receiving calls etc.	Blogs become a major driver for information delivery, but failed to educate people due to financial and technical support	Lack of social engagement in the e-government national project due to absence of monitoring and evaluation mechanism
	Failure to monitor private Telecommunication companies barricades the effort to embrace e-government labs and clustering.	No monitoring and evaluation mechanism for financial resources within MDA's harmonization, utilization, and maximization for e-government effectiveness project.	Driver out Citizen Creativity due to overwhelmed with uninformed news and cooked / False information or data
	Online protection for all e-government projects is implemented in a reverse order orchestrated by personal daydream and not forward looking with clear framework	Due to absence of monitoring and evaluation of the technical resources, vulnerability to e-government systems threats are increasingly overwhelmed on online	Lack of preferences on e-government categorization applications due to poor monitoring and evaluation mechanism



<b>TRANSFORMATIONAL DRIVERS</b>	<b>TECHNOLOGY</b>	<b>RESOURCES</b>	<b>SOCIAL</b>
	Duplication of e-government systems such as IT infrastructure	Lack of governmental institutions - e-government-think-tank	The citizen is overwhelmed with poor services due to system interference
<b>TANDARDIZED E-GOVERNMENT APPLICATION AND SYTEMS</b>	Duplication of technology by separating IT devices or systems	Due to limited resources no backup strategy in times of data or information crises	The citizen is not satisfied with quality of e-government services
	Duplication of telecommunication infrastructure that work on similar platforms	Lack of R&D Teams for technology crisis and security risks	Citizen information is hard to be retrieved and accessed <i>(Unorganized, outdated, etc.)</i>
	Duplication of e-government infrastructure within governmental institutions and private sectors	Lack of e-government technical support	Transaction for online is without security assurance due to multiple systems
	Duplications of internet infrastructure	Lack of self-motivated e-government experts from the governmental institutions to standardize all applications and systems	Online interaction cost becomes so expensive because of switching to different services and applications at the same time

Government failure to monitor these trends in SME's growth not only has resulted in the loss of government tax collection, Low Citizen Protection systems; weak

services delivered, but also slow down the pace of e-government transition in the nation. (Wescott, 2004; Andersen, 2006; Mutula, and Mostert, 2010). Consequently, the delay to institute a regulatory compliance, formulation of policy tool in each of the e-government objectives has resulted in Citizen mistrust and Institutions effort in mobilizing resources in order to facilitating and coordinating the e-government policy goals as a nation project (Tinbergen, 1952, Heeks, 1999; Coleman, 2006; Kumar *et al.*, 2007; Mutula, and Mostert, 2010).

#### **4.6. Analysis: The SWOT Analysis**

The study uses the SWOT analysis supplemented with the literature reviews to describe the transformational drivers in terms of the strength, weakness, opportunity and threats (Heeks, 1999; 2001; 2009; Ritson, 2011). To begin with, the study analyzes the theory of TET (Fountain, 2001) and suggests four cardinal factors: Social, Technology, Resources and the Transformational Drivers. All these factors can be appropriately explained through the SWOT analysis as depicted from the analysis in Table 29.

**Table 17:** Summary of SWOT vs. the TIC (Technology, Social, and Resources)

<b>SWOT / TIC</b>	<b>STRENGTH (S)</b>	<b>WEAKNESS (W)</b>	<b>OPPORTUNITIES (O)</b>	<b>THREATS (T)</b>
<b>TECHNOLOGY (T)</b>	<p>S1. Tanzania Telecommunication Infrastructure</p> <p>S2. Wi-Fi infrastructure available</p> <p>S3. Emerging new fiber optic infrastructure, SEACOM, EASSy, Mkongo (NICTBB), UHURUNet and UMOJA Net etc.</p> <p>S4. National Database infrastructure</p>	<p>W1. The cost of development of e-gov. is relatively high</p> <p>W2. Lack of standardization of technology, applications</p> <p>W3. Delays in implementing e-government projects due to bureaucratic procedures</p> <p>W4. Inability to develop security, cybercrime Master plan</p> <p>W5. Absence of e-government Master</p>	<p>O1. Local government Database</p> <p>O2. Governmental institutions Database</p> <p>O3. Private and social network Database</p> <p>O4. NICTBB, e-Mobile Infrastructure, Telecommunication Infrastructure, Internet Infrastructure</p> <p>O5. Tanzania National Library Database</p> <p>O6. Citizen Database</p> <p>O7. Country Database</p> <p>O8. Alien Database</p>	<p>T1. Dependency on e-government project donor funded</p> <p>T2. Absence of data warehouse, recovery and security plan,</p> <p>T3. Systems Incompatibility platform for integration</p> <p>T4. Security Infrastructure becomes stumbling block for e-government</p> <p>T5. Weak Policies in e-</p>

		<p>Plan; e-government enterprise architecture, e-government policies, and strategy, Security Policy, Cybercrime Policy, IT infrastructure Policy, etc.)</p> <p>W6. High cost of internet accessibility and infrastructure development</p> <p>W7. Lacks of e-government labs and clustering</p>	<p>O9. NGO's / IGO's Database</p> <p>O10. E-government applications such as: IFMS; MOLIS; HCMS; POLIS; EPICOR, etc.</p> <p>O11. E-government systems such as: e-procurement; e-taxation; e-tourism; e-registration; e-administration; e-education; e-business; e-medicine; e-marketing; e-Office, etc.</p>	<p>government enterprise architecture,</p> <p>T6. Illusion of e-government innovation</p> <p>T7. Avalanche of technology</p> <p>T8. Misfortune of technology</p>
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<b>SWOT / TIC</b>	<b>STRENGTH (S)</b>	<b>WEAKNESS (W)</b>	<b>OPPORTUNITIES (O)</b>	<b>THREATS (T)</b>
<b>TRANSFORMATIONAL DRIVERS</b>	<p>S5. E-government policy and e-government strategic plan innovation</p> <p>S6. Will on embracing Private, Public, Partnership</p> <p>S7. Political stability and to embrace new forms of technology</p> <p>S8. MDA's and governmental institutions to embrace the e-government transformation</p> <p>S9. E-government as a new institutional routines</p>	<p>W8. Fear of transparency or accountability / Conflict of Interest</p> <p>W9. Lack of innovation for e-government experts</p> <p>W10. Weak collaboration of PPP, NGO's, Citizen in e-government developments projects</p> <p>W11. Weak institutional responsibility in technology innovation and informatization</p> <p>W12. Path dependence on technology</p> <p>W13. Lack of institutional innovation</p> <p>W14. Lack of leadership</p>	<p>O12. National e-government-think tank committee</p> <p>O13. Engagement of government and private institutions</p> <p>O14. Speed up the integration of government and private institutions Database</p> <p>O15. Facilitate training and awareness on e-government to all MDA's, citizen &amp; other institutions</p> <p>O16. Government intervention on e-</p>	<p>T9. Rapid implementation without key stakeholders, NGO's, PPP collaboration may cause problems during transformation</p> <p>T10. Complex law and regulation to support e-government transformation</p> <p>T11. High dependency and subcontracting e-government services outside</p>

	S10. E-government as a mindfulness stability of the institutions	enlightened self-interest	<p>government project</p> <p>O17. Collaboration with private and social network institutions</p> <p>O18. Governmental institutions and local government collaboration and engagement</p> <p>O19. Strengthening institutions' information systems</p> <p>O20. Develop e-government security policy</p> <p>O21. Engagement on development of national e-government enterprise architecture</p>	<p>institutions</p> <p>T12. Lack of Virtuous leadership in e-government is a problem</p> <p>T13. Wide gap between e-government agency structure vs MDA's structure (<i>MIS or IT/ICT supporting Unit, section or department</i>)</p>
<b>SWOT / TIC</b>	<b>STRENGTH (S)</b>	<b>WEAKNESS (W)</b>	<b>OPPORTUNITIES (O)</b>	<b>THREATS (T)</b>

<b>SOCIAL</b>	<p>S11. Citizen needs quality of service, and so e-government is the only way to speed up quality of service</p> <p>S12. Awareness programs on e-government are now emerging</p> <p>S13. Positive attitudes to embrace the use of e-government</p> <p>S14. Segmentation of e-government services to enhance equal opportunities of online services</p> <p>S15. Online Social group / network society-eco.</p>	<p>W15. Complex local content for Citizen to use</p> <p>W16. Lack of knowledge in online services deployment</p> <p>W17. Inability for change of mindset to trust online information</p> <p>W18. Lack of legal / policy that protect the citizen in the utilization of online services</p>	<p>O22. Create informatization outreach program in e-government</p> <p>O23. Embrace in regional/clusters e-government center development</p> <p>O24. Stimulate the use of e-government through Local citizen, PPP, NGO's collaboration</p> <p>O25. Enhance affordable internet connection</p> <p>O26. Enhance affordable internet access</p> <p>O27. Enhance free Wi-Fi zone for citizen interaction</p>	<p>T14. Cyber security in e-government may be a problem</p> <p>T15. Poor retention of local smart and experts e-government</p> <p>T16. Online Privacy and confidentiality may be at risk</p> <p>T17. Corruption in e-government projects</p> <p>T18. Government of Tanzania bureaucracy</p>
<b>SWOT / TIC</b>	<b>STRENGTH (S)</b>	<b>WEAKNESS (W)</b>	<b>OPPORTUNITIES (O)</b>	<b>THREATS (T)</b>

<b>RESOURCE S FACTOR</b>	S16. Government's institution's ability to mobilize smart e-government personnel in and outside country	W19. Government bureaucracy in embracing e-government national project	O28.Ability to create e-government labs and clustering in each ward, district, regions, councils	T19. Online data and information may be at risk.
	S17. Governmental institutions ability to mobilize easily funding agency for the e-government	W20. Lack of administrative support towards embracing e-government	O29.Influence telecommunications industries to provide free Wi-Fi for citizen in the e-government labs	T20. Telecommunication investment may be at risk
	S18. Partnering country can provide technical support in terms of resources or funding	W21. Reluctance to utilize internal budget to finance e-government	O30.Engage social group / social network to orchestrate the e-government reach out.	T21. The future sustainability of the e-government project may be at risk
	S19. Government can use an internal budget to finance e-government national project	W22. Diversify and uncoordinated e-government national projects	O31.Apply or adapt models for effective and speedy transformation of e-government national project	T22. Barricade the institutional e-government innovations and creativity
	W23. Multiple ICT / IT / telecommunication policies			



A total of 100 participants, their questionnaire was filled with comments about the strength; weakness; opportunity and threats of the e-government transformation. Online interviews were conducted to validate their response data. The highest number of respondents about 80% commented on strength and opportunities for e-government transformation. The most frequent comments were on the establishing the national e-government-think tank committee that would help to foresee the e-government transformation process. In addition to that, e-government knowledge and innovation should become a focus at all levels. The frequently identified threats and weakness are the dependencies to foreign AID, e-government experts / specialist/ e-government technician, etc. Furthermore, the study matches the Strength and opportunities to forecast the competitive factors and at the same time uses a conversational method against the weakness or threats as suggested by Ritson (2011). The author summarized the SWOT analysis in order to foresight key potential strategies for assessing areas that need more improvement towards e-government implementation. The following matrix Table 30 was developed from the SWOT analysis to save as the vivid approach for setting up strategies to forge ahead the e-government implementation in Tanzania.

**Table 18:** SWOT matrix analysis for e-government drivers

	<b>Strengths</b>	<b>Weakness</b>
<b>Opportunities</b>	<b>High-High (Strength / Opportunities)</b>	<b>Low-High (Weakness / Opportunities)</b>
O1. Social transformation	(Y) S2S3-O2: Integrate national Database e.g. Local & central government DB/private institutions	(V) W4WW5W7-02: smart e-government personnel focus / funding issues focus
O2. Resource mobilization	DB/ Social-Net DB/National Library DB/ empower e-government labs and clustering / Internet accessibility	(Y <sub>1</sub> ) W15W22-03: Coherent of e-government project focus / integration of systems
O3. Technology enhancement	(V) S5-03: National e-government-think Tank committee to empower the e-government knowledge and innovation/develop e-government policy/conduct R&D/ M&E	(X) W23 – 03: consider merging telecommunication policies / strategies etc.
	(X) S11S13S14- 01: Government intervention program to facilitate training for e-government/ Database systems/NICTBB infrastructure/e-government policy & security / external alliance / Convergence	(C) W19W20W21-01: consider to check and balance the e-government utilization
	(X <sub>1</sub> ) S1S4S8-03: strengthen institutions' information systems from: Local & central government institutions /e-procurement/e-taxation/e-administration/ IFMS/ POLIS etc.	(M) W4W5W18-01: Monitor the enforcement of policies and evaluate its strength
	(M) S3S7S8-03: Private & social network institution on: e-business/e-marketing/e-medical/e-	

banking/e-customer/e-tourism

- (V) S6S7S8S11-03: engagement of government & private institutions, enabling the: C2C/ G2B/ G2G/ G2C /B2B

		Strengths	Weakness
Opportunities	High-High (Strength / Opportunities)	Low-High (Weakness / Opportunities)	
T1. Diversified supports and Aid	(V) S3S5-T1: Promote internal e-government infrastructure.	(V) W1W6W7-T1: establish mutual cooperation between donors and the government.	
T2. Avalanche of e-government	(V) S6S7S8-T1T2: improve institutional capability through knowledge and innovation creation	(V, M) W3W8W21-T1T2: empower <i>eGato</i> monitor and control MDA's information systems/Databases etc.	
T3. Illusion of e-government use	(X) S10-T1T5: promote e-government utilization and awareness	(Y,V,M) W9W10W11W14-T4T5: develop strong e-government labs/clustering all the country	
T4. Rapid growth of internet threats	(Y) S16S19-T4T6: Restructuring <i>eGa</i> structure & direct all IT/ICT experts to report to eGa	(C, M) W5W18W23-T3T6: improve the development of e-government policy and master plan	
T5. Copy and paste of e-government models	(X <sub>1</sub> , Y <sub>1</sub> ) S14S15-T1T6: encourage innovation through social transformation	(C) W12W13-T2T5: Facilitate e-government informatization Funds from: Tigo /AFSAT/ SimbaNet /Mining industries / Gas industries/ IGO's/ NGO's / Vodaphone/Airtel	
T6. Telecommunication investment policy	(M) S18-T1T5: promote e-government training short/long term	(M) W22-T2T4: reinforce e-government policy and strategic plan	
	(C, M) S1S2S4-T1T6: promote national e-government-think tank collaboration with PPP and social network	(V, C) W19W20-T5T6: government intervention on internet price/ convergence information systems	

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**Notes:** V= Virtuous leadership issue; C = Checks and balance issue; X= e-government policy issues / strategic innovation; Y = e-government enterprise architecture; X<sub>1</sub> = standardize e-government applications; Y<sub>1</sub> = interoperability e-government systems; M = Monitoring and Evaluation (KRA's)

Following the matrix in Table 30, the author identified the high-high (Strength / Opportunities) drivers that help the institution to guide the emerging social transformation and can be used as an opportunity for governmental institutions to cherish its capability. They can either cherish through engagement, creating awareness, creating e-government labs, extending internet satisfactions and so forth. This would support the institutions by maximizing on the opportunities from the new technology or investing in short or long term training program. However, the speedy advancement of technology and the effect of social transformation requires the governmental institutions to consider this challenge as the learning paradigm and not as simply as the threats, this is indicated in Table 30 as high – low (Strength / Threats). This is also captured in the following summarized technology war error.

A government institution, especially in developing countries, depends heavily on donor funding projects, and this increases threats in their operations. The matrix shows that low – high (Weakness / Opportunities) needs to be controlled strategically by foresight the direction that future drive the organization. Social transformation as the new opportunities needs to be strategically embraced to lower the high threats within governmental institutions. This approach explains also the governmental institutions weakness as shown as low-low (Weakness / Threats), to leveling the threats due to the inability of financing new threats from the advancement of technology (see Table 30). The governmental institutions can institute policies and a guideline, supplemented by the establishment of e-

government labs to lower the forces comes along with new advanced e-government.

#### **4.7. Concluding Remarks**

In summary, this chapter had reviewed the challenges and opportunities of the e-government transformation in Tanzania. It was found that the key challenges to e-government transformation are highly correlated with utilization of convergence model, sharing prototype, and transformation framework as key factors. The transformational framework factor should not be overlooked because it supplements the smooth and enabling environment for the attainment of the e-government. Regarding the transformational drivers, it was argued to positively influence the sharing and convergence factors which attract more attention to the effortful accomplishment of the e-government milestone. Furthermore, it was argued that the resource, social and technological factors play a similar role as that of convergence, sharing, and transformation which was identified in the SWOT analysis Table 30. It was claimed that these factors are positively impacting the e-government transformation. The author suggests that this can become a learning opportunity for the governmental institutions to address challenges of e-government. Each factor has adequate value in influencing other factors positively. This result is supported by the explanation that in the absence of one of these factors leads to the effort of e-government transformation into a coma.

The analysis results from SWOT combined with the Korean e-government success story add value to the explanation that governmental institutions require a strong e-government roadmap that explicitly presented three phases: convergence, sharing, and transformation. It should be understood that Korean e-government success story rooted from strong leadership style and political will. In addition to that, institutional leadership style and the virtuous leadership supplemented with Korean case shows that leadership style should be seen as a catalyst change to bring the future in today's efforts (positive dictatorship elements) as seen in the analysis Table 19 and Table 20. This becomes a supplement agent that attracts national attention to adhering and supports the e-government transformation efforts. While doing so, it derives a strong institutional leadership as nuts and bolts to trigger out the development of other factors such as convergence, sharing, and transformation that is influenced by social, resources, and technology factors.



## CHAPTER 5. RESULTS OF THE ANALYSIS

This chapter presents an empirical analysis of the challenges and opportunities of e-government transformation in Tanzania. The study addresses three objectives: 1) to understand the e-government challenges 2) to understand the opportunities of e-government in Tanzania and 3) to understand the key drivers of the e-government transformation. The study conducted exploratory factor analyzes for the challenges, opportunities and the key drivers of e-government transformation in Tanzania. Principal component factor using SPSS version 22 was employed to analyze data for the challenges, opportunities and the key drivers for e-government. The analysis was conducted using Oblimin and Varimax rotation for discriminant validity. The first analysis conducted has yielded five factors associated with the challenges of e-government (which is in qn.1) Whereas the second analysis conducted yielded seven factors associated with opportunities of e-government transformation (which is in qn.2) The final analysis conducted had initially yielded five factors associated with the key drivers of e-government transformation (which is in qn.3) Several items below the .400 cut-off was dropped using the scale reduction methods as suggested by (Ford *et al.*, 1986). In Table 19, Table 23 and Table 27 the initial factor loading of each one of the factors was presented.

## **5.1. Summary of Statistics Analysis for Challenges on E-Government**

Table 20 shows a summary of the statistical analysis of the challenges based on a five Likert scales (strongly agree “5” to strongly disagree “1”). It is obvious that in Appendix 1 and Table 20, the most critical challenge for the e-government transformation is associated with citizen demographic with a higher mean value score of ( $M = 4.49$ ;  $SD = 0.689$ ) and the less critical challenges are associated with centralized e-government applications ( $M = 2.73$ ;  $SD = 1.188$ ). On average, social engagement and connection, and policy innovation on e-government and security are perceived as critical challenges of e-government ( $M = 4.42$ ;  $SD = 0.691$  respectively). This is followed by the innovation on the internet and IT standards as well as the innovation in e-government enterprise architecture ( $M = 3.75$ ;  $SD = 1.15$  and  $M = 3.32$ ;  $SD = 1.07$  respectively) as perceived most crucial and challenging factors. However, citizen networking and support factor ( $M = 2.89$ ;  $SD = 1.058$ ) were followed to be the least critical factor in the analysis respectively. The implication to the management is that training to acquire knowledge and innovation and empowering national e-government-think tank committee collaboration are crucial for sustainable implementation and should be encouraged.

While in Appendix 2 and the Table 24 shows the summary of the statistical analysis of the opportunities of the e-government according to the level of priority and importance. The highest opportunities for transforming the e-government in

Tanzania is associated with encouraging free ICT center / e-government Labs in each ward as well as reinforcing internet connectivity price regulations with a higher mean value score of (M = 4.51; SD = 0.606; M = 4.48; SD = 0.681 respectively). While on average, government intervention and leadership support factors as well as the national e-government-think tank committee collaboration factors are perceived to be the nuts and bolts of opportunities and that can speed up the transformation of the e-government (M = 4.43; SD = 0.579; M = 4.16; SD = 0.777 respectively) followed by the Local & central government institutions (M = 2.96; SD = 0.834).

The final research question was how to address the challenges. Appendix 3 and Table 28 summarized the statistical analysis based on the key drivers that can influence the impact of e-government transformation process. The key driver to the success of e-government transformation is associated with the institutional support or collaboration with institutional information processing as well as the codification information and archiving (M = 4.45; SD = 0.695; M = 4.43; SD = 0.744 respectively). Nevertheless, on the average mean score, strengthening the institution's information systems as well as facilitating training (short and long term program) on e-government (M = 4.40; SD = 0.585; M = 4.15; SD = 0.793 respectively) is perceived as the key drivers for e-government transformation. In comparison with the basic drivers shows that speeding up the development of e-government policy and security for transformation are associated with national ICT infrastructure as an overall of (M = 2.99; SD = 1.06 respectively) see also Figure

10.

However, Appendix 1, 2, and appendix 3 provides the detailed summary of each construct with its measurement variables. The first column on the descriptive statistic table indicates the total number of all constructs used in the study. In the second and third column show the minimum and maximum values of all constructs. The fourth column shows the Mean score values for each construct as being considered according to their importance as applied in the present study.

## **5.2. Analysis 1: Challenges for E-Government**

### **Transformation**

The summated scores results which are obtained by computing a weighted average score across each factor are shown in Table 20 and the summary presented in figure 4. The analysis explains the challenging factors that impact the critical success of e-government in Tanzania. The results show that there is a strong significant difference from the earlier assumption based on the variables that were proposed. The degree to which challenges are analyzed and presented by governmental institutions does not correlate with the solutions formulated to explain the significant effect of the e-government transformation process. However, along with the study expectation, the 26 components were loaded and analyzed to form five critical challenges. The study shows that these factors have loaded high with a mean score above 2.9 which significantly influenced the process of e-government through governmental institutions.

To determine whether these factors are important for the success of e-government transformation process, the factor analysis was used and analyzed the results as presented in Table 19. The five factors that were identified in the analysis: Innovation on Internet & IT standards; social engagement / connections; innovation on the internet and IT standards; innovation in e-government enterprise architecture and the policy innovation in e-government and security. In each one of these factors, there are several variables used to measure the factors that impact the transformation process as it can be seen in Appendix 1 respectively. The five factors identified, explained the total variance of 81.57% (Table 17), respectively. The total commonalities from the analysis are loading high ranging from 0.64 to 0.95, respectively.

**Table 19:** The eigenvalues factors for the challenges of e-government

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings <sup>a</sup>
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	10.903	41.936	41.936	10.903	41.936	41.936	7.080
2	4.401	16.927	58.863	4.401	16.927	58.863	3.337
3	3.106	11.946	70.808	3.106	11.946	70.808	8.411
4	1.554	5.976	76.784	1.554	5.976	76.784	6.847
5	1.243	4.782	81.566	1.243	4.782	81.566	2.978
6	.893	3.434	85.000				
7	.762	2.931	87.931				
8	.576	2.216	90.148				
9	.483	1.857	92.004				
10	.377	1.451	93.456				
11	.312	1.200	94.656				
12	.289	1.111	95.767				
13	.253	.973	96.740				
14	.182	.700	97.440				
15	.171	.659	98.099				
16	.127	.488	98.587				
17	.111	.425	99.012				
18	.096	.369	99.381				
19	.044	.171	99.552				
20	.033	.128	99.680				
21	.031	.119	99.798				
22	.015	.059	99.857				
23	.013	.049	99.906				
24	.012	.046	99.952				
25	.007	.027	99.979				
26	.006	.021	100.000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

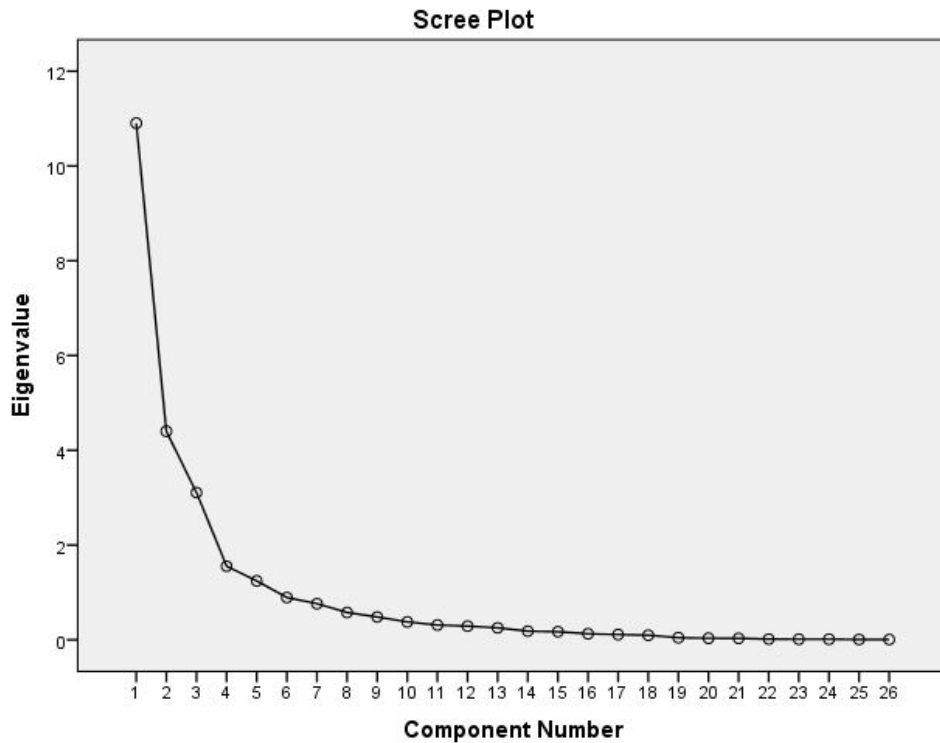
The Kaiser-Meyer-Olkin Measure of Sampling Adequacy were 0.814 (Table 18) indicating that it is over the 0.8 suggesting that attributes are inter- correlated. The Bartlett's Test of Sphericity shows a significant degree of freedom at 325 (Table 18) this suggests carrying forward the analysis with strong confidence.

**Table 20:** KMO and Bartlett's Test of Sampling Adequacy for the challenges of e-government

<b>KMO and Bartlett's Test</b>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.814
Bartlett's Test of Sphericity	Approx. Chi-Square	3935.
Degree of Freedom		160
Statistical Significant ( <b><i>P</i></b> )	df	325
	Sig.	.000*

Note: “\*” = Represent Statistical significant at Alpha = 0.05

**Figure 4:** Screen Plot of the constructs for challenges of e-government



The screen plot as shown in (Figure 4) was extracted from the exploratory factor analysis. The curve is pointing between the first and the fifth component indicating that only five factors were extracted. The fifth factors extracted with initial eigenvalues of greater than 1 as indicated below in Table 17. While all factor loading indicated that they are statistically significant. As it can be observed that, the factor loading of five items was all above 0.4.



**Table 21:** Exploratory factor analysis for challenges to e-government

Factor Name	Items measurement	Factor Loading				
		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Innovation on Internet & IT standards	CTq1: Lack of Internet satisfaction as a stumbling block	.962	.041	.014	.046	.007
	CTq4: Absence of standardize IT systems	.954	-.001	.002	-.001	.000
	CTq3: Absence of standardize applications	.883	.046	.014	-.161	.041
	CTq2: Absence of database Center	.873	-.016	.004	-.142	.028
	CDq4: Absence of IT and e-government enterprise architecture	.430	-.049	.304	-.231	-.081
Social engagement / Connections	CSq2: Absence of information of citizen demographic	.021	.853	-.037	-.189	.144
	CSq6: lack of Leadership attitudes & supports	-.034	.842	.069	-.057	.026
	CSq3: Social guidance towards e-government is a problems	.127	.828	-.044	-.059	.158
Innovation and leadership in e-government	CTq7: Absence of e-mobile infrastructure	.074	-.009	.956	.074	.023
	CTq5: Lack of online protection	-.052	-.003	.938	-.136	.013
	CDq3: Absence of e-government policy innovation	-.005	.004	.928	.111	-.053
	CTq8: Lack of e-mobile localized applications	-.069	-.012	.903	-.207	.022
	CDq6: Absence of monitoring and evaluation (KRA's)	.075	-.109	.873	.100	.034
	CDq1: Absence of Virtuous Leadership	-.157	.134	.863	-.132	-.032
	CDq2: Lack of checks and balances	-.067	.041	.794	-.091	-.040
	CDq5: Absence of implementable e-government strategic plan innovation	.339	-.052	.760	.162	.085

Innovation on e-government enterprise architecture	CRq7: Internal coordination of e-government systems design and installation	.049	.100	.143	-.813	-.063
	CRq5: E-government task force	.207	.102	.136	-.780	-.149
	CRq1: Absence of smart e-government experts	.289	.161	.076	-.745	-.056
	CRq2: Lack of e-government budget supports from donors agencies	.334	.079	.066	-.743	-.076
	CRq3: lack of Internet accessibility within governmental institutions	.380	.110	.052	-.710	-.075
	CRq6: Lack of enforcement of National ICT broadband Backbone – NICTBB	-.153	-.056	.039	-.560	.359
Policy innovation on e-government & security	CSq1: Internet inequality disrupt the effort of e-government	.011	.261	.038	.129	.811
	CSq4: Institutional engagement towards e-government	.049	.352	-.043	.145	.748
	CSq5: Government intervention to provide guidance for internet prices	-.086	.351	-.058	.092	.681
	CRq8: Centralized e-government applications sharing is in place	.128	-.386	.014	-.361	.628

*Note: the first capital letter “C” in the Items measurements = Represents*

#### Challenges Factors

Variables with positive sign show high frequencies. Several variables with negative sign show low frequencies as perceived as the core interplay not only for e-government transformation, but also for accountability, ownership and of enlightening self-interest. The study concludes that the higher the frequency the better the number of items that explain the perception.

The next steps employed exploratory factor analysis to study the dimension of each challenge of e-government. Strength, Weakness Opportunity and Threats (SWOT) analysis, the literature review and the Technology Enactment Theory (TET) was employed to assess and develop factors that are appropriate to the study. After running the factor analysis, several factors were identified with assigned names that reflect the meaning of their relationship to each factor.

Each factor was labeled accurately reflecting the underlying meaning and context of relationship within items. According to Hair, *et al.*, (1995) it was suggested that the naming of each factor should represent the meaningful relationship of the items measured and loaded. Using Table 19, naming of factors followed the same principles as indicated by Hair *et al.*, (1995) and were identified within the items measured. The study labeled factor 1 as “Innovation on Internet & IT standards” because this factor was dominated with items reflecting the internet satisfaction, IT systems, and applications, standards of IT applications, database as well as e-government enterprise. Factor 2, Social engagement and connections

were captured in the perception of guidance and support (e.g. “Social guidance towards e-government”). Factor 3, Innovation and leadership in e-government featured within the perception of the ability to foresight, innovate and bring tangible change within the context (e.g. “Virtuous Leadership”). Factor 4, Innovation on e-government enterprise architecture tries to analyze items reflecting the perception of e-government design and implementation (e.g. Coordination of e-government systems design and installation as well as the enforcement of the National ICT broadband Backbone (NICTBB)). Finally, factor 5, Policy innovation in e-government and security, the construct aimed at assessing the enforcement of laws, regulations, and policies (e.g. “internet inequality as well as the government intervention to provide guidance for internal prices”).

**Table 22:** Mean Score for critical challenges of e-government transformation

Critical challenges	N	Mini mum	Maxi mum	Mean Score	Standard Deviation
<b>Scale 1: Factor 1</b>					
Innovation on Internet & IT standards	100	1.00	5.00	2.892	1.058
<b>Scale 2: Factor 2</b>					
Social engagement / Connections	100	2.00	5.00	4.420	0.691
<b>Scale 3: Factor 3</b>					
Innovation and leadership in e-government	100	1.00	5.00	3.753	1.151
<b>Scale 4: Factor 4</b>					
Innovation on e-government enterprise architecture	100	1.00	5.00	3.323	1.075
<b>Scale 5: Factor 5</b>					
Policy innovation on e-government & security	100	1.00	5.00	4.478	0.522

As indicated in Table 20 the scale 1 shows: Innovation on Internet & IT standards factor was analyzed and the results presented shows statistically low mean score value of (M = 2.892, SD = 1.058) which suggest that there is strong evidence that innovation on the internet and IT is very important. This scale was analyzed and rated between 1 = very important to 5 = not important. When comparing Innovation on Internet & IT standards (M = 2.892) with Factor 4, innovation in e-government enterprise architecture (M = 3.323) there is a positive correlation between internet and e-government enterprise measurement. The comparable means a score of these two factors indicates the evidence that if innovation in

Internet & IT standards continues to influence the designing of the e-government enterprise architecture innovatively implies, therefore, is of a great important. This analytical result is influenced by innovation or knowledge in e-government and security policy assigned with the highest mean score rating ( $M = 4.478$ ).

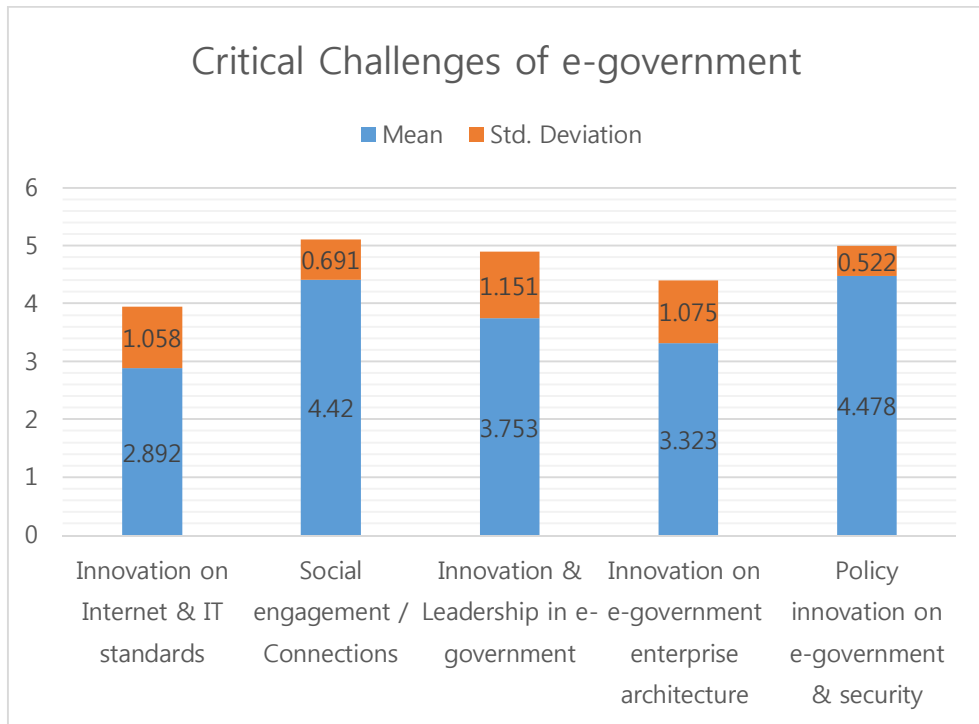
Whereas, in comparison with factor 5, policy innovation in e-government and security ( $M = 4.478$ ) with innovation on the internet and IT standard ( $M = 2.892$ ) shows that there is a strong positive correlation between innovation on the internet and IT standards with the innovation on e-government policy and security. The results suggest that the persisting weak innovation in the internet and IT technology continues, there are higher consequences of developing or implementing e-government policy and security innovatively. It sounds difficult to design e-government policy and security in the absence of internet and IT standards and e-government knowledge or innovation. Very interesting is that, in comparing factor 3, the innovation and leadership in e-government ( $M = 3.753$ ) with factor 4, the innovation in e-government enterprise architecture ( $M = 3.323$ ) there is a strong significant positive correlation. As more innovation in e-government leadership increases, the stronger the ability in terms of innovation in designing and implementing the e-government enterprise architecture increases. This factor is very important and necessary foundation to improve and transform the e-government.

While comparing factor 2, encouraging social engagement and connection ( $M = 4.420$ ) with factor 5, policy innovation in e-government security ( $M = 4.478$ )

shows a strong statistical correlation. The more the governmental institutions encouraging social engagement and connection with the e-government development national projects, the better the success in developing e-government policy and security innovatively. Nevertheless, for the success in the information or data process integration to improve the e-government interaction within citizen, government, and private business such engagement is unavoidable and, therefore, indicating that is more important and urgent.

Overall findings on the critical challenges of e-government in this part, indicates that social engagement and connection, as well as policy innovation in e-government and security, are a significant barrier to the e-government transformation from designing to the implementation process. This suggests that governmental institutions must prioritize these factors and focus on addressing and investing resources for effective change. Otherwise, governmental institutions will continue to experience syndromes of failure caused by weakness or absence of innovation towards e-government transformation. Similarly, several kinds of literature on e-government found the lack of innovation on: Internet & IT standards, leadership in e-government, e-government enterprise architecture, e-government policy and security are becoming a major barrier not only to information sharing, but also to e-government transformation process (see also geeks, 1998, 2001; Ndou, 2004, Kumar *et al.*, 2007; Ngulube, 2007; Knight, 2010b; Lupilya, & Jung, 2015).

**Figure 5:** Graphical representation of means and standard deviations for challenges



*Summary I: Innovation on Internet and IT Standards factor.*

The study measured the Innovation on Internet & IT standards factor using five items as shown in Appendix 1. In comparing the two variables among the five variables measured were standardized IT systems with a mean score value of ( $M = 3.90$ ,  $SD = 1.291$ ); and IT and e-government enterprise architecture ( $M = 3.16$ ,  $SD = 1.108$ ) gives a positive significant correlation. This explains that during the pre-



design of the e-government systems, the strong investment in ensuring standardized IT applications and IT systems; provide effective and innovative development of e-government enterprise architecture. However, the opposite of that is what emerging to be significant challenges towards e-government transformation. While at an average mean score level of internet satisfaction ( $M = 2.90$ ,  $SD = 1.210$ ) shows a significant impact to the transformational drivers when comparing with the database center ( $M = 2.88$ ,  $SD = 1.148$ ). This explains that there is a strong positive correlation between internet satisfaction and the database center. The more citizens are satisfied with the internet and access, the more the acceleration of e-government transformation takes place. The Database center was analyzed under technology factor and the results indicate the significant impact to the transformation drivers if internet satisfaction and connection is ignored. This can influence the negative impact in achieving the success of e-government.

The standardize application ( $M = 2.79$ ) were compared to the IT and e-government enterprise architecture ( $M = 3.16$ ) shows that there is a statistically significant correlation. This suggests that IT and e-government enterprise architecture be effective requires standardized application in IT or e-government. This may provide a signal while foresight the future when developing and designing e-government enterprise architecture.

Overall summary, the analysis of this factor suggests that governmental institutions should put the effort in investing for knowledge creation, and innovation on internet technology and IT standards. This result indicates that the

speed of e-government transformation depends on the institutional innovation on internet technology and IT standards. Governmental institutions should treat this item as important but also urgent.

*Summary II: Social Engagement / Connections Factor.*

When considering the success of e-government transformation process, the pre-design of e-government must involve Social engagement / connections, weighted on a five-point Likert scales with a mean score of (M = 4.420, SD = 0.691). Three items were used to measure social engagement and connections: the first began by comparing citizen demographic (M = 4.49) with the social guidance (M = 4.46), which results showed that there was a strong significant and positive correlation.

Thus, the more information and data from which citizen is properly designed and managed have a significant correlation with social engagement and connection. It is important for the governmental institutions being close to the citizen (social engagement) for it to have sufficient and valid information and data from the ground. And more interesting is that, when comparing the leadership attitudes (M = 4.45) with the social guidance (M = 4.46) there is a strong positive correlation. This result is consistent with the previous studies reported by Heeks, (2002; 2003); Jung, 2007; Karokola & Yngstrom, 2009; Machira, 2009; Lupilya, & Jung 2015; Lupilya, 2015) suggesting that leadership attitudes are socially dependent and thus are “crosscutting issues / pipeline”. This explains that the

analysis is significantly effective for e-government transformation efforts through the transformational driver. The measure of social engagement / connections was categorically conducted among the variables such as the citizen demographic, leadership attitudes and supports, social guidance and awareness.

These variables explain significant positive correlation to the e-government transformation process through the transformational drivers. For instance, citizen demographics had a significant effect of the e-government transformation through transformational drivers with mean score ( $M = 4.49$ ,  $SD = 0.689$ ) as compared leadership attitude with the mean score value of ( $M = 4.45$ ,  $SD = 0.687$ ). This explains that leadership is more important and that has a strong correlation effect to the role of the transformation process influenced by social engagement and connections. Furthermore, the comparative analysis shows that social guidance variable is a statistically significant influence to the e-government process at a mean scored value of ( $M = 4.46$ ,  $SD = 0.717$ ). This explains that there is a significant correlation between leadership attitudes and social guidance towards supporting and guiding the multitude of users.

Overall summary, the results shows that governmental institutions have always shown a persistent gap / tension between leadership and social guidance in all spheres of the struggle towards the transforming the e-government (Heeks, 2000, 2001; Karokola & Yngstrom, 2009; Lupilya, & Jung, 2015; Lupilya, 2015). Therefore, leadership and social guidance become a stumbling block to forward the e-government and is a critical challenge in responding to social awareness and

guidance in assisting citizen struggle to access e-government application services.

*Summary III: Innovation and Leadership in E-Government Factor.*

E-government is all about leadership, and above all is about innovation. The study established seven variables which used to measure innovation and leadership in e-government: The online protections, e-mobile localized applications, virtuous leadership checks and balances e-government policy innovation, e-government strategic plan innovation, and the monitoring and evaluation (KRA's) as shown in Appendix 1. The study presented the analysis of innovation and leadership in e-government in Table 24 representing scale 3: All variables compared to innovation and leadership in e-government factor yielded strong positive correlation. For instance, online protection (M = 3.81) was compared with virtuous leadership (M = 3.84) shows a positive significant correlation in terms of innovation. The stronger the leadership is in e-government the better the innovation in e-government and online protection will be. The innovation and leadership in e-government are significantly effective tools that influence the speed of the e-government process through the transformational drivers. This scale explains that local innovation is statistically significant and valuable in contributing to the transformation of e-government at local and national settings in a given transformational driver.

On the other hand, when comparing check and balances (M = 3.70) with the monitoring and evaluation abbreviated as KRA's (M = 3.81) the results indicate that there is a strong positive relationship with each variable. For better

performance of the e-government transformation process, checks and balances mechanism tends to improve the monitoring and evaluation process. Within monitoring and evaluation process, there is an internal validity of checks and balances when comparing to leadership in e-government. The comparison between e-mobile localized application ( $M = 3.91$ ) with the e-government policy innovation ( $M = 3.61$ ) indicates that there is a positive correlation. The analysis explains that as weak innovation in e-government policy tends to inhibit the strongly the utilization of e-mobile with the development of localized applications. A citizen can access information about government, or data about agriculture using their mobile applications since there is no policy in place to guide, which makes the e-government transformation process difficulty. This suggests that the result is similar to the analysis with e-government strategic plan innovation ( $M = 3.54$ ) which is strongly influenced by the innovation in e-government policy.

Research shows clearly that weak innovation and leadership in e-government may significantly influence the categorical groups (governmental institutions, citizen, private companies, etc.) to go online ( $M = 3.81$ ,  $SD = 1.277$  respectively) or to create a stagnant transition stage. Three potential variables were highly loaded with a mean score of above ( $M = 3.8$ ) indicating their statistically significant correlation to the transformational drivers towards achieving potential e-government transformation process respectively. In particular, comparison analysis between the Online protection which is significantly impacting the transformational drivers and that can accelerate the e-government transformation of

the mean score value of ( $M = 3.81$ ,  $SD = 1.277$ ) with the e-mobile localized application is highly correlated with e-government through transformational drivers at the score mean value of ( $M = 3.91$ ,  $SD = 1.272$ ). Whereas the Virtuous leadership which has a significant impact in the e-government process compared with social, resources and technology factors and yield the mean score value of ( $M = 3.84$ ,  $SD = 1.237$ ) respectively. However, at an average mean score of ( $M = 3.5$  to  $M = 3.7$ ) the study may concludes that: checks and balance have a strong statistical dependence between the social, resources, and technology factors at the mean score value ( $M = 3.70$ ,  $SD = 1.360$ ); whereas the comparison of e-government policy innovation shows a significantly dependence between the factors and the process of e-government transformation with mean value of ( $M = 3.61$ ,  $SD = 1.325$ ); the comparison analysis results shows that e-government strategic plan innovation is statistically strong in influencing the designing and processing of the e-government and thus correlated with social, resources and technology at the mean value of ( $M = 3.54$ ,  $SD = 1.275$ ); and comparing the monitoring and evaluation with social, resources and technology factors the results shows that they are positively significant correlated to the e-government transformation through transformational drivers with the mean value of ( $M = 3.71$ ,  $SD = 1.328$ ). This explains that innovation and leadership in e-government are important and thus can significantly enhance the government institution's efforts to search and nature the local citizen in order to create innovation towards e-government transformation.

Overall observation is that innovation and leadership in e-government have an impact the transformational drivers to speed up the e-government transformation with a mean score ( $M = 3.753$ ,  $SD = 1.151$ ) respectively. This is similar to the study reported by Lupilya, & Jung, (2015) towards e-government transformation in Tanzania. In their context, they explained that the nature of governmental institutions towards human resources development (see also, Fountain, 2001; Ndou, 2004; Coleman, 2006; Jung, 2007; Morgeson & Mithas, 2009; Kumar, 2010; Lupilya, 2015) are driving institutions in personal rather than for public institutions prosperity. The need to have virtuous leadership in e-government will cherish the transformation of e-government. Therefore, this factor is recommended as important and urgent to be implemented.

*Summary IV: Innovation in E-Government Enterprise Architecture Factor.*

The measure of Innovation on e-government enterprise architecture was categorically conducted among the seven variables. For the social awareness shows that there is a significant effect on the e-government transformation influenced by social, resources and technology factors at the mean values ( $M = 4.32$ ,  $SD = 0.886$ ). Whereas for smarter e-government experts indicate that there is a significant effect in influencing the e-government transformation through the transformational drivers with a mean value score of ( $M = 3.18$ ,  $SD = 1.290$ ). While for the e-government budget, it shows that there is a significant effect that influence the transformation process of the e-government similar to the above

variable with mean score value ( $M = 3.18$ ,  $SD = 1.242$ ). In the internet accessibility items shows that there is a significant effect in e-government designing and transformation through the transformational drivers with a mean value of ( $M = 3.12$ ,  $SD = 1.225$ ). This is similar to the enforcement of NICT-BB item that shows a significant effect for speeding up the e-government transformation process through the transformational drivers with a slight difference in mean score value with experts ( $M = 3.31$ ,  $SD = 1.261$ ). The item under the e-government task force shows that it has a significant effect on e-government designing and transformation correlated with the internet accessibility at the mean score value ( $M = 3.11$ ,  $SD = 1.270$ ). Whereas the coordination of e-government systems design indicates that it had a high significant effect to the e-government transformation with a mean score value of ( $M = 4.41$ ,  $SD = 0.698$ ) respectively.

When comparing this item, the study found that the coordination of e-government systems design ( $M = 4.41$ ) as compared with social awareness ( $M = 4.32$ ) shows a positive significant correlation. The more the social engagement and creating awareness are the better the e-government systems design will be. While comparing smart e-government experts ( $M = 3.18$ ) with e-government budget ( $M = 3.18$ ) shows a strong positive relationship. When considering value for money, smart e-government experts and the e-government budget are interrelated and inseparable. When comparing e-government task force ( $M = 3.11$ ) with internet accessibility ( $M = 3.12$ ) indicates a strong positive correlation. This suggests that the e-government task force is an instrument to accelerate efficient internet



accessibility to affordable and quality of services on the internet. In a similar way, comparing with the enforcement of NICTBB ( $M = 3.31$ ) indicates a statistically significant.

Overall the analysis shows that knowledge and innovation are positively correlated with coordination of e-government systems, e-government task force, smart e-government experts, e-government financial, internet accessibility, and enforcement of NICTBB as supported from the previous literature in Heeks, (1998, 1999); Amour & Kaisler, (1999, 2001); Castells, (2001); Van *et al.*, (2004); Yildiz, (2007); Yin, (2008); Yonazi, (2010); Lupilya, & Jung, (2015). This indicates that there is no statistically significant impact on the approach used by many developing countries for adopting or copying systems or e-government systems in the name of “best practice”. The analysis suggests that governmental institutions may arrange modalities for protecting local knowledge and innovation towards national e-government transformation process.

*Summary V: Policy Innovation in E-Government & Security.*

In terms of policy innovation on e-government and security as seen in Table 20, scale 5: the study compared the policy innovation in e-government & security with other variables. The study found that the results were statistically dependence on social, resources and technology factors to influence the e-government transformation with the highest mean score ( $M = 4.478$ ,  $SD = 0.522$ ).

When comparing the internet inequality ( $M = 4.48$ ,  $SD = 0.703$ ) with the

institutional engagement ( $M = 4.56$ ,  $SD = 0.574$ ) the results shows a positive relationship. This indicates that institutional engagement with governmental institutions can cohesively help to reduce and eradicate the internet inequality through policy innovation in e-government. This variable depends on each other for effective balancing of the utilization and accessibility of the internet across borders lowering the level of internet inequality. Whereas, by comparing the government intervention ( $M = 4.04$ ,  $SD = 1.014$ ) with centralized e-government applications ( $M = 2.73$ ,  $SD = 1.188$ ) the results show a positive correlation. This explains that the less the e-government intervention takes the process of e-government policy development the higher the impact in e-government and security policy. The literature review noted that the severe impediment to e-government transformation in Tanzania is linked to the growing nature of internet inequality ( $M = 4.48$ ). This was the results of the weak governmental institutions to encourage and orchestrate engagement and intervention program with other private and social institutions at the mean score value ( $M = 4.56$ ).

The overall analysis explains that policy innovation in e-government and security can drive positively the transformation of e-government. However, attention should be given to each variable as they may affect the effort of the governmental institutions to improve the e-government transformation considerably.

### **5.3. Analysis 2: Opportunities for E-Government Transformation**

#### *Overall Primary Analysis*

Table 24 presents the analysis table for the opportunities in e-government. Factor analysis was conducted as seen in Table 23 and yielded an overall 80% of total variance explained with a rotation converged in 12 iterations in Table 21. The total of 8 factors was produced as it is shown in the table below to explain the opportunities necessary for e-government transformation. For the purpose of this study, factor 1 was dropped which were below the recommended level, and consider only 7 factors that were taken onboard as they were deemed necessary and important as opportunities. All factors loaded high which explains the positive analysis to be carried on.

**Table 23:** The total variance explained for factors in e-government opportunities

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.679	33.372	33.372	10.679	33.372	33.372	7.323	22.884	22.884
2	4.419	13.811	47.183	4.419	13.811	47.183	6.641	20.753	43.638
3	3.425	10.704	57.887	3.425	10.704	57.887	3.959	12.371	56.009
4	2.144	6.699	64.586	2.144	6.699	64.586	1.900	5.936	61.945
5	1.551	4.847	69.433	1.551	4.847	69.433	1.592	4.976	66.921
6	1.328	4.151	73.584	1.328	4.151	73.584	1.576	4.925	71.846
7	1.128	3.524	77.108	1.128	3.524	77.108	1.402	4.382	76.228
8	1.009	3.154	80.262	1.009	3.154	80.262	1.291	4.034	80.262
9	.900	2.813	83.075						
10	.728	2.276	85.351						
11	.687	2.146	87.496						
12	.566	1.768	89.264						
13	.512	1.601	90.865						
14	.447	1.396	92.262						
15	.418	1.306	93.568						
16	.348	1.086	94.654						
17	.312	.974	95.628						
18	.273	.853	96.481						
19	.230	.720	97.201						
20	.180	.561	97.762						
21	.144	.449	98.212						
22	.129	.402	98.613						
23	.104	.326	98.939						
24	.088	.276	99.215						
25	.075	.233	99.448						
26	.056	.175	99.624						
27	.038	.118	99.741						
28	.032	.099	99.840						
29	.020	.062	99.902						

30	.015	.046	99.948					
31	.010	.030	99.978					
32	.007	.022	100.000					

Extraction Method: Principal Component Analysis.

Note: N = 105.

The correlation matrix for the analysis was statistically significant exceeding 0.3. KMO and Bartlett's Test of Sampling Adequacy were 0.773, above 0.7 (Middling). And the Bartlett's Test of Sphericity was significant at  $P = 0$  with a degree of freedom at 496. This finding suggests that our analysis is suitable for running the factor analysis.

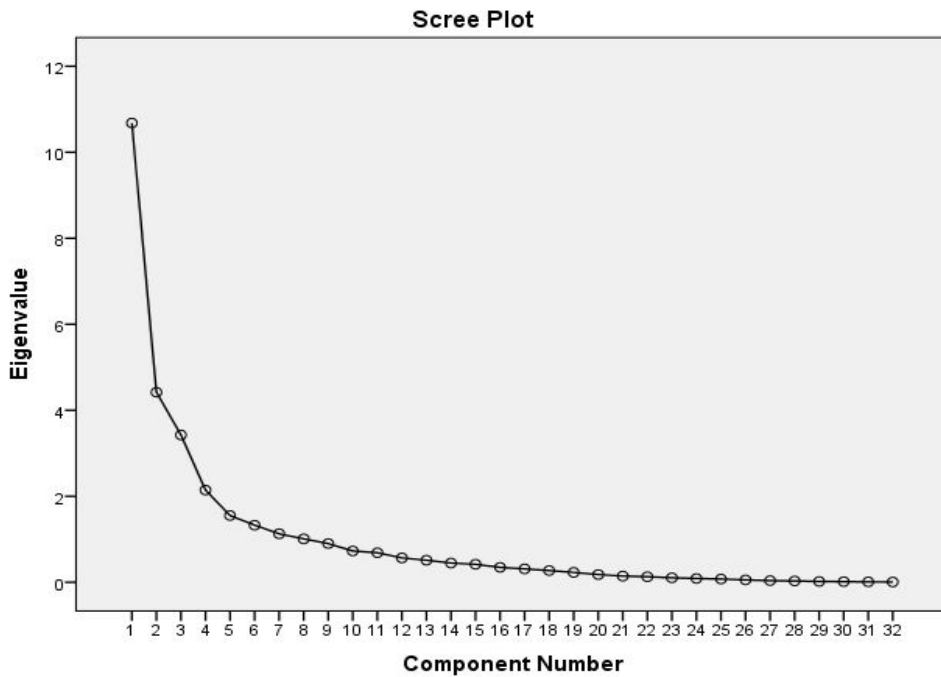
**Table 24:** KMO and Bartlett's Test of Sampling Adequacy for e-government opportunities

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.773
Bartlett's Test of Sphericity	Approx. Chi-Square	3917.074
Degree of Freedom	df	496
Statistical Significance ( <i>P</i> )	Sig.	.000*

Note: "\*" = Represent Statistical significant at Alpha = 0.05

Figure 6 presents the screen plot which suggests the cutoff point for the 8 factor extracted from the analysis. And these 8 factors were considered as an optimal extracted from the analysis.

**Figure 6:** Screen Plot of the constructs for challenges of e-government



The opportunities to e-government contain eight factors identified from the exploratory factor analysis in Table 23. Only factor 8 loaded very low to the analysis and was dropped from further analysis.

**Table 25:** Exploratory factor analysis for opportunities to e-government

		Rotated Component Matrix <sup>a</sup>							
Factor Name	Items Measurement	Factor Loading							
		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
National database networking	ORq3: lack of Internet accessibility within governmental institutions	.918	.212	.035	.095	.077	-.082	-.081	.167
	ORq2: lack of Institutions database & applications integration	.896	.219	.008	.158	.052	-.076	-.142	.175
	ORq1: lack of National library database utilization	.879	.224	.091	.104	.088	-.131	-.106	.233
	OTq2: Create one-stop-shop for online business database	.852	.185	.020	.011	-.008	.135	.177	-.285
	OTq3: Difficult for online managing and controlling social network	.844	.217	.104	-.055	.124	.102	.277	-.251
	OTq4: Local & central government data & applications	.810	.158	-.029	-.249	-.018	.284	.172	-.200
	ORq4: Citizen demographic data codification	.804	.304	.018	.280	.135	-.093	-.102	.197
	OTq1: Internet services provider information and database sharing	.755	.197	.059	-.283	.107	.216	.316	-.240
	ORq6: Telecommunication industries database integration	.697	.299	.069	.240	.220	-.162	-.192	.205
	ODq4: Geographical location database systems codification for Tanzania	.637	.386	-.111	-.147	-.024	.076	-.091	-.018
	OTq7: ICT & Telecommunication policies	.226	.917	-.036	.013	-.055	.010	-.026	-.050

Enhance e-government transformation	OTq5: E-government transformation & data protection	.271	.906	-.009	.072	.118	-.107	-.011	.039
	ODq3: Telecommunication & e-government strategies	.093	.886	-.043	-.044	.055	-.066	.104	-.002
	OTq8: Internet café centers services development plans	.283	.879	-.014	.122	.113	-.074	-.063	.100
	ODq6: E-government strategic plan for local mobile interaction	.189	.840	-.091	.012	-.010	-.066	-.012	-.145
	ODq1: E-government strategic plan for IT standardized applications	.209	.808	.060	.021	-.076	-.042	-.191	.145
	ODq5: E-government strategic plan for standardized IT systems and hardware	.289	.786	-.006	.058	.088	.036	.224	-.219
	ODq2: Local ICT experts protection and recognition on e-government transformation	.239	.727	-.094	-.171	.085	-.143	.046	.248
Government intervention & leadership support	OSq4: lack of enforcement and encouragement for online business interaction	-.055	-.089	.870	.101	.133	-.127	-.100	-.259
	OSq3: Reinforce Internet price regulation	.162	-.007	.819	.168	.040	.227	.159	.175
	OSq2: Government intervention on free Wi-Fi zone establishment	.178	.045	.810	.186	-.023	.244	.084	.329
	OSq1: Government Intervention to encourage free E-government / Labs in each ward	-.018	-.060	.796	-.061	.217	-.266	-.091	-.236
	OSq5: Intervene to reinforce administrative online application utilization	-.086	-.151	.767	-.155	.048	-.163	-.174	-.007



	OSq6: Task force for monitoring and evaluation of e-government trends	.069	.105	.671	-.193	.005	-.021	.326	.501
Local and Central governmental institutions	OSq7: Local government online database sharing & information systems integration	.021	-.243	-.065	-.812	.007	-.008	.056	.060
	OSq8: Central government online database sharing and information systems utilization	.126	-.171	-.011	.768	.138	.116	.063	.035
national e-government-think tank committee collaboration	ORq5: Local government e-government think tank & social network IT experts collaboration	.161	.118	.187	.027	.771	.059	-.061	.301
	ORq7: Central government e-government think tank & Private IT experts	.170	.150	.199	.082	.732	-.062	-.077	-.262
Engagement of government & Private Institutions	ORq8: Engage PPP on National ICT broadband Backbone – NICTBB	.156	-.061	-.135	-.044	-.066	.678	-.117	.020
	OTq6: Government & Private e-mobile / internet infrastructure utilization	.314	.252	-.165	-.236	-.093	-.583	.153	-.008
	ODq8: Government & Private Telecommunication infrastructure utilization	.057	-.244	-.109	.208	.437	.484	.161	-.109
Private & social Network Institutions	ODq7: Private and social network support for national e-government project	-.005	-.013	-.025	.013	-.073	-.146	.837	.035
<p>Extraction Method: Principal Component Analysis.  Rotation Method: Varimax with Kaiser Normalization.<sup>a</sup>  a. Rotation converged in 12 iterations.</p>									

*Note: the first capital letter "O" in the Items measurements = Represents Opportunities*

## Factors

The naming of factors was associated with the relationship on each item loaded. For factor 1, national database networking contains items referred to institutional databases (e.g. "Institutional database"; "geographical location database system"). For factor 2, Enhance e-government transformation items were referred to e-government transformation (e.g. "E-government strategic plan for IT standardized applications"; or Local e-government experts protection and recognition on e-government transformation or E-government strategic plan for standardized IT systems and hardware"). For factor 3, Government intervention and leadership support (e.g. "Government intervention on free Wi-Fi zone establishment" or "Government Intervention to encourage free e-government center / Labs in each ward; or intervene to reinforce administrative online application utilization"). While in factor 4: shows that the Local & central government institutions (e.g. "local government and private online database sharing"). For factor 5: national e-government-think tank committee collaboration (e.g. "Local government e-government think tank & social network IT experts collaboration; or Central government e-government think tank & Private IT experts"). For factor 6: Engagement of government & Private Institutions (e.g. "Engage PPP on national ICT broadband backbone – NICTBB; or Government & Private e-mobile / internet infrastructure utilization). And finally for Factor 7: Private & social Network Institutions (e.g. "Private and social network support for national e-government

project”).

**Table 26:** Mean score for the opportunities for the e-government transformation

	N	Mini mum	Maxi mum	Mean	Std. Deviation
<b>Scale 1: Factor 1</b>					
National database networking	105	1.00	5.00	3.0562	1.02872
<b>Scale 2: Factor 2</b>					
Enhance e-government transformation	105	1.00	5.00	3.7619	1.13914
<b>Scale 3: Factor 3</b>					
Government intervention & leadership support	105	2.00	5.00	4.4317	.57906
<b>Scale 4: Factor 4</b>					
Local & central government institutions	105	1.00	4.50	2.9619	.83406
<b>Scale 5: Factor 5</b>					
national e-government-think tank committee collaboration	105	1.00	5.00	4.1667	.77728
<b>Scale 6: Factor 6</b>					
Engagement of government & Private Institutions	105	1.00	5.00	3.1238	.79024
<b>Scale 7: Factor 7</b>					
Private & social Network Institutions	105	1.00	5.00	3.7810	1.27838

As indicated in Table 24 shows scale 1 through 7; When comparing the government intervention and leadership support ( $M = 4.43$ ,  $SD = 0.579$ ) with the national e-government-think tank committee collaboration ( $M = 4.16$ ,  $SD = 0.777$ ), the results shows a strong and positive statistical significant. The more the

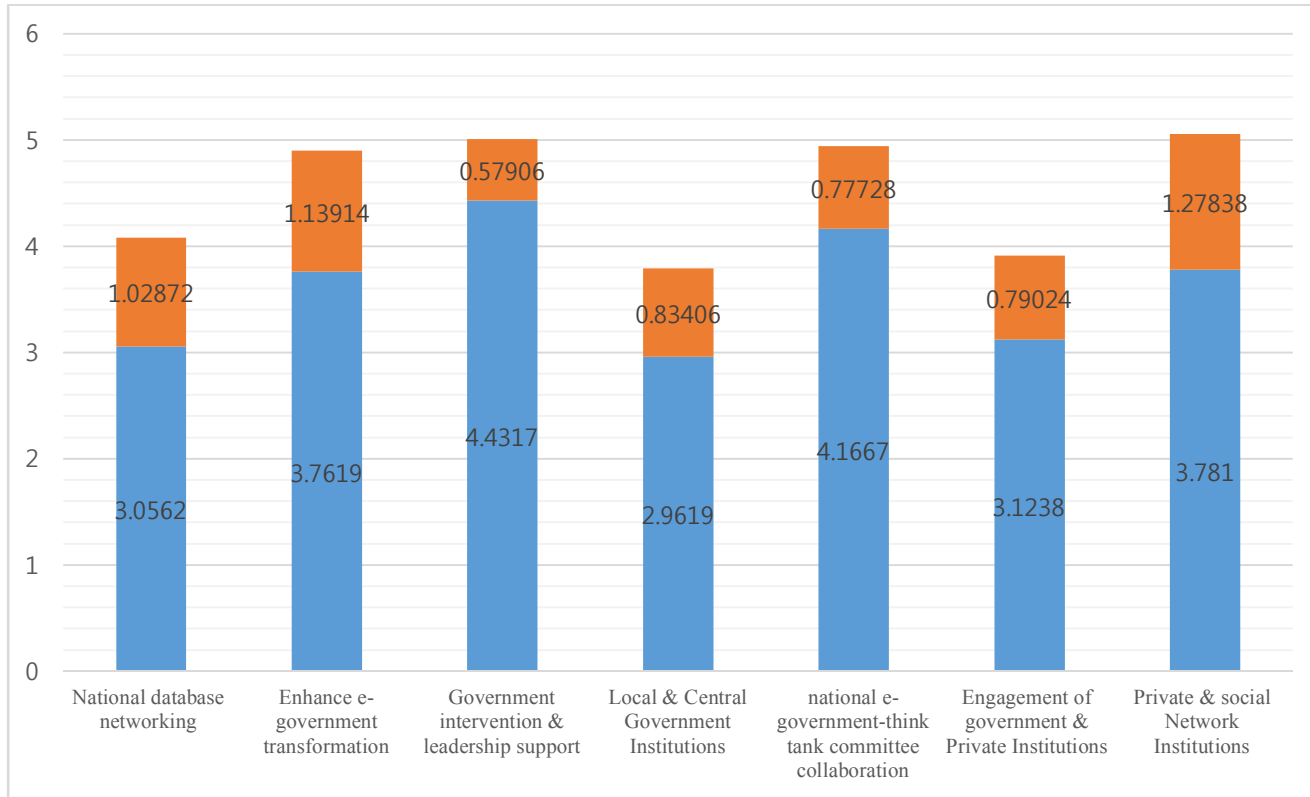
government intervenes in the process of e-government opportunities implementation the higher the motives in accelerating the national e-government-think tank committee collaboration. This result explains that for enhancing strong national e-government-think tank committee collaboration within governmental institutions and private sector, government intervention is necessary to influence the national e-government project. The window to success can be influenced by national e-government-think tank committee, which should be linked to the presidential statement as an opportunity to orchestrate the movement towards achieving e-government effectiveness project goal. When comparing the private & Social network Institutions ( $M = 3.780$ ,  $SD = 1.278$ ) with Enhance e-government transformation ( $M = 3.761$ ,  $SD = 1.139$ ) the results showed a positive correlation on each factor.

Although policy innovation and strategic e-government are strongly important, but the results show that using private & social network Institutions can become the channel as an opportunity to accelerate the enabling environment for innovation and strategic e-government. Similarly, the Engagement of government & Private Institutions ( $M = 3.123$ ,  $SD = 0.789$ ) compared with national database networking ( $M = 3.056$ ,  $SD = 1.028$ ) shows positive relationship. This suggests that the development and utilization of the ICT infrastructure can contribute strongly to the establishment of local national database networking. Whereas when comparing Local & central government institutions ( $M = 2.961$ ,  $SD = 0.834$ ) with Engagement of government & Private Institutions ( $M = 3.123$ ,  $SD = 0.790$ ) shows

a positive correlation. This explains that the more the Engagement of government & Private Institutions becomes idle for a long time, not only is more vulnerable to risk in terms of sharing the online database and protection, but also, the cost of investment is irreversible.

Overall summary, the results suggests that government intervention and leadership support, as well as the empowering of national e-government-think tank committee, can become an opportunity device to mitigate some of the challenges.

**Figure 7:** Graphical representation on opportunities - mean score and standard deviation.



Appendix 2 shows the detailed opportunities component matrix as the measure of the key drivers of e-government transformation. Each of the seven construct identified above was measured using a different set of variables as follows.

*Summary I: National Database Convergence*

One way to create a change of mind and ensure consistency online interaction to the citizen is through creating a local networked database center for the government or national database as presented here in scale 1. When comparing between variables, for instance, compare the internet accessibility within governmental institutions ( $M = 3.21$ ) with the institutions database and application integration ( $M = 3.21$ ) shows the significant strong relationship. The results suggest that strong internet access can become a device to speed up the integration of institutional database and the application process. Several studies have noted that the national database convergence is significantly important and crucial factor for success e-government transformation through transformational drivers. The study measured this factor using ten variables as presented in Appendix 6. The internet accessibility is significantly correlated with the integration of governmental institutions and the national database networking through transformational drivers at the mean value of ( $M = 3.21$ ,  $SD = 1.276$ ). In comparison with the geographical location database systems codification for Tanzania ( $M = 3.19$ ,  $SD = 1.110$ ) with citizen demographic database ( $M = 3.10$ )

shows a positive correlation and dependent to each other. This explains the strong importance to use and strengthen the national database as well as citizen database codification as an opportunity for national database networking.

*Summary II: Enhance E-Government Transformation*

In terms of innovation in policy and strategic e-government as a means to enhance e-government transformation, all items were loaded with the strong positive correlation between measurements. When comparing the strategic plan for standardized IT systems and hardware (M = 3.90) with a strategic plan for local mobile interaction (M = 3.90) the results show a significant relationship. This suggests that strategic plan for standardized IT systems and hardware is an instrument for regulating standards for local mobile interaction in order to provide efficient services and hence leads to e-government transformation. Whereas in comparing the ICT and telecommunication policies (M = 3.84) with a strategic plan for standardized IT applications (M = 3.83) shows a strong positive correlation. The stronger enforcement in ICT and telecommunications policies and stronger the standard for IT application will be adopted and followed the speed of transformation of e-government will be. This is similar to the comparison of telecommunication and e-government strategies (M = 3.54); and the development plans for internet café center services (M = 3.72). This suggests that in the absence of innovation policy e-government development and implementation may be difficult or sometimes leads to fragmentation of systems within governmental



institutions and private sectors.

In the analysis, Appendix 6 indicates the strongest opportunities factors that influence the Enhance e-government transformation development. However, the analysis is strongly influenced innovation in e-government that leads to policy and strategic development. For instance, the comparison of the strategic plan for standardizing IT systems and hardware with the strategic plan for local mobile interaction was seen to be strongly significant at the mean score value of ( $M = 3.90$ ,  $SD = 1.282$ ). This factor suggests that the process of developing the strategic plans of any sort depends on the establishment of the ICT and telecommunication policies which are loading strongly with a mean score value of ( $M = 3.84$ ,  $SD = 1.226$ ). In contrary, this explains little similar results with the strategic plan for standardizing IT applications which are weighted with a mean score value ( $M = 3.83$ ,  $SD = 1.274$ ). These variables are significantly ranked as the strongest influence of opportunity for innovation on policy as well as strategic e-government. The online information and data protection were also found to be the strongest driver to influence innovation on policies with a mean score value of ( $M = 3.75$ ,  $SD = 1.350$ ) which leads to e-government transformation process.

### *Summary III: Government Intervention & Leadership Support*

Government intervention and leadership support are significantly correlated with the e-government transformation at the mean score weighted ( $M = 4.431$ ,  $SD = 0.579$ ) which is higher than other scales explained in this chapter. This scale was

measured using six variables. All of the variables were interestingly weighted significantly higher above the mean score of  $M = 0.4$ .

For instance, in comparing the encouragement of online business interaction ( $M = 4.44$ ) with creating the free Wi-Fi zone ( $M = 4.40$ ) shows a significant relationship. For the business to prosper and for economic gain, citizen, and other stakeholders are considered as key players for interaction online. So, the more “free Wi-Fi zone” to be established is the more business interaction online will be made possible. Whereas the reinforcing internet price regulation ( $M = 4.48$ ) backed up with the task force for monitoring and evaluation of e-government trends ( $M = 4.31$ ) shown to be strongly correlated. The stronger the internet regulation prices to be effective depends on the task force whose duty would be to ensure rules and regulations are followed by monitoring and evaluating. This suggests that task force for monitoring and evaluation is a key device for strengthening government intervention and leadership support towards e-government national project. In comparing the enforcement of administrative online application utilization ( $M = 4.45$ ) with the encouraging free E-government / create labs in each ward ( $M = 4.51$ ) shows a strong correlation. The more ICT centers or e-government labs establishment can increase the level of online application utilization to citizen where they can interact and update their information and data with the governmental institutions.

This is no doubt that, the higher the rate of government intervention and leadership support the lower the challenges that face e-government transformation

process. All these variables represent highest opportunities that guarantee government intervention program and leadership support as an opportunity for e-government development.

*Summary IV: Local & Central Government Institutions*

For integrated online database analysis suggests that this is a crucial opportunity and significantly correlated with e-government transformation enhanced through transformational drivers at the mean score value weighted ( $M = 2.961$ ,  $SD = 0.834$ ). This scale was measured using two variables: local government and private online database sharing ( $M = 3.04$ ,  $SD = 1.599$ ) show positive results as an opportunity to integrate an online database with a special focus to online protection which is statistically significant. Whereas centralizing the government online database for sharing loaded significantly lower as expected with a mean score value of ( $M = 2.89$ ,  $SD = 1.416$ ). This results score indicates that this factor might positively impact positively the process as an opportunity towards integrating an online database.

In comparing these items, local government and private online database sharing ( $M = 3.04$ ) with central government online database sharing ( $M = 2.89$ ) shows a positive correlation. However, the mean score of central government online database sharing loaded very low, this suggests that bureaucracy in administering the integration of online database and protection becomes a stabling block. But since the score shows that, using central government to cherish the establishment of the integrated online database becomes important. Different

observation can be interpreted that the central government online database sharing is not shared fully and this tends to wide-up the scope for local government divergence to go online for sharing the database.

*Summary V: National E-Government-Think Tank Committee Collaboration*

For future sustainable and technical configurations or even upgrading the e-government applications, it is imperative to observe that national e-government-think tank committee collaboration can become the right device. When comparing the local, central, social network and private IT experts, database planners, and collaboration (M = 3.98) with central government IT experts and private IT experts (M = 4.35) shows a positive significant correlation. This suggests that central government and Private sector IT experts can influence the collaboration with local, central and social network group to establish strong national e-government-think tank committee. For the country like Tanzania, establishing and empowering national e-government-think tank committee nationally, shows institution's capability in transforming e-government both at the private, local and central governmental institutions.

Overall analysis, suggests that establishing and empowering national e-government-think tank committee is significantly correlated with e-government designing, process, selection and implementation of the mean score value of (M = 4.166, SD = 0.777). This, in particular, is positively significant depending on the transformational driver to influence the e-government transformation process. This

scale was measured using two variables and all variables were weighted higher above  $M = 3.9$  as an essential opportunity for fueling the national e-government-think tank committee collaboration.

*Summary VI: Engagement of Government & Private Institutions*

This scale was measured using three items: the national ICT broadband backbone-NICTBB ( $M = 3.31$ ,  $SD = 1.521$ ) weighted higher than the e-mobile and internet infrastructure utilization ( $M = 3.11$ ,  $SD = 1.483$ ) which are strongly correlated with the Engagement of government & Private Institutions as an opportunity for e-government. This was followed by the telecommunication infrastructure which produced a lower mean value of ( $M = 2.94$ ). The national ICT infrastructure and utilization analysis show that the results are statistically correlated with the e-government transformation as an important and crucial factor in enabling the utilization of e-government at the mean value of ( $M = 3.123$ ,  $SD = 0.790$ ).

When comparing the national ICT broadband Backbone – NICTBB ( $M = 3.31$ ) with the e-mobile and internet infrastructure utilization ( $M = 3.11$ ) shows a strong positive correlation. This suggests that government enforcement to utilize the NICTBB is statistically significant influencing the low cost of connectedness and hence accelerates the e-mobile and internet infrastructure utilization. Whereas in comparison with the telecommunication infrastructure utilization ( $M = 2.94$ ) with e-mobile and internet infrastructure utilization ( $M = 3.11$ ) suggesting that private sector own the e-mobile and internet infrastructure and thus causing a

negative impact to the telecommunication infrastructure utilization due to price and technology compatibility issues. Therefore, as an alternative government has established NICTBB and forcing the private sector to utilize this infrastructure and lower the cost of accessing connection ability.

Overall analysis suggests that the higher the utilization of the NICTBB is the lower the cost of connectivity through the use of telecommunication infrastructure ( $M = 2.94$ ,  $SD = 1.562$ ) as compared to the use of e-mobile and internet infrastructure utilization ( $M = 3.11$ ). This can act as a support to speed-up the e-government utilization via its national NICTBB infrastructures as an opportunity to undertake.

#### *Summary VII: Private and Social Network Institutions*

For the private & Social network Institutions are highly correlated with the process, designing and transformation of the e-government influenced by the transformational drivers at the mean value of ( $M = 3.781$ ,  $SD = 1.278$ ). This scale is also weighted strongly higher as a catalyst for enabling e-government transformation. The scale was measured with only one variable: Support the national e-government project through the transformation drivers towards achieving the e-government success with a mean score of  $M = 3.78$  as an essential element. This suggests that for the opportunities are to create a conducive environment for political support with a desire to influence the e-government national projects to smoothly kick-off.

## **5.4. Analysis 3: Key Drivers for E-Government**

### *Overall Primary Analysis*

Table 31 is the analysis table for the key drivers to achieve the e-government in Tanzania. The factors contained in the analysis were designed in the dimension of transformational as key drivers, according to the technology enactment theory (TET), SWOT analysis as well as the case study. Factor analysis was conducted using the SPSS version 22, which yielded an overall total variance explained at 78.6% (see Table 25). Only five factors were identified to be the key drivers for enabling e-government effectiveness in Tanzania. The detailed analysis of the constructs and variables is presented in this Table 25 below.

**Table 27:** The total variance explained for factors of Key drivers for e-government

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings <sup>a</sup>
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	10.268	39.491	39.491	10.268	39.491	39.491	7.426
2	4.014	15.439	54.930	4.014	15.439	54.930	3.860
3	3.483	13.396	68.327	3.483	13.396	68.327	7.791
4	1.416	5.446	73.773	1.416	5.446	73.773	6.304
5	1.281	4.926	78.698	1.281	4.926	78.698	1.861
6	.881	3.388	82.086				
7	.852	3.276	85.362				
8	.568	2.185	87.547				
9	.493	1.894	89.442				
10	.422	1.623	91.065				
11	.365	1.404	92.468				
12	.331	1.272	93.740				
13	.317	1.221	94.961				
14	.279	1.074	96.035				
15	.191	.733	96.768				
16	.174	.670	97.438				
17	.160	.615	98.053				
18	.125	.480	98.533				
19	.105	.404	98.937				
20	.066	.254	99.191				
21	.056	.217	99.408				
22	.051	.197	99.606				
23	.035	.134	99.740				
24	.031	.120	99.860				
25	.022	.084	99.944				



26	.015	.056	100.00 0			
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Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

According to Table 26, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy was 0.800, which is 0.8 (Good). The Bartlett's Test of Sphericity was significant at  $P = 0$ . And the degree of freedom was at 325. This result suggests that future analysis is suitable and recommended.

**Table 28:** KMO and Bartlett's Test of Sampling Adequacy for Key Driver (Transformation)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.800
Bartlett's Test of Sphericity	Approx. Chi-Square	3492.524
Degree of Freedom	df	325
Statistical Significance ( <i>P</i> )	Sig.	.000*

Note: "\*" = Represent Statistical significant at Alpha = 0.05

According to Table 27 – shows the exploratory factors analysis with five factors loaded from the analysis. These factors loaded were referred to as Key drivers for e-government transformation.

**Table 29:** Exploratory factor analysis for the key drivers for e-government transformation

		<b>Pattern Matrix<sup>a</sup></b>				
Factor Name	Items Measurement	Factor Loading				
		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Speed up the integration of government and private institutions (Citizen information systems)	KRq7: citizen information archives	.877	-.036	.072	-.032	.068
	KRq5: institutional information structure	.852	-.021	.065	.112	.007
	KRq1: institutional data storage and keeping	.847	.094	.047	.113	.054
	KRq2: citizen profile documentation	.838	.011	.004	.208	.045
	KRq3: institutional data structurization	.799	.016	-.003	.279	.038
Strengthen the institutional information systems	KSq3: generally the institutional systems are not working	.047	.875	-.037	.175	-.148
	KSq2: codification of information and archive are still a problem	.194	.833	-.001	.027	-.105
	KSq6: there is no institutional framework for information systems	.064	.792	.108	-.056	-.217
	KSq4: usually, we receive support on institutions informatization process	-.181	.741	-.087	.054	.328

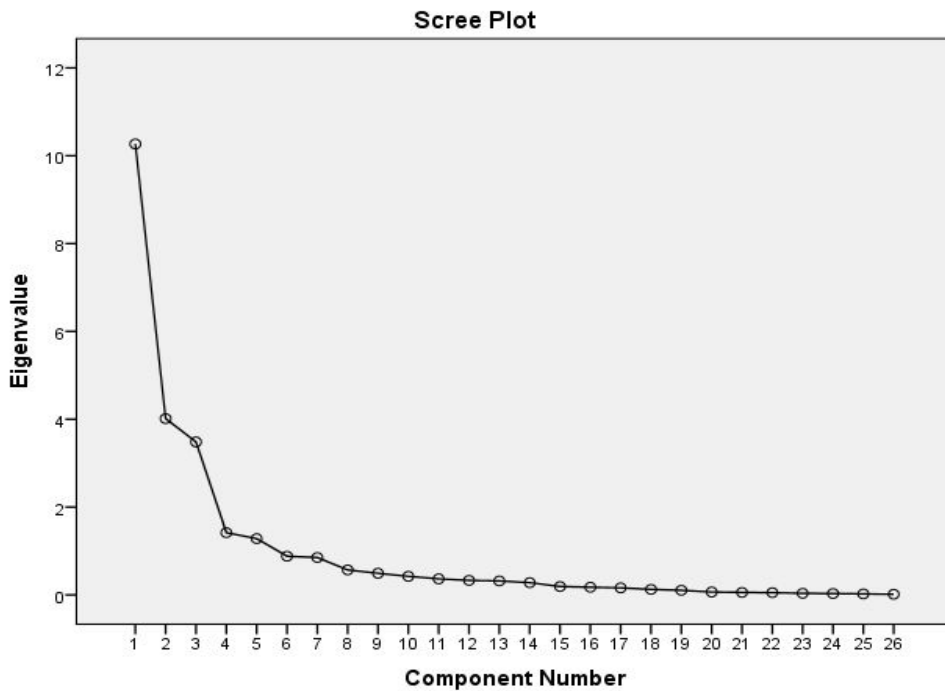
	KSq1: generally the institutional system are idle for a long time	-.195	.716	.034	-.060	.361
	KSq5: insufficient budget for collecting and archiving information	-.070	.682	-.063	-.128	.203
Engagement for the development of national e-government enterprise architecture	KTq7: lack of institutional ICT experts	-.106	.019	.958	.081	.056
	KDq3: unbalanced training program on e-government and other discipline	-.070	-.033	.908	.027	-.102
	KTq5: there is high demand for e-government roadmap	.146	.081	.894	-.102	-.016
	KDq6: lack of support for structuring national e-government roadmap	-.103	-.099	.867	.087	.060
	KTq8: generally, there is no good management of local area network infrastructure	.212	-.030	.862	-.042	.062
	KDq1: absence of institutional local area network structure	.169	.059	.815	-.143	-.015
	KDq2: Poor support development in designing of e-government system	.062	.025	.807	-.095	.058
	KDq5: unbalanced e-government specialists/experts/technician within institutions	-.133	-.006	.734	.397	-.021

Speed up the develop e-government policy and security policy	KTq1: absence of e-government policy	.036	.008	.011	.925	.000
	KTq4: No direction and plan laid down for future national e-government system	.108	.004	.004	.878	-.062
	KTq2: There is no direction and plan laid down for information systems in each government, local , social-network and private institutions	.193	.040	-.018	.825	.051
	KTq3: each institutional acquire substandard ICT equipment	.154	.045	.060	.807	.117
	KDq4: There is no standardized procedures for technology policy	.278	-.114	.262	.435	-.010
Facilitate training (short term and long term on e-government program	KRq8: Generally, there is no creativity on technology or e-government	.003	-.086	.025	.168	.838
	KRq6: Generally, institutional staff are not capable to respond to new threats or e-government challenges	.277	.099	.080	-.149	.628
Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization. a. Rotation converged in 11 iterations.						

*Note: the first capital letter "K" in the Items measurements = Represents Key Drivers for Transformation*

According to Figure 8 - shows the screen plot suggesting that the eigenvalue cutoff point which are less than 1. So the eigenvalue has reached the cutoff point right after the five factors in the analysis.

**Figure 8:** Screen Plot of the constructs for Key Drivers of e-government



In identifying and naming of factors, factors were identified were referring to the meaning that reflects the items measurement. For factor 1, contains items referring to the speeding up the integration of governmental institutions (e.g. “Institutional data structurization”). For factor 2, items such as strengthen the institutional

information systems (e.g. “Institutional informatization process”). For factor 3, items incorporated such as speed up the development of e-government policy and security policy (e.g. “Each institution has a standardized ICT equipment”). For Factor 5, items reflecting to facilitate training on e-government (e.g. “Generally, there is no creativity on technology or e-government”).

Following the Table 28 presents the summated scale and their related scores from each factor. This construct has five scales of which scale two indicates that strengthening the institutional information systems has the highest mean score ( $M = 4.406$ ,  $SD = 0.585$ ) as a key driver for e-government success. This indicates the strong enforcement of institutional information systems as necessary and the key driver for e-government. This was followed by facilitating training on e-government program ( $M = 4.151$ ,  $SD = 0.793$ ) indicating that it is essential to equip staff with the knowledge on e-government. Figure 9 below demonstrate the ranking of the constructs according to its urgency and its importance.

**Table 30:** Mean score for the Key drivers for e-government

	N	Mini mum	Maxi mum	Mean	Std. Deviation
<b>Scale 1: Factor 1</b>					
Speed up the integration of government and private institutions (Citizen information systems)	112	1.00	5.00	3.2518	1.16704
<b>Scale 2: Factor 2</b>					
Strengthen the institutional information systems	112	2.00	5.00	4.4063	.58586
<b>Scale 3: Factor 3</b>					
Engagement for the development national e-government enterprise architecture	112	1.00	5.00	3.7779	1.11118
<b>Scale 4: Factor 4</b>					
Speed up the develop e-government policy and security policy	112	1.00	5.00	2.9929	1.06945
<b>Scale 5: Factor 5</b>					
Facilitate training (short and long term ) e-government program	112	1.00	5.00	4.1518	.79367

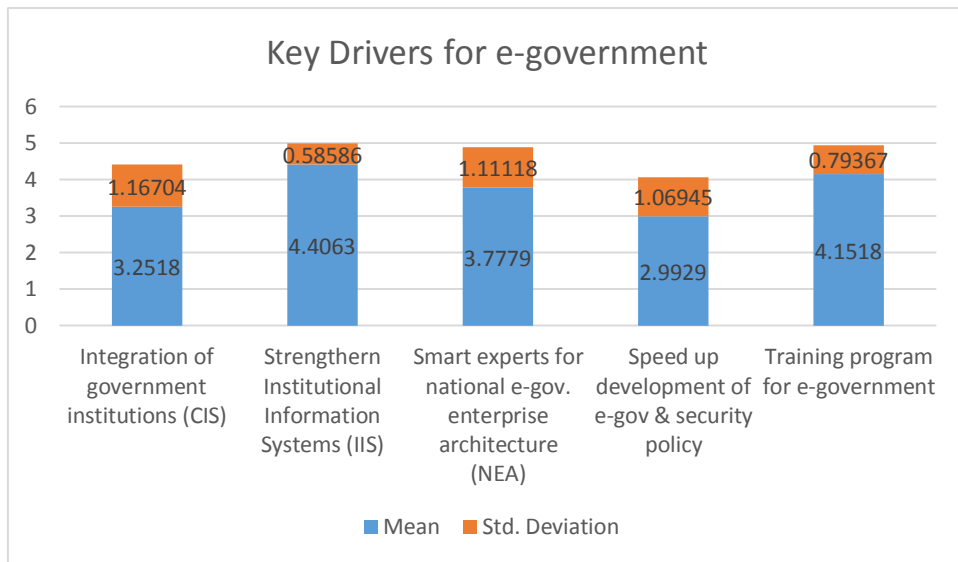
As indicated in Table 28, all factors loaded above the mean  $M = 3.25$  are statistically significant. Factor 4, were found to be loaded pretty low at the mean score value of  $M = 2.9$  as compared to the other 4 factors.

While comparing factor 1, speed up the integration of government and private institutions ( $M = 3.25$ ) with strengthening the institutional information systems ( $M = 4.40$ ) shows positive significant correlation. The more you strengthen institutional information systems is the more you can integrate

government and private institutions. This suggests that governmental institutions should design an appropriate infrastructure for integrating institutional information systems nationally that leads to the integration of governmental institutions. When comparing with engaging internal and external “smart” experts in the development of national e-government enterprise architecture ( $M = 3.77$ ) with strengthening the institutional information systems ( $M = 4.40$ ) shows the positive significant relationship. This suggests that internal and external expert’s collaboration would fuel local innovation as well as create ability in the development of institutional information systems. In comparing the items, speeding up the development of e-government policy and security policy ( $M = 2.99$ ) with facilitating training on e-government program ( $M = 4.15$ ) shows a significant relationship. The e-government policy and security development loaded with a low mean value which indicates the lack of knowledge and innovation towards e-government policy and security development. The results suggest that governmental institutions should invest in knowledge and innovation creation through local training specifically in e-government program. Doing so, it will help to increase the level of institutional innovation towards the e-government policy and security development.



**Figure 9:** Graphical representation of the Key drivers for e-government.



*Summary I: Speed up the integration of government and private institutions (Citizen Information systems)*

This scale was measured using five items: Citizen Information archives; institutional information; institutional database and keeping; promotion campaign on e-government; and institutional data structurization. When comparing this item institutional data structurization (M = 4.26) with promoting the campaign on e-government (M = 3.94) shows a strong significant correlation. That suggests that for better results on institutional data structurization depend on the effort to promote the campaign on e-government is statistically significant. For the citizen information archives (M = 3.29) and institutional information structure (M = 3.28)

shows statistically significant. Protecting citizen information depends on effective and reliable institutional information structure that can be integrated. That suggests that private and governmental institutions should restructure and adopt a coherent information structure for the future integration process. On the other hand, the institutional information structure should be relatively reasonable and flexible to allow integration with government and private institutions. Whereas in comparing the institutional data storage and keeping ( $M = 3.21$ ) with institutional information structure ( $M = 3.28$ ) shows the strong significant relationship. This suggests that, institutional information structure is the baseline for data storage and keeping, and therefore, are inseparable and should be treated as important and urgent.

The overall results for the institutional data structurization show a strong significant influence on speeding up the integration of governmental institutions based on citizen information systems development. However, in comparison with promoting e-government within institutions was significant correlated with other variables at the mean score of ( $M = 3.94$ ). Regarding the comparison, analytical results suggest that institutionalizing of database structure, keeping and archive shows a strong significant impact towards speeding up the integration of governmental institutions at a mean score ( $M = 3.29$ ;  $M = 3.28$ ).

In average this scale has a strong significant influence in achieving the goals of e-government transformation through the transformational drivers at the mean score value of  $M = 3.252$ . These results indicate that the factor is crucial and necessary: Following Appendix 3, the institutional data structurization is

significantly influencing the transformation of e-government positively with a mean score of ( $M = 4.26$ ,  $SD = 0.898$ ) see the Appendix 3. This scale was found to be imperative in institutional data structuration as the necessary component to speed up the integration process. The rest of the component measured under this scale as indicated in appendix 3, explain the statistically significant influence towards e-government and weighted above the mean score of  $M = 3.21$ . This factor is suggesting that all these variables are essential to speed up the integration of citizen information systems as a key driver to forward the e-government process.

#### *Summary II: Strengthen the Institutional Information Systems*

This factor was measured with six items under strengthening the institutional information system: governmental institutions systems are idle for a long time; uncoded information and archive; lack of a framework for Information systems; dependence on support institutional information systems process; lack of financial budget; and weak institutional data archive. The results showed that all variables are significantly correlated positively at the mean score value of ( $M = 4.41$ ;  $M = 4.43$ ;  $M = 4.36$ ;  $M = 4.45$ ;  $M = 4.439$ ;  $M = 4.28$ ).

For instance, in comparing the institutional systems idle for a long time ( $M = 4.41$ ) with the codification of information and archive ( $M = 4.43$ ) shows a strong positive relationship. This suggests that institutions' systems are not working properly due to outdated, incompatibility issues, and, therefore, becomes harder for the codification of information and archive. However, lack of technical staff with

knowledge of codification of information may have influenced the institutional systems to be idle for a long time for a long time. Whereas in comparing the institutional framework for information systems (M = 4.36) with the support of institutional informatization process (M = 4.45) shows a strong correlation. For governmental institutions, they should ensure the institutional framework for information systems is in place and that depends on the institutional informatization structure and process. Likewise, in comparing the budget for collecting and archiving information (M = 4.39) with the institutional data codification (M = 4.28) shows the strong significant relationship. This result proposes that for efficiency, institutional data codification, the institutional budget can only spend in collecting information, but archiving and codification can be handled internally with a local specialist or experts.

Overall results indicate that process for e-government design, selection, and preparation begins with strengthening the integration of institutional information systems as a key driver for e-government effectiveness transformation.

*Summary III: Engage Internal and External “Smart” Experts in the Development of National E-Government Enterprise Architecture*

Eight variables were loaded to measure the scale 3: Lack of institutional ICT experts; unbalanced e-government training program; demand for e-government roadmap; lack of support on e-government roadmap development; misaligned LAN for sharing; absence of LAN architecture; lack of knowledge in designing e-

government systems; and need of external expert support. In comparison with the items listed above the results showed that both variables were correlated at the mean score value of (M = 3.84; M = 3.78; M = 3.62; M = 3.56; M = 3.74; M = 3.84; M = 3.91; M = 3.86).

While comparing institutional ICT experts (M = 3.84) with item need for external experts in the designing of e-government (M = 3.86) shows a strong positive correlation. These results suggest that institutional ICT experts may lack the knowledge in designing of e-government, but possess the technical implementation of the e-government. Therefore, external experts can provide internal training with hands on doing to facilitate improvement in the area of developing national e-government. For comparing the items, unbalanced training program on e-government (M = 3.78) with item poor support development in designing e-government systems (M = 3.91) shows a strong positive correlation. This result suggests several possibilities on which institutions are spending time and resources on training that are not correlated to the context where they need improvement. However, governmental institutions should invest in a specific program that makes an impact in the designing and developing of the e-government. In a similar fashion, in comparing the demands for e-government roadmap (M = 3.62) with the items lack of support for structuring national e-government roadmap (M = 3.56) shows a positive correlation. This shows that there is a high demand for e-government roadmap in the absence of the national e-government structure. The study compares also the misaligned local area network for information sharing (M

= 3.74) with the item absence of institutional local area network structure (M = 3.84) shows strong statistical significant. The results indicate that the absence of institutional local area network structure has caused the misaligned of local area network, thus becomes the stumbling block for information sharing.

Overall results, in summary, show that as predicted before the analysis, engaging internal and external e-government experts proliferate the learning curve towards performance in the e-government enterprise architecture development. There were strong significant correlations between variables indicating that this scale is essential and critical for governmental institutions to engage internal and external smart experts. This would essentially guide the development of national e-government enterprise architecture at score mean value of (M = 3.777, SD = 1.111). The results show that all the variables were statistically significant weighted above the mean score value of M = 3.62 supporting strongly the initiation effort to engage internal and external smart experts. This is an opportunity for knowledge sharing and innovation in e-government as a key driver of success.

#### *Summary IV: Speed Up the Develop E-Government Policy and Security Policy*

There is strong evidence that governmental institutions continue to suffer on the development of e-government policy and security. The analysis results show that by comparing items between items, the overall results suggests that there is a positive significant correlation with a mean score value of (M = 2.992, SD = 1.069). This result is contrary to the initial prediction that e-government policy

and security have been instituted and utilized in each government institution. In contrast, the results show a strong significant impact on the absence of e-government policy and security with a mean score value of  $M = 2.99$ . This scale is significantly lower than the rest of the scales measured as expected in the study.

Five items were used in order to measure this scale: (presence of e-government policy; the presence of national e-government system master plan; standardize ICT equipment; the presence of IT / ICT investment procedures; and standardize procedures for technology policy) of which all they were below  $M = 3.23$ . This result explains that governmental institutions appeared either to have the entire policy instrument, but lack the knowledge on how to enforce it or were not involved in the development process.

By comparing the presence of e-government policy ( $M = 2.73$ ) with items that there are a direction and plans laid down for future national e-government systems ( $M = 2.92$ ) shows a low mean score with positive statistically significant. This result suggests that in the absence of e-government policy there are no existing plans for future national e-government systems. For comparing item that each institution has a standardized ICT equipment ( $M = 2.87$ ) with an item that there are procedures for IT / ICT investment in technology or e-government ( $M = 2.84$ ) shows the weak mean score, and are significantly correlated. This proposes that absence of standardized ICT equipment has affected the procedures for IT / ICT investment in IT or e-government systems and sometimes results into incompatibility issues or leaving the systems idle (unattended). When comparing

the institutional standardized ICT equipment ( $M = 2.87$ ) with an item that there are standardized procedures for technology policy ( $M = 3.23$ ) shows positive significant correlation. This suggests that the absence of institutional standardized ICT equipment has led the institutional to forge ahead the development of standardized procedures for technology policy.

An overall summary of this scale is that the results are significantly influenced by the knowledge and creativity between institutions towards the development of standards, and e-government policy and security. The institutions might have overlooked between internal group development and future designing and implementation process as the groundwork for building up the e-government policy and security. Although these variables are reflected in the previous literature review as the challenges (literally referred to as “business as usual”), but they can affect governmental institutions innovation. Consistent with prior studies in the literature review, it was found in this study that those variables may strongly contribute to the speedy development of e-government policy and security that would guide the e-government transformation.

#### *Summary V: Facilitate Training (Short and Long Term) E-Government Program*

Regarding training on e-government program, the results reported here were strongly significant for investing in the creation of knowledge and innovation with a significant mean score of ( $M = 4.151$ ,  $SD = 0.793$ ). This result supports the initial prediction that adequate short and long-term training program might explain the



governmental institutions competency in e-government design, selection, and transformation.

When comparing items that there is no creativity on technology or e-government (M = 2.92) with the item that institutional staff are not capable of responding to new threats or e-government challenges (M = 3.11) showed a positive correlation and thus is significant. This result demonstrates that lack of creativity or knowledge in technology or e-government has resulted in increasing online threats and inefficiency to respond to newer online threats. Governmental institutions should consider investing on knowledge creation and innovation specifically on e-government development national projects.

Overall summary of the scale, it was measured by two variables of which one had low correlation, while the other had a high correlation between variables: (lack of creativity in technology or e-government; and institutional staff does not the capability to respond to threats or e-government challenges). Results show that there is no creativity on e-government, which is significantly correlated with lack of short or long-term e-government training program with a lower mean score value of M = 2.92. The initial assumption in the analysis was to see institutional staff's ability in responding to new threats or e-government challenges, but the results presented here shows a significantly strong correlation between ability acquired through training or experiences in the same field with the mean score value of M = 3.11. This score can be interpreted in the context of lack of sufficient investment in e-government training. There is a high magnitude between

experiences and training towards knowledge development.

In this analysis, training was proved to be given priority and was rated as very important to overcome challenges and threats; this explains the reality in developing countries that due to insufficient knowledge of e-government within governmental institutions has led to e-government transformation failure. The significant correlation was found through the involvement of smart young staff from both local and external institutions that would help to promote the designing of the tailored-made program on e-government (M = 3.11). This would become the baseline to share knowledge in e-government at local setting and contribute strongly to the national e-government transformation.

## **5.5. Analysis 5: Korean E-Government Success Story**

### *E-Government Initiatives Stages*

The government of Korea's inception journey to e-government can be traced back to 1987 and continuing to 2001. Korea has contributed more in terms of building ICT infrastructure and potential services to public through formulated series of policies and strategies. Most importantly, the contributing factors for the speedy development of e-government in Korea were the favorable regulatory framework in place. Korea started with National Basic Information System, Korean Infrastructure, National IT Master Plan, and the Informatization Promotion

Committee. The Informatization Promotion Committee was the board that helped in proposing the 11 Key IT Initiatives. This was made possible because of the advanced Korean ICT infrastructure in place. This process clearly defined the road to e-government in Korea. All these stages were vital to the development and implementation of the e-government in Korea.

### *Institutional Approach to E-Government*

To ensure the appropriateness of institutional commitment, the transformation of the government to e-government has a direct relationship with such complex factors as co-values, environmental surrounding, and the politicians to influence on the level of policy adoption and implementation. As in the past, under the administration of Kim Young Sam, Kim Dae Jung, and Roh Moo Hyun (1993 - 2007) described a commitment to drive the nation to a full-flagged implementation of the e-government.

One of the success stories of e-government in Korea was based on the strong Legal and regulatory framework; Strong transformational leadership; Ability for the Government support; Stable political and economic growth; Strong initiatives and institutional innovation dynamic. This was the major success towards implementing the e-government. Consider the following Table 31, which summarizes the e-government in the Kim Administration as a part of institutional approaches to e-government.

**Table 31:** Institutional Approach to E-Government in Korea

Clusters	Categories	e-government initiatives
Front Office	G2C/C2G G2B/B2G	<ul style="list-style-type: none"> <li>- e-procurement systems (GePS)</li> <li>- Home Tax Services (HTS)</li> <li>- Social Insurance Information Sharing Systems (SIIS)</li> <li>- Government for Citizens Systems (G4C/C4G)</li> </ul>
Back Office	G2G	<ul style="list-style-type: none"> <li>- National Financial Information Systems (NAFIS)</li> <li>- Personnel Policy Support Systems (PPSS)</li> <li>- National Education Informatization System (NEIS)</li> <li>- Local Government Information Network System (LGINS)</li> </ul>
	E-government Infrastructure	<ul style="list-style-type: none"> <li>- e-Approval and e-Document</li> <li>- e-Signature and e-Seal Systems</li> <li>- Consolidated Information Resources</li> </ul>

**Source:** Compiled by Emmanuel Lupilya, from Young-Jin, Shin (2009): E-government and Universal Administrative Information Service in South Korea; MOGAHA (2005); Annual Report for e-Government and MOGAHA (2002). Notwithstanding the fact that, Korea will continue for its e-government innovation

for the rest of the world.

### *Status of E-Government in Korea*

According to the UN E-government readiness index report (2010), the report has ranked Korean e-government at the top in the categories of preparedness and participation (UN, 2010). In view of this, the study describes the status of the e-government in Korea in terms of accessibility and robustness of technology infrastructure, for citizen involvement and quality of service delivery (Refer to Table 31).

Today, the government is focusing on U-Government. U-government stands for Ubiquitous Government that is more than just e-government services. For instance, Korea is moving on creating various U-cities called “digital city” project that aims at providing high-quality services through 3D City modeling. In the end, it is possible for the conversion of business, public and private sectors, to G4C, GePS, and communities by deploying these kinds of services that will help speed up the decision-making process all the while and reducing costs, with better efficiency savings.

### *E-Government Policy and Strategies*

In 2003 – 2007, Korea initiated an e-Government Roadmap as a strategic tool to

speed up the implementation of e-government. In its retrospective, Korea emphasizes the building of basic infrastructure to bring together central and local government into one platform. This marks the full participation from utilizing the ICT application and increasing the government productivity, and efficiency. Consistent with the implementation of this e-government Roadmap, Korea had emphasized on the involvement of various stakeholders and Citizen in the implementation of the e-government. This was a great achievement of various services deployed. For instance, the Korea e-government was able to deliver government-to-Government services, Government-to-Business, as well as the Government-to-Citizen services.

*Regulatory and Policies Framework*

The following Table 18 summarizes the regulatory instrument used by the Government of Korea to regulate the adoption and implementation of e-government. This marks the Journey since 1987 – 2007 where Korea has gone through.

**Table 32:** Korean Regulatory Instruments

<b>Period / Time Series</b>	<b>REGULATORY INSTRUMENTS</b>
1987 – 1996	National Computerization Plan
1987 – 1996	National Basic Information Systems
1995 – Present	Korean Information Infrastructure Plan
1996 – 2000	National Master Plan of Information Promotion
1999 – 2002	Cyber Korea 21

2001 – 2002	E-government 11 strategic initiatives projects
2002 – 2006	e-Korea Vision
2003 – 2007	E-government Roadmap

**Source:** compiled by Emmanuel Lupilya, from challenges, Ministry of Public Administration and Security (MOPAS) Report, 2009.

The Korean Government believes on high protection and privacy of information. Citizens were much concerned about the security of the online information that will be available from the web. The governments realize the fundamentally concerned from Citizen and developed major legal Acts that were imperative for smooth running and transition of the e-government. The Table 33, below, summarizes the enacted legal Acts from 1995-2001 which are subject to change, to keep pace with the advanced technology era.

**Table 33:** Legal and policy Acts resilient for the e-government adoption and implementation

CURRENT		AFTER REVISION	
AREA	LAWS (9)	AREA	LAWS (5)
<b>National informatization</b>	Act on Informatization Promotion	National informatization	Framework Act on National Informatization
	<b>Information Culture</b>		
<b>e-Government</b>	e-Government Act, ITA Law	e-Government	e-Government Act

	Knowledge Information Resources Management Act		
<b>CURRENT</b>		<b>AFTER REVISION</b>	
<b>Privacy</b>	IT Network Act	Privacy	Privacy Act
	Public Agency Protection of Privacy Act		
<b>Security</b>	Information Infrastructure Protection Act	Security	Information Infrastructure Protection Act
<b>Information Infrastructure</b>	e-Signature Act	Information Infrastructure	e-Signature Act

*Technological Approach to E-Government*

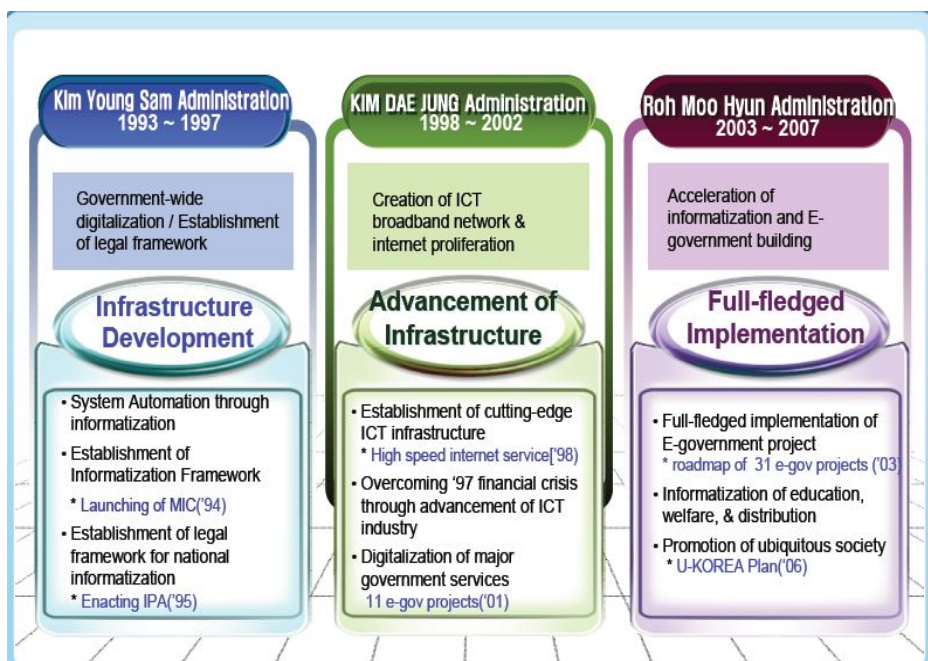
From the previous study, it was observed that various projects like the designated 11 e-government projects were a part of the success story for ICT infrastructure. This was possible to build a comprehensive service delivery to Citizen, Government to Citizen, GePS, and Information Village and Home Tax Service to name a few that were able to flourish through this infrastructure.

Various projects were implemented, such as the National Fiber Optic Infrastructure; Strong Connectivity infrastructure via mobile, Wi-Fi, VSAT, etc.; Online application platforms; Aggressive on expansion and technological



innovation; highly advanced in the high-tech economy as well as technology;  
 Advanced on systems security and privacy innovation; Highly IT/ICT skilled  
 labor/expertise/; professionals

**Table 34:** Stages of transformation of e-government supported by leadership



Source: Yoon-Seok Ko NIA, 2009

*Citizen Approach to E-Government*

The previous study has noted that Korea marked the success story of the democratic process in involving Citizen in the e-government projects. The study shows, that various services were developed to cater for the needs of the Citizen.

The government has pushed the project more to involve diversified stakeholders in the implementation of the e-government. In its retrospect's, it was learned that a Public or Citizen were informed about the government plans to move towards the electronic government. This makes it possible for the transformation of government to e-government. Awareness and various education programs were tailored to various groups to create better participation in the e-government services. Therefore, the government had gone through many stages as depicted from Table 34, which shows from Informatization era of the implementation era where it has marked the success of e-government fully fledged realized.

*The Korean National Information Society Agency (NIA)*

This research work presented earlier, have envisaged the potential transformation drivers necessary for bringing e-government effectiveness in Tanzania. Empirically, the study examines the challenges that can affect technological factor during the process of e-government transformation. The Korean National Information Society Agency (NIA) is a central to the study as a reference case study. Korea has performed better in terms of technology, which account to e-government index of 1.000 (UN-eGDI, 2014) for more than three consecutive years. This study establishes grounds necessary to learn several factors that deemed to be a crucial tunnel for e-government transformation such as internet satisfaction, database infrastructure, and other standardized application. All these are well addressed as key challenges that affect the technology factor. In general, Korean trends while

advocating on technology factor were linked to the key transformation drivers as a strategic tool to speed up the implementation of e-government. In its retrospective, Korea emphasizes on effective utilization of technology infrastructure driven by NIA and other responsible Ministries who report directly to the presidential e-government special committee. They examined key transformational drivers that adequately influence the designing and implementation of the technology factor.

This was an essentially important stage to roll out basic IT infrastructure across the country and bring together central and local government into one platform. Consistently with the implementation of these transformation drivers, Korea had emphasized on the transformation of social consistently with the implementation of the e-government project. It is evident that some challenges were inevitable as a learning paradigm in the implementation process. Nevertheless, referencing the Korean case is not meant to analyze these challenges and their related solution while implementing the e-government in Tanzania, but rather is for broader perspectives that what Tanzania is capable of diagnosing the designing of the e-government model and reversing the order of transformation by competing with the Korean model / standard. With regards to such compelling empirical facts, such trends will ensure to provide a learning paradigm for e-government candidates as well as social-citizen while addressing challenges that hinders its transformation towards e-government.

Following the trends in a recent advancing technology as a key factor, the fundamental element to sustain such technology is increasingly directing attention

to governmental institutions to ensure sufficient availability of resources for the development of e-government. For developing countries, resources might be adequate or sufficient to transform the e-government project. However, that does not mean that the resources in developed countries were the only major indicator for the realization of the e-government projects. About 30 years ago, Korean case was similar to that of Tanzania in terms of economic and social status. In short, several factors account significantly for its development was extremely embracing of high tech, smart IT personnel, financial resources, and Technical resources and so forth. In referencing the case of Korea, the NIA has a lesson that needs to be explored and learned from developing country perspective.

In a nutshell, the literature shows that NIA played a significant role (Song, 2009) in utilizing the resources as a key way to transforming the e-government. But even if, their study, compute factors in the resource distribution analysis, yet the results that can be explained in terms of adequacy goal does not attract more attention to developing countries, but rather add value in the strategic innovation of what the country is able to do and to achieve. For Tanzanian context, the Korean case study has much to offer in that direction, not just for the case of copy and paste, but rather knowledge sharing, innovation, and creativity in various areas of technology in order to achieve full functional e-government.

#### *Summary I: Technological Factor*

At first, Korea has focused on building a strong IT infrastructure, Security and

Local Content in providing quality services. Korea established a clear policy, strong and committed leadership, e-government enterprise architecture and financial resources development framework. The success of Korean e-government story begins at focusing on Citizen; investing in technological innovation and support the governmental institutions IT development and utilization; building a strong infrastructure of IT/E-government and develop its enterprise architecture as a framework to foresee the implementation.

*Summary II: Institutional Factor*

Korean formalized strong institutions aimed at providing a broad vision of IT/ICT policy and strategies to encourage maximum deployment of e-government services. These institutions are designing strong policies to encourage investments in IT innovation, IT infrastructure development, research and development in IT/ e-government, internal capacity building in the area of IT innovation and arrangement. However, from political will point of view, it shows that Korea has indicated broad and strong leadership (From President level see Table 34), policy and regulatory framework, as well as funding to ensure e-government have reached the transformational stage.

*Summary III: Citizen Factor*

The success story for speeding up any development was to involve and empower

Citizen in the area of e-government innovation and awareness. Korea has focused on an involvement of the Citizen in promoting and implementing e-government. This includes: - Democratic Participation in e-government projects, change of attitudes, including a “Can do spirit” as well as the Building of citizen Trust to make services available online. Korean e-government is not driven by central Government.

#### *Summary III: E-Government Trends in Korea*

Table 34, which shows the success of the implementation stages of e-government in Korea that can be characterized by strong parameters of institutions, Citizen and Technological factors. Other parameters include the e-government and Local content strategies. All these have shaped the smooth transition of e-government from emerging to a full transformation stage.

#### *E-Government Strategies for Implementing E-Government*

Korea started developing strategies and policies way back from 1987 – 2007; and for some of these strategies involved the establishment of the National informatization plan to e-Korean Vision, and the e-government roadmap. These documents focused on enhancing “Computerization of State Civil to iGov and the iN2015 Strategic plan”. [See Table 35]

#### *Local Content Strategies to Support the Fast Implementation of E-Government*

Korea implemented a coherent infrastructure to provide online services from private institutions to the local government and finally to the central Government.

Examples of services and online services can be seen in Table 35. Furthermore, they implemented an advanced infrastructure to support the online participation from business, Citizen to the civil government employees. An efficient infrastructure was developed to support the provision of seamless online services to public [Table 35]. Korea is focusing on Technology innovation in terms of security, IT investment in research and development and internal capacity building provided the impetus for the transformation of government business into online services.

**Table 35:** E-government implementation stages for Korea

<b>STAGES</b>	<b>KOREA</b>
<b>E-GOVERNMENT STRATEGIES – STAGES</b>	<ul style="list-style-type: none"> <li>- (1987-1996) National Computerization Plan;</li> <li>- (same as above year) National Basic Information Systems;</li> <li>- (1995-present) Korean Information Infrastructure Plan;</li> <li>- (1996-2000) National Master Plan of Information Promotion;</li> <li>- (1999-2002) Cyber Korea 21;</li> <li>- (2001-2002) E-government 11 strategic initiatives projects;</li> <li>- (2002-2006) e-Korea Vision;</li> <li>- (2003-2007) E-government Roadmap;</li> </ul>
	<ul style="list-style-type: none"> <li>- Information Network Village (INVIL);</li> <li>- Building Information Village Center;</li> <li>- Provide News/info, Online Shipping, Tour Community,</li> </ul>

<b>LOCAL CONTENT STRATEGIES DEVELOPMENT FOR G2C, G2B; G2G</b>	<ul style="list-style-type: none"> <li>- Main service contents are education, healthy, economy, agriculture, administration, forestry etc.</li> <li>- Provide ease of use, language selection etc.</li> <li>- Promotion of Multi-language websites</li> <li>- World’s first information Village Model</li> <li>- Development of observation course to model village</li> </ul>
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## 5.6. Concluding Remarks

This chapter presented the principal components factor analysis of the challenges and opportunities of e-government in Tanzania. The critical challenges to the transformation of e-government were identified and analyzed. For the speedy addressing this number of challenges, the study had analyzed several opportunities which can be taken onboard to address the critical challenges. These opportunities are the fundamental baseline for investing, build and operate the heart of e-government process transformation. However, the question raised was, how to address these challenges? The principal components with direct Oblimin rotation method were conducted to identify potential drivers that would help to overcome these challenges.

The study highlighted the challenge factors, opportunity factors and the key drivers for addressing the challenges that e-government national project is facing a stumbling block. It was intriguing to learn that, opportunities can be managed, owned and operated during the transformation process of e-government. This would generate key drivers to address critical challenges and amplify the



mechanism to overshadow the challenges and strengthen opportunities. The key drivers, on the other hand, were analyzed and strongly measured to fit into the process of formalizing the designing and implementation process. In the end, they can use these factors as the fundamental drivers to promote the success of e-government transformation. The next chapter will be the interpretation and discussion of the results in detailed.

Using the SWOT matrix (Table 30 & Table 34), the study treats the challenges as threats within institutions to explain the weakness and opportunities. The above results indicate that there is a gap between knowledge or innovation in e-government and security against the speed of e-government transformation and that poses critical challenges. These challenges are not only affecting the e-government transformation but also to the distribution channel that includes socioeconomic, social services and social operations indicated in the SWOT matrix as low – high (weakness / opportunities). Using the SWOT matrix lens, this explains that as government institution's knowledge and innovation became fuzzy, traditional effort on online protection and other perimeters based on e-government transformation is insufficient indicated as low-low (Weakness/ Threats).

Several studies on institutional dynamic argued that creating capability within institutions and individuals (opportunities) on cyber security, provide greater achievement fighting against online threats (Fountains, 2001; Martin Luther, 2015). This is similar to the SWOT matrix (Table 34) indicated as high-high (Strength/ Opportunities). Focusing on training, education, awareness and policies may help

mitigate some of these issues indicated in our SWOT matrix as high-high (Strength/Opportunities) (D'Arcy and Hovav 2007). However, governmental institutions whose mandate is to govern e-government need to have additional layers of control to ensure that information and data are shared safely among Citizen. The sharing of data or information should be linked in three distinct platforms: National security agency, Government as well as Private Sector, indicated as high-low (Strength / Threats) as seen in Table 34.

Finally, the chapter presented the case study of e-government success story of Korea. The results presented here shows that in a general Korea e-government was contributed more in terms of building ICT and e-government infrastructure favorable by the strong regulatory framework. Korea started with National Basic Information System, Korean Infrastructure, National IT Master Plan, and the Informatization Promotion Committee. The Informatization Promotion Committee was the board that helped in proposing the 11 Key IT Initiatives. This was made possible because of the advanced Korean ICT infrastructure in place. This process clearly defined the road to e-government in Korea.

## CHAPTER 6: DISCUSSION

### 6.1. Summary of the Principle Findings

This research work was conducted in order to analyze the challenges and opportunities of the e-government transformation in Tanzania. The author had examined three factors for successful implementation of the e-government in Tanzanian perspective. To do so, the paper starts by addressing three fundamental questions: 1) what are the challenges for the e-government transformation in Tanzania? 2) What are the opportunities for the e-government transformation in Tanzania? 3) How to address these challenges and opportunities of e-government transformation in Tanzania. The study analyzed and presented results on three factors identified as the challenges: the social factor, the resources factor and the technology factor. In addition, the study found a new principle factor emerged as the intervening factors as opportunities for the success of e-government transformation.

**Firstly, is the principle of Sharing:** Previous literature review conducted especially in developing countries shows that the adoption effort of e-government in many cases has failed due to the inability for e-government systems or database systems sharing (Heeks, 1998, 2000, 2001, 2003; West, 2004; Ndou, 2004; Ngulube, 2007). Their findings were based on the generalized perception about underdeveloped countries. In particular, the perception that reflects the context of poverty are taken to be the critical factors named as “critical challenge” (Shin, *et*

*al.*, 2008; Tan, *et al.*, 2008; Jain & Kesar, 2011). For instance, the perceptions that focus on resources, leadership capability, political will, technology, and policy were significantly related to negative perception and, therefore, are treated with a word that begins (“*Lack of; Poor....; Absence of....; Failure in...*”) as stumbling block for e-government adoption in developing countries (Lewin, 1951; Lal, 1999; Mulgan, 2000; Wimmer, & Von Bredow, 2001; Heritier., 2001). This study contributes a distinct different finding in the academic community and the developing countries. The study revealed three stages of e-government transformation, under sharing principle: three stages are involved: Stage 0: National Database. At this stage, I argue that by establishing a single, but compact national database, there should be a need to empower and strengthen governmental institutions towards their information systems associated with their local database infrastructure established and conjoin them. The major focus should be on strengthening these institutional databases from redesigning to the installation level. The government must intervene with the telecommunication or mobile industries to regulate internet access at an affordable price so that citizen, public and private institutions can access and interact with online data accessed from the government or private institutions. The institutions database design was focused on providing a one-stop database within institutions (Local area network was designed to be used as a vehicle of data transportation and interaction); however, some institutions faces a number of challenges from the designing to the implementation level. Several challenges that are visible were found to be the knowledge of

database in the process of data / information codification, data or information tabulation, and data or information indexing such as the citizen database. Other areas that needed timely support were the improvement and redesign of the geographical database; the social network database as well as the national library database. In order to achieve this, governmental institutions should apply the key driver that aimed at speeding up the integration of government and private institutions. Stage 1: is the local and central government institution. In terms of information systems that are already available at each institution, the focus is to strengthen the establishment of a single door for providing online quality of services to the citizen, private and governmental institutions. The study provides detailed steps in the contribution of making these information systems work at the maximum level. Since that, this stage is an important ground for e-government stages, it is imperative for the local and central governmental institutions to cohesively provide support and collaboration with *eGain* the process of redesigning and strengthening their information system. To achieve this goal, the study presented the principle of strengthening the institutional information systems. Stage 2: is the Private and Social network institution. This stage work similar with stage 1, however, the main focus is on the private and social network institutions. However, there is a need for the government intervention and leadership support in the process of redesigning and sharing information systems in order to create one stop shop online services.

Areas that might need to compromise and government intervention may

range depending on the nature and functions of each private institutions, however, in a general note, things like sharing their e-business for citizen interaction, regulating internet price for data and information accessed; providing the free Wi-Fi zone for citizen to upload and send information or data; all these might need government intervention audience. It should however be noted that, in order to scale the networking or merging process of the information systems under stage 2, the calling for government intervention and leadership support, is not only to manage or control, but also to coordinate and collaborate (Lewin, 1951; Lal, 1999; Mulgan, 2000; Wimmer, & Von Bredow, 2001; Heritier., 2001; Madon, 2004). Government intervention is said to be effective when it is able to signal new changes around the e-government transformation stages brought up by technology or e-government changes. This will all depend on the ability of leaders to support and operate full functionality (Shin, *et al.*, 2008; Tan, *et al.*, 2008; Jain & Kesar, 2011; Thandika, 2012). In this stage, we presented similar principle as used on stage 1 is the same applies to stage 2.

Overall contributions to governmental institutions are that, under phase 1: investing on Sharing may signal clear picture of movement as an opportunity in escalating the e-government. This is positively influenced by the principle of engagement in the development of national e-government enterprise architecture. As a result of this sharing, institutions may be driven by strong policy innovation development for national database and information systems networking combined with government intervention and leadership support. This phase should be

operated under high level of trust, security and commitment to all institutions while addressing future direction of national e-government stability and online security (Weber, 1974; Lal, 1999; Mulgan, 2000; Wimmer, & Von Bredow, 2001; Hone, *et al.*, 2002; Van Eck, *et al.*, 2004; Shin, *et al.*, 2008; Tan, *et al.*, 2008; Alshboul, 2012; Thandika, 2012). Furthermore, the utilization of key drivers such as strengthen institutions' information systems with government and private institutions in every stage requires elements of trust, commitment and accountability that can be coined as a true walk to e-government transformation projects (Lewin, 1951; Weber, 1974; Lal, 1999; Mulgan, 2000; Heritier., 2001; Madon, 2004; Kamssu, 2005).

**Secondly, is the principle of Integration:** Previous literatures have found several opportunities of e-government implementation solution are designed from developed countries and are transferred to developing countries in order to utilize. These solutions created problems from a selection, designing and implementation of the information systems integration. Nevertheless, the study acknowledges these systems because it helps the institutions to have a base in enabling information system compatibility for sharing. The study suggests two stages under this principle: Stage 3: engagement of government and private institutions. This stage is the key fundamental layout to e-government presence. The engagement of government and private institutions towards enabling the authentication, online security and sharing of information systems as stipulated in stage 1 and stage 2 is critical and significant. Stage 4: is the national e-government-think tank

committee. This national e-government-think tank Committee is the highest committee on the e-government innovation. It is suggested that, the committee should directly be responsible to the President which is combined with Chief Secretary, Ministers, CEO, and private and governmental institutions compositions. It should become the President device to update and advice on issues pertaining to the development and transformation of the national e-government project. True transformation should start within developing countries and spread to other regions within the nation (Lewin, 1951; Van Eck, *et al.*, 2004; Sawe, 2004, 2005). Previous literature suggesting that best practice from developed countries and adoption would create effective cooperation towards sharing knowledge's (Kamssu, 2005; Jain & Kesar, 2011). This is true only when the ability to share the technology knowledge and innovation levels pointing to transformation and understanding (Lupilya & Park, J. 2015) is present into both receiver and sender or both participants. This study presents a different view of gathering knowledge across boundaries. Creating a national e-government-think tank committee may take a challenging task, but worth doing it (Lewin, 1951; Sawe, 2004, 2005; Van Eck, *et al.*, 2004; Lupilya & Park, J. 2015). For instance, governmental institutions can significantly collaborate across borders from local, central government to private institutions; from social-network institutions to public and private institutions IT experts; and finally private and public database experts are first-order concerns during collaboration. Within the social-networking institutions, collaboration, the assessment of smart individuals from the village and urban and bring them together



to form a network for future collaboration is imperative. They can do so by creating e-government labs in each village and town where these networked groups are originated and can be easily monitored (Lewin, 1951; Sawe, 2004, 2005; Van Eck, *et al.*, 2004; Lupilya & Park, J. 2015). Governmental institutions should continuously mentor this group on e-government perspectives to share knowledge and innovation by collaborating with member state, nation within developing countries (Lewin, 1951; Lal, 1999; Mulgan, 2000; Wimmer, & Von Bredow, 2001; Heritier., 2001; Madon, 2004; Shin, *et al.*, 2008; Tan, *et al.*, 2008; Jain & Kesar, 2011; Thandika, 2012). This was found to be significant in speeding up the national e-government-think tank committee collaboration towards that contributes significantly to the e-government development process. As results, the current study presents a key principle that applied for stage 3 and stage 4 that is: the principle of speeding up the integration of government and private institutions database; and the principle of strengthening institutional information systems.

**Thirdly, is the principle of Transformation:** In previous literature, several authors are pointing to a wide range of challenges that developing countries are facing in implementing the e-government successes. Their analytical structures are limited to infrastructure, technology, and resources with narrow analysis of the root of the problems that these countries are facing in a real term. Nevertheless, on the different version of their analysis, their findings are based on increasing good governance, infrastructure such as electricity, internet infrastructure, etc., Lack of IT experts support, lack of IT awareness, and general technology infrastructure and

applications (Tan, *et al.*, 2008; Headayetullah, & Pradhan, 2010). This study, outweigh their findings by positioning the real context on the ground by introducing the final phase 3: the Transformation. This phase is supported by two stages which are explained in more detailed in the next chapter. Stage 5: This is the enhancing e-government transformation. For accelerating the speed of e-government transformation, the enablement of the national ICT infrastructure backbone (NICTBB) is timely and important. From governmental institutions to private institutions, there must a policy statement to embrace the opportunity of utilizing the NICTBB, embrace the e-mobile infrastructure; strengthen internet infrastructure, as well as telecommunication infrastructure. In order to advance this development, the key principle to push forward is to speed up the development of e-government and security policy. From the previous literature, the authors argue that governmental institutions should ensure infrastructures are protected and addressed via policies and other technological tools and applications (Mulgan, 2000; Wimmer, & Von Bredow, 2001; Madon, 2004; Van Eck, *et al.*, 2004; Kamssu, 2005; Coursey & Norris, 2008). Such development can be a daunting task, especially for developing countries due to the level of knowledge and innovation in e-government. This study found that institutions with a strong infrastructure (*those who are knowledgeable and innovative staff in e-government field*) should be involved in the process of database integration and infrastructure development (Shin, *et al.*, 2008; Headayetullah, & Pradhan, 2010; Jain & Kesar, 2011; Thandika, 2012; Lupilya & Park, J. 2015). This institution can be used as

routing vessels for enhancing the e-government transformation process to take place at a high speed (Van Eck, *et al.*, 2004; Shin, *et al.*, 2008; Tan, *et al.*, 2008; Alshboul, 2012; Thandika, 2012;).

Opportunities can range from a national database of more of a networking as well as the Engagement of government & Private Institutions which tends to go in the same direction. According to the literature review, many authors have highlighted the importance of establishing a national ICT infrastructure as a backbone to build e-government (Ross *et al.*, 2006; Shin, *et al.*, 2008; Almarabeh, & AbuAli, 2010; Thandika, 2012). This is an important element to consider, however, with some shortcoming. As explained above, knowledge creation and innovation would be the fundamental base to effect the utilization of ICT and e-government infrastructure similar to stage 4 explained above (Coursey & Norris, 2008; Shin, *et al.*, 2008; Headayetullah, & Pradhan, 2010; Jain & Kesar, 2011; Lupilya & Park, J. 2015). This study found that encouragement to invest on knowledge creation and innovation is a fundamental opportunity for e-government development via its ICT infrastructure utilization (Weber, 1974; Heritier., 2001; Sawe, 2004, 2005; Bhuiyans, 2010a; Lupilya & Park, J. 2015). National database and convergence would become much easier when the institutional knowledge to guide and protect the national database during the integration process becomes viable otherwise, will be shortcoming (Hammer, 1990; Lal, 1999; Kamssu, 2005; Shin, *et al.*, 2008).

Stage 6: is the government intervention. The transformation of the e-

government (*Taking-off*) principally requires stretching equally the wings wide enough to ensure all institutions with their information systems applications are well checked, analyzed and setup ready for taking-off. This builds one platform called the e-government national project which should be highly transformed by balancing any turbulence that might decelerate the speed of its transformation. This requires a keen and intellectual concentration on the procedure of balancing the meridian on which direction of e-government transformation is pointing to be accomplished in the future. The governmental institutions have lots of wings that are influenced by the lack of procedures of balancing the meridian that explained in one form: development of policy, pointing to internet price regulations, accessibility of data and information, affordable price for connectivity, providing tax-free for electronic gadgets, operationalize free Wi-Fi zone etc. just as pointed in stage 5. While on the other form: is to facilitate training on e-government across the board. This entails that the enforcement of e-government policy training, supporting training on key areas such as infrastructures NICTBB, Database systems, cyber security on e-government, convergence and facilitate external alliances on e-government knowledge sharing and innovation (Mulgan, 2000; Madon, 2004; Lupilya, 2015; Lupilya & Park, J. 2015). The second form of accomplishment seems rather an expensive form for private and social network institutions to accommodate. In that regards, the private and social network discourse shows that, government intervention seems to be viable and a keystone for lubricating the transformation of the e-government. The likelihood of President

to cheap in for supporting the development of the e-government transformation from politician's point of view is substantially stronger than perceived within governmental institutions. It should be understood that at this stage 6, politicians should be willing to participate fully just as they do when interacting with citizens on a day-to-day basis, trying to solve and resolve their constituent's welfare and social-economic problems. Therefore, their magnitude of popularity may influence the President's decision towards improving government efficiency through supporting the national e-government transformation. This part is detailed explained in the next chapter.

Overall summary of the discussion on this part, most empirical studies have shown that the cost of e-government transformation in developing countries is extremely high. Several arguments from authors, are pointing out to issues like lack of resources, leadership issues, and technological issues. Of course, these factors were on average appears to be significant to have a positive impact in the process of e-government implementation reflecting the historical context that they faced. The designing of the e-government is from developed countries and the recipients who were forced to adopt and implement are the developing countries. In this form of governance structure, it is evidently seen that their strategic thinking were essential to creating more opportunities for their own interest ranging from creating a foreign job, investigation, analysis, controlling the social-economic prosperity and so forth, rather than enhancing knowledge and innovation by strengthening local jobs, training, social transformation, and social-economic prosperity through

e-government. This undermines the level of knowledge and innovation within developing countries, especially Tanzania and, therefore, become the hand-to-mouth recipients of e-government technology. This kind of attitudes and perception has affected the willingness and ability to assimilate other approaches on their effort of e-government transformation. On average, e-government challenges in developing countries are similar, and the e-government transformation roadmap developed here can empirically be assimilated and generalized to all developing countries. First, the cost of implementation is substantially minimal and is likely to be implemented using internal IT experts with support from their governmental institutions responsible for e-government national project implementation; secondly, it contributes to institutions and policy development to balance between e-government ownership and accountability. This balance is important to resolve issues of e-government ownership and accountability that has always been in a substantial epitome pointing to corruption and over-investment in IT equipment and technology; thirdly, there is a large variance in terms of IT budget existence in each government MDA's estimated for the e-government implementation. Their budget significantly deviates from each MDA's needs and reality pointing to IT systems maintenance and development reality, this e-government transformation roadmap can provide a reasonable forecast to balance the IT and e-government budget estimates in terms of cost and benefit. In a particular way, this e-government transformation roadmap is a significant contribution to the development and implementation of e-government not only to Tanzania but also to

African state nations.

## 6.2. E-government Transformation Roadmap

Following the Literature review, SWOT analysis, the survey questionnaire, interview and observations from the field study, the author provides the significant suggestion towards the e-government transformation roadmap for Tanzania prosperity. However, the designed e-government implementation roadmap for the *eGa2013 -2018* (URT, 2012) were used in this study, and were critically analyzed and presented into a simplified e-government transformation roadmap for 2016-2020. This study makes a remarkable contribution of three fundamental principles (Sharing, Integration, and Transformation) for e-government transformation in Tanzania as well generalized to other developing countries. These principles are coined into simplified e-government roadmap and are categorized into three phases: Sharing, Integration, and Transformation. In order to implement this phases, the key drivers presented in this study were linked in each of these phases influenced by several stages during the development process: for phase 1, **Sharing**: principally this phase is guided under the key driver namely: engagement for the development of national e-government enterprise architecture proposed to be critical and crucial in the process of sharing institutional information systems; For phase 2, **Integration**: basically, it focus on strengthening institutional information systems as well as speeding up the integration of government and private

institutions database. Final phase 3, **Transformation**: under this phase, two key drivers to improve the transformation process were linked up: the speeding up the development of e-government and security policy as well as to facilitate training on e-government perspectives. These key drivers are essential to guide and establish common standards for designing, selecting, coordinating, monitoring and transforming the e-government process influenced by learning, innovation, and training.

### **Phase 1: Sharing**

The main idea of sharing as used in this study is to allow systems to talk to each other and allow transaction or interaction between systems and systems as one platform. At this phase, the government is struggling to ensure the e-government systems or application is compatible and that can provide room for systems sharing. Evidence shows that government and private institutions have adopted different e-government systems and applications (see Figure 10) which in most cases are unstructured. For instance, most of the governmental institutions e-government systems are found to be either idle for a long time, underutilized, unstructured, which leads to a limited functionality that can allow the systems sharing processes. Whereas in the private institutions have similar challenges with little variations. For instance, lots of their e-government systems are not either linked up or integrated with other systems due to incompatibility issues and



security setup. This phase, reiterate the key stages that are necessary for e-government transformation ex-ante. Under this phase, three stages are presented as a fundamental important stage and can be implemented through speeding up the integration of government and private institutions as the key driver.

#### *Stage 0: National Database Cataloging*

During Stage 0 the governmental institutions at the first step should focus on strengthening and empowering individual institutions database (government and private institutions) from redesigning, setup and implementation. This is a fundamental stage where storage of internal data or information is initialized, tabulated, coded, and developed. In order to ensure the credibility of information's, system compatibility, database layout and framework (database enterprise architecture), technology compatibility, software application standards, etc. Government interventions are necessary at this stage through promoting support to both government and private institutions. This is essentially called stage 0 of a national database where information or data are organized and made available on the local web which is similar to cataloging. This can sometimes be referred to as the "national database cataloging" at a local level.

However, the challenging part here is the database systems and software applications used have led to incompatibility issues which may compromise with future convergence. This is because; each institution has already developed internal database without a standard to allow future database convergence. Therefore,

governmental institutions should promote and empower the restructuring of this individual institutions database system as an opportunity to set up strong, standardized and centralized national database. Using the key drivers to lubricate the process governmental institutions can forge ahead for engagement in the development of national e-government enterprise architecture to create a wide and centralized national database. Since all these institutions (from local and central governmental institutions; private, and social institutions) have generated their own internal database with or without structure. These databases within institutions can be rearranged, structured and integrated from Local government (Local Gover. DB) and the central governmental institutions - DB; Private Institutions (Private Inst. DB); International government organization (IGO's DB); Non-governmental organizations (NGO's DB); country profile database (Tanzanian profile DB); Local Social networking database (Social-Net DB); and National Library database (Nat. Library DB). This key driver suggested here can be used as a backup strategy to influence the collaboration with government and private institutions on restructuring and converging their database to create "national database" for the first time. Since this approach is unique, therefore, the study referred this item as stage 0 under engagement to the development of national e-government enterprise architecture.

### **Key Driver 1: Engagement for the Development of National E-Government Enterprise Architecture**

Three stages are set as a core phase to influence the efforts in e-government transformation process. During this phase, the governmental institutions should design, select and implement a national database, networking on different stages as influenced by the engagement and development of national e-government enterprise architecture.

*Stage 1: Local and Central Governmental institutions*

Stage 1 governmental institutions should focus on supporting and empowering the integration of local and government institution's e-government systems applications and enable online interactions. This stage is important to ascertain the number of idle for a long time, unutilized, or even underutilized, e-government systems, rearrange them into reusable and standardize e-government applications. Therefore, this system can be easily harmonized and integrated widely with other local and governmental institutions. At this stage, local and governmental institutions should struggle to enhance internal interactions so that, both local government and central governmental institutions can trade information, data and facilitate administrative functions online. In the case of governmental institutions with no any e-government systems, depending on their nature and functions, e-government systems from other institutions can be deployed, designed and implemented. The idea of ascertaining e-government systems or application is to ensure all governmental institutions and local government possess standardized e-

government systems that would allow the flow of information and data, enable the online interaction and promote communications administratively over the web.

Most of these e-government systems or applications are already implemented in various local and central governmental institutions. They include, among other systems, the e-procurement; e-taxation; e-tourism; government portal; e-registration; e-administration; e-health; e-education; IFIMS; MOLIS; HCMS; POLIS; to EPICOR etc. These information application systems can allow integration of database or information, governmental institutions, and local government can be integrated to allow them to interact on the web administratively. These institutions can provide information, data and even facilitate financial, administrative functions, news, advertisement, budget, business, procurement, and tenders. The core function of the government essentially is based on procurements and providing services. Ultimately, government institution's functions involve huge spending of financial resources than other functions and demand a high level of governance strands in its spending. Engagement for the development of national e-government enterprise architecture as a key driver specified in this study meant to empower and linking up institutions with the above e-government systems or applications that can promote good governance discourse.

The end results here is to ensure that governmental institutions promote efficient productivity within their boundary, increase efficiency, and reduce corruption, inefficiency and overhead cost of idle for a long time or unutilized e-government systems. This may not only create a wider array of providing online

services across private and social institutions, but so widen up the functionality of which government institution's functions are evolving.

During this stage, the integration of e-government systems or application may happen in two ways: horizontal or vertical e-government system integration. For horizontal integration means the governmental institutions provide access to applications and application interactions with similar functions. For instance, government procurements can be enhanced by linking to the e-taxation systems. For any government procurements through tenders, bidders should be able to pay taxes, and items procured for government purposes should indicate the history of the items delivered. This is to ensure that government will continue to enhance efficiency in tax collection. Furthermore, e-education can be linked to citizen database that provide similar information and can be traded to search and filter necessary data or information upon querying. For the vertical integration as referred here is that local and central governmental institutions can be designed in such a way that both institutions and institutions are linked up and can trade information and data online. So the local government can trade information with central government connected to the systems. For instance, one Ministry can trade information with local government located in other regions. Another example here is that, police station under the Ministry of Home Affairs, can link up their e-policy systems with the national database to track information on citizens, Alien, or even NGO's for security purposes.

### *Stage2: Private and Social Network Institutions*

In the second stage, governmental institutions should intervene with private and social network institutions in support of redesigning, restructuring and modifying their e-government systems or applications to meet the standards. At this stage, is somehow similar to the first stage, however, this is based on private and social network institutions. At first, is to ascertain the types and nature of e-government systems or application implemented within this private institution. These systems or applications may vary from e-business, e-marketing, e-customers, e-media, e-medicine, e-pharmaceutical, e-transportation, e-industries, e-tourism, and local blogs where they trade information between citizens and citizens. These systems can be redesigned, structured and standardized to allow integration vertically and horizontally.

At a vertical integration, governmental institutions should support the redesigning of these systems and application to link up and trade information or data within institutions. For instance, a private hospital can trade information with government hospitals for matters pertaining to health, medicines, or even pharmacy. They can also trade information about patient records before admission to another hospital. Telecommunication companies can as well integrate their systems with policy central policy to ensure trafficking or smuggling of protected business. For the e-transportation systems, can allow the trading of information which are linked up with the country database from the national database center. They can as well trade information with e-taxation and linked up to a national

database. This stage is a crossing cutting, which allows the flow of information within institutions and institutions.

For horizontal integration entails that institution' application systems can be interfaced with many other e-government systems of application that allows trading of online information or online financial transactions to take place. For instance, telecommunication industries can limit their payments of taxes through the use of e-taxation systems, while at the sometimes using their own e-business platform. This system can be linked up to the bank (private or public bank), and the bank can act as the middle part to process all transactions on behalf of another entity or institutions. In summary, private or social network institutions can allow the interfacing of multiple windows of systems to interlink them together such as the e-banking, e-taxation, e-marketing because this entire interface depends on each other in terms of databases to accomplish the online task. This stage can be enabled by applying similar key drivers as in stage 1 which is the provision of engagement in the development of national e-government enterprise architecture.

**Key Driver 1 [*Same as above*]: Engagement for the Development of National E-Government Enterprise Architecture**

This phase sets the stage 0; stage 1 and stage 2 for governmental institutions and local government combined with private and social network institutions and calling for engagement for the development of national e-government enterprise

architecture. During this phase, the government institution should reinforce the sharing of e-government systems, online database and other related IT systems and application. The stage 1 and stage 2 of this phase is significantly influenced by Local government & private online database sharing; and the central government online database sharing. Governmental institutions should institute a mechanism of checks and balances on each element to establish the needs and challenges to be addressed fully for future e-government convergence process.

## **Phase 2: Integration**

This stage is crucial for the governmental institutions to stage its e-government development to the citizen. At this stage, governmental institutions allow the full integration and access of information and data across institutions (Government and private institutions). Integration of information or data online is enabled to the citizen, government, and private institutions to trade and share information online that leading to the highest level of e-government stage model. Nevertheless, these stages such as cataloging, interaction, transaction, accessibility, and publishing are now taking shape. This phase can be accomplished by involving two stages, the speeding up the integration of government & private institutions database.

*Stage3: Speeding Up the Integration of Government & Private Institutions*



### *Database*

At the beginning of this stage, the main focus is to enable integration of information and data through various e-government systems or applications. The motives behind this stage are driven by speeding up the integration of government & private institutions database. The integration of these systems can be configured to accommodate a combination of several services that are possible for online. First is to create levels of authentication, online security as well as a sharing platform. An authentication mechanism is imperative to define levels of accessibility to interact with the systems. Different layers of authentication can take at most two forms, on one hand it can be configured at the institution level and at the individual or citizen level on the other hand. For instance, government and private institutions can decide the levels that should be provided focusing on stage 0, stage 1, and stage 2. This may involve defining what structure of information or data, what type, nature, and the category of information or data to share and what not, at the institutional level. When defining similar levels of authentication for citizen or individuals, government, and private institutions should decide and agree on what levels of accessibility or sharing of information and data between individuals and individuals can be granted.

At this stage, this integration may trigger out several online services which can be translated into national e-government application. Governmental institutions and private institutions can enable the citizen to citizen (C2C) interaction or trading of information; they can enable government to citizen (G2C) to share information

and data; they can enable government to business (G2B) to share and trade information and data and indeed the business; government to government (G2G) can also be enabled to start trading information and accessing internal information for administrative purposes, they can also enable business to citizen (B2C) to trade information and business across boundary, and finally, they can enable business to business (B2B) trading or marketing of information and data in a broader perspective.

*Stage 4: National E-Government-Think Tank Committee Collaboration*

Maintaining the national e-government at the heart of providing quality of services requires support, knowledge, and innovation across the border. One way to institute a mechanism to maintain the national e-government systems is to collaborate with the national e-government-think tank committee. The national e-government-think tank committee as defined earlier, is the group of expertise, technical and smart young guys whose idea and vision can enrich the e-government transformation process. Government alone may not provide maximum support and maintenance of the national e-government system in its broadness. The maintaining of national e-government systems requires support from specialized and smart group here referred to as national e-government-think tank committee. This committee will be working under the CEO as the secretary of the committee from the e-government Agency (eGa). CEO to some point can chair the meeting and at the sometimes should be the secretary during the meeting. This committee is a specialized device

working under the directives of the CEO. It is the device that provides legitimate advice, vision and future direction of the national e-government project.

At this stage, national e-government-think tank committee contains specialized personnel, technical and expert's individuals recruited by the government, social network and private institutions whose aim to transcend the e-government transformation. This group can offer a great support in terms of technicalities, expertise and leadership aspects on several functionalities towards e-government. While the transformation of e-government is in progress, this group may contribute to the development of the e-government policy innovation, development of the e-government strategies or guidelines provide e-government awareness, e-training, conduct monitoring and evaluation of the e-government trends, conduct research and development based on e-government and finally they can provide support on national e-government project.

Year's rollback, the government established ICT-think tank in Tanzania which combined only governmental institutions without private or social network group involvement. This group played a key role in transcending the utilization of the ICT and establishment of basic infrastructure within Ministries, Departments, and Agencies. Recently, this group doesn't exist, and a number of challenges have rose in terms of compatibility, misalignment of IT systems, procurement of under standard IT equipment's and so forth. This study suggests that the formulation of a strong national e-government-think tank committee would support the government efforts in transforming the e-government in Tanzania. There are no doubts that this

group composed with expertise in the different field of e-government can become a tangible resource to cherish the designing, selection, and transformation of the e-government. In a broader sense, they can also be used as a specialized task force to develop e-government enterprise architecture that can be used to monitor and evaluate the trends of e-government transformation in Tanzania.

These two stages, the stage 3 and stage 4 can be guided by speeding up the integration of government & private institutions database as the key driver.

### **Key Driver 3: Strengthen Institutional Information Systems.**

The engagement phase towards building a national e-government enterprise is featured in stage 4 of the e-government transformation roadmap. Under this stage 4, the governmental institutions or task force should establish strong and significant national e-government-think tank committee collaboration influenced by the Local, central, social network & private IT experts database plans & collaborations; and the central government IT experts & private IT experts. This would provide localized e-government enterprise architecture in the nation as significantly influenced by the engagement in national e-government projects.

### **Phase 3: Transformation**

This phase of e-government transformation has been presented in the literature review supplemented with the SWOT analysis on the status of e-government in Tanzania. In this phase, is to show how this opportunity can become a stepping

stone for the transformation of the e-government. The transformation may happen in two stages: the enhancement of e-government transformation and government intervention. The enhancement of e-government transformation meant to integrate the systems and other national infrastructure for utilization in order to increase efficiency, reduce the cost of accessibility and sharing online. While for government intervention is basically to support and facilitate training in order to create a sound, smart young guy who would foresee the sustainability of e-government. This last phase of e-government transformation presents operationalized e-government services to citizen and the ability to provide access to various ubiquitous services from the government and private institutions.

#### *Stage 5: Enhance E-Government Transformation*

This is the highest level of e-government transformation stages after going a number of initiatives on each stage and show an indication of how e-government can function, structured and executed. Enhancing the e-government transformation stage can be explained in the context of combining stage 0 up to stage 3. This stage is designed to converge and empower the utilization of NICTBB, the convergence of e-mobile infrastructure, the internet infrastructure, telecommunication infrastructure, enhancement of the free Wi-Fi zone across the nation, enhance affordable internet access, enhance affordable internet connection, as well as the establishment of the e-government labs or centers. These initiatives are meant to

provide benefit or subsidy to private institutions in order to enhance affordable prices on accessibility, and internet connection. By enabling this convergence of infrastructure and systems between private and governmental institutions, a possible solution would overcome the high cost of accessibility, internet bundle cost, underutilized infrastructures, and systems, and connecting people.

A number of initiatives in each private and governmental institutions have been conducted and handled in several stages. This initiative is a necessary tunnel for e-government transformation that would facilitate information flow, trading of data, and encourage the government to administratively operate online. Once this stage is visibly acceptable, the transformation phase would take place in a smooth and elegant way.

**Key Driver 4: Speedup the Development of E-Government & Security Policy.**

The goal of this phase is orchestrating the e-government policy and e-government security policy that addresses a number of vast opportunities and delivers tangible output benefits. Under this phase, stage 5 is set to fuel the speed of e-government and security policy influenced by the utilization of the National ICT broadband Backbone – NICTBB; convergence of e-mobile & internet infrastructure utilization; and the convergence of telecommunication infrastructure utilization. Furthermore, enhance the Free Wi-Fi zone establishment; Encourage free E-government / Labs in each ward; This stage 5 shows that an institution is able to address future e-government operation standards and compatibility issues of

development, selection to the design process of e-government transformation process enabled by e-government and security policy.

*Stage 6: Government Intervention*

In most developing countries such as Tanzania, the high cost of internet accessibility, underutilized NICTBB, failure to innovate on a national database that would speed up the e-government, overspending on IT or e-government transformation, fragmentation of e-government systems that causes huge cost to government and other related items are the necessary condition for government intervention as used in this study. Furthermore, when e-government fails to provide necessary and balanced services to citizens this also can drive the government intervention. For instance, private institutions can monopolize the means of internet accessibility and create charges which are too high for a citizen to afford when using e-government as the case now in Tanzania, this scenario can drive the government to intervene.

For developing countries, balancing the advancement of technology that affects the infrastructure, e-government systems, IT equipment, and frequency transmission may create deadlock for the e-government transformation in the country and therefore, can lead to government intervention to support and provide training for infrastructure such as NICTBB, database systems as well as cyber security on e-government.

In a condition where developed countries are rapidly advancing in a way

that affects the development and transformation stages of e-government in Tanzania, then government must intervene to provide strong support of training and facilitate external alliance on e-government training. This is important to address some of the critical elements that might arise towards transforming the e-government in a broader perspective.

In a similar reasoning, if governmental institutions target is to ensure that all citizens are able to access and interact with e-government at any place and anywhere, 24 hrs. x 7 days / week, then the government can intervene to provide a tax-free IT equipment's such as the mobile, the computers, the laptops, the iPad, and the software application that would enable citizens to buy at a lower cost. To do this, the government may enforce e-government policy that capture training as well as IT equipment to promote the utilization and effectiveness of e-government.

To sum up, government intervention is necessary, especially when the struggle to e-government transformation is shadowed with elements that are related to lack of knowledge, lack of innovation, lack of e-government expertise, etc. may provide room for government intervention that can be enabled through the underlying key drivers calling for facilitation of training on e-government.

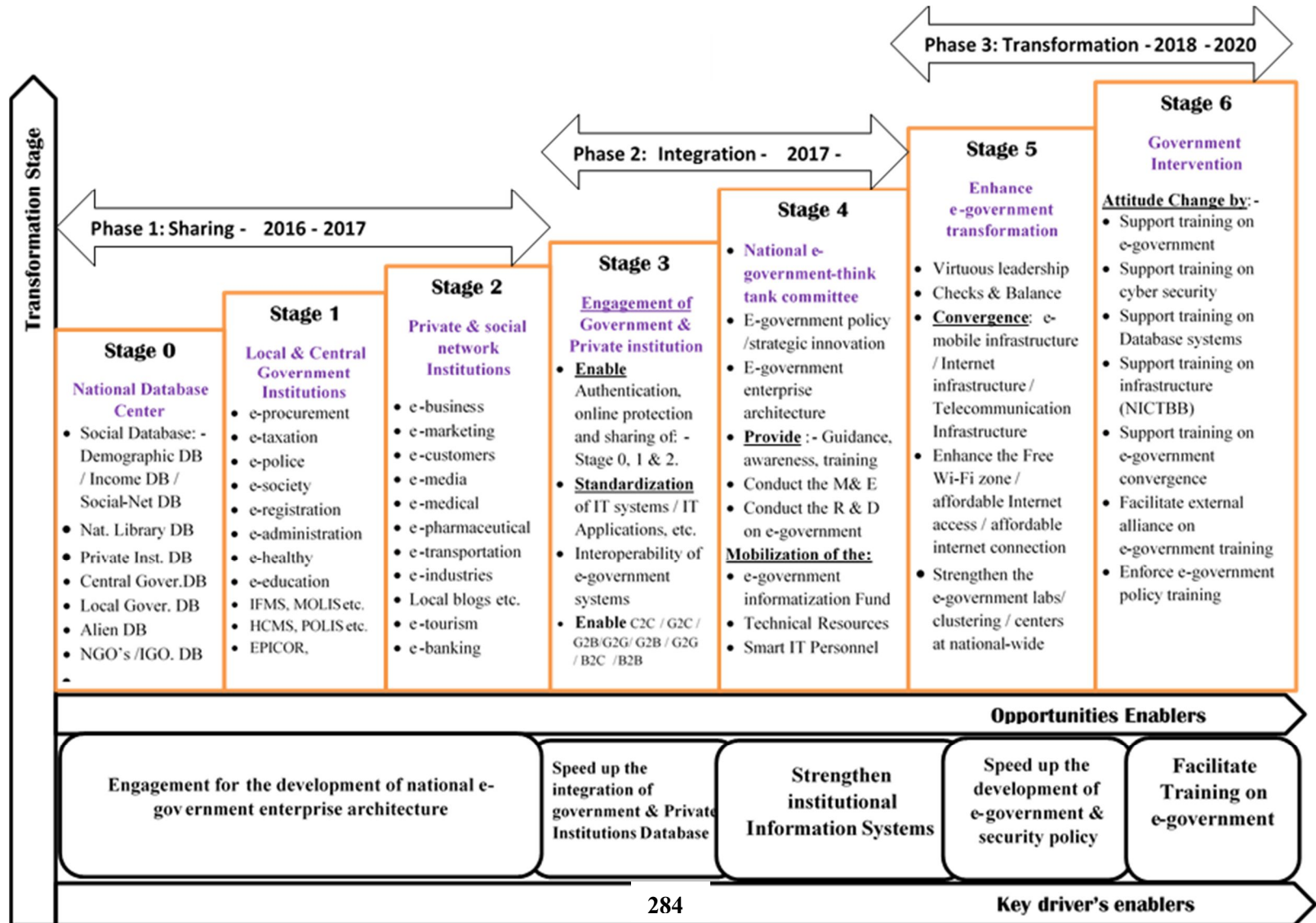
**Key Driver 5: Facilitate Training on E-Government.**

The training on e-government national project is a key driver to realize the speed transformation process of the e-government under phase 3. During stage 6, the final



stage for the transformation of the success of e-government. However, it is imperative for the government intervention address many of the critical and fundamental problems that may barricade the e-government transformation process. For instance, the provision of supporting and facilitating training on e-government is imperative. Stage 6 assumed by supporting the e-government knowledge creation and innovation for future development. It is assumed that government should provide an enabling environment for facilitating smooth e-government transformation, including training on several dimensions of the e - government project.

Figure 10: E-Government Transformation Roadmap



### **6.3. Implementing Agency and Resources Mobilization**

*Implementing Agency: The National E-Government-Think Tank Committee*

Currently, under the new administration of Dr. J.P, Magufuli, the direction of his new government, installed recently (October 25, 2015), and Prime Minister Hon. Kassim Majaliwa, have shown a very strong leadership to support the effort of e-government transformation. The need for national e-government-think tank committee is timely and that should work closely with the e-government Agency (eGa) and advise the CEO while briefing the President on matters pertaining to the e-government transformation. The structure of the national e-government-think tank committee should be composed by top government officials, IT / ICT experts, technical specialists, and other smart and young guys from various social networks and private institutions. This committee should be directed to report to the President under the CEO who is the secretary of that committee to report on matters pertaining e-government national project. The Chief Executive Officer (CEO) of the *eGawill* be the secretary of the national e-government-think tank committee who will be responsible and accountable for the e-government implementation. With the support of the established national e-government-think tank committee working together with government and private institutions can make a significant impact in making e-government visible.

While implementing the e-government roadmap, starting from phase 1: Sharing – take the Stage 0: National database; Stage 1: Governmental institutions

and local government; Stage 2: Private and social network Institutions are evolving. The effort of the governmental institutions to share the e-government system in each Institution has not achieved much of success and, therefore, has led to e-government stagnant. Despite some remarkable support from donor countries for the construction of the national database center, which was completed early this year is indeed worthy and acknowledged. Nevertheless, the challenge which lies ahead is how to design a structure and implement the national database. As a result, this study presents a new and elegant e-government road map, calling for installing the national e-government-think tank committee place to undertake this fundamental task. The national e-government-think tank committee in collaboration with other staff members will continually perform this duty just as a normal duty in their day to day schedule and should be recognized by law. This national e-government-think tank committee in collaboration with the *eGa*- CEO, should implement the e-government road map stage by stage, to ensure maximum output is achieved.

For phase 2: Integration and phase 3: Transformation – governmental institutions support, private and social network institutions are the key players under the national e-government-think tank committee. However, the link between the *eGa* and the governmental institutions (Ministries, Department, and Agencies) has made this effort difficult to be achieved. Unlike the phase 1 from stage 0 to stage 2, ICT or e-government projects within this institution are monitored by IT experts or ICT specialists who are responsible to that particular Institution

(MDA's). On the other hand, *eGac* have no control with the IT/ICT experts within this MDA's and either reporting to eGa. These institutions vary on how they value the e-government projects which will, in turn, project how much budget is required. Many of the IT or e-government projects within these institutions are idle for a long time or duplicated and sometimes underutilized. This makes it harder to control from *eGa* point of view that since there is no line of authority established. As a reference to other countries, such as Korea, Malaysia, Singapore, South Africa, the total management and control of the e-government is under one institution, who's experts and other IT / e-government specialist / technicians are reporting directly to their e-government agency. Unlike Tanzania, this structure could fall into action where all ICT or IT / e-government technicians / specialist / experts should be responsible under the eGa, and this Agency will make it easy to monitor, improve and strengthen systems of IT or e-government to the MDA's.

The national e-government-think tank committee with the CEO directives and in collaborating within these local institutions (*bringing together the telecommunication industries such as Airtel, Tigo, Vodaphone, Zantel etc.; Network operators such as Simbanet, Afsta, Cats-Net, SatCom, Raha.com, Tele2, Alink, Africa online, TTCL etc.*) will ensure long term flexibility of the e-government transformation influenced by the implementation of this roadmap. Furthermore, the national e-government-think tank committee should be empowered to mobilize funds from these stakeholders mentioned above as a part of their shares and responsibility. These key stakeholders should form ties with the national e-

government-think tank committee in supporting the development and transformation of the e-government countrywide.

The national e-government-think tank committee should initiate and conduct research and development in the area of e-government in order to learn new challenges and future solutions while implementing the e-government roadmap. Along with the implementation exercise, they should study on how the validity and significance of mobilizing e-government informatization funds can bring impact to schools, government and private institutions, social network groups, and local government through e-government accessibility. This finding should help them to pinpoint the direction necessary to monitor and evaluate the development of e-government in the country concurrently in addressing challenges in each institution.

The e-Government agency the CEO, together with the national e-government-think tank committee should seek an audience to leaders of state (President, Prime Minister, and Chief Secretary etc.) in order to portray their vision on their preparedness to transform the e-government in the country. This is to gain support from the office of the President and to provide facts on how e-government would help to combat elements or any parasites of corruption in a government institution.

In additional to that, they should statistically present facts on how e-government would bring efficiency, improves accountability, checks and balances, and strengthen tax collections for the economic prosperity. This is important for the

new President who has just sworn it in the office within two months now in the office. They should be able to provide a motive behind, such as the tour made by leaders of state to some government offices and Ministries and agencies and had found a high rate of corruption as a source of the poor governance structure. In their analysis, they should convey the message on how to address this problem through the utilization of e-government systems. In this case, the team will brief the leaders of the state and they must keep them well informed on how the e-government systems transformation can ensure good governance and the possibility rolled throughout the governmental institutions across the country in order to combat any parasites of corrupt behavior in a government institution.

#### *Resources Mobilization*

Despite the fact that *eGais* facing limited financial resources, this proposed e-government model provides a ground for minimal utilization of resources generated within the country. The financial support can be made available within the budget cycles approved by the parliament for each MDA's in a fiscal year budget system. Using their budgeted funds to update and reinvest on IT systems or e-government systems, the implementation of these stages as underlined in the roadmap can be done without failure. However, this budgeted resource can also be used to strengthen systems or replace them with other modern technology equipment to ensure standards and compatibility issues are met. Since the overhauling of the systems or making a new investment for rebuilding the

institutions e-government systems infrastructure may require a lump sum of the budget. In this case, funding from a government development, financial pool, combined with support mobilized from telecommunication companies, mining companies, gas companies or other stakeholder companies can be organized by the national e-government-think tank committee. These funds can be treated as the “national e-government Informatization Fund” in order to support the e-government transformation.

For effective and sustainable e-government implementation, private, social network and other institutions must be linked to the e-government systems. All these institutions linked to the e-government system are by law must contribute a certain percent (*as agreeable by government law*) to the “national e-government Informatization Fund” these funds would allocate specifically for maintaining and updating the e-government transformation within institutions across the country.

For the effective success of e-government transformation in Tanzania, all MIS / IT / ICT Department or Units or Section responsible for maintaining the e-government or IT systems should be reporting to the CEO who is in charge of the eGa. This structure meant to speed up the transformation of e-government, help to avoid any duplication of systems, idleness of e-government systems, as well as to empower the *eGa* to perform its duty. During the e-government budget cycle, the national e-government-think tank committee in cooperation with the *eGa* teams will work in collaboration to determine and forecast actual spending of the e-government transformation process underlying procurement of systems, update,



maintenance, re-installation of new systems etc. This would be another source of funds mobilization and that would be centralized at *eGa* under the CEO.

Governmental institutions, especially the CEO of the e-government Agency (eGA), should compromise with other institutions for merging any related ICT, IT or e-government projects funded in the country in order to establish and strengthen one component of the “e-government informatization fund”. The CEO and national e-government-think tank committee should take responsibility to search and pay an official visit to several companies, state, organization, private institutions, etc. in order to attract more supporters in the process of transforming the e-government in the country.

Within the resource constraints, national e-government-think tank committee should initiate the establishment framework for procurement of the e-government or IT equipment and set standards. Suggest on policy development the free tax on IT or ICT equipment and applications, computers, iPad, mobile phone, and other related electronics gadgets. This would assist to limit duplication of IT or e-government systems and overspending of government funds targeting for IT or e-government equipment procurement. And these funds can be reallocated to other activity pointing to strengthen internal systems that will make an impact towards e-government transformation. Furthermore, the national e-government-think tank committee, while using this framework of procurement for any related IT or e-government equipment would make the project expenditure manageable, implementable and saving.

## **6.4. Concluding Remarks**

The study has presented a new finding by using the e-government transformation roadmap as opportunities in the process of transforming the e-government. The study found that the six stages of the e-government transformation roadmap are contributing to the realization of cost and benefit for e-government success. The standard approach suggested to implement this, is through a strong application of the key drivers that influence several opportunities phases or stages from sharing, integration to transformation stages. In the case of the transformational drivers, the study found that this factor is a critical and a missing link in the whole process of the e-government process. However, it is a critical factor as an intervening variable and thus has many wings to play in terms of designing e-government policy / strategic plan innovation, e-government enterprise architecture, virtuous leadership and so forth, which are permeable to other factors. The survey analyzed the virtuous leadership as used to influence the development of e-government national project. As leadership becomes impoverished in foreseeing the e-government transformation, it has been perceived that leaders spend most of their time supervising and other forms of administering institutions. This perception has been significantly confirmed in the body of literature. Leadership differs significantly on several elements such as the level of ability, virtuous, wisdom and self-enlightenment interest towards transforming institutions and national e-government

projects. This research contributes to the findings that leadership with the elements provided above combined with ethical, value-laden and national interest would influence the e-government national project to move without precedence.

This combination of institutional leadership with social factor is seen the most significant and plays a key role as a catalyst for the success of e-government transformation (Lewin, 1951; Lal, 1999; Mulgan, 2000; Wimmer, & Von Bredow, 2001; Heritier., 2001). The current approach to the e-government implementation doesn't capture the social factors that attract more attention to the e-government transformation. However, there may be some variations in setting up the direction and framework for the social transformation, but most importantly is the designing, process and collaboration within the range of the three factors as stipulated in Figure 2 (Madon, 2004; Shin, *et al.*, 2008; Tan, *et al.*, 2008; Jain & Kesar, 2011). For the sharing phase, the study found that donor dependency in terms of resources has affected many of institutions in terms of innovation and capability leading them to become docile to donors. The intention of adopting e-government framework and strategies are viewed as a weapon to disrupt the effort of their local development combine with the effect on institutional innovation, low level of IT knowledge by institutions IT experts, and technical resources (Coursey & Norris, 2008; Shin, *et al.*, 2008; Headayetullah, & Pradhan, 2010; Jain & Kesar, 2011). The e-government transformation roadmap is particularly clear in the development and transformation of the e-government national project influenced by innovation.

However, respondents disagree with the statement that shows manual work

is very important because it prevail the security breach. And some had the negative attitude on the issue of confidentiality once it comes from manual work. The most important observation was that, security issues depend on the behavior of an individual; it is an abstract element that resided to an individual whose function will affect the reaction to its environment (Lewin, 1951; Weber, 1974; Lal, 1999; Mulgan, 2000; Heritier., 2001; Madon, 2004; Kamssu, 2004). In this case, knowledge creation and innovation become the leading factor to be considered for the e-government transformation. The contribution to this was that Tanzania should forge ahead the establishment and empowerment of the national e-government-think tank committee collaboration drawn from the analysis strands.

The findings observed in this study are focusing on Policy innovation on e-government and security were found to be the stumbling block to forward the e-government transformation process (Wimmer, & Von Bredow, 2001; Hone, *et al.*, 2002; Van Eck, *et al.*, 2004; Shin, *et al.*, 2008; Tan, *et al.*, 2008). This factor had the highest mean score that explains its importance and should be treated as a major driving factor for the success of e-government in Tanzania. In the literature review, according to Heeks, (2000, 2002, 2003); UN, (2014); and in Lupilya, & Jung, (2015) suggested that innovation in e-government and policy can address critical issues related to social and government transformation using e-government. The study contributes to the findings that institutions and policy makers should support significantly the policy innovation in e-government combined with other network actors such as mention above, the national e-government-think tank

committee, social network and private institutions. The e-government roadmap is particularly clear in the lesson drawn.

The literature on social engagement and connection addressed in the previous study by Castells, (2001) reflect on the internet galaxy by placing the statement that “Technological systems are socially produced. Social production is culturally informed. The Internet is no exception”. (Castells, 2001, p.36). The social engagement is of a paramount important in balancing the influence of e-government transformation at all stages understanding that social do change consistent with the direction of technology changes. However, Lewin, 1951; Weber, 1974; Lal, 1999; Mulgan, 2000; Heritier., 2001; Madon, 2004; Kamssu, 2005; Shin, *et al.*, 2008; Lupilya, & Jung, (2015) cogitated that social engagement connection and e-government enablement are inseparable. This study contributes significantly to the institutions and policy makers that social-network are a strong device that supports strongly the e-government transformation during the integration and connection process.

# **CHAPTER 7. CONCLUSION AND RECOMMENDATION**

## **7.1. The Summary and Research Contribution**

The prime objective of this study was to explore the critical challenges and opportunities for the e-government transformation in order to meet the people's needs and aspirations in Tanzania. To accomplish the above prime objective, the study addressed three key research questions that were set forth and need to be answered: R1: What are the opportunities for e-government transformation in Tanzania? R2: What are the challenges for e-government transformation in Tanzania? And R3: How to address these challenges in order to achieve e-government effectiveness in Tanzania? The factor analysis methods presented here were used to analyze the critical challenges and opportunities of e-government in Tanzania. Furthermore, in order to improve the validity outcomes of the results, the study used the SWOT analysis methods to examine the key challenges and opportunities for e-government transformation.

Within the two methods, the study makes a fundamental contribution by developing a new e-government roadmap, which is viable and feasible to transform the e-government in developing countries. Assessing the Tanzanian e-government status based on SWOT analysis results was an important target to design for the implementation of this e-government roadmap by means of its internally generated

resources, less dependency and replace the “best practice” approach using this roadmap. The development of the new e-government roadmap that incorporates several stages of its implementation proved to be a sustainable and statistically significant. It is evident that challenges of e-government in developing countries are similar in nature, theory as well as practical terms. Therefore, this research contributes to a significant solution to other developing countries to utilize this e-government road map as a simple but practicable tool for their e-government transformation.

Empirically and theoretically speaking, many literatures conducted in developing countries have failed to discover the comparable solution such as this for developing countries (Heeks, 1998, 1999, 2000, 2006; Ndou, 2004; Moon, 2004; Kumar, *et al.*, 2007). This study extends the contributions to the academic community as well as governmental institutions. The survey indicates that the e-government roadmap turned out to be empirically valid and that governmental institutions can use this e-government roadmap as a facilitator of knowledge, strategic planning and influence of innovation in e-government transformation. In this direction, it can serve to maximally utilize resources efficiently, reduce corruption on the supply side, increase ownership and accountability on the demand side, and eliminate any challenges that are detrimental to emerging e-government or technological advancement. In line with that, the e-government roadmap ensures effectiveness and higher productivity gain that underlie the e-government transformation process within governmental institutions. Theoretically,

the dynamic capability of the e-government roadmap is its integration into and application of the stages of e-government transformation combined with three fundamental principles: the principles of sharing, integration, and transformation. These principles were empirically and theoretically tested and had demonstrated the ways in which opportunities can be utilized as a theory to determine how it overshadows the challenges of e-government. This can be studied during the process of the e-government transformation that influences new thinking and, in practical terms, becomes effective, crucial and significant. The primary contribution is that governmental institutions should learn about how to limit their choices of e-government transformation parallel to analyzing the key challenges and opportunities of e-government transformation process. This is important because the environmental changes caused by the rapid advancement of e-government technology are unpredictable in nature and that might continue to disrupt their efforts towards transformational process constraints for developing countries.

The developed e-government roadmap combined with the findings is clearly pointing to the governmental institution's direction and suggests for empowering knowledge and innovation in the e - government discipline. Such efforts can result in the creation of national e-government-think tank committee, which statistically counts as a significant contribution of this study as well as to Tanzania. This sharing phase becomes exemplary for governmental institutions to orchestrate the spillover investment in the field of e-government transformation



process across the nation.

In short, the contribution indicated that neither the implementation nor adoption of the e-government from developed countries is essentially creating foreign opportunities while limiting internal or local opportunities in terms of innovation and knowledge (Lupilya & Park J. 2015). In order to be full-fledge in e-government innovation internally, the governmental institution needs to consolidate on e-government knowledge and innovation for sustainable future e-government service provision. The call for policy institutions must re-organize structures and approach of policy framework while addressing the impact of e-government service provision as well as transformation process.

### **Key Challenges and Opportunities for E-Government**

#### *Research Findings*

The methods of factor analysis were used to analyze the critical challenges and opportunities of e-government in Tanzania and the overall results presented here were significantly correlated with knowledge and innovation. The investment in e-government transformation in Tanzania as presented in the SWOT analysis shows that resources were contingent on the availability of experts or technical staff from abroad. All this was regarded to be the critical and stumbling block for the e-government transformation. Their efforts and ambitions were constraints in the context of the lack of knowledge and innovation in e-government. Governmental

institutions are struggling for the sustainable solution that would make an immediate impact in Tanzania. Their concerns are to be cost-effective for the e-government investment, reduce e-government project expenditures, and accelerate the transformation of the e-government with less cost, time, and space.

This result indicates a higher degree of meeting those conditions and is necessary for accelerating the innovative transformation of the e-government. Using the SWOT matrix (Table 29 & Table 30), the study treats the challenges as threats within institutions to explain the weakness and opportunities. The above results indicate that there is a gap between knowledge and innovation in e-government within the framework of governmental institutions that is against the speed of e-government advancement. This tends to poses critical challenges in all spheres of strategic planning, designing, selection and implementation circles respectively. These challenges are not only affecting the e-government transformation but also to the distribution channel that includes socioeconomic, social services and operations as indicated in the SWOT matrix as low – high (weakness / opportunities).

The application of the SWOT matrix analysis was intended to validate these findings and suggests that as governmental institutions' knowledge and innovation continues to become fuzzy, the traditional effort of dependency on foreign aid or best practice approach continues to widen up the online threats and other parameters of online risks based on e-government transformation. As the results will always lead to a dreadful outcome with insufficient knowledge and

innovation indicated as low-low (Weakness/ Threats) in our analytical results.

A similar finding is presented in the SWOT analysis; this was applied to ascertain how to prioritize the importance analysis of the key challenges and opportunities that can influence the e-government transformation. The first thing to be done, was to understand the strength and weakness of each factor loading that attract more attention to e-government transformation in Tanzania. The second thing to be considered, is to understand the opportunities and threats within the exercise of transforming the e-government in the context of Tanzania. The two methods used, the exploratory factor analysis and the SWOT analysis presented in the study had contributed to the development of the e-government roadmap that could also be generalized in other developing countries. The results show that strength and weakness for e-government transformation come within the governmental institution's knowledge and innovation. Whereas opportunities and threats of e-government transformation are caused by how effective governmental institutions can embrace the knowledge and innovation in a surrounding environment of an advanced e-government technology. For governmental institutions to succeed in transforming e-government, therefore, a profound knowledge of and innovation towards e-government at a larger perspective are required. The knowledge and innovation can be obtained within national e-government-think tank committee and that can equally be shared among institutions that influence multiplier effects to e-government and security policy development, e-government enterprise architecture, and thus onward. To respond to

these challenges, the identified key principles such as sharing, integration, and transformation of the e-government need to be reinvested in order to create a favorable environment for sustainable institutional e-government development.

Nonetheless, the study findings from the literature review yielded some contradicting evidence of the increase of e-government challenges in developing countries. Their findings indicate that there are limited financial resources, poor technology infrastructure and leadership. The survey found that while developing countries were struggling to match with the technology or e-government transformation, it was not necessary to follow the recommended e-government stage frameworks as analyzed by Deloitte Research Group, (2000); Layne and Lee, (2001); Moon, (2002); and the UN, (2003), as stipulated in the literature review. The claim that is presented in this study focusing on insufficient knowledge and innovation in e-government is partly the grounds of the above challenges. It is also evident that these were the ground for limiting the e-government transformation within the developing countries and, in particular, Tanzania. Nevertheless, the general empirical and theoretical studies on knowledge and innovation in e-government for developing countries are limited and the availability of the fundamental results for e-government challenges are inconclusive in literature discourse.

As the contribution to the academic community, this study offers the main empirical findings summarized in chapter five respectively. The study provides the synthetically part of the empirical study to answer the three questions. First and

foremost is the critical challenge for the e-government transformation which was found to be associated with lack of knowledge and innovation, the citizen demographic, centralized e-government applications, and on average, social engagement and connection, and policy innovation in e-government and security. Other challenges which are significantly critical are perceived as an innovation on the internet and IT standards as well as the innovation on e-government enterprise architecture. The second point to be considered, is the opportunity that has spillover effects of transforming the e-government in Tanzania and are associated with encouraging free ICT center / e-government labs in each ward as well as reinforce internet connectivity price regulations, while on average, government intervention and leadership support factors as well as the national e-government-think tank committee collaboration factors. The third thing to be pointed out, is the key driver to the success of e-government transformation and is associated with the institutional support or collaboration on institutional information and process as well as the codification information and archiving, on average mean score, strengthening the institution's information systems as well as facilitating training (short and long term program) on e-government, speeding up the development of e-government policy and security for transformation are associated with national ICT infrastructure.

Under the theoretical literature and success story from South Korean e-government implementation experience is the fact that South Korean experience in developing e-government demonstrates as the reference point for the e-government

transformation to developing countries. This study was revisited in order to enrich the scope of our e-government transformation understanding on the underlying design, selection and implementation. Their models of transformation are crucial, relevant and richer; however, they can be made more applicable and essential contributors for the sustainable e-government transformation in Tanzania. The Korean technology (IT) was the engine to facilitate the e-government development in terms of leading on IT-based industries which can influence the effort of e-government transformation in Tanzania. However, the design and implementation of policies, strategies and IT master plans combined with successful leadership and political will on the part of government were a remarkable success story. All these establishments were synchronized with the back and front office, IT infrastructures, the demand and supply of internally generated IT development process which consequently lowered the cost of implementation of e-government. Linking to their model of success from design to implementation of policies can add value as an impetus to the e-government roadmap for transformation. Yet, in comparison with the research findings, the results suggest that Korea is continuing to strive for a transition into a knowledge-based economy in IT leading industries, which is similar to the results from these study findings that suggest for knowledge and innovation investment. The research findings empirically suggest that empowering national e-government-think tank committee buttressed with the establishment of e-government labs or centers tend to influence knowledge and innovation and that Tanzania can significantly strive on it.

Irrespective of that, critical challenges of e-government implementation as pointed in Heeks, 1996, 1998, 2002,2003; Coursey & Norris, 2008; Shin, *et al.*, 2008; such as infrastructure (power supply, IT infrastructure, etc.) indicated as a stumbling block to advance the e-government implementation in developing countries. The South Korean e-government success story shows that the success factors were somewhat distinctly different and their approach suggests that in today's world these critical challenges are not likely to deviate in all contexts as generalized for developing countries. But then practical solutions were found combined with knowledge and innovation to overcome tensions that are stumbling blocks for the attainable goals of e-government transformation.

These findings are inconsistent with the literature on e-government for developing countries by Lal, B. (1999); Ndou, (2004); Kumar *et al.*, 2007; Ngulube, P. (2007); Shin *et al.*, (2008); Song Hee-Joon (2009); Schuppan, (2009); Mutula and Mostert J. (2010). Nevertheless, they contradict with the study done by Tan, *et al.*, 2008; Headayetullah, & Pradhan, 2010; Bhuiyans, 2010a; Alshboul, 2012; on the challenges for e-government transformation in developing countries and, in particular, Tanzania. Their results are not necessarily associated with factors such as poverty, resources, and readiness as suggested in Heeks, 1998, 2001, 2003, 2006; Lal, 1999; Ndou, 2004; Kumar *et al.*, 2007; Mutula & Mostert (2010), but significantly associated with strengthening knowledge and innovation creation (Lupilya, & Park, J. 2015), specifically on e-government through empowering national e-government-think tank committee collaboration which is suggested to be

crucial and relevant for sustainable e-government transformation (Mulgan, 2000; Wimmer, & Von Bredow, 2001; Van Eck, *et al.*, 2004; Jain & Kesar, 2011; Lupilya, 2015; Lupilya & Jung 2015). For Tanzanian case, these are suggestive and contributors to play a significant role as nuts and bolts that offer opportunities and that can speed up the transformation of the e-government, local & central government institutions.

## **7.2. Policy Implications**

The study supports the agreement that drivers and opportunities issues are an important and fundamental instrument for e-government transformation. The research findings, however, indicated that without having the national e-government-think tank committee to speed up the transformation of e-government, the whole process would be doomed to fail. Before everything else, policy makers should structure the national e-government-think tank committee, which gives experts advice to the President. This national e-government-think tank committee will be working day to day in collaboration with the e-government Agency (eGa). The CEO of this e-government agency must become the secretary to this national e-government-think tank committee.

The e-government transformation presented here is the combination of the social, resources and technological components. However, speeding up the integration of government and private institutions' systems requires relevant policies that address all these factors which are complex and required a



multidisciplinary engagement. This has an implication to policy makers to consider and indicate as a component in their final policy development goals.

Critical issues that need to be addressed and resolved are the institutional accountability for the e-government. The weakness of having no policy that explains which institutions are responsible in managing e-government in Tanzania is visible. Effective *eGa* as an institution should take this form and structure that, all the IT / e-government experts, technicians, IT specialist, in each governmental institutions (MDA's) are to be reporting to *eGa*. The rationale for transforming this e-government normally fails due to the reasons that those who are implementing the e-government at a ministerial level, are not responsible for the eGa, and therefore, their targets to achieve the prime goals become a nightmare. Above all, *eGa* does not have any mandate to manage and control the institution's information systems applications, even their personnel who are managing and controlling their information systems. The final results here are that *eGa's* efforts towards e-government transformation in the country will take a long time to prosper until this structure is reviewed and addressed in a policy manner. Therefore, any resources and efforts to be considered by *eGa's* development in the e-government transformation are becoming doomed to fail. Policy makers in the governmental institutions should revise this government structure to allow accountability and responsibility of personnel who are managing and controlling information systems applications in all governmental institutions and their parameters of authority and functions.

Furthermore, facilitation of training on e-government as a component to enable the sharing of e-government knowledge and innovation among institutions is becoming harder to manage and control. In the absence of e-government policy innovation that stipulates the functions and duties of the national e-government-think tank committee, it becomes harder for the *eGa* to strengthen training and create awareness to all MDA's. For instance, the results indicate that innovation in e-government policy development is a sufficient instrument to speed up the development of e-government and security policy. Because, once the policy is in place, it will lay down the guidelines which are associated with elements of knowledge and innovation creation for e-government transformation and adoption process. Therefore, policy makers and other multidisciplinary key players in e-government should be involved in the process from planning to development and the excursion of the e-government policy innovation.

In some circumstances, policy institutions may not have adequate knowledge of the e-government development and advancement and in that case, engagement and collaboration from local to national level are evident (Van Eck, *et al.*, 2004; Kamssu, 2005; Jain & Kesar, 2011). In this case, the study recommends that policy institutions' engagement in the development of national e-government enterprise architecture is the key players. Their involvement in any technological development should be part and parcel of the policy development initiatives (Lewin, 1951; Sawe, 2004, 2005). The implication to policy makers is to deploy these governmental institutions knowledge and innovation in order to develop a

feasible and spectacular policy that points to empowering strong network for policy innovation and knowledge sharing in e-government transformation, focusing on the advancement of e-government (Hammer, 1990; Lal, 1999; Kamssu, 2005; Shin, *et al.*, 2008; Tan, *et al.*, 2008).

Another way to suggest is how we want to see the future of national e-government-think tank committee as a contributor to the e-government national project that has several policy implications. Policy makers in collaboration with the governmental institutions should strategically create functions and duties for the national e-government-think tank committee similar to Bevin, (1993); Lupilya, & Park, J. (2015) to orchestrate the investment in the area of e-government which has policy implications (Lewin, 1951; Sawe, 2004, 2005; Van Eck, *et al.*, 2004). This is more important today than tomorrow for the candidate in the governmental institutions may lack the knowledge of e-government to shape the development and transformation of e-government in the country as a whole. In a similar fashion, governmental institutions need to aggressively create forums in collaboration with the national e-government-think tank committee and support them (Bevin, 1993; Lupilya, & Park, J. 2015) towards research and development focusing on e-government (Kamssu, 2005; Jain & Kesar, 2011). In this way, the government's desire to manage and protect knowledge and innovation for future utilization and prosperity will be met.

Governmental institutions should also clarify, on its policy, the question of who is managing, controlling, owning and operating the national e-government

systems (Mulgan, 2000; Madon, 2004; Bovens, 2005). If it is the e-government agency (*eGa*), then *eGa* should be responsible for coordinating and implementing e-government or IT systems in each MDA's (central government) and local government. Using the national e-government-think tank committee combined with IT / ICT/ MIS experts and technicians from eGa, they will sufficiently support the transformation of e-government. Nevertheless, policy-makers should be advised to revisit the current *eGa* structure and revise it to suit the current situation (Lupilya, & Park, J. 2015). All the MDA's IT / ICT / MIS experts should be under the *eGa* who is by nature in charge of bringing change in terms of e-government transformation throughout the country. In this way, it will mark the impact and responsibility in working towards achieving the full utilization of e-government. This would help diverge lots of queries and indeed challenges within governmental institutions, departments and agencies and let them focus on producing tangible results for e-government transformation efforts (Van Eck, *et al.*, 2004; Kamssu, 2005; Jain & Kesar, 2011).

Another area that requires policy attention is the movement towards utilizing the e-government nationwide. Governmental institutions should make it clear on its policy that the rollout of national e-government projects should be under control of the *eGa* and the budget to maintain it will be generated within *eGa* (Madon, 2004; Shin, *et al.*, 2008; Tan, *et al.*, 2008; Jain & Kesar, 2011; Thandika, 2012). By doing so, it will give a clear mandate for the integration and utilization of e-government across the boundary (Coursey & Norris, 2008; Shin, *et al.*, 2008;

Headayetullah, & Pradhan, 2010; Jain & Kesar, 2011).

Policy makers in collaboration with national e-government-think tank committee should make a strong policy statement to governmental institutions to share information and knowledge within and outside their boundary through training, research and development (Weber, 1974; Lal, 1999; Mulgan, 2000; Wimmer, & Von Bredow, 2001; Hone, *et al.*, 2002; Van Eck, *et al.*, 2004; Shin, *et al.*, 2008; Lupilya, 2015). They should realize that institutions perception is a complex dimension that needs an institutional knowledge configuration, creation, and understanding. This would help them to focus on governing the e-government, which is necessary to improve their work more efficiently and protect their information.

The very important observation was how the individual is supposed to protect the online information and data (Tan, *et al.*, 2008; Alshboul, 2012). Online data or information security, in other words, turns to be an issue of individuals and has nothing to do with the corporate policy and guidelines (Shin, *et al.*, 2008; Tan, *et al.*, 2008; Headayetullah, & Pradhan, 2010). However, these tools are necessary and important to manage and control individuals who share online information and data. Governmental institutions should cohesively define and enforce policies for institutions as they are responsible for enabling and developing guidelines for new individuals or society. This will empower them to emerge to be good consumers of online information and data through standardized guidelines and procedures (Weber, 1974; Lal, 1999; Mulgan, 2000; Wimmer, & Von Bredow, 2001; Hone, *et*

*al.*, 2002). Similarly, they will be treated as a routine that shapes behaviors and attitudes which are so potential elements or drivers for e-government adoption process (Lupilya, & Park, J. (2015).

Finally, governmental institutions should formulate a local policy standard for measuring the national e-government success and performance (Van Eck, *et al.*, 2004; Shin, *et al.*, 2008; Tan, *et al.*, 2008; Alshboul, 2012; Thandika, 2012). To begin with, this study suggests the achievements of the e-government success to be measured against the challenges and opportunities factors raised in this study as a lens to address any hindrance to anti e-government transformation (Kamssu, 2005; Shin, *et al.*, 2008; Tan, *et al.*, 2008; Headayetullah, & Pradhan, 2010). More important is that, this policy can direct attention for screening each stage of national e-government development and provide feedback (Mulgan, 2000; Madon, 2004; Bovens, 2005; Sawe, 2004, 2005; Tan, *et al.*, 2008). This tool might be sufficiently treated as the local standard unit of measurement (LSU) for the national e-government transformation.

In view of e-government implementation, policy development is a fundamental approach to enacting the e-government. In the context of Tanzania, numerous IT industries and telecommunications sector have emerged in the late 2000s that marked a highly competitive period in this ever-growing technology environment. Such mushrooming of IT industries, telecommunications industries, both private and public, have made it difficult not only for the government to control the pace of technological growth, but also to develop and institute strictly

IT or e-government policies and strategies. Society is becoming more subjected to dramatic change characterized by the speed of communications technology. This takes into account the new innovation of computers, laptops, PDA's, networking, ICT application, satellites, wireless communication gadgets, semi-conductors which are becoming a dominant factor of today's life. All these IT gadgets are the necessary tools for re-arranging customer's preferences as they are used both at homes, universities, schools, government offices, agencies, private sectors and for citizens.

This pattern of technological advancement has been rapidly increasing to the extent that it causes a serious tension to many stakeholders, including the government, to forge ahead the development of standardized e-government policy. Security concerns, threats, technological Risks, cybercrimes, privacy, and confidentiality are some of the many tensions that have triggered the effort of transforming e-government policy into practice. The government failures to control e-government policy or e-government policy development have resulted in the loss of government tax revenue for online collection, citizen protection; weaken online services delivered as well as slow down the pace of e-government development in Tanzania.

### **7.3. Limitation of the Study and Future Research Work**

The empirical contribution of the current study was conducted using exploratory factor analysis. The study uses the SWOT analysis as its primary data and extends

to the secondary data from other previous studies. It may be difficult to claim that the results of challenges and opportunities are significant. However, the literature has been shared around the globe, but this generalization of the finding may somehow be less significant.

Secondly, the study used the technology enactment theory to develop factors implemental for the current study. This theory has been regarded as weak due to the fact that it is limited to political organizations' settings rather than considering other institutions. It does not detail the effect on socio-technical on the approach of technology transformation, and the aspects of local and regional government are not considered in the theory development (Yildiz, 2007). The study used the adjusted version of the theory to improve the precision of identifying the factors. But this factor identified and analyzed may not provide significant results as expected. The study recommends that future research consider the use of different methods of analysis when applying the technology enactment theory.

Thirdly, data collections were made from private, a social networking group and governmental institutions respectively. Several participants, especially in the private sector, were involved in the process of the general election campaign which is taking shape in Tanzania. Most of the participants were difficult to be captured through email. In this way, the author spends high cost of expenditures in terms of communications where email systems fail to get connected and communicate. The time factor was also a limitation during the data collection process.



Another limitation is the behavioral nature of the participants who had a strong ambition to be interviewed and take part in the survey process. However, citizens who were comfortable with e-government issues were not able to participate on another subject related to accountability and responsibility. As a result, the author had to revise the subjects into two parts that focus on e-government as well as to the subject of control and coordination. It took more time to revise and adjust the questions to fit into the subject structure of the questionnaire. This was a limitation of the study, which lead to the recommendation of the future research work to identify participants with multi-disciplinary background to avoid such misunderstanding.

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## APPENDIXES

**Appendix 1:** Critical Challenges to e-government transformation (*qn1*)

Critical Challenges	N	Minimum	Maximum	Mean	Std. Deviation
<b>Policy innovation on e-government &amp; security</b>				<b>4.478</b>	<b>0.522</b>
Internet inequality	100	2	5	4.48	0.703
Institutional engagement towards e-government	100	2	5	4.56	0.574
Government intervention to provide guidance for internet prices	100	1	5	4.04	1.014
Centralized e-government applications	100	1	5	2.73	1.188
<b>Social engagement / Connections</b>				<b>4.420</b>	<b>0.691</b>
Absence of information of Citizen Demographic	100	2	5	4.49	0.689
Lack of Leadership Attitudes and support	100	2	5	4.45	0.687
Social guidance towards e-government	100	2	5	4.46	0.717
<b>Innovation on e-government enterprise architecture</b>				<b>3.323</b>	<b>1.075</b>
Absent of smart e-government experts	100	1	5	3.18	1.290
Lack of e-government budget supports from donors agencies	100	1	5	3.18	1.242
Lack of Internet accessibility within e-governmental institutions	100	1	5	3.12	1.225
Lack of enforcement of National ICT Broadband Backbone (NICTBB)	100	1	5	3.31	1.261
E-government task force	100	1	5	3.11	1.270
Internal coordination of e-government systems design and installations	100	1	5	4.41	0.698
<b>Innovation on Internet &amp; IT standards</b>				<b>2.892</b>	<b>1.058</b>
Lack of Internet satisfaction	100	1	5	2.90	1.210
Absence of database center	100	1	5	2.88	1.148

Absence of standardized applications	100	1	5	2.79	1.192
Absence of standardized IT systems	100	1	5	3.90	1.291
Absence of IT and e-government enterprise architecture	100	1	5	3.16	1.108
<b>Innovation and leadership in e-government</b>				<b>3.753</b>	<b>1.151</b>
Lack of e-mobile localized applications	100	1	5	3.91	1.276
Lack of Online protections	100	1	5	3.81	1.277
Absence of e-mobile infrastructure	100	1	5	3.91	1.272
Absence of virtuous Leadership	100	1	5	3.84	1.237
Lack of checks and balances	100	1	5	3.70	1.360
Absence of e-government policy innovation	100	1	5	3.61	1.325
Absence of implementable e-government strategic plan innovation	100	1	5	3.54	1.275
Absence of onitoring and evaluation (KRA)	100	1	5	3.71	1.328

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**Appendix 2: The Opportunities components to e-government transformation (qn2)**

<b>Opportunities</b>	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
<b>National Database Networking</b>				<b>3.0562</b>	<b>1.02872</b>
Internet accessibility within e-governmental institutions	105	1	5	3.21	1.276
Institutions database & applications integration	105	1	5	3.21	1.238
National Library database utilization	105	1	5	3.15	1.215
Local & central government data and applications	105	1	5	3.30	1.249
Managing & controlling social network database	105	1	5	2.74	1.193
Create one-stop-shop for online business database	105	1	5	2.92	1.190
Telecommunication industries database integration	105	1	5	2.89	1.155
Internet service provider information & database sharing	105	1	5	2.84	1.194
Citizen demographic data codification	105	1	5	3.10	1.263
Geographical location database systems codification for Tanzania	105	1	5	3.19	1.110
<b>Enhance e-government transformation</b>				<b>3.7619</b>	<b>1.13914</b>
ICT & telecommunication policies	105	1	5	3.84	1.226
Online information and data protection	105	1	5	3.75	1.350
Local ICT experts protection & recognition	105	1	5	3.60	1.342
Telecommunication & e-government strategies	105	1	5	3.54	1.279
Internet café centers services development plans	105	1	5	3.72	1.312
Strategic plan for local Mobile interaction	105	1	5	3.90	1.305
Strategic plan for standardized IT applications	105	1	5	3.83	1.274
Strategic plan for standardized IT systems & hardware	105	1	5	3.90	1.282
<b>Government intervention &amp; leadership support</b>				<b>4.4317</b>	<b>0.579.6</b>
Encourage Online business interaction	105	2	5	4.44	0.771
Reinforce internet price regulation	105	2	5	4.48	0.681
Free Wi-Fi zone establishment	105	2	5	4.40	0.715

Encourage free E-government / Labs in each ward	105	2	5	4.51	0.606
Reinforce administrative online application utilization	105	2	5	4.45	0.707
Task force for Monitoring and evaluation of e-government trends	105	2	5	4.31	0.880
<b>Local &amp; Central Government Institutions</b>				<b>2.9619</b>	<b>0.83406</b>
Local government & private online database sharing	105	1	5	3.04	1.599
Central government online database sharing	105	1	5	2.89	1.416
<b>national e-government-think tank committee collaboration</b>				<b>4.1667</b>	<b>0.77728</b>
Local, central, social network & private IT experts database plans & collaborations	105	1	5	3.98	1.028
Central government IT experts & private IT experts	105	1	5	4.35	0.796
<b>Engagement of government &amp; Private Institutions</b>				<b>3.1238</b>	<b>0.79024</b>
National ICT broadband Backbone – NICTBB	105	1	5	3.31	1.521
e-mobile & internet infrastructure utilization	105	1	5	3.11	1.483
Telecommunication infrastructure utilization	105	1	5	2.94	1.562
<b>Private &amp; social Network Institutions</b>				<b>3.7810</b>	<b>1.27838</b>
Support the national e-government project	105	1	5	3.78	1.278

### Appendix 3: Key successful drivers to e-government transformation (qn3)

	N	Minimum	Maximum	Mean	Std. Deviation
<b>Speed up the integration of government and private institutions (Citizen information systems)</b>				<b>3.2518</b>	<b>1.16704</b>
Citizen information archives	112	1	5	3.29	1.292
Institutional information structure	112	1	5	3.28	1.254
Institutional data storage and keeping	112	1	5	3.21	1.239
citizen profile documentation	112	1	5	3.94	1.051
Institutional data structurization	112	1	5	4.26	.898
<b>Strengthen the institutional information systems</b>				<b>4.4063</b>	<b>.58586</b>
Generally the institutional systems are idle for a long time	112	1	5	4.41	.823
Codification of information and archive are still a problem	112	1	5	4.43	.744
There is no institutional framework for information systems	112	1	5	4.36	.769
Usually, we receive support on institutional informatization process	112	1	5	4.45	.695
Insufficient budget for collecting and archiving information	112	1	5	4.39	.775
Institutional data are sufficiently coded but not archived	112	1	5	4.28	.922
<b>Engage internal and external “smart” experts in the development of national e-government enterprise architecture</b>				<b>3.7779</b>	<b>1.11118</b>
Lack of institutional ICT experts	112	1	5	3.84	1.190
Unbalanced training program on e-government and another discipline	112	1	5	3.78	1.320
There is high demand for e-government roadmap	112	1	5	3.62	1.344
Lack of support for structuring national e-government roadmap	112	1	5	3.56	1.286

generally, there is no good management of local area network infrastructure	112	1	5	3.74	1.313
Absence of institutional Local area network structure	112	1	5	3.84	1.242
Poor support development in designing of e-government system	112	1	5	3.91	1.249
Unbalanced e-government specialists/experts/technician within institutions	112	1	5	3.86	1.321
<b>Speed up the develop e-government policy and security policy</b>				<b>2.9929</b>	<b>1.06945</b>
Absence of e-government policy	112	1	5	2.73	1.200
No direction and plan laid down for future national e-government system	112	1	5	2.92	1.209
Each institutional acquire substandard ICT equipment	112	1	5	2.87	1.148
There is no direction and plan laid down for information systems in each government, local, social network, and private institutions	112	1	5	2.84	1.190
There are no standardized procedures for technology policy	112	1	5	3.23	1.139
<b>Facilitate training (short term and long term program) on e-government</b>				<b>4.1518</b>	<b>.79367</b>
Generally, there is no creativity on technology or e-government	112	1	5	2.92	1.549
Generally, institutional staff are not capable of responding to new threats or e-government challenges	112	1	5	3.11	1.269

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#### Appendix 4: The correlation matrix table on challenges to e-government

Constructs	CSq1	CSq2	CSq3	CSq4	CSq5	CSq6	CRq1	CRq2	CRq3	CRq5	CRq6	CRq7	CRq8	CTq1	CTq2	CTq3	CTq4	CTq5	CTq7	CTq8	CDq1	CDq2	CDq3	CDq4	CDq5	CDq6	
CSq1 Internet inequality	1																										
CSq2 Absence of information of citizen demographic	.490**	1																									
CSq3 Social guidance towards e-government	.468**	.959**	1																								
CSq4 Institutional engagement towards e-government	.803**	.576**	.558**	1																							
CSq5 Government intervention to provide guidance for internet prices	.760**	.460**	.437**	.767**	1																						
CSq6 lack of Leadership attitudes & supports	.416**	.700**	.657**	.399**	.450**	1																					
CRq1 Absence of smart e-government experts	.082	.286**	.215*	.026	.030	.249*	1																				
CRq2 Lack of e-government budget supports from donors agencies	.004	.250*	.200*	.013	-.094	.112	.944**	1																			
CRq3 lack of Internet accessibility within governmental institutions	.026	.253*	.211*	.004	-.052	.169	.964**	.981**	1																		
CRq5 E-government task force	-.044	.265**	.199*	-.033	-.193	.109	.891**	.918**	.898**	1																	
CRq6 Lack of enforcement of National ICT broadband Backbone – NICTBB	.171	.246*	.191	.135	.197*	.222*	.357**	.339**	.329**	.330**	1																
CRq7 Internal coordination of e-government systems design and installation	.008	.249*	.174	-.016	.055	.121	.838**	.826**	.816**	.836**	.389**	1															
CRq8 Centralized e-government applications	.274**	.124	.117	.203*	.063	-.018	.332**	.357**	.344**	.359**	.419**	.302**	1														
CTq1 Lack of Internet Satisfaction	-.013	.126	.150	-.043	-.078	.188	.605**	.595**	.647**	.515**	.143	.401**	.220*	1													

Constructs	CSq1	CSq2	CSq3	CSq4	CSq5	CSq6	CRq1	CRq2	CRq3	CRq5	CRq6	CRq7	CRq8	CTq1	CTq2	CTq3	CTq4	CTq5	CTq7	CTq8	CDq1	CDq2	CDq3	CDq4	CDq5	CDq6		
CTq2 Absence of database Center	-.026	.181	.237*	.009	-.133	-.008	.665**	.738**	.737**	.656**	.176	.526**	.276**	.803**	1													
CTq3 Absence of standardize IT systems	.022	.203*	.236*	.026	-.067	.137	.731**	.759**	.779**	.675**	.221*	.556**	.289**	.887**	.951**	1												
CTq4 Absence of standardize IT systems	-.047	.127	.154	-.048	-.134	.103	.603**	.633**	.668**	.555**	.149	.429**	.250*	.980**	.819**	.889**	1											
CTq5 Lack of online protection	-.024	.056	.028	-.101	-.146	.072	.520**	.540**	.525**	.578**	.227*	.506**	.214*	.318**	.369**	.394**	.334**	1										
CTq7 Absence of e-mobile infrastructure	-.044	.061	.041	-.074	-.191	.027	.401**	.442**	.422**	.495**	.131	.393**	.168	.332**	.426**	.411**	.339**	.938**	1									
CTq8 Lack of e-mobile localized applications	-.030	.085	.035	-.082	-.165	.062	.552**	.560**	.539**	.628**	.277**	.544**	.258**	.318**	.368**	.407**	.341**	.966**	.910**	1								
CDq1 Absence of Virtuous Leadership	.031	.105	.062	-.029	-.041	.158	.461**	.446**	.433**	.486**	.110	.461**	.112	.225*	.232*	.292**	.231*	.831**	.761**	.858**	1							
CDq2 Lack of checks and balances	-.049	.008	.005	-.184	-.075	.173	.423**	.397**	.404**	.397**	.229*	.394**	.152	.325**	.233*	.281**	.310**	.794**	.700**	.749**	.662**	1						
CDq3 Absence of e-government policy innovation	-.090	-.021	-.060	-.148	-.213*	.107	.331**	.319**	.328**	.381**	.124	.338**	.087	.305**	.259**	.288**	.280**	.816**	.863**	.800**	.689**	.641**	1					
CDq4 Absence of IT and e-government enterprise architecture	-.100	.068	.037	-.158	-.170	.019	.566**	.588**	.589**	.622**	.174	.519**	.241*	.578**	.607**	.595**	.577**	.548**	.557**	.555**	.424**	.448**	.442**	1				
CDq5 Absence of implementable e-government strategic plan innovation	-.044	.029	.077	-.072	-.153	.033	.438**	.416**	.424**	.429**	.155	.406**	.192	.478**	.540**	.548**	.474**	.751**	.771**	.765**	.626**	.596**	.682**	.461**	1			
CDq6 Absence of monitoring and evaluation (KRA's)	-.098	-.042	-.022	-.129	-.145	-.109	.326**	.393**	.369**	.362**	.106	.420**	.108	.283**	.384**	.341**	.312**	.802**	.813**	.762**	.666**	.623**	.762**	.423**	.708**	1		

Note: all variables used in the study are measured on five-point Likert scale; \*P<0.05, \*\*p<0.01, \*\*\*p<0.001

## Appendix 5: The Correlation variables for measuring the opportunities for e-government

Opportunities Constructs	OSq1	OSq2	OSq3	OSq4	OSq5	OSq6	OSq7	OSq8	ORq1	ORq2	ORq3	ORq4	ORq5	ORq6	ORq7	ORq8
OSq1: Encourage free E-government / Labs in each ward	1															
OSq2: Free Wi-Fi zone establishment	.423**	1														
OSq3: Reinforce Internet price regulation	.516**	.908**	1													
OSq4: Encourage online business interaction	.809**	.543**	.608**	1												
OSq5: Reinforce administrative online application utilization	.660**	.452**	.422**	.714**	1											
OSq6: Task force for Monitoring and evaluation of e-government trends	.376**	.694**	.608**	.379**	.421**	1										
OSq7: Local government & private online database sharing & integration	.041	-.158	-.064	-.130	.036	.067	1									
OSq8: Central government online database sharing	-.007	.177	.235*	.058	-.121	-.148	-.393**	1								
ORq1: National library database utilization	.072	.260**	.181	-.004	.023	.223*	-.145	.114	1							
ORq2: Institutions database & applications integration	-.027	.223*	.154	-.030	-.086	.080	-.145	.156	.940**	1						
ORq3: Internet accessibility within governmental institutions	.020	.225*	.173	-.029	-.058	.144	-.102	.122	.965**	.976**	1					
ORq4: Citizen demographic data codification	.010	.257**	.207*	-.006	-.200*	.113	-.261**	.216*	.876**	.891**	.881**	1				
ORq5: Local government IT experts & social network IT experts collaboration	.193*	.260**	.246*	.201*	.210*	.219*	-.087	.144	.303**	.283**	.272**	.304**	1			
ORq6: Telecommunication industries database integration	.041	.243*	.177	.004	.044	.126	-.264**	.190	.804**	.767**	.779**	.803**	.379**	1		
ORq7: Central government IT experts & Private IT experts	.341**	.149	.206*	.298**	.042	.046	-.169	.070	.220*	.197*	.222*	.307**	.443**	.326**	1	
ORq8: National ICT broadband Backbone – NICTBB	-.211*	-.010	.021	-.151	-.151	-.169	-.011	.027	.054	.086	.096	.068	.023	.003	-.007	1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Opportunities Constructs	OTq1	OTq2	OTq3	OTq4	OTq5	OTq6	OTq7	OTq8	ODq1	ODq2	ODq3	ODq4	ODq5	ODq6	ODq7	ODq8
OTq1: Internet service provider information & database sharing	1															
OTq2: Create one-stop-shop for online business database	.778**	1														
OTq3: Managing & controlling social network database	.893**	.917**	1													
OTq4: Local & central government data & applications	.922**	.817**	.830**	1												
OTq5: Online information & data protection	.349**	.342**	.420**	.286**	1											
OTq6: e-mobile & internet infrastructure utilization	.207*	.261**	.260**	.206*	.349**	1										
OTq7: ICT & Telecommunication policies	.306**	.422**	.379**	.329**	.881**	.295**	1									
OTq8: Internet café centers services development plans	.298**	.329**	.382**	.291**	.937**	.314**	.849**	1								
ODq1: Strategic plan for IT standardized applications	.201*	.235*	.265**	.225*	.772**	.285**	.764**	.791**	1							
ODq2: Local ICT experts protection & recognition	.330**	.239*	.284**	.321**	.773**	.384**	.679**	.719**	.632**	1						
ODq3: Telecommunication & e-government strategies	.320**	.234*	.305**	.223*	.818**	.250**	.831**	.777**	.656**	.614**	1					
ODq4: Geographical location database systems codification for Tanzania	.553**	.615**	.565**	.589**	.491**	.296**	.547**	.472**	.426**	.442**	.387**	1				
ODq5: Strategic plan for standardized IT systems & hardware	.477**	.514**	.544**	.423**	.752**	.312**	.760**	.741**	.609**	.580**	.699**	.421**	1			
ODq6: Strategic plan for local mobile interaction	.286**	.374**	.341**	.290**	.793**	.353**	.805**	.744**	.654**	.618**	.762**	.400**	.715**	1		
ODq7: Support the national e-government project	.152	.084	.159	.046	-.007	.135	-.023	-.036	-.103	.018	.055	-.038	.103	-.013	1	
ODq8: Telecommunication infrastructure utilization	.140	.088	.119	.139	-.164	-.272**	-.225*	-.142	-.215*	-.186	-.258**	-.087	-.039	-.154	-.038	1

\*\* . Correlation is significant at the 0.01 level (2-tailed). \* . Correlation is significant at the 0.05 level (2-tailed).



## Appendix 6: The Correlation variables for measuring the key drivers for e-government

Key drivers for success	KSq1	KSq2	KSq3	KSq4	KSq5	KSq6	KRq1	KRq2	KRq3	KRq5	KRq6	KRq7	KRq8	KTq1	KTq2	KTq3	KTq4	KTq5	KTq7	KTq8	KDq1	KDq2	KDq3	KDq4	KDq5	KDq6	
KSq1: generally the institutional system are idle for a long time	1																										
KSq2: codification of information and archive are still a problem	.446	1																									
KSq3: generally the institutional systems are not working	.496	.843	1																								
KSq4: usually, we receive support on institutions informatization process	.784	.543	.532	1																							
KSq5: insufficient budget for collecting and archiving information	.687	.377	.380	.681	1																						
KSq6: there is no institutional framework for information systems	.430	.577	.590	.377	.457	1																					
KRq1: institutional data storage and keeping	.002	.267	.149	.003	.009	.210	1																				
KRq2: citizen profile documentation	-.084	.230	.172	-.029	-.138	.047	.915	1																			
KRq3: institutional data structurization	-.099	.230	.160	-.055	-.123	.072	.932	.970	1																		
KRq5: institutional information structure	-.109	.212	.170	-.076	-.190	.020	.839	.899	.879	1																	
KRq6: Generally, institutional staff are not capable to respond to new threats or e-government challenges	.237	.200	.179	.160	.265	.220	.261	.220	.207	.232	1																
KRq7: citizen information archives	-.117	.167	.108	-.107	.027	.059	.807	.799	.797	.805	.300	1															
KRq8: Generally, there is no creativity on technology or e-government	.230	.138	.054	.244	-.029	-.043	.224	.214	.227	.175	.392	.172	1														
KTq1: absence of e-government policy	-.183	.055	.070	-.128	-.168	.047	.552	.591	.658	.524	.054	.432	.174	1													
KTq2: There is no direction and plan laid down for information systems in each government, local , social-network and private institutions	-.119	.112	.207	-.038	-.138	-.048	.608	.719	.723	.643	.098	.522	.179	.793	1												

Key drivers for success	KSq1	KSq2	KSq3	KSq4	KSq5	KSq6	KRq1	KRq2	KRq3	KRq5	KRq6	KRq7	KRq8	KTq1	KTq2	KTq3	KTq4	KTq5	KTq7	KTq8	KDq1	KDq2	KDq3	KDq4	KDq5	KDq6	
KTq3: each institutional acquire substandard ICT equipment	-.104	.128	.141	-.071	-.095	.048	.606	.674	.715	.623	.219	.520	.222	.844	.874	1											
KTq4: No direction and plan laid down for future national e-government system	-.199	.048	.098	-.140	-.179	.001	.580	.624	.681	.566	.041	.466	.093	.942	.794	.795	1										
KTq5: there is high demand for e-government roadmap	.074	.084	.080	-.074	-.057	.123	.459	.475	.440	.524	.220	.428	.089	.214	.301	.317	.245	1									
KTq7: lack of institutional ICT experts	-.018	.091	.004	-.075	-.146	.046	.356	.359	.356	.410	.179	.337	.195	.265	.329	.399	.253	.878	1								
KTq8: generally, there is no good management of local area network infrastructure	-.071	.080	.018	-.113	-.137	.033	.536	.523	.520	.594	.263	.539	.203	.308	.343	.389	.346	.899	.876	1							
KDq1: absence of institutional local area network structure	-.007	.142	-.007	-.034	-.028	.110	.446	.402	.407	.439	.124	.420	.145	.208	.191	.298	.199	.759	.753	.833	1						
KDq2: Poor support development in designing of e-government system	-.005	.026	.005	-.164	.002	.178	.382	.327	.328	.331	.289	.353	.143	.245	.165	.257	.234	.757	.697	.736	.645	1					
KDq3: unbalanced training program on e-government and other discipline	-.128	.021	-.070	-.176	-.213	.076	.332	.319	.325	.354	.114	.330	.057	.285	.215	.283	.264	.753	.827	.783	.670	.631	1				
KDq4: There is no standardized procedures for technology policy	-.213	.040	-.005	-.225	-.192	-.051	.540	.579	.610	.613	.104	.537	.151	.602	.620	.597	.610	.458	.491	.547	.408	.379	.415	1			
KDq5: unbalanced e-government specialists/experts/technician within institutions	-.126	.005	.051	-.128	-.192	-.006	.438	.411	.434	.415	.098	.418	.133	.476	.515	.504	.498	.672	.713	.762	.592	.557	.670	.474	1		
KDq6: lack of support for structuring national e-government roadmap	-.118	-.024	-.054	-.150	-.151	-.100	.314	.351	.336	.301	.134	.400	.150	.256	.312	.328	.271	.726	.803	.751	.655	.628	.762	.387	.693	1	

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

## **Appendix 7: Questionnaire**

### **The Purpose of the Survey**

This survey is conducted for analyzing the challenges and opportunities for the e-government transformation in Tanzania. As a Ph.D. Researcher at the Seoul National University in South Korea, the data collected here are meant to be used for the intended objectives and purpose of this academic study. Data collected will be treated confidential and nothing will be accessed without the prior consent of the interviewee. Let me assure you for my esteemed cooperation on this regards.

### **Instruction:**

The following are the statement about the challenges, opportunities, and key drivers. Please, you are required to circle one [○] on the left as your choice that describe the level of your satisfaction (from “Strongly Agree to Strongly Disagree”). Likewise, on your right-hand side of the statement are the current situation which are measured in terms of analyzing strength, weakness, threats and opportunity (SWOT). Please, you are required to circle one [○] one which represents whether the statement indicated describe as a threat, weakness, opportunity or even a strength to your response.

**Section 1: participant’s information**

**Institution’s Name:** (put [✓] on the appropriate box provided below)

- |                           |                          |                          |                          |                    |                          |
|---------------------------|--------------------------|--------------------------|--------------------------|--------------------|--------------------------|
| E-government Agency       | <input type="checkbox"/> | Ministry of Justices     | <input type="checkbox"/> | Tigo               | <input type="checkbox"/> |
| Ministry of communication | <input type="checkbox"/> | Ministry of Home Affairs | <input type="checkbox"/> | Airtel             | <input type="checkbox"/> |
| Ministry of Finance       | <input type="checkbox"/> | Prime Ministers Offices  | <input type="checkbox"/> | Vodacom            | <input type="checkbox"/> |
| President Office – PS     | <input type="checkbox"/> | Wanabidii                | <input type="checkbox"/> | Zantel             | <input type="checkbox"/> |
| St. Augustine University  | <input type="checkbox"/> | e-think tank             | <input type="checkbox"/> | Sihebs             | <input type="checkbox"/> |
| Vinjari website           | <input type="checkbox"/> | E4E technologies         | <input type="checkbox"/> | Tumaini University | <input type="checkbox"/> |
| Nelson Mandela            | <input type="checkbox"/> |                          |                          |                    |                          |

**Category:** (put [✓] in the appropriate box provided below)

- |                        |                          |                  |                          |                     |                          |
|------------------------|--------------------------|------------------|--------------------------|---------------------|--------------------------|
| CEO                    | <input type="checkbox"/> | Director         | <input type="checkbox"/> | Manager             | <input type="checkbox"/> |
| Managing Director – MD | <input type="checkbox"/> | Business Manager | <input type="checkbox"/> | Chief Officer       | <input type="checkbox"/> |
| Senior Legal Officer   | <input type="checkbox"/> | IT staff         | <input type="checkbox"/> | Software Developer  | <input type="checkbox"/> |
| Security experts       | <input type="checkbox"/> | Lecturer         | <input type="checkbox"/> | Tutorial Assistance | <input type="checkbox"/> |

**The nature of the respondent's institution:** (put [✓] in the appropriate box provided below)

- |              |                          |              |                          |              |                          |                  |                          |        |                          |
|--------------|--------------------------|--------------|--------------------------|--------------|--------------------------|------------------|--------------------------|--------|--------------------------|
| Private      | <input type="checkbox"/> | Government   | <input type="checkbox"/> | Educational  | <input type="checkbox"/> | Entrepreneurship | <input type="checkbox"/> | Social | <input type="checkbox"/> |
| Institutions |                          | Institutions |                          | Institutions |                          |                  |                          |        | F                        |
|              |                          |              |                          |              |                          |                  |                          |        | or                       |
|              |                          |              |                          |              |                          |                  |                          |        | u                        |
|              |                          |              |                          |              |                          |                  |                          |        | m                        |
|              |                          |              |                          |              |                          |                  |                          |        | s                        |

**Gender:** Male  Female

**Tick where appropriate:**

Age (Year) < 30  31-40  41-50  > 51

**Tick where Appropriate:**

Basic Education  Diploma  Advanced Diploma

Bachelors  Masters  Ph.D.

**Challenges, Opportunities, and Transformational factors**

<u>Agree Scales:</u>		<u>SWOT Scale:</u>
5= Strongly Agree; 4 = Agree ; 3 = Undecided; 2 = Somehow Agree; 1 = Strongly Disagree.		5 = Strength; 4 = Weakness; 3 = Opportunities 2 = Threats; 1 = Undecided
<u>Agree Scales:</u>		<u>SWOT Scale:</u>
5 – 4 – 3 – 2 - 1	CTq1: Lack of Internet satisfaction as a stumbling block	5 – 4 – 3 – 2 - 1
5 – 4 – 3 – 2 - 1	CTq4: There is an absence of standardizing IT systems in governmental institutions	5 – 4 – 3 – 2 - 1
5 – 4 – 3 – 2 - 1	CTq3: There is an absence of standardizing applications within governmental institutions	5 – 4 – 3 – 2 - 1
5 – 4 – 3 – 2 - 1	CTq2: There is an absence of database Center	5 – 4 – 3 – 2 - 1
5 – 4 – 3 – 2 - 1	CDq4: The IT and e-government enterprise architecture is in place	5 – 4 – 3 – 2 - 1

5 – 4 – 3 – 2 - 1	CSq2: There is no information about citizen demographic in place	5 – 4 – 3 – 2 - 1		
<table border="1"> <tr> <td> <u>Agree Scales:</u>            5= Strongly Agree; 4 = Agree ; 3 = Undecided;            2 = Somehow Agree; 1 = Strongly Disagree.         </td> <td> <u>SWOT Scale:</u>            5 = Strength;            4 = Weakness;            3 = Opportunities            2 = Threats;            1 = Undecided         </td> </tr> </table>			<u>Agree Scales:</u> 5= Strongly Agree; 4 = Agree ; 3 = Undecided; 2 = Somehow Agree; 1 = Strongly Disagree.	<u>SWOT Scale:</u> 5 = Strength; 4 = Weakness; 3 = Opportunities 2 = Threats; 1 = Undecided
<u>Agree Scales:</u> 5= Strongly Agree; 4 = Agree ; 3 = Undecided; 2 = Somehow Agree; 1 = Strongly Disagree.	<u>SWOT Scale:</u> 5 = Strength; 4 = Weakness; 3 = Opportunities 2 = Threats; 1 = Undecided			
5 – 4 – 3 – 2 - 1	CSq6: There is a lack of Leadership attitudes & supports in national e-government	5 – 4 – 3 – 2 - 1		
5 – 4 – 3 – 2 - 1	CSq3: The social guidance towards e-government is a problem	5 – 4 – 3 – 2 - 1		
5 – 4 – 3 – 2 - 1	CTq7: There is a good e-mobile infrastructure in place	5 – 4 – 3 – 2 - 1		
5 – 4 – 3 – 2 - 1	CTq5: There is a lack of online protection	5 – 4 – 3 – 2 - 1		
5 – 4 – 3 – 2 - 1	CDq3: E-government is not moving due to lack of e-government policy innovation	5 – 4 – 3 – 2 - 1		
5 – 4 – 3 – 2 - 1	CTq8: There is lack of e-mobile localized applications to use for e-government	5 – 4 – 3 – 2 - 1		
5 – 4 – 3 – 2 - 1	CDq6: There is a good mechanism for monitoring and evaluation (KRA's) of e-government national project	5 – 4 – 3 – 2 - 1		
5 – 4 – 3 – 2 - 1	CDq1: We have a virtuous leadership to oversight the e-government transformation	5 – 4 – 3 – 2 - 1		
5 – 4 – 3 – 2 - 1	CDq2: The effort to achieve e-government failed due to lack of checks and balances	5 – 4 – 3 – 2 - 1		
5 – 4 – 3 – 2 - 1	CDq5: There is an absence of implementable e-government strategic plan innovation	5 – 4 – 3 – 2 - 1		

5 – 4 – 3 – 2 – 1	CRq7: There is a good Internal coordination of e-government systems design and installation	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	CRq5: E-government task force is supporting the coordination of e-government	5 – 4 – 3 – 2 – 1
<b><u>Agree Scales:</u></b>		<b><u>SWOT Scale:</u></b>
5= Strongly Agree; 4 = Agree ; 3 = Undecided; 2 = Somehow Agree; 1 = Strongly Disagree.		5 = Strength; 4 = Weakness; 3 = Opportunities 2 = Threats; 1 = Undecided
5 – 4 – 3 – 2 – 1	CRq1: The absence of smart e-government experts leads to unattainable goals	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	CRq2: Lack of e-government budget supports from donor agencies makes it harder for e-government implementations	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	CRq3: There is lack of Internet accessibility within e-governmental institutions	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	CRq6: There is a lack of enforcement of National ICT broadband Backbone – NICTBB	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	CSq1: Internet inequality continuing to disrupt the effort of e-government project	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	CSq4: There is no Institutional engagement towards e-government national project	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	CSq5: There is no government intervention to provide guidance for internet prices	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	CRq8: There is a system for centralized e-government application sharing	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	ORq3: There is no constant internet access within governmental institutions	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	ORq2: There is a challenge on institutions database &	5 – 4 – 3 – 2 – 1

application integration		
5 – 4 – 3 – 2 - 1	ORq1: There is no access to the national library database utilization	5 – 4 – 3 – 2 - 1
<b><u>Agree Scales:</u></b>		<b><u>SWOT Scale:</u></b>
5= Strongly Agree; 4 = Agree ; 3 = Undecided; 2 = Somehow Agree; 1 = Strongly Disagree.		5 = Strength; 4 = Weakness; 3 = Opportunities 2 = Threats; 1 = Undecided
5 – 4 – 3 – 2 - 1	OTq2: We have created a one-stop-shop for the online business database	5 – 4 – 3 – 2 - 1
5 – 4 – 3 – 2 - 1	OTq3: It is difficult for online managing and controlling social network	5 – 4 – 3 – 2 - 1
5 – 4 – 3 – 2 - 1	OTq4: It is hard to link systems of local & central government data & applications	5 – 4 – 3 – 2 - 1
5 – 4 – 3 – 2 - 1	ORq4: There is a lack of citizen demographic data codification	5 – 4 – 3 – 2 - 1
5 – 4 – 3 – 2 - 1	OTq1: There is a lack of internet services provider information and database sharing	5 – 4 – 3 – 2 - 1
5 – 4 – 3 – 2 - 1	ORq6: Telecommunication industry database integration is still a challenge	5 – 4 – 3 – 2 - 1
5 – 4 – 3 – 2 - 1	ODq4: Lack of geographical location database systems codification for Tanzania	5 – 4 – 3 – 2 - 1
5 – 4 – 3 – 2 - 1	OTq7: The ICT & Telecommunication policies are not implemented fully	5 – 4 – 3 – 2 - 1
5 – 4 – 3 – 2 - 1	OTq5: There is no clear e-government transformation & online data protection	5 – 4 – 3 – 2 - 1
5 – 4 – 3 – 2 - 1	ODq3: There are no telecommunication & e-government strategies in place	5 – 4 – 3 – 2 - 1
5 – 4 – 3 – 2 - 1	OTq8: There are no internet café center service	5 – 4 – 3 – 2 - 1



development plans		
5 – 4 – 3 – 2 – 1	ODq6: There is no e-government strategic plan for local mobile interaction	5 – 4 – 3 – 2 – 1
<b><u>Agree Scales:</u></b>		<b><u>SWOT Scale:</u></b>
5= Strongly Agree; 4 = Agree ; 3 = Undecided; 2 = Somehow Agree; 1 = Strongly Disagree.		5 = Strength; 4 = Weakness; 3 = Opportunities 2 = Threats; 1 = Undecided
5 – 4 – 3 – 2 – 1	ODq1: There is no e-government strategic plan for IT standardized applications	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	ODq5: There is no the e-government strategic plan for standardized IT systems and hardware in place	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	ODq2: There is a lack of local ICT experts protection and recognition on e-government transformation	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	OSq4: There is a lack of enforcement for encouraging online business interaction	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	OSq3: There is no effort from government to reinforce Internet price regulation	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	OSq2: There is a strong government intervention on free Wi-Fi zone establishment	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	OSq1: There is a good indication for the government Intervention to encourage free E-government / Labs in each ward	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	OSq5: There is no any intervention to reinforce administrative online application utilization	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	OSq6: There is a lack of the task force for monitoring and evaluation of e-government trends across the country.	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	OSq7: It is hard for the local government online database sharing & information systems integration within	5 – 4 – 3 – 2 – 1

Please proceed to the next page

<u>Agree Scales:</u>		<u>SWOT Scale:</u>
5= Strongly Agree; 4 = Agree ; 3 = Undecided; 2 = Somehow Agree; 1 = Strongly Disagree.		5 = Strength; 4 = Weakness; 3 = Opportunities 2 = Threats; 1 = Undecided
5 – 4 – 3 – 2 – 1	OSq8: There is a lack of central government online database sharing and information systems utilization	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	ORq5: There are no systems to encourage local government e-government-think tank & social network IT experts collaboration	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	ORq7: There is no link between the central government e-government-think tank & Private IT experts	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	ORq8: The engagement of the PPP on National ICT broadband Backbone – NICTBB is the powerful tool	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	OTq6: There is no mechanism for government & Private e-mobile / internet infrastructure utilization	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	ODq8: There is no mechanism to enforce the government & Private Telecommunication infrastructure utilization	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	ODq7: There is a strong private and social network support for national e-government project	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KRq7: Citizen information archives are not available	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KRq5: There is uncoordinated institutional information structure	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KRq1: There is lack of institutional data storage and keeping	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KRq2: Citizen profile documentation is poorly structured	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KRq3: There is poor institutional data structurization	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KSq3: Generally the institutional systems are not working	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KSq2: Codification of information and archive are still a problem	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KSq6: There is no institutional framework for information systems	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KSq4: Usually, we receive support on institutions informatization process	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KSq1: Generally the institutional system has been idle for	5 – 4 – 3 – 2 – 1

a long time

<u>Agree Scales:</u>		<u>SWOT Scale:</u>
5= Strongly Agree; 4 = Agree ; 3 = Undecided; 2 = Somehow Agree; 1 = Strongly Disagree.		5 = Strength; 4 = Weakness; 3 = Opportunities 2 = Threats; 1 = Undecided
5 – 4 – 3 – 2 – 1	KSq5: There is an insufficient budget for collecting and archiving information	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KTq7: The lack of institutional ICT experts leads to the unattainable goal of e-government	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KDq3: There is an unbalanced training program on e-government and another discipline	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KTq5: There is high demand for e-government roadmap	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KDq6: There is a lack of support for structuring national e-government roadmap	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KTq8: Generally, there is no good management of local area network infrastructure	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KDq1: There is an absence of institutional local area network structure of governmental institutions	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KDq2: There is poor support for the development in designing of e-government system	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KDq5: There is persistence of unbalanced e-government specialists/experts/technician within institutions	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KTq1: There is absence of e-government policy	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KTq4: There is no direction and plan laid down for future national e-government system	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KTq2: There is no direction and plan laid down for information systems in each government, local, social network, and private institutions	5 – 4 – 3 – 2 – 1
5 – 4 – 3 – 2 – 1	KTq3: In your institution, there is substandard of ICT equipment	5 – 4 – 3 – 2 – 1

<b><u>Agree Scales:</u></b>		<b><u>SWOT Scale:</u></b>
5= Strongly Agree; 4 = Agree ; 3 = Undecided; 2 = Somehow Agree; 1 = Strongly Disagree.		5 = Strength; 4 = Weakness; 3 = Opportunities 2 = Threats; 1 = Undecided
5 – 4 – 3 – 2 - 1	KDq4: There are no standardized procedures for technology policy	5 – 4 – 3 – 2 - 1
5 – 4 – 3 – 2 - 1	KRq8: Generally, there is no creativity on technology or e-government	5 – 4 – 3 – 2 - 1
5 – 4 – 3 – 2 - 1	KRq6: Generally, institutional staff are not capable of responding to new threats or e-government challenges	5 – 4 – 3 – 2 - 1

Feel free to add more comments on the space provided here below

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**I TRULY APPRECIATE FOR YOUR PRECIOUS TIME AND PARTICIPATION TO THIS STUDY.**

For further inquiry or correspondence regarding this questionnaire can be directed to: [elupilya@snu.ac.kr](mailto:elupilya@snu.ac.kr), or [elupilya@gmail.com](mailto:elupilya@gmail.com); cell phone number: +82 10 49526265; Seoul – South Korea.

**Appendix 8: Interview Questions for the Government Officials: (CEO /  
Directors / Managers)**

**The purpose of the Survey**

This study survey is conducted for the purpose of collecting data on e-government innovation and transformation factors. The focus of the survey is conducted for analyzing the challenges and opportunities for the e-government transformation in Tanzania. As a Ph.D. Researcher at the Seoul National University in South Korea, the data collected here are meant to be used for the intended objectives and purpose of this academic study. Data collected will be treated confidential and nothing will be released without prior consent of the interviewer. Let me assure you for my esteemed cooperation on this regards.

**Starting Time:** \_\_\_\_\_

1)	<b>Date of Interview</b>	
2)	<b>Name</b> ( <i>Optional</i> )	
3)	<b>Occupation</b>	
4)	<b>Sex</b>	
5)	<b>Place</b>	

## **PART I: PARTICIPANT INFORMATION**

### **Interview Question 1:**

Would you please give an introduction about yourself?

### **Interview Question 2:**

Which Institutions are you working for?

### **Interview Question 3:**

Would you please explain your position and status in your organization? /

Institutions

### **Interview Question 4:**

How long have you been working in this institution / organization?

### **Interview Question 5:**

What is your professional background and how does relate to your duties and functions?

## **PART II: INTERVIEW QUESTIONS**

IQ: 1. Who controls and manage the information systems / database in each MDA's?

IQ: 2. How does *eGa* staff link to support information systems in each MDA's?

IQ: 3. How could you suggest the IT/ICT / e-government experts/specialists/technicians reporting too? Or where they should be accountable to?

IQ: 4. Could you describe any social impact during e-government transformation?

- a. Does internet inequality inhibit the online interaction and sharing of information?
- b. Does the absence of information on Citizen demographic have an impact to e-government designing?
- c. Does leadership attitude towards e-government have any impact in achieving the e-government goals?
- d. Does institutional engagement towards e-government influence the speed of implementation of e-government?
- e. Does government intervention speed up the implementation of e-government?

IQ: 5. Could you describe any impact from resources during e-government transformation?

- a. The absence of smart e-government experts within governmental institutions inhibits the e-government transformation?
- b. Does the e-government budget support from donors and other external agencies limit the e-government transformation?
- c. Does the lack internet satisfaction within governmental institutions is an obstacle in achieving e-government transformation?
- d. Does the lack of internet access within governmental institutions affect the e-government transformation process?

- e. Does e-government task force play a significant role in speeding up the e-government utilization? What about the e-government deployment process?
- f. Does the absence of enforcement law to deploy an NICTBB lead to a delay of e-government transformation efforts?
- g. Does internal coordination of e-government systems design and installation lead to e-government transformation process?
- h. Does centralized e-government application influence the development and transformation of e-government success?

IQ: 6. Could you describe any technological impact during e-government transformation?

- a. Does internet satisfaction lead to e-government transformation efforts?
- b. Does the absence of database center hinder the e-government transformation?
- c. Does the absence of standardized applications prevent the e-government transformation?
- d. Does the absence of standardized IT systems hinder the e-government transformation effort?
- e. Does the lack of online protection is an obstacle to e-government transformation?
- f. Does the absence of e-mobile infrastructure interrupt the e-government transformation process?



- g. Does the lack of e-mobile localized application hinder the speed of e-government transformation process?

IQ: 7. Would you please describe types of leadership innovation in e-government transformation?

- a. Does the absence of virtuous leadership hinder the development of e-government?
- b. Do lack of checks and balance for e-government national projects hinder the speedy transformation?
- c. Does the absence of e-government policy innovation affect the e-government transformation?
- d. Does the absence of IT and e-government enterprise architecture hinders the transformation of e-government?
- e. Does the absence of implementable e-government strategic plan innovation can lead to failure of e-government transformation?
- f. Does the absence of monitoring and evaluation (KRA) in e-government hinder the smooth transformation of the e-government?
- g. Does social guidance towards e-government can speed up the e-government trust? What about the deployment of e-government across citizen?

IQ: 8. Does the absence of e-mobile infrastructure have an impact in the transformation of the e-government?

IQ: 9. Does the absence of institutional database and application integration  
inhibit the e-government transformation?

**Ending Time:** \_\_\_\_\_

**I TRULY APPRECIATE FOR YOUR PRECIOUS TIME AND PARTICIPATION TO THIS  
STUDY.**

For further inquiry or correspondence regarding this questionnaire can be directed  
to: [elupilya@snu.ac.kr](mailto:elupilya@snu.ac.kr), or [elupilya@gmail.com](mailto:elupilya@gmail.com); cell phone number: +82 10  
49526265; Seoul – South Korea.

**Appendix 9: Interview Questions for Non-Government Officials:**

(Managing Directors (MD) / Business Managers / IT Chief Officer)

**The purpose of the Survey**

This study survey is conducted for the purpose of collecting data on e-government innovation and transformation factors. The focus of the survey is conducted for analyzing the challenges and opportunities for the e-government transformation in Tanzania. As a Ph.D. Researcher at the Seoul National University in South Korea, the data collected here are meant to be used for the intended objectives and purpose of this academic study. Data collected will be treated confidential and nothing will be released without prior consent of the interviewer. Let me assure you for my esteemed cooperation on this regards.

**Starting Time:** \_\_\_\_\_

1)	<b>Date of Interview</b>	
2)	<b>Name (Optional)</b>	
3)	<b>Occupation</b>	
4)	<b>Sex</b>	
5)	<b>Place</b>	

## **PART I: PARTICIPANT INFORMATION**

### **Interview Question 1:**

Would you please give an introduction about yourself?

### **Interview Question 2:**

Which Institutions are you working for?

### **Interview Question 3:**

Would you please explain your position and status in your organization? /

Institutions

### **Interview Question 4:**

How long have you been working in this institution / organization?

### **Interview Question 5:**

What is your professional background and how does relate to your duties and functions?

## **PART II: INTERVIEW QUESTIONS**

IQ: 1. Can the Local and central government data and applications be used as an opportunity for national database forming?

IQ: 2. How can the government strengthen citizen demographic data codification as an opportunity to for creating national citizen database?

IQ: 3. What impact do you see in the absence of innovation in e-government policy / e-government strategic plan?

- a. How can you ensure online information and data protection is in place?
- b. How can you ensure the telecommunication and e-government strategies are implemented?
- c. How can you deliver the strategic plan for IT standard and applications?
- d. How can you deliver the strategic plan for standardizing IT systems and hardware?
- e. How can you protect the local ICT experts within governmental institutions?

IQ: 4. Please describe how you can implement effectively the following items with the government intervention and leadership support?

- a. The online business interaction?
- b. The internet price regulation?
- c. The creation of Wi-Fi free zone in the country?
- d. Encouragement of free e-government centers / Labs / in each ward?
- e. Reinforce administrative online application utilization?
- f. Create a task force for monitoring and evaluation of e-government trends?

IQ: 5. Please describe how you can integrate and enable sharing of the online databases and ensure data / information protection within the following institutions?

- a. Local governmental institutions database
- b. Central governmental institutions database

- c. Private institutions database
- d. Social network group institutions database

IQ: 6. What could you suggest as a key driver for speeding up e-government interaction on the following ICT infrastructure:-

- a. The national ICT broadband backbone – NICTBB which is present
- b. The e-mobile and internet infrastructure which is in place
- c. The telecommunication infrastructure which is in place

IQ: 7. What can you suggest and recommend on the national e-government project to take off?

**Ending Time:** \_\_\_\_\_

**I TRULY APPRECIATE FOR YOUR PRECIOUS TIME AND PARTICIPATION TO THIS STUDY.**

For further inquiry or correspondence regarding this questionnaire can be directed to: [elupilya@snu.ac.kr](mailto:elupilya@snu.ac.kr), or [elupilya@gmail.com](mailto:elupilya@gmail.com); cell phone number: +82 10 49526265; Seoul – South Korea.

**Appendix 10: Interview Questions for the Government Officials: (Senior  
Legal Officer / IT or Software Developers / Security Experts)**

**The purpose of the Survey**

This study survey is conducted for the purpose of collecting data on e-government innovation and transformation factors. The focus of the survey is conducted for analyzing the challenges and opportunities for the e-government transformation in Tanzania. As a Ph.D. Researcher at the Seoul National University in South Korea, the data collected here are meant to be used for the intended objectives and purpose of this academic study. Data collected will be treated confidential and nothing will be released without prior consent of the interviewer. Let me assure you for my esteemed cooperation on this regards.

**Starting Time:** \_\_\_\_\_

1)	<b>Date of Interview</b>	
2)	<b>Name</b> ( <i>Optional</i> )	
3)	<b>Occupation</b>	
4)	<b>Sex</b>	
5)	<b>Place</b>	

## **PART I: PARTICIPANT INFORMATION**

### **Interview Question 1:**

Would you please give an introduction about yourself?

### **Interview Question 2:**

Which Institutions are you working for?

### **Interview Question 3:**

Would you please explain your position and status in your organization? /

Institutions

### **Interview Question 4:**

How long have you been working in this institution / organization?

### **Interview Question 5:**

What is your professional background and how does relate to your duties and functions?

## **PART II: INTERVIEW QUESTIONS**

IQ: 1. Can you please describe your opinion on the status and the approach to the information systems integration in each institution?

- a. How is the designing of the citizen information archive?
- b. How is the institutional information structure support integration?
- c. How institutional data storage and keeping support the integration?



IQ: 2. What approaches can you use to strengthen the institutional information systems within government and private institutions?

- a. Could you please explain the status of the institutions framework for information systems?
- b. Has there any problem on the institutional system performance?
- c. Do you think the insufficiency of budget allocation can lead to poor collecting and archive of information?

IQ: 3. Would you please explain the importance of having an e-government roadmap for implementation?

IQ: 4. Could you please explain the reasons why there is an absence of institutional local area network structure?

IQ: 5. Could you explain the reasons for the failure in developing e-government policy and security policy?

IQ: 6. Does the institutional staff are capable of responding to a new threats or e-government challenges?

**Ending Time:** \_\_\_\_\_

**I TRULY APPRECIATE FOR YOUR PRECIOUS TIME AND PARTICIPATION TO THIS STUDY.**

\_\_\_\_\_

For further inquiry or correspondence regarding this questionnaire can be directed to: [elupilya@snu.ac.kr](mailto:elupilya@snu.ac.kr), or [elupilya@gmail.com](mailto:elupilya@gmail.com); cell phone number: +82 10 49526265; Seoul – South Korea.

**Appendix 11: Interview Questions for Non-Government Officials: (IT  
Software Developers / Security Experts)**

**The purpose of the Survey**

This study survey is conducted for the purpose of collecting data on e-government innovation and transformation factors. The focus of the survey is conducted for analyzing the challenges and opportunities for the e-government transformation in Tanzania. As a Ph.D. Researcher at the Seoul National University in South Korea, the data collected here are meant to be used for the intended objectives and purpose of this academic study. Data collected will be treated confidential and nothing will be released without prior consent of the interviewer. Let me assure you for my esteemed cooperation on this regards.

**Starting Time:** \_\_\_\_\_

1)	<b>Date of Interview</b>	
2)	<b>Name (Optional)</b>	
3)	<b>Occupation</b>	
4)	<b>Sex</b>	

## **PART I: PARTICIPANT INFORMATION**

### **Interview Question 1:**

Would you please give an introduction about yourself?

### **Interview Question 2:**

Which Institutions are you working for?

### **Interview Question 3:**

Would you please explain your position and status in your organization? /

Institutions

### **Interview Question 4:**

How long have you been working in this institution / organization?

### **Interview Question 5:**

What is your professional background and how does relate to your duties and functions?

## **PART II: INTERVIEW QUESTIONS**

IQ: 1. Would you please explain the weakness that affects your institutions while integrating the information systems within private and governmental institutions?

IQ: 2. What approaches can be used to minimize weakness and maximize strength for e-government transformation?

- IQ: 3. How can institutions (social, private & government) engage in designing for the e-government?
- IQ: 4. How can institutions (social, private & government) engage in transforming the e-government?
- IQ: 5. What are the challenges of *eGa* in converging government and private institutions “information system”?
- IQ: 6. What could be the impact of government intervention in e-government transformation process?
- IQ: 7. What challenge have you experienced when integrating private and social network institutions “information systems”?
- IQ: 8. Do you believe on e-government-think tank as an important device to enable e-government?
- IQ: 9. What could be your recommendation to the governmental institutions responsible in coordinating the e-government transformation?

**Ending Time:** \_\_\_\_\_

**I TRULY APPRECIATE FOR YOUR PRECIOUS TIME AND PARTICIPATION TO THIS STUDY.**

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For further inquiry or correspondence regarding this questionnaire can be directed to: [elupilya@snu.ac.kr](mailto:elupilya@snu.ac.kr), or [elupilya@gmail.com](mailto:elupilya@gmail.com); cell phone number: +82 10 49526265; Seoul – South Korea.

**Appendix 12: Interview Questions for the Government & Non-  
Government Officials: (Lectures / Tutorial Assistant)**

**The purpose of the Survey**

This study survey is conducted for the purpose of collecting data on e-government innovation and transformation factors. The focus of the survey is conducted for analyzing the challenges and opportunities for the e-government transformation in Tanzania. As a Ph.D. Researcher at the Seoul National University in South Korea, the data collected here are meant to be used for the intended objectives and purpose of this academic study. Data collected will be treated confidential and nothing will be released without prior consent of the interviewer. Let me assure you for my esteemed cooperation on this regards.

**Starting Time:** \_\_\_\_\_

1)	<b>Date of Interview</b>	
2)	<b>Name (Optional)</b>	
3)	<b>Occupation</b>	
4)	<b>Sex</b>	

## **PART I: PARTICIPANT INFORMATION**

### **Interview Question 1:**

Would you please give an introduction about yourself?

### **Interview Question 2:**

Which Institutions are you working for?

### **Interview Question 3:**

Would you please explain your position and status in your organization? /

Institutions

### **Interview Question 4:**

How long have you been working in this institution / organization?

### **Interview Question 5:**

What is your professional background and how does relate to your duties and functions?

## **PART II: INTERVIEW QUESTIONS**

IQ: 1. What approaches can be used to engage all institutions (social, private & government) in designing for the e-government enterprise architecture?

IQ: 2. What approaches can be used for all institutions (social, private & government) to collaborate in the transformation process of the e-government?

IQ: 3. How do these institutions (social, private & government) can become threats during the e-government transformation?

IQ: 4. How do these institutions (social, private & government) can become opportunities during the e-government transformation?

IQ: 5. What is the key weakness for transforming the e-government national project?

IQ: 6. What is the current strength from transforming the e-government national project?

IQ: 7. Would you please explain the strength that affects your institutions while integrating the information systems within private and governmental institutions?

**Ending Time:** \_\_\_\_\_

**I TRULY APPRECIATE FOR YOUR PRECIOUS TIME AND PARTICIPATION TO THIS STUDY.**

\_\_\_\_\_

For further inquiry or correspondence regarding this questionnaire can be directed to: [elupilya@snu.ac.kr](mailto:elupilya@snu.ac.kr), or [elupilya@gmail.com](mailto:elupilya@gmail.com); cell phone number: +82 10 49526265; Seoul – South Korea.

## Appendix 13: Interviewer Guideline

### Exploring Factors for E-government Innovation and Transformation in Tanzania:

**Researcher:** Emmanuel Constantine Lupilya

Email: [elupilya@snu.ac.kr](mailto:elupilya@snu.ac.kr) / [elupilya@gmail.com](mailto:elupilya@gmail.com)

Date: January 05 – 21 March, 2015; Place: Tanzania

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**SECTION:** \_\_\_\_\_

Participant's identification number: \_\_\_\_\_

Category of questions well addressed: \_\_\_\_\_

**Key Issues (KI) raised in respect to the interview questions:**

KI: 1. ....

KI: 2. ....

KI: 3. ....

KI: 4. ....

KI: 5. ....



I rank these key issues in the order of frequency and importance

Extremely Important <input type="checkbox"/> Very important <input type="checkbox"/> Important <input type="checkbox"/> Less important <input type="checkbox"/> Not important <input type="checkbox"/> Extremely not important <input type="checkbox"/>
---

**Additional explanation in response to the interview questions**

- KI: 1. ....
- KI: 2. ....
- KI: 3. ....
- KI: 4. ....

I rank these key issues in the order of frequency and importance

Extremely Important <input type="checkbox"/> Very important <input type="checkbox"/> Important <input type="checkbox"/> Less important <input type="checkbox"/> Not important <input type="checkbox"/> Extremely not important <input type="checkbox"/>
---

**New idea and issues observed during the interview process:**

- KI: 1. ....
- KI: 2. ....
- KI: 3. ....
- KI: 4. ....
- KI: 5. ....

## 국문 (한국어) 초록

# 탄자니아 전자정부 혁신과 전환에 영향을 미치는 요인에 관한 연구

서울대학교 행정대학원

엠마누엘 루필라

이 연구는 탄자니아 전자정부의 혁신과 전환에 영향을 미치는 요인 분석이다. 탄자니아에서 전자정부 출범을 위한 혁신과 전환의 과정에서 나타나는 도전과 기회를 논문의 도입부에서 다룬다. 행정업무 운영을 변화시키고 투명성과 책임의식을 제고하려는 정부의 야심 찬 계획이 수년간에 걸쳐 커져왔고 작금의 상황에서는 명확해졌다. 전자정부는 운영과 생산비용을 낮추고 효율성과 투명성을 제고하기 때문에 탄자니아에서 전자정부 출범을 위한 효율적 구조를 확립하기 위해 행하여진 노력들은 대단히 중요하다. 전자정부 기반을 활용하여 온라인 서비스를 제공받기 위해 노력하고 있는 민간 기구, 중앙정부, 지방정부,

사회관계망 집단들이 직면한 핵심적인 도전과 기회를 논문의 도입부에서 분석한다. 논문의 도입부에서는 제시된 개념적 틀이 네 가지 요인과 종합되고 도전과 기회를 설명하기 위해 분석된다. 본 논문은 전자정부의 출범, 선택, 개발과 이행의 과정에서 중요한 내적 취약점과 외적 위협을 분석하기 위한 목적으로 강점, 취약점, 기회, 위협(SWOT) 분석방법을 사용한다. 본 논문의 저자는 주성분 요소 분석을 활용하여 사회적 것, 자원, 기술과 전환을 추동하는 것들 사이에 존재하는 상호관련성을 조사한다. 관련 문서 검토와 더불어 초점 집단과의 논의, 현장에서의 관찰을 통해 자료 수집이 이루어졌다. 본 논문에서는 카이저 정규화가 있는 오블리민 (Oblimin with Kaiser Normalization)을 이용하여 각 항목에 대한 요인 분석을 하기 위해 통계 소프트웨어 패키지인 SPSS 버전 22이 이용되었다.

도출된 결과는 연구의 틀을 입증하고 있다. 좀 더 정확히 표현하면 도전과 관련해서는 다섯 가지 요인을 발견했고, 기회와 관련해서는 일곱

가지 요인을 발견했으며 전환을 추동하는 것들과 관련해서는 다섯 가지 요인을 안출해냈다. 본 논문은 도전 요인들이 전자정부 개발 과정을 부진하게 만들었으며 그 결과 더 많은 부패와 경쟁적 이해관계의 충돌을 초래했으며 전환 과정 자체를 지체시켰다는 점을 보여준다. 기회와 핵심동력은 탄자니아에서 전자정부 구현을 구체화하기 위해 제도적 편제와 환경의 틀 내에서 현대 사회 변화의 모든 영역에서 중요한 역할을 수행하고 있음을 시사하는 도구이다. 그러나 정부 기관들에 함축하는 점은 이러한 틀을 전자정부 구현의 정책적 혁신을 수용하라는 제안이자 태동적 역학으로서 바라보라는 강력한 제언이다. 전자정부 구현의 정책적 혁신은 탄자니아에서 전자정부로의 전환 과정을 촉진시킬 수 있는 힘을 가질 수 있다.

**열쇠어:** 전자정부로의 전환, 정보통신기술(ICT), 사회적 전환, 제도, 혁신, 지식

**학생등록번호:** 2012-31345